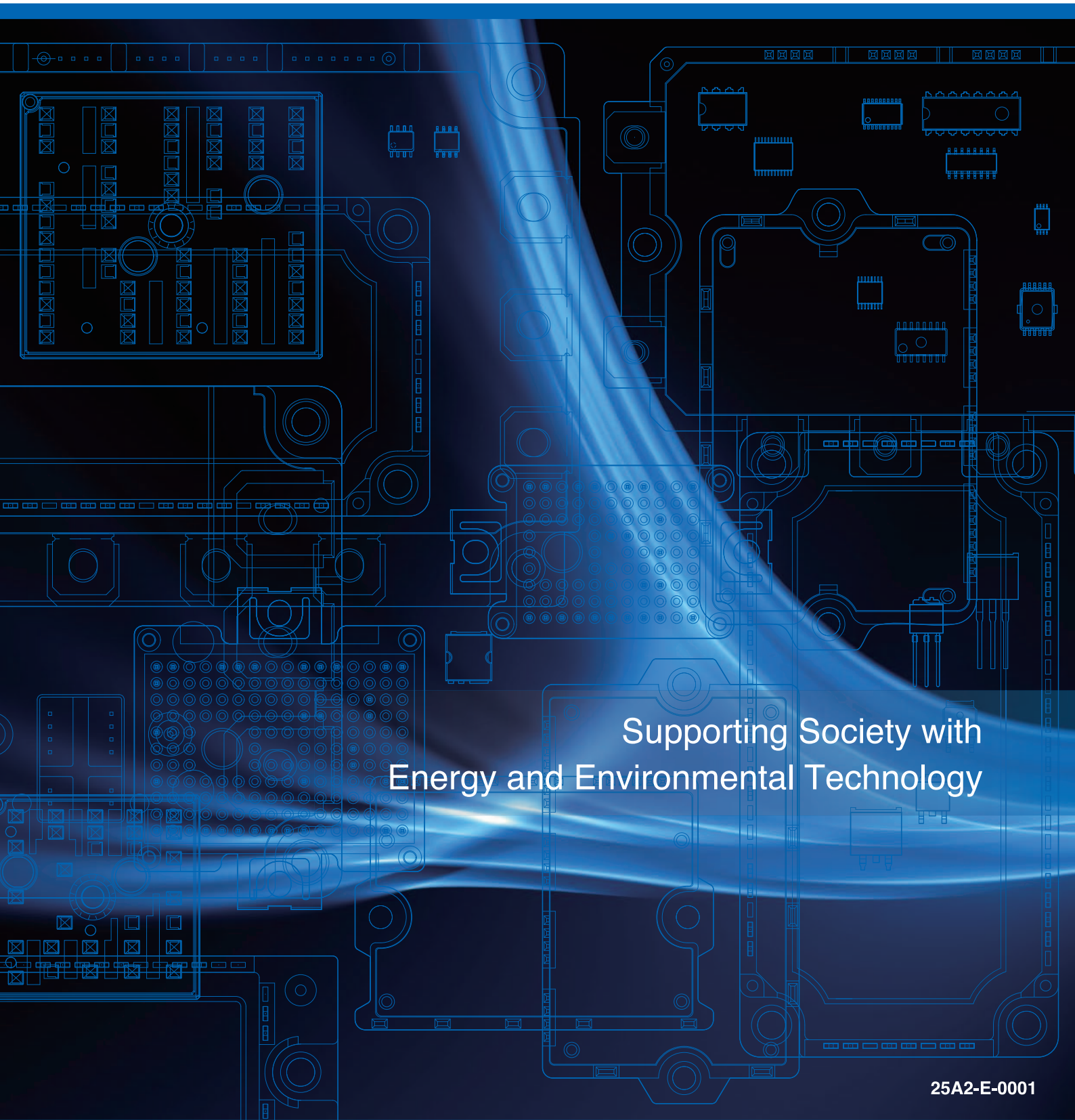
Fuji Electric

Innovating Energy Technology

FUJI SEMICONDUCTORS



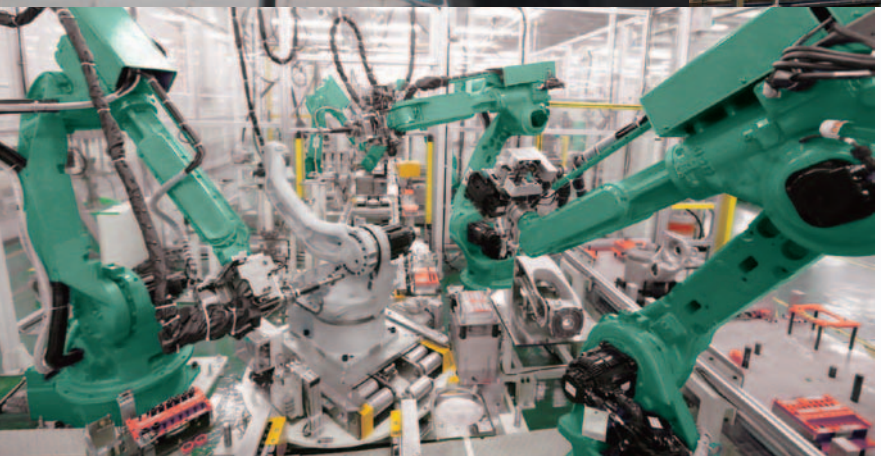
Supporting Society with
Energy and Environmental Technology

25A2-E-0001

Fuji Electric Power Semiconductors contibuting Energy Management in various fields

Fuji Electric provides Power Semiconductors enabling high-efficiency energy usage in various fields such as industrial machinery, automobile, railroad, social infrastructure, renewable energy, consumer electronics and information equipment in order to achieve low-carbon society.
Fuji Electric contributes to realization of safe and secure sustainable society through continuous technology inovation and product development of Power Semiconductors as key devices in Power Electronics technology.

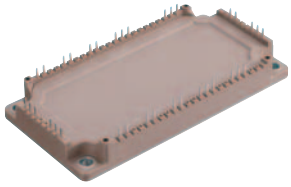
The pictures on this page show examples of various applications which may use Fuji Electric Power Semiconductors, they aren't necessarily used in the products in these pictures.

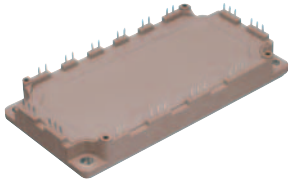


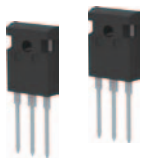


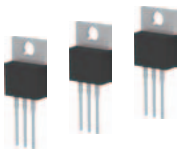












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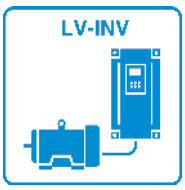
Fuji Electric provides Power Semiconductors well suited for various applications. You will find more information on products for each application shown below at our Web site.

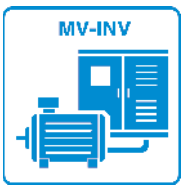
www.fujielectric.com/products/semiconductor/usage/

Inverters



Semiconductor products best suited for general-purpose inverters that carry out variable-speed operation of motors in products such as belt conveyors, fans and pumps

Medium-Voltage Inverters



Semiconductor products suitable for medium-voltage inverters that drive 3-phase AC 3k/6k/6.6kV high-voltage motors used in iron and steel plants, textile plants and paper mills

NC / Servos

Semiconductor products best suited to NC and servos that carry out speed control and positioning of machine tools, as well as robots that have multi-spindle control features used in assembly, welding and conveyance

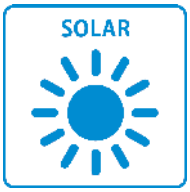
Railroads

Semiconductor products suited for the power electronics of railroad cars such as the main motor drive and auxiliary power supply equipment of rolling stock

Wind Power Generation

Semiconductor products suitable for AC/DC converters that convert the AC power output from wind turbine generators to DC power, as well as for inverters that convert DC power to the AC power of commercial frequencies

Solar



Semiconductor products best suited for power conditioners that convert solar-panel generated DC power into AC power to enable the residential consumption, as well as to facilitate the recovery of the power to the power systems of power companies

Welding Machines

Semiconductor products suitable for switching circuits that generate resistance heat in welding machines to melt and integrate by adding heat or pressure to two or more metallic members

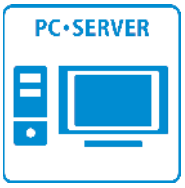
UPS

Semiconductor products ideal for the power conversion circuits of UPS (uninterruptible power supply) that prevent system shutdown during power outages and instantaneous power failures

Switching Power Supplies

Semiconductor products best suited for general-purpose switching power supplies used in a wide variety of applications such as equipment for general consumers and OA and communication devices

PC / Servers



Semiconductor products suitable for the power supplies of increasingly high-performance desktop PCs and servers, as well as of increasingly compact and lightweight notebook PCs

Flat-screen TVs

Semiconductor products ideal for the power supplies of TV sets that require low power consumption and large screens that are increasingly thinner and more lightweight

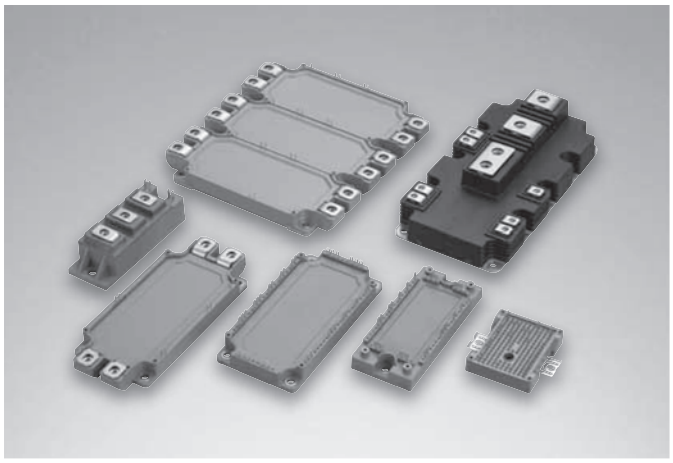
Automobiles

IGBT modules, power ICs, MOSFETs and pressure sensors as semiconductor products for automobiles developed with the theme "Car Electronics Solutions - Contributing to the Environment, Safety and Comfort"

CONTENTS

IGBT Module

Fuji Electric has been developing IGBT modules designed to be used as switching elements for power converters of variable-speed drives for motors, uninterruptable power supplies, and more. IGBT has superior characteristics combining the high-speed switching performance of a power MOSFET with the high-voltage/high-current handling capabilities of a bipolar transistor.



Features of IGBT Module X Series

● Reduces power dissipation to contribute to energy saving
The IGBT and diode devices of Fuji electric's 7th-generation X series that constitute these modules have been made thinner and miniaturized, thereby optimizing the device structure. This has successfully reduced power dissipation in inverter operation compared with conventional products (Fuji Electric's 6th-generation V Series), contributing to energy saving and power cost reduction of the equipment on which the module is installed.

● Achieves equipment size reduction
A newly developed insulating substrate has been applied in order to improve the module's heat dissipation. Combined with the feature described above (reduced power dissipation) to suppress heat generation, an approximately 36%*1 reduction has been achieved in comparison to the conventional module. In addition, the maximum temperature guaranteed in continuous operation has been increased from the conventional 150°C to 175°C, which allows the output current to be increased by up to 35%*2 while maintaining the size of the equipment on which the module is installed. This contributes to reducing the size and total cost of the equipment.

*1: Mounting area ratio with 1200 V 75A PIM models
*2: Value estimated from simulation results

● Contributes to improving equipment reliability
Newly developed structures and materials of the module have realized to increase its stability and durability in high-temperature operation. This contributes to improving the stability and reliability of the equipment on which the module is installed.

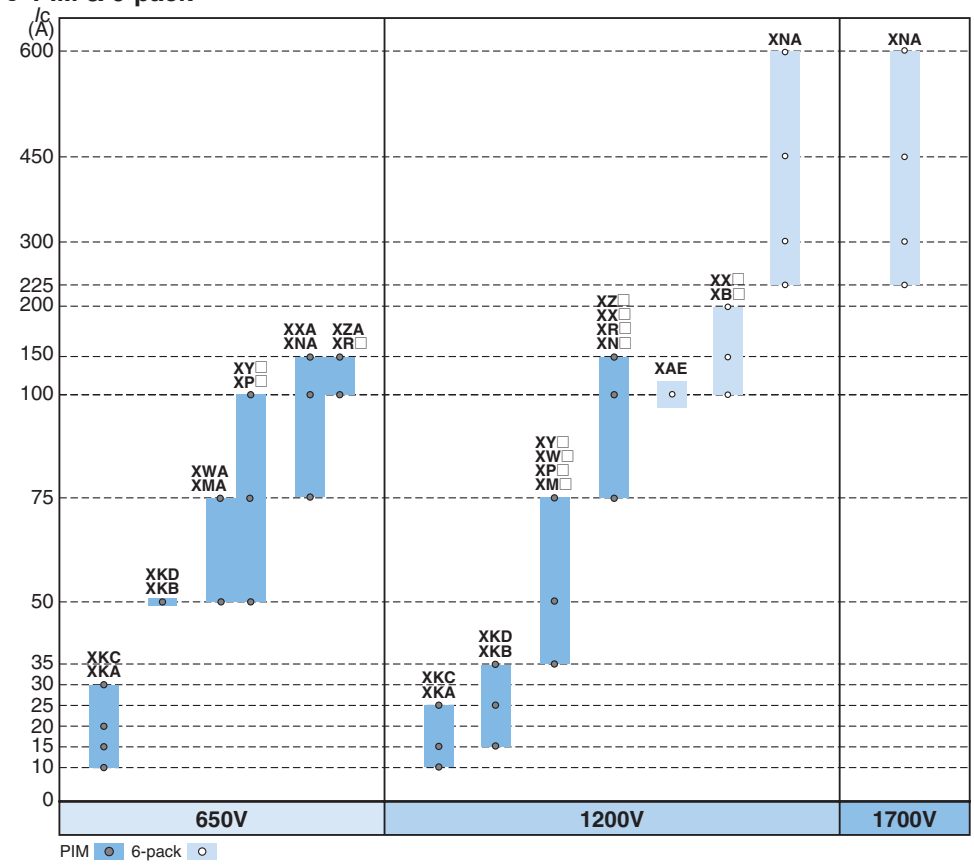
■ Product lineup

Number of IGBT Switches	Products Category	Page	Internal Configuration				Max V_{CE}			Rated Current					
			IGBT Module			Discrete IGBT	650V	1200V	1700V	≤50A	>50A ≤150A	>150A ≤300A	>300A ≤600A	>600A ≤1200A	>1200A
			Standard Module	Power Integrated Module	Intelligent Power Module										
2	**Standard 2-pack**	14	✓				✓	✓	✓		✓	✓	✓		
		15						✓	✓			✓	✓	✓	
2	**PrimePACK™**	16	✓					✓	✓					✓	✓
6	**6-pack**	12	✓					✓			✓	✓			
		13						✓	✓			✓	✓		
	IPM	17			✓		✓			✓					
7	**PIM**	9		✓			✓	✓		✓					
		10					✓	✓		✓	✓				

Note: PrimePACK™ is registered trademark of Infineon Technologies AG, Germany.

Products Map <X series>

PIM & 6-pack



Power Integrated Module

7MBR *Ic*

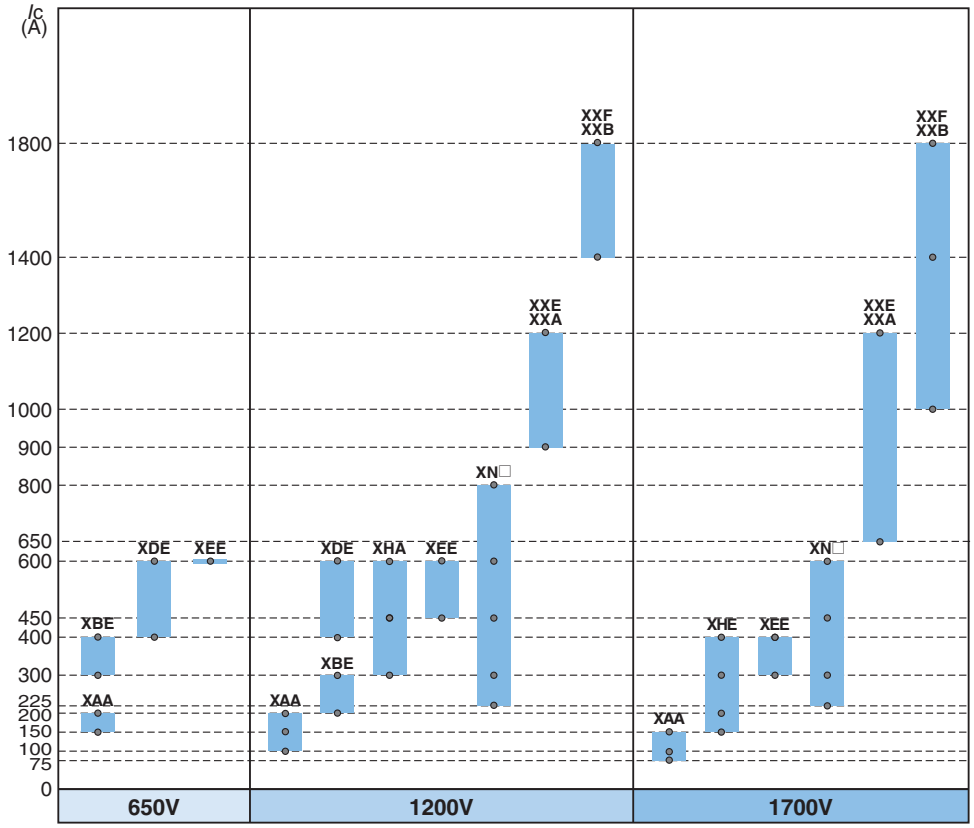
IGBT series & Package type	*V*ces
XKA, XKC	33.8× 62.8mm
XKB, XKD	56.7× 62.8mm
XM□, XP□, XW□, XY□	45×107.5mm
XN□, XR□, XX□, XZ□	62× 122mm

6-pack

6MBI *Ic*

IGBT series & Package type	*V*ces
XB□, XX□	62× 122mm
XNA	150× 162mm
XAE	45×107.5mm

2-pack



2-pack

2MBI *Ic*

IGBT series & Package type	*V*ces	
XAA	34× 94 mm	Standard Pack
XBE	45× 92 mm	
XDE	62×108 mm	
XEE	80×110 mm	
XHA	62×108 mm	
XN□	62×150 mm	
XXA, XXE	89×172 mm	PrimePACK™
XXB, XXF	89×250 mm	

PrimePACK™ is registered trademark of Infineon Technologies AG, Germany

Part numbers < X series >

6MBI100XBA120-50 (example)

6	MB	I	100	X	BA	120	50
Number of IGBT Switches	IGBT Module	Internal Configuration	Rated Current	IGBT Device Technology	Package Type	Max. V_{CE}	RoHS Compliant
		I: Standard Modules	× 1	X: X series (7th Generation)	See the Products map	065: 650V	50 to 99 RoHS Compliant
		R: Power Integrated Modules				120: 1200V	
		P: Intelligent Power Modules				170: 1700V	

Letter symbols

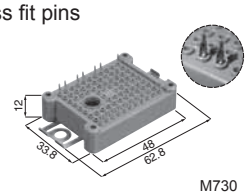
Letter symbols

V_{CES}: Collector-to-emitter rated voltage (Gate-to-emitter short-circuited)
V_{GES}: Gate-to-emitter rated voltage (Collector-to-emitter short-circuited)
I_C: Rated collector current
P_C: Maximum power dissipation
$V_{CE(sat)}$: Collector-to-emitter saturation voltage
t_{on}: Turn-on time
t_{off}: Turn-off time
t_f: Fall time
$t_{d(on)}$: Turn-on time
$t_{d(off)}$: Turn-off time

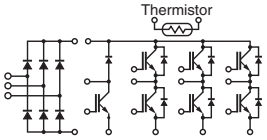
IGBT Module PIM ＜X series＞

Small PIM/Built-in converter and brake 650, 1200 volts class

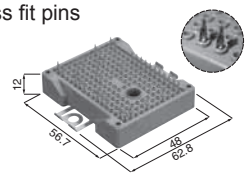
Press fit pins



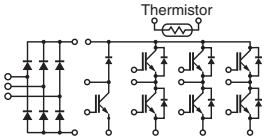
M730



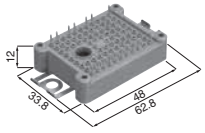
Press fit pins



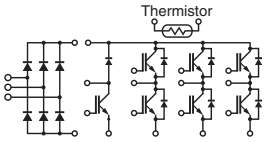
M731



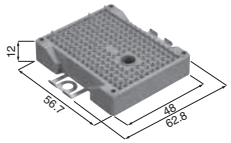
Solder pins



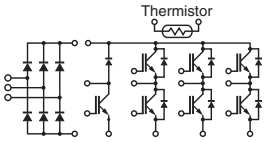
M732



Solder pins



M733



I_C	650V X series	1200V X series
10A	**7MBR10XKA065-50**	**7MBR10XKA120-50**
15A	**7MBR15XKA065-50**	**7MBR15XKA120-50**
20A	**7MBR20XKA065-50**	
25A		**7MBR25XKA120-50**
30A	**7MBR30XKA065-50**	
15A		**7MBR15XKB120-50**
25A		**7MBR25XKB120-50**
35A		**7MBR35XKB120-50**
50A	**7MBR50XKB065-50**	
10A	**7MBR10XKC065-50**	**7MBR10XKC120-50**
15A	**7MBR15XKC065-50**	**7MBR15XKC120-50**
20A	**7MBR20XKC065-50**	
25A		**7MBR25XKC120-50**
30A	**7MBR30XKC065-50**	
15A		**7MBR15XKD120-50**
25A		**7MBR25XKD120-50**
35A		**7MBR35XKD120-50**
50A	**7MBR50XKD065-50**	

Dimension [mm]

Device type	Inverter [IGBT]				Brake [IGBT+FWD]			Converter [Diode]				Package	Net mass
	V_{CES} Volts	I_C Cont. Amps.	P_C Watts	$V_{CE(sat)}$ typ. Volts	V_{CES} Volts	I_C Cont. Amps.	V_{RRM} Volts	V_{RRM} Volts	I_O Cont. Amps.	V_{FM} typ. Volts	I_{FSM} Amps.		Grams
● **7MBR10XKA065-50**	650	10	90	1.30	650	10	650	800	10	0.90	340	M730	25
● **7MBR15XKA065-50**	650	15	110	1.30	650	15	650	800	15	0.95	340	M730	25
● **7MBR20XKA065-50**	650	20	135	1.30	650	20	650	800	20	1.00	340	M730	25
● **7MBR30XKA065-50**	650	30	180	1.30	650	30	650	800	30	1.05	340	M730	25
● **7MBR50XKB065-50**	650	50	270	1.30	650	50	650	800	50	1.10	470	M731	45
● **7MBR10XKC065-50**	650	10	90	1.30	650	10	650	800	10	0.90	340	M732	25
● **7MBR15XKC065-50**	650	15	110	1.30	650	15	650	800	15	0.95	340	M732	25
● **7MBR20XKC065-50**	650	20	135	1.30	650	20	650	800	20	1.00	340	M732	25
● **7MBR30XKC065-50**	650	30	180	1.30	650	30	650	800	30	1.05	340	M732	25
● **7MBR50XKD065-50**	650	50	270	1.30	650	50	650	800	50	1.10	470	M733	45
● **7MBR10XKA120-50**	1200	10	105	1.50	1200	10	1200	1600	10	0.95	300	M730	25
● **7MBR15XKA120-50**	1200	15	135	1.50	1200	15	1200	1600	15	1.00	300	M730	25
● **7MBR25XKA120-50**	1200	25	155	1.70	1200	25	1200	1600	25	1.05	300	M730	25
● **7MBR15XKB120-50**	1200	15	135	1.50	1200	15	1200	1600	15	0.95	385	M731	45
● **7MBR25XKB120-50**	1200	25	195	1.50	1200	25	1200	1600	25	1.00	385	M731	45
● **7MBR35XKB120-50**	1200	35	255	1.50	1200	35	1200	1600	35	1.05	385	M731	45
● **7MBR10XKC120-50**	1200	10	105	1.50	1200	10	1200	1600	10	0.95	300	M732	25
● **7MBR15XKC120-50**	1200	15	135	1.50	1200	15	1200	1600	15	1.00	300	M732	25
● **7MBR25XKC120-50**	1200	25	155	1.70	1200	25	1200	1600	25	1.05	300	M732	25
● **7MBR15XKD120-50**	1200	15	135	1.50	1200	15	1200	1600	15	0.95	385	M733	45
● **7MBR25XKD120-50**	1200	25	195	1.50	1200	25	1200	1600	25	1.00	385	M733	45
● **7MBR35XKD120-50**	1200	35	255	1.50	1200	35	1200	1600	35	1.05	385	M733	45

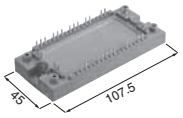
● : New products

$V_{CE(sat)}$, V_{FM} : at T_{vj}=25℃, Chip

IGBT Module PIM ＜X series＞

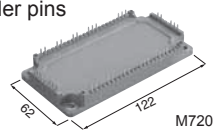
PIM/Built-in converter and brake EconoPIM™ 650, 1200 volts class

Solder pins



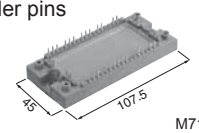
M719

Solder pins



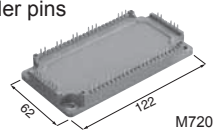
M720

Solder pins

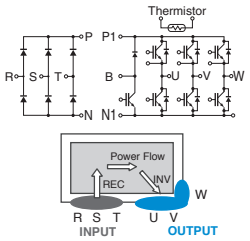


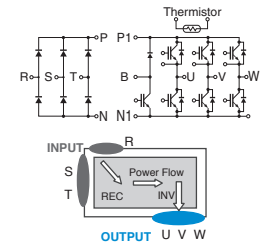
M719

Solder pins



M720





I_C	650V X series	1200V X series
25A		
35A		**7MBR35XMA120-50**
50A	**7MBR50XMA065-50**	**7MBR50XMA120-50**
75A	**7MBR75XMA065-50**	**7MBR75XME120-50**
50A		
75A	**7MBR75XNA065-50**	**7MBR75XNA120-50**
100A	**7MBR100XNA065-50**	**7MBR100XNA120-50**
150A	**7MBR150XNA065-50**	**7MBR150XNE120-50**
25A		
35A		**7MBR35XPA120-50**
50A	**7MBR50XPA065-50**	**7MBR50XPA120-50**
75A	**7MBR75XPA065-50**	**7MBR75XPE120-50**
100A	**7MBR100XPE065-50**	
50A		
75A		**7MBR75XRA120-50**
100A	**7MBR100XRA065-50**	**7MBR100XRA120-50**
150A	**7MBR150XRA065-50**	**7MBR150XRE120-50**
	7MBR150XRE065-50	

Dimension [mm]

Device type	Inverter [IGBT]				Brake [IGBT+FWD]			Converter [Diode]				Package	Net mass
	V_{CES} Volts	I_C Cont. Amps.	P_C Watts	$V_{CE(sat)}$ typ. Volts	V_{CES} Volts	I_C Cont. Amps.	V_{RRM} Volts	V_{RRM} Volts	I_O Cont. Amps.	V_{FM} typ. Volts	I_{FSM} Amps.		Grams
● **7MBR50XMA065-50**	650	50	210	1.3	650	30	650	800	50	1.05	505	M719	200
● **7MBR75XMA065-50**	650	75	270	1.3	650	50	650	800	75	1.15	505	M719	200
● **7MBR75XNA065-50**	650	75	270	1.3	650	50	650	800	75	1.15	505	M720	310
● **7MBR100XNA065-50**	650	100	330	1.3	650	50	650	800	100	1.1	745	M720	310
● **7MBR150XNA065-50**	650	150	450	1.3	650	75	650	800	150	1.1	1260	M720	310
● **7MBR50XPA065-50**	650	50	210	1.3	650	30	650	800	50	1.05	545	M719	200
● **7MBR75XPA065-50**	650	75	270	1.3	650	50	650	800	75	1.15	505	M719	200
● **7MBR100XPE065-50**	650	100	480	1.3	650	50	650	800	100	1.1	745	M719	200
● **7MBR100XRA065-50**	650	100	330	1.3	650	50	650	800	100	1.1	745	M720	310
● **7MBR150XRA065-50**	650	150	450	1.3	650	75	650	800	150	1.1	1260	M720	310
● **7MBR150XRE065-50**	650	150	700	1.3	650	75	650	800	150	1.1	1260	M720	310
● **7MBR35XMA120-50**	1200	35	200	1.5	1200	25	1200	1600	35	1.05	385	M719	200
● **7MBR50XMA120-50**	1200	50	250	1.5	1200	35	1200	1600	50	1.05	520	M719	200
● **7MBR75XME120-50**	1200	75	455	1.55	1200	35	1200	1600	75	1.15	520	M719	200
● **7MBR75XNA120-50**	1200	75	335	1.5	1200	50	1200	1600	75	1.15	520	M720	310
● **7MBR100XNA120-50**	1200	100	445	1.45	1200	75	1200	1600	100	1.05	775	M720	310
● **7MBR150XNE120-50**	1200	150	880	1.5	1200	75	1200	1600	150	1.05	1400	M720	310
● **7MBR35XPA120-50**	1200	35	200	1.5	1200	25	1200	1600	35	1.05	385	M719	200
● **7MBR50XPA120-50**	1200	50	250	1.5	1200	35	1200	1600	50	1.05	520	M719	200
● **7MBR75XPE120-50**	1200	75	455	1.55	1200	35	1200	1600	75	1.15	520	M719	200
● **7MBR75XRA120-50**	1200	75	335	1.5	1200	50	1200	1600	75	1.15	520	M720	310
● **7MBR100XRA120-50**	1200	100	445	1.45	1200	75	1200	1600	100	1.05	775	M720	310
● **7MBR150XRE120-50**	1200	150	880	1.5	1200	75	1200	1600	150	1.05	1400	M720	310

● : New products

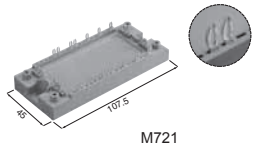
$V_{CE(sat)}$, V_{FM}: at T_{vj}=25℃ , Chip

Note: EconoPIM™ is registered trademarks of Infineon Technologies AG, Germany.

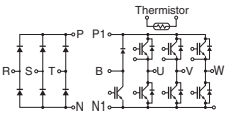
IGBT Module PIM ＜X series＞

■ PIM/Built-in converter and brake EconoPIM™ 650, 1200 volts class

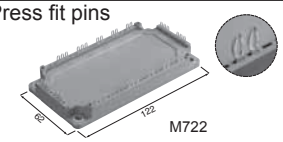
Press fit pins



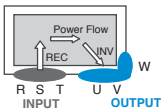
M721



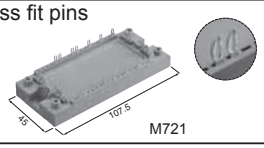
Press fit pins



M722



Press fit pins



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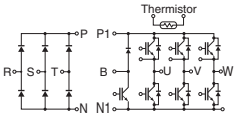
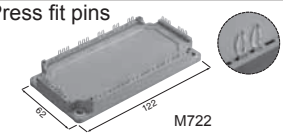
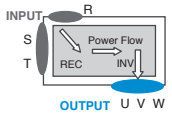


Press fit pins



M722



I_C	650V X series	1200V X series
25A		
35A		**7MBR35XWA120-50**
50A	**7MBR50XWA065-50**	**7MBR50XWA120-50**
75A	**7MBR75XWA065-50**	**7MBR75XWE120-50**
50A		
75A	**7MBR75XXA065-50**	**7MBR75XXA120-50**
100A	**7MBR100XXA065-50**	**7MBR100XXA120-50**
150A	**7MBR150XXA065-50**	**7MBR150XXE120-50**
25A		
35A		**7MBR35XYA120-50**
50A	**7MBR50XYA065-50**	**7MBR50XYA120-50**
75A	**7MBR75XYA065-50**	**7MBR75XYE120-50**
100A	**7MBR100XYE065-50**	
50A		
75A		**7MBR75XZA120-50**
100A	**7MBR100XZA065-50**	**7MBR100XZA120-50**
150A	**7MBR150XZA065-50**	**7MBR150XZE120-50**

Dimension [mm]

Device type	Inverter [IGBT]				Brake [IGBT+FWD]			Converter [Diode]				Package	Net mass
	V_{CES}	I_C Cont.	P_C	$V_{CE(sat)}$ typ.	V_{CES}	I_C Cont.	V_{RRM}	V_{RRM}	I_O Cont.	V_{FM} typ.	I_{FSM}		
	Volts	Amps.	Watts	Volts	Volts	Amps.	Volts	Volts	Amps.	Volts	Amps.		Grams
● **7MBR50XWA065-50**	650	50	210	1.3	650	30	650	800	50	1.05	505	M721	200
● **7MBR75XWA065-50**	650	75	270	1.3	650	50	650	800	75	1.15	505	M721	200
● **7MBR75XXA065-50**	650	75	270	1.3	650	50	650	800	75	1.15	505	M722	310
● **7MBR100XXA065-50**	650	100	330	1.3	650	50	650	800	100	1.1	745	M722	310
● **7MBR150XXA065-50**	650	150	450	1.3	650	75	650	800	150	1.1	1260	M722	310
● **7MBR50XYA065-50**	650	50	210	1.3	650	30	650	800	50	1.05	545	M721	200
● **7MBR75XYA065-50**	650	75	270	1.3	650	50	650	800	75	1.15	505	M721	200
● **7MBR100XYE065-50**	650	100	480	1.3	650	50	650	800	100	1.1	745	M721	200
● **7MBR100XZA065-50**	650	100	330	1.3	650	50	650	800	100	1.1	745	M722	310
● **7MBR150XZA065-50**	650	150	450	1.3	650	75	650	800	150	1.1	1260	M722	310
● **7MBR35XWA120-50**	1200	35	200	1.5	1200	25	1200	1600	35	1.05	385	M721	200
● **7MBR50XWA120-50**	1200	50	250	1.5	1200	35	1200	1600	50	1.05	520	M721	200
● **7MBR75XWE120-50**	1200	75	455	1.55	1200	35	1200	1600	75	1.15	520	M721	200
● **7MBR75XXA120-50**	1200	75	335	1.5	1200	50	1200	1600	75	1.15	520	M722	310
● **7MBR100XXA120-50**	1200	100	445	1.45	1200	75	1200	1600	100	1.05	775	M722	310
● **7MBR150XXE120-50**	1200	150	880	1.5	1200	75	1200	1600	150	1.05	1400	M722	310
● **7MBR35XYA120-50**	1200	35	200	1.5	1200	25	1200	1600	35	1.05	385	M721	200
● **7MBR50XYA120-50**	1200	50	250	1.5	1200	35	1200	1600	50	1.05	520	M721	200
● **7MBR75XYE120-50**	1200	75	455	1.55	1200	35	1200	1600	75	1.15	520	M721	200
● **7MBR75XZA120-50**	1200	75	335	1.5	1200	50	1200	1600	75	1.15	520	M722	310
● **7MBR100XZA120-50**	1200	100	445	1.45	1200	75	1200	1600	100	1.05	775	M722	310
● **7MBR150XZE120-50**	1200	150	880	1.5	1200	75	1200	1600	150	1.05	1400	M722	310

● : New products

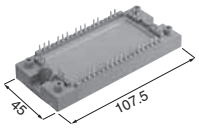
$V_{CE(sat)}$, V_{FM}: at T_{vj}=25℃ , Chip

Note: EconoPIM™ is registered trademarks of Infineon Technologies AG, Germany.

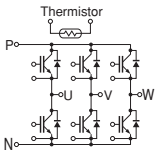
IGBT Module 6-Pack ＜X series＞

■ 6-Pack EconoPACK™ 1200 volts class

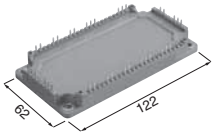
Solder pins



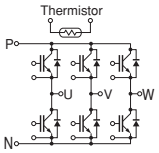
M669



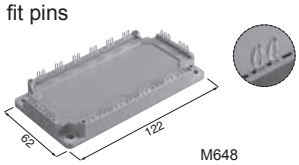
Solder pins



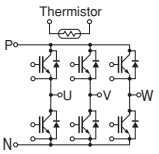
M668



Press fit pins



M648



I_C	1200V X series
100A	**6MBI100XAE120-50**
100A	**6MBI100XBA120-50**
150A	**6MBI150XBA120-50**
200A	**6MBI200XBA120-50**
	6MBI200XBE120-50
100A	**6MBI100XXA120-50**
150A	**6MBI150XXA120-50**
200A	**6MBI200XXA120-50**
	6MBI200XXE120-50

Dimension [mm]

Device type	V_{CES} Volts	V_{GES} Volts	I_C Cont. Amps.	P_C Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	Switching time $t_{d(on)}$ typ. µsec.	$t_{d(off)}$ typ. µsec.	t_f typ. µsec.	Package	Net mass Grams
○ **6MBI100XAE120-50**	1200	±20	100	685	1.45	100	0.23	0.30	0.12	M669	200
● **6MBI100XBA120-50**	1200	±20	100	445	1.45	100	0.21	0.29	0.1	M668	300
● **6MBI150XBA120-50**	1200	±20	150	625	1.45	150	0.31	0.35	0.15	M668	300
● **6MBI200XBA120-50**	1200	±20	200	750	1.55	200	0.27	0.34	0.12	M668	300
● **6MBI200XBE120-50**	1200	±20	200	1000	1.55	200	0.27	0.34	0.12	M668	300
● **6MBI100XXA120-50**	1200	±20	100	445	1.45	100	0.21	0.29	0.1	M648	300
● **6MBI150XXA120-50**	1200	±20	150	625	1.45	150	0.31	0.35	0.15	M648	300
● **6MBI200XXA120-50**	1200	±20	200	750	1.55	200	0.27	0.34	0.12	M648	300
● **6MBI200XXE120-50**	1200	±20	200	1000	1.55	200	0.27	0.34	0.12	M648	300

● : New products ○ : Under development

$V_{CE(sat)}$: at T_{vj}=25℃, Chip

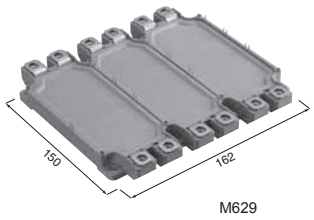
Note1: EconoPACK™ is registered trademarks of Infineon Technologies AG, Germany.

Note2: 6MBI100XAE120-50、6MBI200XBE120-50、6MBI200XXE120-50; Premium type (Low Thermal Impedance Version)

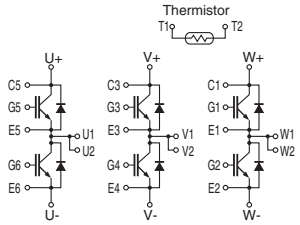
IGBT Module 6-Pack ＜X series＞

■ 6-Pack EconoPACK™+ 1200, 1700 volts class

Solder pins, High power 6-pack



M629



I_C	1200V X series	1700V X series
225A	**6MBI225XNA120-50**	**6MBI225XNA170-50**
300A	**6MBI300XNA120-50**	**6MBI300XNA170-50**
450A	**6MBI450XNA120-50**	**6MBI450XNA170-50**
600A	**6MBI600XNA120-50**	**6MBI600XNA170-50**

Dimension [mm]

Device type	V_{CES}	V_{GES}	I_C Cont.	P_C	$V_{CE(sat)}$ (V_{GE}=15V) typ.	I_C	Switching time $t_{d(on)}$ typ.	$t_{d(off)}$ typ.	t_f typ.	Package	Net mass
	Volts	Volts	Amps.	Watts	Volts	Amps.	µsec.	µsec.	µsec.		Grams
○ **6MBI225XNA120-50**	1200	±20	225	TBD	TBD	225	TBD	TBD	TBD	M629	TBD
○ **6MBI300XNA120-50**	1200	±20	300	TBD	TBD	300	TBD	TBD	TBD	M629	TBD
○ **6MBI450XNA120-50**	1200	±20	450	TBD	TBD	450	TBD	TBD	TBD	M629	TBD
○ **6MBI600XNA120-50**	1200	±20	600	TBD	TBD	600	TBD	TBD	TBD	M629	TBD
○ **6MBI225XNA170-50**	1700	±20	225	TBD	TBD	225	TBD	TBD	TBD	M629	TBD
○ **6MBI300XNA170-50**	1700	±20	300	TBD	TBD	300	TBD	TBD	TBD	M629	TBD
○ **6MBI450XNA170-50**	1700	±20	450	TBD	TBD	450	TBD	TBD	TBD	M629	TBD
○ **6MBI600XNA170-50**	1700	±20	600	TBD	TBD	600	TBD	TBD	TBD	M629	TBD

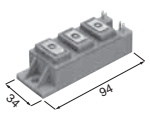
○ : Under development

$V_{CE(sat)}$: at T_{vj}=25℃, Chip

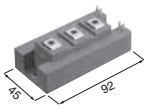
Note: EconoPACK™+ is registered trademarks of Infineon Technologies AG, Germany.

IGBT Module 2-Pack ＜X series＞

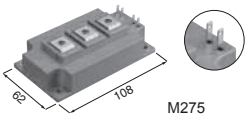
Standard 2-Pack 650, 1200, 1700 volts class



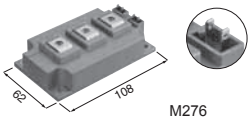
M263



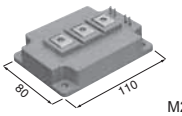
M274



M275



M276



M277

I_C	650V X series	1200V X series	1700V X series
75A			**2MBI75XAA170-50**
100A		**2MBI100XAA120-50**	**2MBI100XAA170-50**
150A	**2MBI150XAA065-50**	**2MBI150XAA120-50**	**2MBI150XAA170-50**
200A	**2MBI200XAA065-50**	**2MBI200XAA120-50**	
150A			
200A		**2MBI200XBE120-50**	
300A	**2MBI300XBE065-50**	**2MBI300XBE120-50**	
400A	**2MBI400XBE065-50**		
300A			
400A	**2MBI400XDE065-50**	**2MBI400XDE120-50**	
600A	**2MBI600XDE065-50**	**2MBI600XDE120-50**	
150A			**2MBI150XHA170-50**
200A			**2MBI200XHA170-50**
300A		**2MBI300XHA120-50**	**2MBI300XHA170-50**
400A			**2MBI400XHA170-50**
450A		**2MBI450XHA120-50**	
600A		**2MBI600XHA120-50**	
300A			**2MBI300XEE170-50**
400A			**2MBI400XEE170-50**
450A		**2MBI450XEE120-50**	
600A	**2MBI600XEE065-50**	**2MBI600XEE120-50**	**2MBI600XEE170-50**

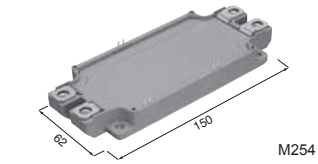
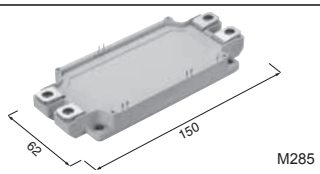
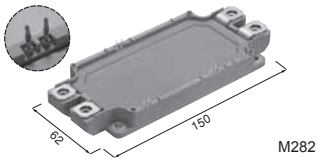
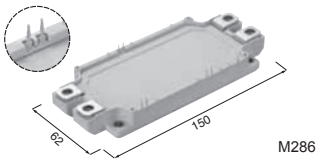
Dimension [mm]

Device type	V_{CES} Volts	V_{GES} Volts	I_C Cont. Amps.	P_C Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	Switching time $t_{d(on)}$ typ. µsec.	$t_{d(off)}$ typ. µsec.	t_f typ. µsec.	Package	Net mass Grams
○ **2MBI150XAA065-50**	650	±20	150	TBD	TBD	150	TBD	TBD	TBD	M263	TBD
○ **2MBI200XAA065-50**	650	±20	200	TBD	TBD	200	TBD	TBD	TBD	M263	TBD
○ **2MBI300XBE065-50**	650	±20	300	TBD	TBD	300	TBD	TBD	TBD	M274	TBD
○ **2MBI400XBE065-50**	650	±20	400	TBD	TBD	400	TBD	TBD	TBD	M274	TBD
○ **2MBI400XDE065-50**	650	±20	400	TBD	TBD	400	TBD	TBD	TBD	M275	TBD
○ **2MBI600XDE065-50**	650	±20	600	TBD	TBD	600	TBD	TBD	TBD	M275	TBD
○ **2MBI600XEE065-50**	650	±20	600	TBD	TBD	600	TBD	TBD	TBD	M277	TBD
○ **2MBI100XAA120-50**	1200	±20	100	TBD	TBD	100	TBD	TBD	TBD	M263	TBD
○ **2MBI150XAA120-50**	1200	±20	150	TBD	TBD	150	TBD	TBD	TBD	M263	TBD
○ **2MBI200XAA120-50**	1200	±20	200	TBD	TBD	200	TBD	TBD	TBD	M263	TBD
○ **2MBI200XBE120-50**	1200	±20	200	TBD	TBD	200	TBD	TBD	TBD	M274	TBD
○ **2MBI300XBE120-50**	1200	±20	300	TBD	TBD	300	TBD	TBD	TBD	M274	TBD
○ **2MBI400XDE120-50**	1200	±20	400	TBD	TBD	400	TBD	TBD	TBD	M275	TBD
○ **2MBI600XDE120-50**	1200	±20	600	TBD	TBD	600	TBD	TBD	TBD	M275	TBD
○ **2MBI300XHA120-50**	1200	±20	300	TBD	TBD	300	TBD	TBD	TBD	M276	TBD
○ **2MBI450XHA120-50**	1200	±20	450	TBD	TBD	450	TBD	TBD	TBD	M276	TBD
○ **2MBI600XHA120-50**	1200	±20	600	TBD	TBD	600	TBD	TBD	TBD	M276	TBD
○ **2MBI450XEE120-50**	1200	±20	450	TBD	TBD	450	TBD	TBD	TBD	M277	TBD
○ **2MBI600XEE120-50**	1200	±20	600	TBD	TBD	600	TBD	TBD	TBD	M277	TBD
○ **2MBI75XAA170-50**	1700	±20	75	TBD	TBD	75	TBD	TBD	TBD	M263	TBD
○ **2MBI100XAA170-50**	1700	±20	100	TBD	TBD	100	TBD	TBD	TBD	M263	TBD
○ **2MBI150XAA170-50**	1700	±20	150	TBD	TBD	150	TBD	TBD	TBD	M263	TBD
○ **2MBI150XHA170-50**	1700	±20	150	TBD	TBD	150	TBD	TBD	TBD	M276	TBD
○ **2MBI200XHA170-50**	1700	±20	200	TBD	TBD	200	TBD	TBD	TBD	M276	TBD
○ **2MBI300XHA170-50**	1700	±20	300	TBD	TBD	300	TBD	TBD	TBD	M276	TBD
○ **2MBI400XHA170-50**	1700	±20	400	TBD	TBD	400	TBD	TBD	TBD	M276	TBD
○ **2MBI300XEE170-50**	1700	±20	300	TBD	TBD	300	TBD	TBD	TBD	M277	TBD
○ **2MBI400XEE170-50**	1700	±20	400	TBD	TBD	400	TBD	TBD	TBD	M277	TBD
○ **2MBI600XEE170-50**	1700	±20	600	TBD	TBD	600	TBD	TBD	TBD	M277	TBD

○ : Under development

IGBT Module 2-Pack ＜X series＞

■ Standard 2-Pack 1200, 1700 volts class

		I_C	1200V X series	1700V X series
Solder pins	 M254	225A	**2MBI225XNA120-50**	**2MBI225XNA170-50**
		300A	**2MBI300XNA120-50**	**2MBI300XNA170-50**
		450A	**2MBI450XNA120-50**	**2MBI450XNA170-50**
		600A	**2MBI600XNG120-50**	
Solder pins	 M285	600A	**2MBI600XNE120-50**	**2MBI600XNE170-50**
		800A	**2MBI800XNE120-50**	
Press fit pins	 M282	225A	**2MBI225XNB120-50**	**2MBI225XNB170-50**
		300A	**2MBI300XNB120-50**	**2MBI300XNB170-50**
		450A	**2MBI450XNB120-50**	**2MBI450XNB170-50**
		600A	**2MBI600XNH120-50**	
Press fit pins	 M286	600A	**2MBI600XNF120-50**	**2MBI600XNF170-50**
		800A	**2MBI800XNF120-50**	

Dimension [mm]

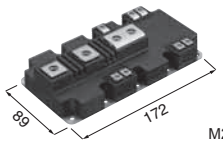
Device type	V_{CES} Volts	V_{GES} Volts	I_C Cont. Amps.	P_C Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	Switching time $t_{d(on)}$ typ. µsec.	$t_{d(off)}$ typ. µsec.	t_f typ. µsec.	Package	Net mass Grams
○ **2MBI225XNA120-50**	1200	±20	225	TBD	TBD	225	TBD	TBD	TBD	M254	350
○ **2MBI300XNA120-50**	1200	±20	300	TBD	TBD	300	TBD	TBD	TBD	M254	350
○ **2MBI450XNA120-50**	1200	±20	450	TBD	TBD	450	TBD	TBD	TBD	M254	350
○ **2MBI600XNG120-50**	1200	±20	600	TBD	TBD	600	TBD	TBD	TBD	M254	350
○ **2MBI600XNE120-50**	1200	±20	600	TBD	TBD	600	TBD	TBD	TBD	M285	350
○ **2MBI800XNE120-50**	1200	±20	800	TBD	TBD	800	TBD	TBD	TBD	M285	350
○ **2MBI225XNB120-50**	1200	±20	225	TBD	TBD	225	TBD	TBD	TBD	M282	350
○ **2MBI300XNB120-50**	1200	±20	300	TBD	TBD	300	TBD	TBD	TBD	M282	350
○ **2MBI450XNB120-50**	1200	±20	450	TBD	TBD	450	TBD	TBD	TBD	M282	350
○ **2MBI600XNH120-50**	1200	±20	600	TBD	TBD	600	TBD	TBD	TBD	M282	350
○ **2MBI600XNF120-50**	1200	±20	600	TBD	TBD	600	TBD	TBD	TBD	M286	350
○ **2MBI800XNF120-50**	1200	±20	800	TBD	TBD	800	TBD	TBD	TBD	M286	350
○ **2MBI225XNA170-50**	1700	±20	225	TBD	TBD	225	TBD	TBD	TBD	M254	350
○ **2MBI300XNA170-50**	1700	±20	300	TBD	TBD	300	TBD	TBD	TBD	M254	350
○ **2MBI450XNA170-50**	1700	±20	450	TBD	TBD	450	TBD	TBD	TBD	M254	350
○ **2MBI600XNE170-50**	1700	±20	600	TBD	TBD	600	TBD	TBD	TBD	M285	350
○ **2MBI225XNB170-50**	1700	±20	225	TBD	TBD	225	TBD	TBD	TBD	M282	350
○ **2MBI300XNB170-50**	1700	±20	300	TBD	TBD	300	TBD	TBD	TBD	M282	350
○ **2MBI450XNB170-50**	1700	±20	450	TBD	TBD	450	TBD	TBD	TBD	M282	350
○ **2MBI600XNF170-50**	1700	±20	600	TBD	TBD	600	TBD	TBD	TBD	M286	350

○ : Under development

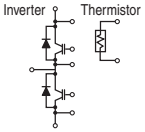
$V_{CE(sat)}$: at T_{vj}=25°C, Chip

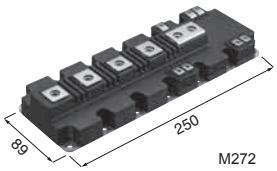
IGBT Module 2-Pack ＜X series＞

■ PrimePACK™ 1200, 1700 volts class

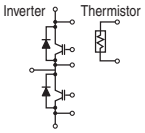


M271





M272



I_C	1200V X series Low switching loss	1200V X series Soft turn off	1700V X series
650A			**2MBI650XXA170-50**
900A	**2MBI900XXA120E-50**	**2MBI900XXA120P-50**	
1200A	**2MBI1200XXE120E-50**	**2MBI1200XXE120P-50**	**2MBI1200XXE170-50**
1000A			**2MBI1000XXB170-50**
1400A		**2MBI1400XXB120P-50**	**2MBI1400XXB170-50**
1800A		**2MBI1800XXF120P-50**	**2MBI1800XXF170-50**

Dimension [mm]

Device type	V_{CES} Volts	V_{GES} Volts	I_C Cont. Amps.	P_C Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	Switching time $t_{d(on)}$ typ. µsec.	$t_{d(off)}$ typ. µsec.	t_f typ. µsec.	Package	Net mass Grams
○ **2MBI900XXA120E-50**	1200	±20	900	TBD	TBD	900	TBD	TBD	TBD	M271	850
○ **2MBI900XXA120P-50**	1200	±20	900	TBD	TBD	900	TBD	TBD	TBD	M271	850
○ **2MBI1200XXE120E-50**	1200	±20	1200	TBD	TBD	1200	TBD	TBD	TBD	M271	850
○ **2MBI1200XXE120P-50**	1200	±20	1200	TBD	TBD	1200	TBD	TBD	TBD	M271	850
○ **2MBI1400XXB120P-50**	1200	±20	1400	TBD	TBD	1400	TBD	TBD	TBD	M272	1250
○ **2MBI1800XXF120P-50**	1200	±20	1800	TBD	TBD	1800	TBD	TBD	TBD	M272	1250
○ **2MBI650XXA170-50**	1700	±20	650	TBD	TBD	650	TBD	TBD	TBD	M271	850
○ **2MBI1200XXE170-50**	1700	±20	1200	TBD	TBD	1200	TBD	TBD	TBD	M271	850
○ **2MBI1000XXB170-50**	1700	±20	1000	TBD	TBD	1000	TBD	TBD	TBD	M272	1250
○ **2MBI1400XXB170-50**	1700	±20	1400	TBD	TBD	1400	TBD	TBD	TBD	M272	1250
○ **2MBI1800XXF170-50**	1700	±20	1800	TBD	TBD	1800	TBD	TBD	TBD	M272	1250

○: Under development

$V_{CE(sat)}$: at T_{vj}=25°C, Chip

Note: PrimePACK™ is registered trademark of Infineon Technologies AG, Germany.

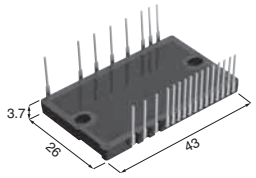
IGBT Module IPM ＜X series＞

■ Small IPM (Intelligent Power Module) 600 volts class

Built-in protection functions

P-side fault status output (Alarm)
N-side fault status output (Alarm)
Under voltage protection (self shutdown)
Over current protection (External current detection and shutdown)
Overheating protection (self shutdown)
Temperature sensor output (Vtemp, out)

Small IPM with High Voltage Driver-I_C without Brake-Chopper



P633A

						I_C	600V X series
✓		✓	✓	✓		15A	**6MBP15XSD060-50**
						20A	**6MBP20XSD060-50**
						30A	**6MBP30XSD060-50**
						35A	**6MBP35XSD060-50**
✓	✓	✓	✓	✓		15A	**6MBP15XSF060-50**
						20A	**6MBP20XSF060-50**
						30A	**6MBP30XSF060-50**
						35A	**6MBP35XSF060-50**

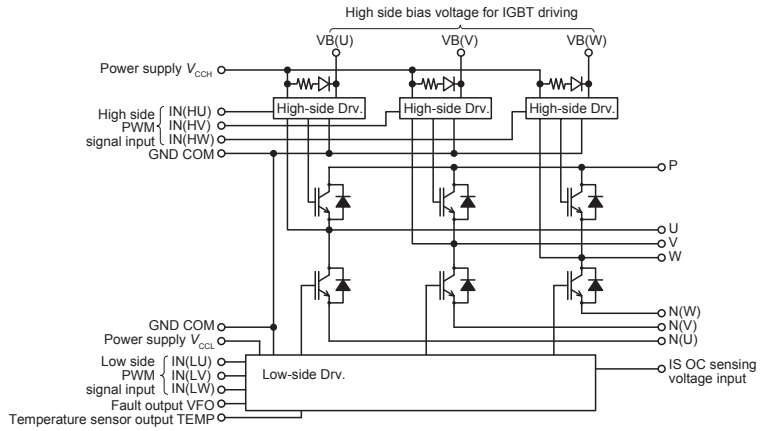
Dimension [mm]

Device type	Inverter			Control			Protection function					Package	Net mass
	V_{CES}	I_C Cont.	$V_{CE(sat)}$ typ.	V_{CCL} V_{CCH} VB typ.	Boot-strap Diode	Input signal Acive logic and Voltage level	UV V_{CCL} V_{CCH} VB	OC *1	Vtemp *2	TOH *2	VFO fault output		
	Volts	Amps.	Volts	Volts									Grams
● **6MBP15XSD060-50**	600	15	1.60	15	Built-in	High(3.3/5V)	P&N-side	N-side	N-side	-	N-side(UV,OC)	P633A	9.3
● **6MBP20XSD060-50**	600	20	1.60	15	Built-in	High(3.3/5V)	P&N-side	N-side	N-side	-	N-side(UV,OC)	P633A	9.3
● **6MBP30XSD060-50**	600	30	1.60	15	Built-in	High(3.3/5V)	P&N-side	N-side	N-side	-	N-side(UV,OC)	P633A	9.3
● **6MBP35XSD060-50**	600	35	1.40	15	Built-in	High(3.3/5V)	P&N-side	N-side	N-side	-	N-side(UV,OC)	P633A	9.3
● **6MBP15XSF060-50**	600	15	1.60	15	Built-in	High(3.3/5V)	P&N-side	N-side	N-side	N-side(143±7℃)	N-side(UV,OC,TOH)	P633A	9.3
● **6MBP20XSF060-50**	600	20	1.60	15	Built-in	High(3.3/5V)	P&N-side	N-side	N-side	N-side(143±7℃)	N-side(UV,OC,TOH)	P633A	9.3
● **6MBP30XSF060-50**	600	30	1.60	15	Built-in	High(3.3/5V)	P&N-side	N-side	N-side	N-side(143±7℃)	N-side(UV,OC,TOH)	P633A	9.3
● **6MBP35XSF060-50**	600	35	1.40	15	Built-in	High(3.3/5V)	P&N-side	N-side	N-side	N-side(143±7℃)	N-side(UV,OC,TOH)	P633A	9.3

●:New Products

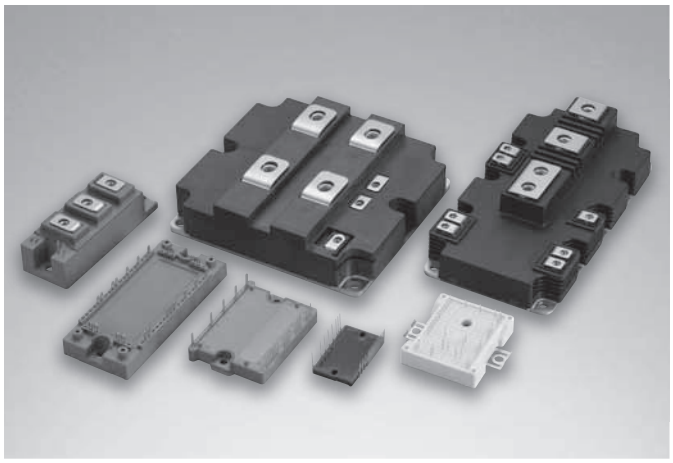
*1:External current ditection *2:Temperature detection in LVIC

●Block Diagram



IGBT Module

Fuji Electric has been developing IGBT modules designed to be used as switching elements for power converters of variable-speed drives for motors, uninterruptable power supplies, and more. IGBT has superior characteristics combining the high-speed switching performance of a power MOSFET with the high-voltage/high-current handling capabilities of a bipolar transistor.



Features of IGBT Module V Series

- **A compact design allows for greater power output**
  - High performance 6th-generation V series IGBT/FWD chipset
  - $T_{vj(max.)}$=175°C, $T_{vj(op)}$=150°C
- **Environmentally friendly modules**
  - Easy assemblage, solder free options
  - RoHS compliant (Some parts are Non RoHS.)
- **Turn-on switching characteristics**
  - Improved noise-loss trade-off
  - Reduced turn-on dv/dt, excellent turn-on dic/dt
- **Turn-off switching characteristic**
  - Soft switching behavior, turn-off oscillation free

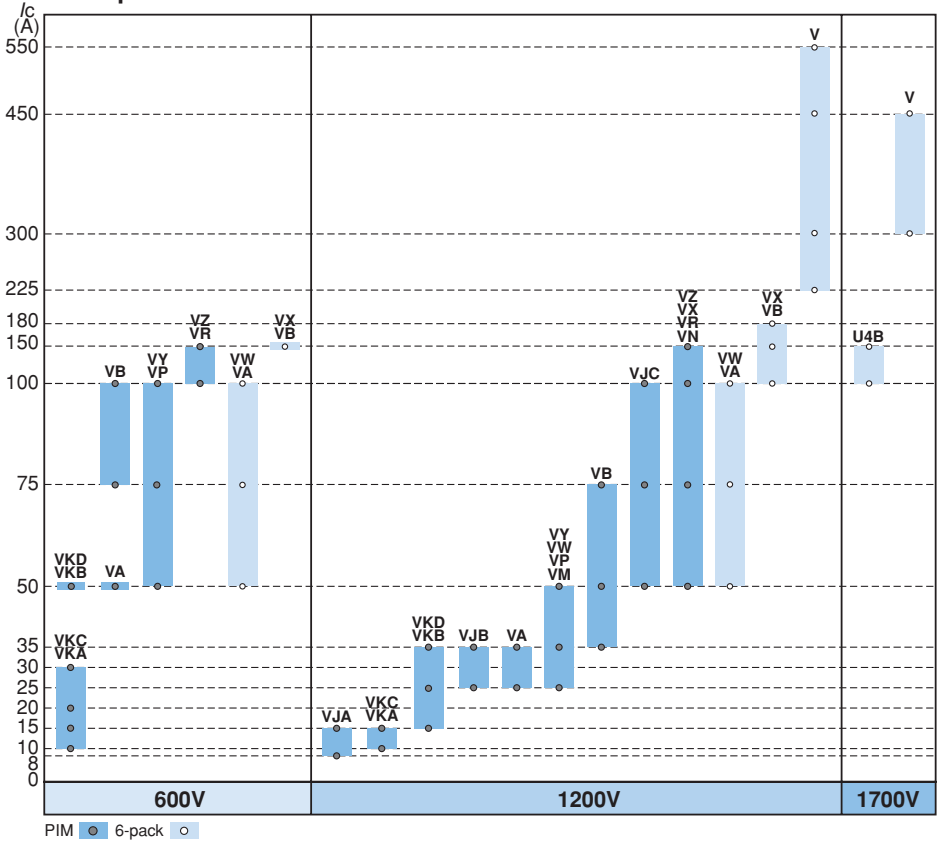
■ Product lineup

Number of IGBT Switches	Products Category	Page	Internal Configuration				Max V_{CE}				Rated Current					
			IGBT Module			Discrete IGBT	600V	1200V	1700V	3300V	≤50A	>50A ≤150A	>150A ≤300A	>300A ≤600A	>600A ≤1200A	>1200A
			Standard Module	Power Integrated Module	Intelligent Power Module											
1	**Standard 1-pack**	38	✓					✓	✓				✓	✓	✓	
	Chopper	40	✓				✓	✓			✓	✓	✓	✓		
2	**Standard 2-pack**	31	✓				✓	✓	✓			✓	✓	✓		
		33						✓	✓				✓	✓		
1,2	**High Speed Module**	43	✓					✓				✓	✓	✓		
	High Power Module	35,39	✓					✓	✓	✓				✓	✓	✓
	PrimePACK™	36,37,41,42	✓					✓	✓					✓	✓	✓
6	**6-pack**	27						✓				✓				
		28	✓				✓	✓	✓		✓	✓	✓			
		30						✓	✓				✓	✓		
4,12	**T/I-type NPC 3-level**	44	Reverse-Blocking IGBTs are integrated.				✓	✓	✓		✓	✓	✓	✓	✓	
1	**Discrete RB-IGBT**	42				✓	✓					✓				
7	**PIM**	21					✓	✓			✓					
		22		✓				✓			✓	✓				
		24					✓	✓			✓	✓				
6,7	**IPM**	46					✓	✓			✓	✓	✓	✓		
1	**Discrete IGBT**	49				✓	✓	✓			✓	✓				
2	**IPM for EV/HEV**	52			✓			✓						✓		
6	**6-pack for EV/HEV**	52	✓				✓							✓	✓	

Note: PrimePACK™ is registered trademark of Infineon Technologies AG, Germany.

Products Map < V series >

● PIM & 6-pack



Power Integrated Module

7MBR Ic – Vces

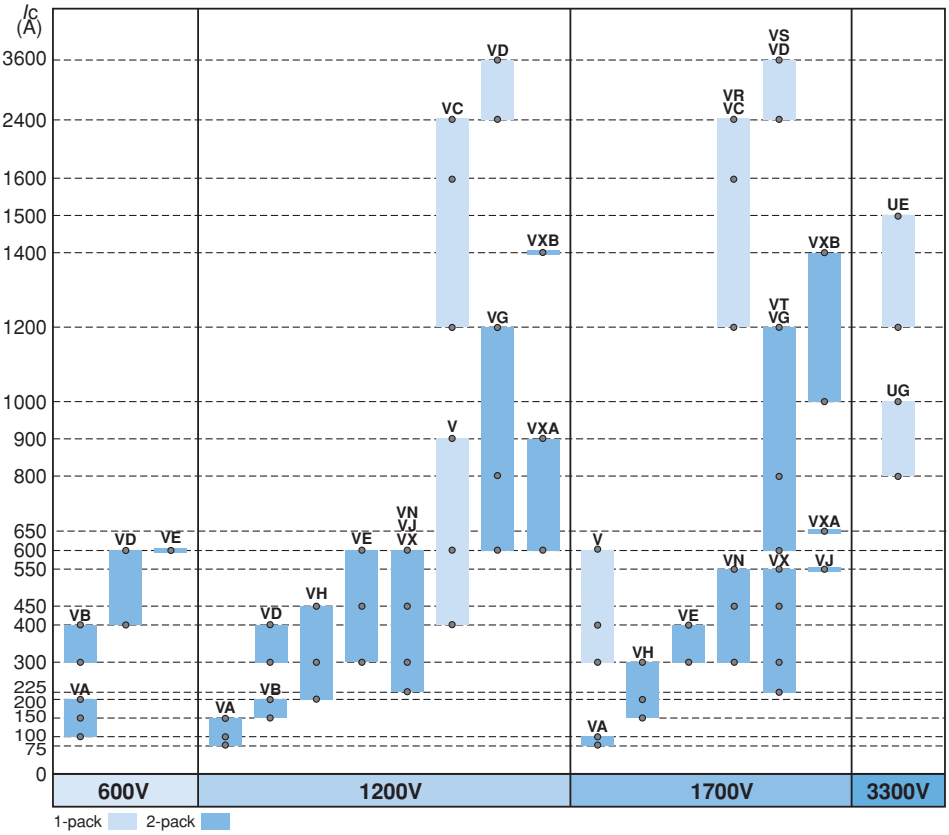
IGBT series & Package type	
VJA	40 × 42 mm
VJB	52 × 59 mm
VJC	59 × 82 mm
VKA, VKC	33.8 × 62.8 mm
VKB, VKD	56.7 × 62.8 mm
VA, VM, VP, VW, VY	45 × 107.5 mm
VB, VN, VR, VX, VZ	62 × 122 mm

6-pack

6MBI Ic – Vces

IGBT series & Package type	
VA, VW	45 × 107.5 mm
VB, VX, U4B	62 × 122 mm
V	150 × 162 mm

● 1-pack / 2-pack



1-pack

1MBI Ic – Vces

IGBT series & Package type		
V	62 × 108 mm	Standard Pack
VC, VR, UG	140 × 130 mm	High Power Module
VD, VS, UE	140 × 190 mm	

2-pack

2MBI Ic – Vces

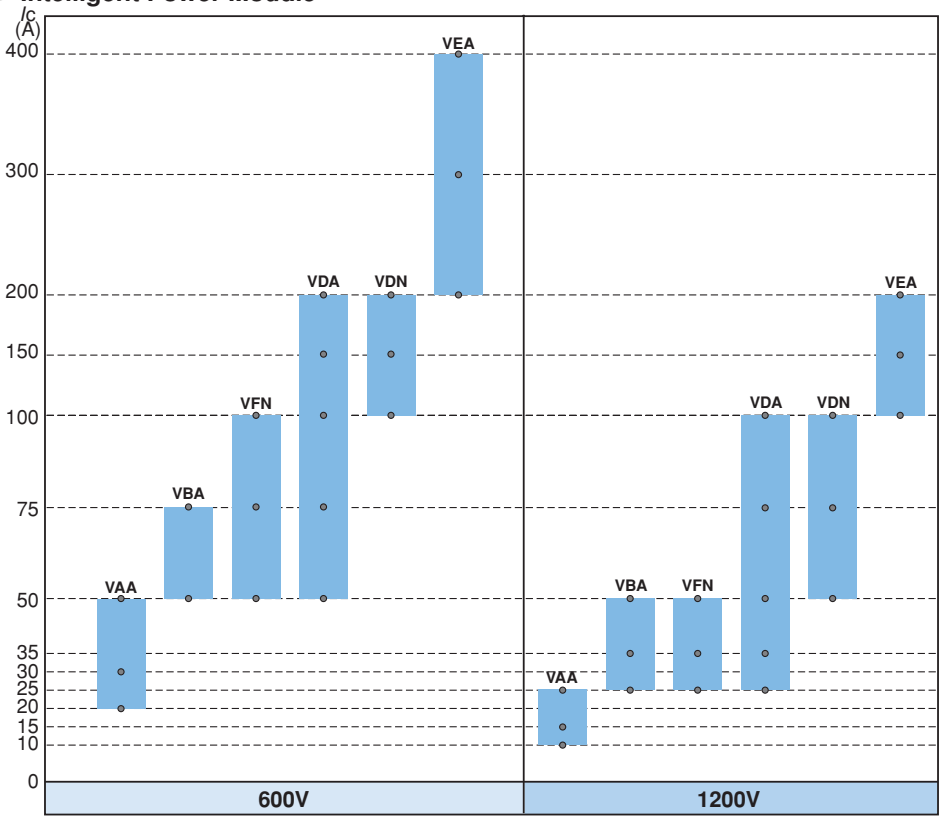
IGBT series & Package type		
VA	34 × 94 mm	Standard Pack
VB	45 × 92 mm	
VD	62 × 108 mm	
VE	80 × 110 mm	
VH	62 × 108 mm	
VJ, VN, VX	62 × 150 mm	
VG, VT	140 × 130 mm	High Power Module
VXA	89 × 172 mm	PrimePACK™
VXB	89 × 250 mm	

PrimePACK™ is registered trademark of Infineon Technologies AG, Germany

Power Devices (IGBT)

Products Map <V series>

Intelligent Power Module



6/7MBP Ic | IGBT series & Package type | – | Vces

IGBT series & Package type		7 in 1	6 in 1
VAA	49.5 × 70 mm	–	○
VBA	50.2 × 87 mm	–	○
VDA, VDN	84 × 128.5 mm	○	○
VEA	110 × 142 mm	○	○
VFN	55 × 90 mm	○	○

Thermal impedance of VDN type is lower than VDA type.

Part numbers

2MBI300VH-120-50 (example)

2	MB	I	300	V	H	120	50
Number of IGBT Switches	IGBT Module	Internal Configuration	Rated Current	IGBT Device Technology	Package Type	Max. V_{CE}	RoHS Compliant
		I: Standard Modules	× 1	V: V series (6th Generation)	See the Products Map	060: 600V	None, 01 to 49 Non RoHS Compliant
		R: Power Integrated Modules		U: U series (5th Generation)		120: 1200V	50 to 99 RoHS Compliant
		P: Intelligent Power Modules				170: 1700V	
						330: 3300V	

Letter symbols

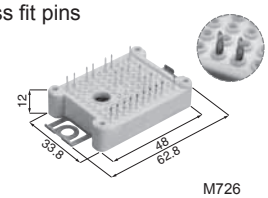
Letter symbols

V_{CES}: Collector-to-emitter rated voltage (Gate-to-emitter short-circuited)
V_{GES}: Gate-to-emitter rated voltage (Collector-to-emitter short-circuited)
I_C: Rated collector current
P_C: Maximum power dissipation
$V_{CE(sat)}$: Collector-to-emitter saturation voltage
t_{on}: Turn-on time
t_{off}: Turn-off time
t_f: Fall time
$t_{d(on)}$: Turn-on time
$t_{d(off)}$: Turn-off time

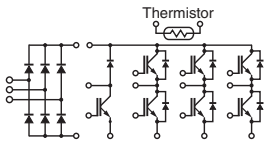
IGBT Module PIM ＜V series＞

■ Small PIM/Built-in converter and brake 600, 1200 volts class

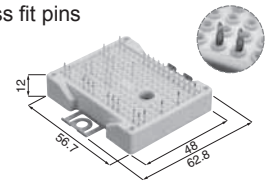
Press fit pins



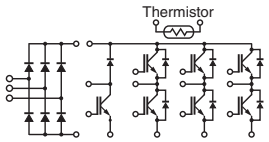
M726



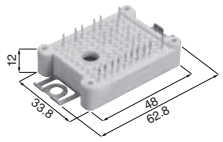
Press fit pins



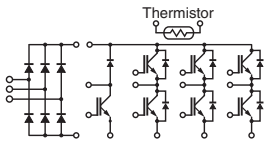
M727



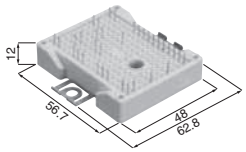
Solder pins



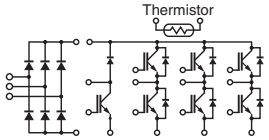
M728



Solder pins



M729



I_C	600V V series	1200V V series
10A	**7MBR10VKA060-50**	**7MBR10VKA120-50**
15A	**7MBR15VKA060-50**	**7MBR15VKA120-50**
20A	**7MBR20VKA060-50**	
30A	**7MBR30VKA060-50**	
15A		**7MBR15VKB120-50**
25A		**7MBR25VKB120-50**
35A		**7MBR35VKB120-50**
50A	**7MBR50VKB060-50**	
10A	**7MBR10VKC060-50**	**7MBR10VKC120-50**
15A	**7MBR15VKC060-50**	**7MBR15VKC120-50**
20A	**7MBR20VKC060-50**	
30A	**7MBR30VKC060-50**	
15A		**7MBR15VKD120-50**
25A		**7MBR25VKD120-50**
35A		**7MBR35VKD120-50**
50A	**7MBR50VKD060-50**	

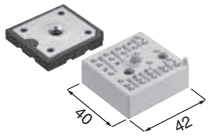
Dimension [mm]

Device type	Inverter [IGBT]				Brake [IGBT+FWD]			Converter [Diode]				Package	Net mass
	V_{CES} Volts	I_C Cont. Amps.	P_C Watts	$V_{CE(sat)}$ typ. Volts	V_{CES} Volts	I_C Cont. Amps.	V_{RRM} Volts	V_{RRM} Volts	I_O Cont. Amps.	V_{FM} typ. Volts	I_{FSM} Amps.		Grams
7MBR10VKA060-50	600	10	70	1.70	600	10	600	800	10	0.95	360	M726	25
7MBR15VKA060-50	600	15	85	1.75	600	15	600	800	15	1.00	360	M726	25
7MBR20VKA060-50	600	20	100	1.70	600	20	600	800	20	1.05	360	M726	25
7MBR30VKA060-50	600	30	125	1.70	600	30	600	800	30	1.15	360	M726	25
7MBR50VKB060-50	600	50	180	1.60	600	50	600	800	50	1.25	580	M727	45
7MBR10VKC060-50	600	10	70	1.70	600	10	600	800	10	0.95	360	M728	25
7MBR15VKC060-50	600	15	85	1.75	600	15	600	800	15	1.00	360	M728	25
7MBR20VKC060-50	600	20	100	1.70	600	20	600	800	20	1.05	360	M728	25
7MBR30VKC060-50	600	30	125	1.70	600	30	600	800	30	1.15	360	M728	25
7MBR50VKD060-50	600	50	180	1.60	600	50	600	800	50	1.25	580	M729	45
7MBR10VKA120-50	1200	10	110	1.85	1200	10	1200	1600	10	0.95	245	M726	25
7MBR15VKA120-50	1200	15	135	1.90	1200	15	1200	1600	15	1.00	245	M726	25
7MBR15VKB120-50	1200	15	135	1.90	1200	15	1200	1600	15	1.00	245	M727	45
7MBR25VKB120-50	1200	25	180	1.85	1200	25	1200	1600	25	1.00	370	M727	45
7MBR35VKB120-50	1200	35	215	1.85	1200	35	1200	1600	35	1.05	370	M727	45
7MBR10VKC120-50	1200	10	110	1.85	1200	10	1200	1600	10	0.95	245	M728	25
7MBR15VKC120-50	1200	15	135	1.90	1200	15	1200	1600	15	1.00	245	M728	25
7MBR15VKD120-50	1200	15	135	1.90	1200	15	1200	1600	15	1.00	245	M729	45
7MBR25VKD120-50	1200	25	180	1.85	1200	25	1200	1600	25	1.00	370	M729	45
7MBR35VKD120-50	1200	35	215	1.85	1200	35	1200	1600	35	1.05	370	M729	45

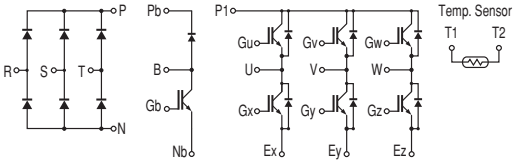
$V_{CE(sat)}$, V_{FM} : at T_{vj}=25℃, Chip

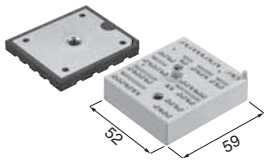
IGBT Module PIM ＜V series＞

■ MiniSKiiP®/Built-in converter and brake 1200 volts class

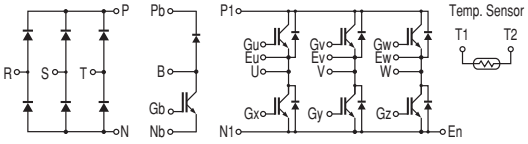


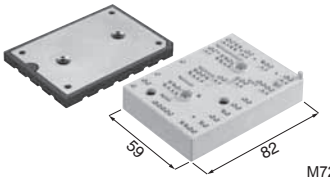
M723



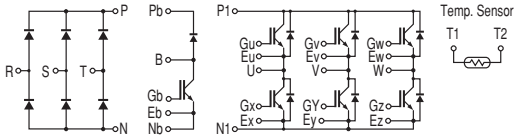


M724





M725



I_C	1200V V series
8A	**7MBR8VJA120-50**
	7MBR8VJA120-80
	7MBR8VJA120-53
	7MBR8VJA120-83
15A	**7MBR15VJA120-50**
	7MBR15VJA120-80
	7MBR15VJA120-53
	7MBR15VJA120-83
25A	**7MBR25VJB120-50**
	7MBR25VJB120-80
	7MBR25VJB120-53
	7MBR25VJB120-83
35A	**7MBR35VJB120-50**
	7MBR35VJB120-80
	7MBR35VJB120-53
	7MBR35VJB120-83
	7MBR35VJB120A-50
	7MBR35VJB120A-80
	7MBR35VJB120A-53
	7MBR35VJB120A-83
50A	**7MBR50VJC120-50**
	7MBR50VJC120-80
	7MBR50VJC120-53
	7MBR50VJC120-83
75A	**7MBR75VJC120-50**
	7MBR75VJC120-80
	7MBR75VJC120-53
	7MBR75VJC120-83
100A	**7MBR100VJC120-50**
	7MBR100VJC120-80
	7MBR100VJC120-53
	7MBR100VJC120-83

Dimension [mm]

Device type	Inverter [IGBT]			Brake [IGBT+FWD]			Converter [Diode]				Package	Net mass
	V_{CES} Volts	I_C Cont. Amps.	$V_{CE(sat)}$ typ. Volts	V_{CES} Volts	I_C Cont. Amps.	V_{RRM} Volts	V_{RRM} Volts	I_O Cont. Amps.	V_{FM} typ. Volts	I_{FSM} Amps.		Grams
7MBR8VJA120-50	1200	8	1.80	1200	8	1200	1600	8	1.00	220	M723	40
○ **7MBR8VJA120-80**	1200	8	1.80	1200	8	1200	1600	8	1.00	220	M723	40
7MBR8VJA120-53	1200	8	1.80	1200	8	1200	1600	8	1.00	220	M723	40
○ **7MBR8VJA120-83**	1200	8	1.80	1200	8	1200	1600	8	1.00	220	M723	40
7MBR15VJA120-50	1200	15	1.85	1200	15	1200	1600	15	1.10	220	M723	40
○ **7MBR15VJA120-80**	1200	15	1.85	1200	15	1200	1600	15	1.10	220	M723	40
7MBR15VJA120-53	1200	15	1.85	1200	15	1200	1600	15	1.10	220	M723	40
○ **7MBR15VJA120-83**	1200	15	1.85	1200	15	1200	1600	15	1.10	220	M723	40

○ : Under development

$V_{CE(sat)}$, V_{FM}: at T_{vj}=25℃, Chip

Note1: MiniSKiiP® is a registered trademark of SEMIKRON INTERNATIONAL GmbH.
Note2: "-50" indicates Standard Lid types and "-53" indicates Slim Lid types.
Note3: "-80","-83" : Pre-Applied Thermal-Interface-Material for "-50","-53"

Device type	Inverter [IGBT]			Brake [IGBT+FWD]			Converter [Diode]				Package	Net mass
	V_{CES} Volts	I_C Cont. Amps.	$V_{CE(sat)}$ typ. Volts	V_{CES} Volts	I_C Cont. Amps.	V_{RRM} Volts	V_{RRM} Volts	I_O Cont. Amps.	V_{FM} typ. Volts	I_{FSM} Amps.		Grams
7MBR25VJB120-50	1200	25	1.85	1200	25	1200	1600	25	1.10	370	M724	65
○ **7MBR25VJB120-80**	1200	25	1.85	1200	25	1200	1600	25	1.10	370	M724	65
7MBR25VJB120-53	1200	25	1.85	1200	25	1200	1600	25	1.10	370	M724	65
○ **7MBR25VJB120-83**	1200	25	1.85	1200	25	1200	1600	25	1.10	370	M724	65
7MBR35VJB120-50	1200	35	1.85	1200	35	1200	1600	35	1.20	370	M724	65
○ **7MBR35VJB120-80**	1200	35	1.85	1200	35	1200	1600	35	1.20	370	M724	65
7MBR35VJB120-53	1200	35	1.85	1200	35	1200	1600	35	1.20	370	M724	65
○ **7MBR35VJB120-83**	1200	35	1.85	1200	35	1200	1600	35	1.20	370	M724	65
7MBR35VJB120A-50	1200	35	1.85	1200	35	1200	1600	35	1.05	700	M724	65
○ **7MBR35VJB120A-80**	1200	35	1.85	1200	35	1200	1600	35	1.05	700	M724	65
7MBR35VJB120A-53	1200	35	1.85	1200	35	1200	1600	35	1.05	700	M724	65
○ **7MBR35VJB120A-83**	1200	35	1.85	1200	35	1200	1600	35	1.05	700	M724	65
7MBR50VJC120-50	1200	50	1.85	1200	50	1200	1600	50	1.10	700	M725	95
○ **7MBR50VJC120-80**	1200	50	1.85	1200	50	1200	1600	50	1.10	700	M725	95
7MBR50VJC120-53	1200	50	1.85	1200	50	1200	1600	50	1.10	700	M725	95
○ **7MBR50VJC120-83**	1200	50	1.85	1200	50	1200	1600	50	1.10	700	M725	95
7MBR75VJC120-50	1200	75	1.85	1200	75	1200	1600	75	1.25	700	M725	95
○ **7MBR75VJC120-80**	1200	75	1.85	1200	75	1200	1600	75	1.25	700	M725	95
7MBR75VJC120-53	1200	75	1.85	1200	75	1200	1600	75	1.25	700	M725	95
○ **7MBR75VJC120-83**	1200	75	1.85	1200	75	1200	1600	75	1.25	700	M725	95
7MBR100VJC120-50	1200	100	1.75	1200	100	1200	1600	100	1.15	1000	M725	95
○ **7MBR100VJC120-80**	1200	100	1.75	1200	100	1200	1600	100	1.15	1000	M725	95
7MBR100VJC120-53	1200	100	1.75	1200	100	1200	1600	100	1.15	1000	M725	95
○ **7MBR100VJC120-83**	1200	100	1.75	1200	100	1200	1600	100	1.15	1000	M725	95

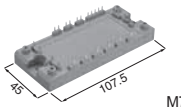
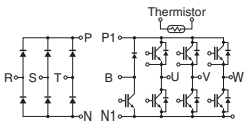
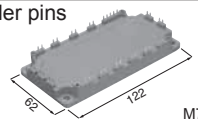
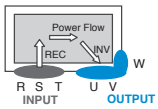
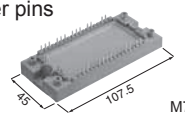
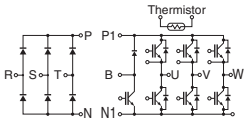
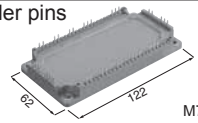
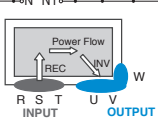
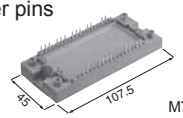
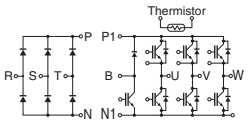
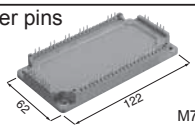
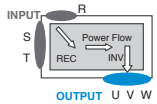
○ : Under development

$V_{CE(sat)}$, V_{FM}: at T_{vj}=25°C, Chip

Note1: MiniSKiiP® is a registered trademark of SEMIKRON INTERNATIONAL GmbH.
Note2: "-50" indicates Standard Lid types and "-53" indicates Slim Lid types.
Note3: "-80","-83" : Pre-Applied Thermal-Interface-Material for "-50","-53"

IGBT Module PIM ＜V series＞

PIM/Built-in converter and brake EconoPIM™ 600, 1200 volts class

		I_C	600V V series	1200V V series
Solder pins  M711		25A		**7MBR25VA120-50**
		35A		**7MBR35VA120-50**
		50A	**7MBR50VA060-50**	
Solder pins  M712		35A		**7MBR35VB120-50**
		50A		**7MBR50VB120-50**
		75A	**7MBR75VB060-50**	**7MBR75VB120-50**
		100A	**7MBR100VB060-50**	
Solder pins  M719		25A		**7MBR25VM120-50**
		35A		**7MBR35VM120-50**
		50A		**7MBR50VM120-50**
Solder pins  M720		50A		**7MBR50VN120-50**
		75A		**7MBR75VN120-50**
		100A		**7MBR100VN120-50**
		150A		**7MBR150VN120-50**
Solder pins  M719		25A		**7MBR25VP120-50**
		35A		**7MBR35VP120-50**
		50A	**7MBR50VP060-50**	**7MBR50VP120-50**
		75A	**7MBR75VP060-50**	
		100A	**7MBR100VP060-50**	
Solder pins  M720		50A		**7MBR50VR120-50**
		75A		**7MBR75VR120-50**
		100A	**7MBR100VR060-50**	**7MBR100VR120-50**
		150A	**7MBR150VR060-50**	**7MBR150VR120-50**

Dimension [mm]

Device type	Inverter [IGBT]				Brake [IGBT+FWD]			Converter [Diode]				Package	Net mass
	V_{CES} Volts	I_C Cont. Amps.	P_C Watts	$V_{CE(sat)}$ typ. Volts	V_{CES} Volts	I_C Cont. Amps.	V_{RRM} Volts	V_{RRM} Volts	I_O Cont. Amps.	V_{FM} typ. Volts	I_{FSM} Amps.		Grams
7MBR50VA060-50	600	50	200	1.6	600	50	600	800	50	1.3	210	M711	180
7MBR75VB060-50	600	75	300	1.6	600	50	600	800	75	1.25	500	M712	300
7MBR100VB060-50	600	100	335	1.6	600	50	600	800	100	1.25	700	M712	300
7MBR50VP060-50	600	50	200	1.6	600	50	600	800	50	1.3	210	M719	200
7MBR75VP060-50	600	75	300	1.6	600	50	600	800	75	1.25	500	M719	200
7MBR100VP060-50	600	100	430	1.85	600	50	600	800	100	1.25	700	M719	200
7MBR100VR060-50	600	100	335	1.6	600	50	600	800	100	1.25	700	M720	310
7MBR150VR060-50	600	150	485	1.6	600	75	600	800	150	1.25	700	M720	310
7MBR25VA120-50	1200	25	170	1.85	1200	25	1200	1600	25	1.4	155	M711	180
7MBR35VA120-50	1200	35	210	1.85	1200	25	1200	1600	35	1.35	260	M711	180
7MBR35VB120-50	1200	35	210	1.85	1200	25	1200	1600	35	1.35	260	M712	300
7MBR50VB120-50	1200	50	280	1.85	1200	35	1200	1600	50	1.35	360	M712	300
7MBR75VB120-50	1200	75	385	1.85	1200	50	1200	1600	75	1.4	520	M712	300
7MBR25VM120-50	1200	25	170	1.85	1200	25	1200	1600	25	1.4	155	M719	200
7MBR35VM120-50	1200	35	210	1.85	1200	25	1200	1600	35	1.35	260	M719	200
7MBR50VM120-50	1200	50	280	1.85	1200	35	1200	1600	50	1.35	360	M719	200
7MBR50VN120-50	1200	50	280	1.85	1200	35	1200	1600	50	1.35	360	M720	310
7MBR75VN120-50	1200	75	385	1.85	1200	50	1200	1600	75	1.4	520	M720	310
7MBR100VN120-50	1200	100	520	1.75	1200	75	1200	1600	100	1.5	520	M720	310
7MBR150VN120-50	1200	150	885	1.85	1200	100	1200	1600	150	1.4	780	M720	310
7MBR25VP120-50	1200	25	170	1.85	1200	25	1200	1600	25	1.4	155	M719	200
7MBR35VP120-50	1200	35	210	1.85	1200	25	1200	1600	35	1.35	260	M719	200
7MBR50VP120-50	1200	50	280	1.85	1200	35	1200	1600	50	1.35	360	M719	200
7MBR50VR120-50	1200	50	280	1.85	1200	35	1200	1600	50	1.35	360	M720	310
7MBR75VR120-50	1200	75	385	1.85	1200	50	1200	1600	75	1.4	520	M720	310
7MBR100VR120-50	1200	100	520	1.75	1200	75	1200	1600	100	1.5	520	M720	310
7MBR150VR120-50	1200	150	885	1.85	1200	100	1200	1600	150	1.4	780	M720	310

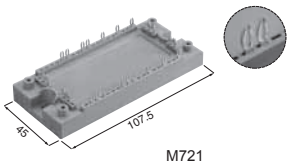
Note: EconoPIM™ is registered trademarks of Infineon Technologies AG, Germany.

$V_{CE(sat)}$, V_{FM}: at T_{vj}=25℃ , Chip

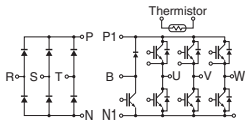
IGBT Module PIM ＜V series＞

■ PIM/Built-in converter and brake EconoPIM™ 600, 1200 volts class

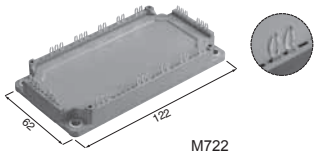
Press fit pins



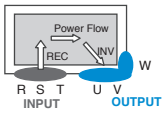
M721



Press fit pins

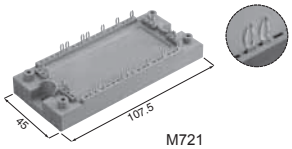


M722

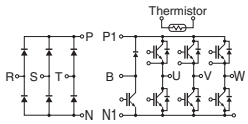


I_C	600V V series	1200V V series
25A		**7MBR25VW120-50**
		7MBR25VW120-80
35A		**7MBR35VW120-50**
		7MBR35VW120-80
50A		**7MBR50VW120-50**
		7MBR50VW120-80
50A		**7MBR50VX120-50**
		7MBR50VX120-80
75A		**7MBR75VX120-50**
		7MBR75VX120-80
100A		**7MBR100VX120-50**
		7MBR100VX120-80
150A		**7MBR150VX120-50**
		7MBR150VX120-80

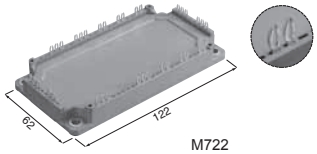
Press fit pins



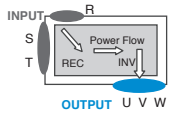
M721



Press fit pins



M722



I_C		
25A		**7MBR25VY120-50**
		7MBR25VY120-80
35A		**7MBR35VY120-50**
		7MBR35VY120-80
50A	**7MBR50VY060-50**	**7MBR50VY120-50**
	7MBR50VY060-80	**7MBR50VY120-80**
75A	**7MBR75VY060-50**	
	7MBR75VY060-80	
100A	**7MBR100VY060-50**	
	7MBR100VY060-80	
50A		**7MBR50VZ120-50**
		7MBR50VZ120-80
75A		**7MBR75VZ120-50**
		7MBR75VZ120-80
100A	**7MBR100VZ060-50**	**7MBR100VZ120-50**
	7MBR100VZ060-80	**7MBR100VZ120-80**
150A	**7MBR150VZ060-50**	**7MBR150VZ120-50**
	7MBR150VZ060-80	**7MBR150VZ120-80**

Dimension [mm]

Device type	Inverter [IGBT]				Brake [IGBT+FWD]			Converter [Diode]				Package	Net mass
	V_{CES} Volts	I_C Cont. Amps.	P_C Watts	$V_{CE(sat)}$ typ. Volts	V_{CES} Volts	I_C Cont. Amps.	V_{RRM} Volts	V_{RRM} Volts	I_O Cont. Amps.	V_{FM} typ. Volts	I_{FSM} Amps.		Grams
7MBR50VY060-50	600	50	215	1.6	600	50	600	800	50	1.3	210	M721	200
7MBR50VY060-80	600	50	215	1.6	600	50	600	800	50	1.3	210	M721	200
7MBR75VY060-50	600	75	300	1.6	600	50	600	800	75	1.25	500	M721	200
7MBR75VY060-80	600	75	300	1.6	600	50	600	800	75	1.25	500	M721	200
7MBR100VY060-50	600	100	430	1.85	600	50	600	800	100	1.25	700	M721	200
7MBR100VY060-80	600	100	430	1.85	600	50	600	800	100	1.25	700	M721	200
7MBR100VZ060-50	600	100	335	1.6	600	50	600	800	100	1.25	700	M722	310
7MBR100VZ060-80	600	100	335	1.6	600	50	600	800	100	1.25	700	M722	310
7MBR150VZ060-50	600	150	485	1.6	600	75	600	800	150	1.25	700	M722	310
7MBR150VZ060-80	600	150	485	1.6	600	75	600	800	150	1.25	700	M722	310
7MBR25VW120-50	1200	25	170	1.85	1200	25	1200	1600	25	1.4	155	M721	200
7MBR25VW120-80	1200	25	170	1.85	1200	25	1200	1600	25	1.4	155	M721	200
7MBR35VW120-50	1200	35	210	1.85	1200	25	1200	1600	35	1.35	260	M721	200
7MBR35VW120-80	1200	35	210	1.85	1200	25	1200	1600	35	1.35	260	M721	200
7MBR50VW120-50	1200	50	280	1.85	1200	35	1200	1600	50	1.35	360	M721	200
7MBR50VW120-80	1200	50	280	1.85	1200	35	1200	1600	50	1.35	360	M721	200

Note1: EconoPIM™ is registered trademarks of Infineon Technologies AG, Germany.
Note2: "-80" : Pre-Applied Thermal-Interface-Material

$V_{CE(sat)}$, V_{FM}: *at* T_{vj}=25℃, Chip

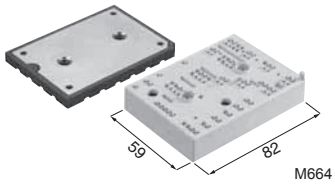
Device type	Inverter [IGBT]				Brake [IGBT+FWD]			Converter [Diode]				Package	Net mass
	V_{CES} Volts	I_C Cont. Amps.	P_C Watts	$V_{CE(sat)}$ typ. Volts	V_{CES} Volts	I_C Cont. Amps.	V_{RRM} Volts	V_{RRM} Volts	I_O Cont. Amps.	V_{FM} typ. Volts	I_{FSM} Amps.		Grams
7MBR50VX120-50	1200	50	280	1.85	1200	35	1200	1600	50	1.35	360	M722	310
7MBR50VX120-80	1200	50	280	1.85	1200	35	1200	1600	50	1.35	360	M722	310
7MBR75VX120-50	1200	75	385	1.85	1200	50	1200	1600	75	1.4	520	M722	310
7MBR75VX120-80	1200	75	385	1.85	1200	50	1200	1600	75	1.4	520	M722	310
7MBR100VX120-50	1200	100	520	1.75	1200	75	1200	1600	100	1.5	520	M722	310
7MBR100VX120-80	1200	100	520	1.75	1200	75	1200	1600	100	1.5	520	M722	310
7MBR150VX120-50	1200	150	885	1.85	1200	100	1200	1600	150	1.4	780	M722	310
7MBR150VX120-80	1200	150	885	1.85	1200	100	1200	1600	150	1.4	780	M722	310
7MBR25VY120-50	1200	25	170	1.85	1200	25	1200	1600	25	1.4	155	M721	200
7MBR25VY120-80	1200	25	170	1.85	1200	25	1200	1600	25	1.4	155	M721	200
7MBR35VY120-50	1200	35	210	1.85	1200	25	1200	1600	35	1.35	260	M721	200
7MBR35VY120-80	1200	35	210	1.85	1200	25	1200	1600	35	1.35	260	M721	200
7MBR50VY120-50	1200	50	280	1.85	1200	35	1200	1600	50	1.35	360	M721	200
7MBR50VY120-80	1200	50	280	1.85	1200	35	1200	1600	50	1.35	360	M721	200
7MBR50VZ120-50	1200	50	280	1.85	1200	35	1200	1600	50	1.35	360	M722	310
7MBR50VZ120-80	1200	50	280	1.85	1200	35	1200	1600	50	1.35	360	M722	310
7MBR75VZ120-50	1200	75	385	1.85	1200	50	1200	1600	75	1.4	520	M722	310
7MBR75VZ120-80	1200	75	385	1.85	1200	50	1200	1600	75	1.4	520	M722	310
7MBR100VZ120-50	1200	100	520	1.75	1200	75	1200	1600	100	1.5	520	M722	310
7MBR100VZ120-80	1200	100	520	1.75	1200	75	1200	1600	100	1.5	520	M722	310
7MBR150VZ120-50	1200	150	885	1.85	1200	100	1200	1600	150	1.4	780	M722	310
7MBR150VZ120-80	1200	150	885	1.85	1200	100	1200	1600	150	1.4	780	M722	310

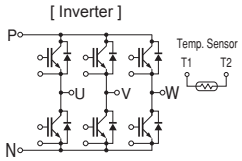
Note1: EconoPIM™ is registered trademarks of Infineon Technologies AG, Germany.
Note2: "-80" : Pre-Applied Thermal-Interface-Material

$V_{CE(sat)}$, V_{FM}: *at* T_{vj}=25℃, Chip

IGBT Module 6-Pack ＜V series＞

■ 6-Pack MiniSKiiP® 1200 volts class





I_C	1200V V series
100A	**6MBI100VJC-120-50**
	6MBI100VJC-120-80
	6MBI100VJC-120-53
	6MBI100VJC-120-83
150A	**6MBI150VJC-120-50**
	6MBI150VJC-120-80
	6MBI150VJC-120-53
	6MBI150VJC-120-83
	6MBI150VJC-120-55
	6MBI150VJC-120-85
	6MBI150VJC-120-58
	6MBI150VJC-120-88

Dimension [mm]

Device type	V_{CES}	V_{GES}	I_C Cont.	P_C	$V_{CE(sat)}$ (V_{GE}=15V) typ.	I_C	Switching time t_{on} typ.	t_{off} typ.	t_f typ.	Package	Net mass
	Volts	Volts	Amps.	Watts	Volts	Amps.	µsec.	µsec.	µsec.		Grams
○ **6MBI100VJC-120-50**	1200	±20	100	310	1.75	100	0.44	0.43	0.05	M664	95
○ **6MBI100VJC-120-80**	1200	±20	100	310	1.75	100	0.44	0.43	0.05	M664	95
○ **6MBI100VJC-120-53**	1200	±20	100	310	1.75	100	0.44	0.43	0.05	M664	95
○ **6MBI100VJC-120-83**	1200	±20	100	310	1.75	100	0.44	0.43	0.05	M664	95
○ **6MBI150VJC-120-50**	1200	±20	150	450	1.85	150	0.45	0.43	0.06	M664	95
○ **6MBI150VJC-120-80**	1200	±20	150	450	1.85	150	0.45	0.43	0.06	M664	95
○ **6MBI150VJC-120-53**	1200	±20	150	450	1.85	150	0.45	0.43	0.06	M664	95
○ **6MBI150VJC-120-83**	1200	±20	150	450	1.85	150	0.45	0.43	0.06	M664	95
○ **6MBI150VJC-120-55**	1200	±20	150	710	1.85	150	0.45	0.43	0.06	M664	95
○ **6MBI150VJC-120-85**	1200	±20	150	710	1.85	150	0.45	0.43	0.06	M664	95
○ **6MBI150VJC-120-58**	1200	±20	150	710	1.85	150	0.45	0.43	0.06	M664	95
○ **6MBI150VJC-120-88**	1200	±20	150	710	1.85	150	0.45	0.43	0.06	M664	95

○ : Under development

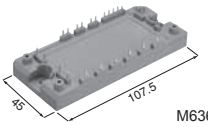
$V_{CE(sat)}$: at T_{vj}=25℃, Chip

Note1: MiniSKiiP® is a resistered trademark of SEMIKRON INTERNATIONAL GmbH.
Note2: 6MBI150VJC-120-55, 6MBI150VJC-120-58; Premium type (Low Thermal Impedance Version)
Note3: "-50/-55" indicates Standard Lid types and "-53/-58" indicates Slim Lid types.
Note4: "-80","-83","-85","-88" : Pre-Applied Thermal-Interface-Material for "-50","-53","-55","-58"

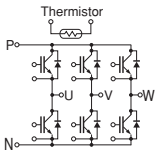
IGBT Module 6-Pack ＜V series / U series＞

■ 6-Pack EconoPACK™ 600, 1200, 1700 volts class

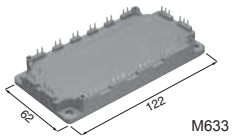
Solder pins



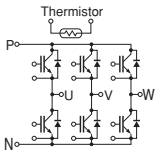
M636



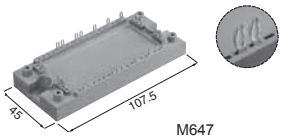
Solder pins



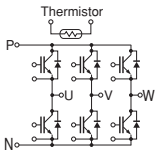
M633



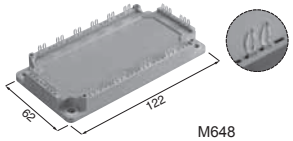
Press fit pins



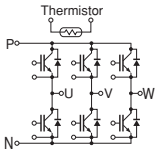
M647



Press fit pins



M648



I_C	600V V series	1200V V series	1700V V / U series
50A	**6MBI50VA-060-50**	**6MBI50VA-120-50**	
75A	**6MBI75VA-060-50**	**6MBI75VA-120-50**	
100A	**6MBI100VA-060-50**	**6MBI100VA-120-50**	
100A		**6MBI100VB-120-50**	**6MBI100U4B-170-50**
150A	**6MBI150VB-060-50**	**6MBI150VB-120-50**	**6MBI150U4B-170-50**
180A		**6MBI180VB-120-50**	
		6MBI180VB-120-55	
50A	**6MBI50VW-060-50**	**6MBI50VW-120-50**	
75A	**6MBI75VW-060-50**	**6MBI75VW-120-50**	
100A	**6MBI100VW-060-50**	**6MBI100VW-120-50**	
100A		**6MBI100VX-120-50**	**6MBI100VX-170-50**
		6MBI100VX-120-80	**6MBI100VX-170-80**
150A	**6MBI150VX-060-50**	**6MBI150VX-120-50**	
	6MBI150VX-060-80	**6MBI150VX-120-80**	
180A		**6MBI180VX-120-50**	
		6MBI180VX-120-80	
		6MBI180VX-120-55	
		6MBI180VX-120-85	

Dimension [mm]

Device type	V_{CES}	V_{GES}	I_C Cont.	P_C	$V_{CE(sat)}$ (V_{GE}=15V) typ.	I_C	Switching time t_{on} typ.	t_{off} typ.	t_f typ.	Package	Net mass
	Volts	Volts	Amps.	Watts	Volts	Amps.	µsec.	µsec.	µsec.		Grams
6MBI50VA-060-50	600	±20	50	200	1.6	50	0.36	0.52	0.03	M636	180
6MBI75VA-060-50	600	±20	75	275	1.6	75	0.36	0.52	0.03	M636	180
6MBI100VA-060-50	600	±20	100	335	1.6	100	0.36	0.52	0.03	M636	180
6MBI150VB-060-50	600	±20	150	485	1.6	150	0.36	0.52	0.03	M633	300
6MBI50VW-060-50	600	±20	50	215	1.6	50	0.36	0.52	0.03	M647	200
6MBI75VW-060-50	600	±20	75	300	1.6	75	0.36	0.52	0.03	M647	200
6MBI100VW-060-50	600	±20	100	335	1.6	100	0.36	0.52	0.03	M647	200
6MBI150VX-060-50	600	±20	150	485	1.6	150	0.36	0.52	0.03	M648	300
6MBI150VX-060-80	600	±20	150	485	1.6	150	0.36	0.52	0.03	M648	300
6MBI50VA-120-50	1200	±20	50	280	1.85	50	0.39	0.53	0.06	M636	180
6MBI75VA-120-50	1200	±20	75	385	1.85	75	0.39	0.53	0.06	M636	180
6MBI100VA-120-50	1200	±20	100	520	1.75	100	0.39	0.53	0.06	M636	180
6MBI100VB-120-50	1200	±20	100	520	1.75	100	0.39	0.53	0.06	M633	300
6MBI150VB-120-50	1200	±20	150	770	1.75	150	0.39	0.53	0.06	M633	300
6MBI180VB-120-50	1200	±20	150	835	1.85	200	0.39	0.53	0.06	M633	300
6MBI180VB-120-55	1200	±20	150	1075	1.85	200	0.39	0.53	0.06	M633	300
6MBI50VW-120-50	1200	±20	50	280	1.85	50	0.39	0.53	0.06	M647	200
6MBI75VW-120-50	1200	±20	75	385	1.85	75	0.39	0.53	0.06	M647	200
6MBI100VW-120-50	1200	±20	100	520	1.75	100	0.39	0.53	0.06	M647	200

Note1: EconoPACK ™ is registered trademarks of Infineon Technologies AG, Germany.
Note2: 6MBI180VB-120-55, 6MBI180VX-120-55; Premium type (Low Thermal Impedance Version)
Note3: "-80","-85" : Pre-Applied Thermal-Interface-Material for "-50","-55"

$V_{CE(sat)}$: at T_{vj}=25℃, Chip

Device type	V_{CES}	V_{GES}	I_C Cont.	P_C	$V_{CE(sat)}$ (V_{GE}=15V) typ.	I_C	Switching time t_{on} typ.	t_{off} typ.	t_f typ.	Package	Net mass
	Volts	Volts	Amps.	Watts	Volts	Amps.	µsec.	µsec.	µsec.		Grams
6MBI100VX-120-50	1200	±20	100	520	1.75	100	0.39	0.53	0.06	M648	300
6MBI100VX-120-80	1200	±20	100	520	1.75	100	0.39	0.53	0.06	M648	300
6MBI150VX-120-50	1200	±20	150	770	1.75	150	0.39	0.53	0.06	M648	300
6MBI150VX-120-80	1200	±20	150	770	1.75	150	0.39	0.53	0.06	M648	300
6MBI180VX-120-50	1200	±20	150	835	1.85	200	0.39	0.53	0.06	M648	300
6MBI180VX-120-80	1200	±20	150	835	1.85	200	0.39	0.53	0.06	M648	300
6MBI180VX-120-55	1200	±20	150	1075	1.85	200	0.39	0.53	0.06	M648	300
6MBI180VX-120-85	1200	±20	150	1075	1.85	200	0.39	0.53	0.06	M648	300
6MBI100VX-170-50	1700	±20	100	665	2.00	100	0.63	0.70	0.10	M648	300
6MBI100VX-170-80	1700	±20	100	665	2.00	100	0.63	0.70	0.10	M648	300
6MBI100U4B-170-50	1700	±20	100	520	2.25	100	0.62	0.55	0.09	M633	300
6MBI100U4B-170-80	1700	±20	100	520	2.25	100	0.62	0.55	0.09	M633	300
6MBI150U4B-170-50	1700	±20	150	735	2.25	150	0.62	0.55	0.09	M633	300
6MBI150U4B-170-80	1700	±20	150	735	2.25	150	0.62	0.55	0.09	M633	300

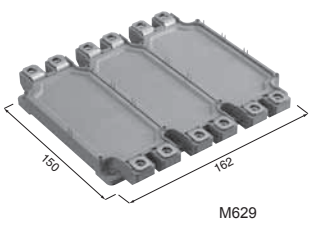
Note1: EconoPACK ™ is registered trademarks of Infineon Technologies AG, Germany.
Note2: 6MBI180VB-120-55, 6MBI180VX-120-55; Premium type (Low Thermal Impedance Version)
Note3: "-80","-85" : Pre-Applied Thermal-Interface-Material for "-50","-55"

$V_{CE(sat)}$: at T_{vj}=25℃, Chip

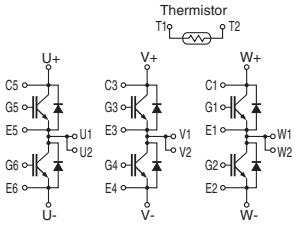
IGBT Module 6-Pack ＜V series＞

■ 6-Pack EconoPACK™+ 1200, 1700 volts class

High power 6-pack



M629



I_C	1200V V series	1700V V series
225A	**6MBI225V-120-50**	
300A	**6MBI300V-120-50**	**6MBI300V-170-50**
	6MBI300V-120-80	
450A	**6MBI450V-120-50**	**6MBI450V-170-50**
550A	**6MBI550V-120-50**	

Dimension [mm]

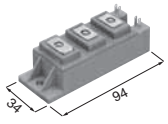
Device type	V_{CES} Volts	V_{GES} Volts	I_C Cont. Amps.	P_C Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	Switching time t_{on} typ. µsec.	t_{off} typ. µsec.	t_f typ. µsec.	Package	Net mass Grams
6MBI225V-120-50	1200	±20	225	1070	1.85	225	0.55	1.05	0.11	M629	950
6MBI300V-120-50	1200	±20	300	1600	1.75	300	0.55	1.05	0.11	M629	950
6MBI300V-120-80	1200	±20	300	1600	1.75	300	0.55	1.05	0.11	M629	950
6MBI450V-120-50	1200	±20	450	2250	1.75	450	0.55	1.05	0.11	M629	950
6MBI550V-120-50	1200	±20	550	2500	1.85	600	0.55	1.05	0.11	M629	950
6MBI300V-170-50	1700	±20	300	1665	2.00	300	0.90	1.30	0.10	M629	950
6MBI450V-170-50	1700	±20	450	2500	2.00	450	0.90	1.30	0.10	M629	950

Note1: EconoPACK™+ is registered trademarks of Infineon Technologies AG, Germany.
Note2: -80 : Pre-Applied Thermal-Interface-Material

$V_{CE(sat)}$: at T_{vj}=25℃, Chip

IGBT Module 2-Pack ＜V series＞

Standard 2-Pack 600, 1200, 1700 volts class



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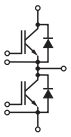
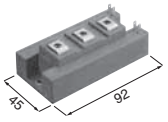
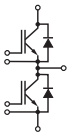
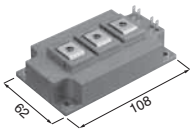




M274





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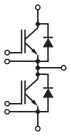
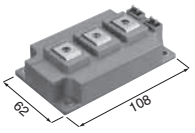
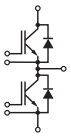
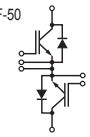


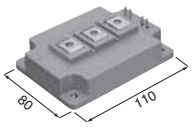


M276

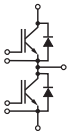


* 2MBI450VH-120F-50





M277



I_C	600V V series	1200V V series	1700V V series
75A		**2MBI75VA-120-50**	**2MBI75VA-170-50**
100A	**2MBI100VA-060-50**	**2MBI100VA-120-50**	**2MBI100VA-170-50**
150A	**2MBI150VA-060-50**	**2MBI150VA-120-50**	
200A	**2MBI200VA-060-50**		
150A		**2MBI150VB-120-50**	
200A		**2MBI200VB-120-50**	
300A	**2MBI300VB-060-50**		
400A	**2MBI400VB-060-50**		
300A		**2MBI300VD-120-50**	
400A	**2MBI400VD-060-50**	**2MBI400VD-120-50**	
600A	**2MBI600VD-060-50**		
150A			**2MBI150VH-170-50**
			2MBI150VH-170-80
200A		**2MBI200VH-120-50**	**2MBI200VH-170-50**
		2MBI200VH-120-80	**2MBI200VH-170-80**
300A		**2MBI300VH-120-50**	**2MBI300VH-170-50**
		2MBI300VH-120-80	**2MBI300VH-170-80**
450A		**2MBI450VH-120-50**	
		2MBI450VH-120-80	
		2MBI450VH-120F-50	
		2MBI450VH-120F-80	
300A		**2MBI300VE-120-50**	**2MBI300VE-170-50**
		2MBI300VE-120-80	**2MBI300VE-170-80**
400A			**2MBI400VE-170-50**
			2MBI400VE-170-80
450A		**2MBI450VE-120-50**	
		2MBI450VE-120-80	
600A	**2MBI600VE-060-50**	**2MBI600VE-120-50**	
	2MBI600VE-060-80	**2MBI600VE-120-80**	

Dimension [mm]

Device type	V_{CES} Volts	V_{GES} Volts	I_C Cont. Amps.	P_C Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	Switching time t_{on} typ. µsec.	t_{off} typ. µsec.	t_f typ. µsec.	Package	Net mass Grams
2MBI100VA-060-50	600	±20	100	330	1.60	100	0.65	0.60	0.04	M263	180
2MBI150VA-060-50	600	±20	150	480	1.60	150	0.65	0.60	0.04	M263	180
2MBI200VA-060-50	600	±20	200	640	1.60	200	0.65	0.60	0.04	M263	180
2MBI300VB-060-50	600	±20	300	1360	1.60	300	0.65	0.60	0.07	M274	240
2MBI400VB-060-50	600	±20	400	1970	1.60	400	0.65	0.60	0.07	M274	240
2MBI400VD-060-50	600	±20	400	1970	1.60	400	0.65	0.60	0.07	M275	370
2MBI600VD-060-50	600	±20	600	2940	1.60	600	0.75	0.75	0.07	M275	370
2MBI600VE-060-50	600	±20	600	2940	1.60	600	0.75	0.75	0.07	M277	470
2MBI600VE-060-80	600	±20	600	2940	1.60	600	0.75	0.75	0.07	M277	470
2MBI75VA-120-50	1200	±20	75	390	1.85	75	0.60	0.60	0.04	M263	180
2MBI100VA-120-50	1200	±20	100	555	1.85	100	0.60	0.60	0.04	M263	180
2MBI150VA-120-50	1200	±20	150	785	1.85	150	0.60	0.60	0.04	M263	180
2MBI150VB-120-50	1200	±20	150	1070	1.85	150	0.60	0.80	0.08	M274	240
2MBI200VB-120-50	1200	±20	200	1500	1.75	200	0.60	0.80	0.08	M274	240
2MBI300VD-120-50	1200	±20	300	2200	1.85	300	0.60	0.80	0.08	M275	370
2MBI400VD-120-50	1200	±20	400	3330	1.75	400	0.60	0.80	0.08	M275	370

Note: "-80" : Pre-Applied Thermal-Interface-Material

$V_{CE(sat)}$: at T_{vj}=25°C, Chip

Power Devices (IGBT)

Device type	V_{CES}	V_{GES}	I_C Cont.	P_C	$V_{CE(sat)}$ (V_{GE}=15V) typ.	I_C	Switching time t_{on} typ.	t_{off} typ.	t_f typ.	Package	Net mass
	Volts	Volts	Amps.	Watts	Volts	Amps.	µsec.	µsec.	µsec.		Grams
2MBI200VH-120-50	1200	±20	200	1110	1.75	200	0.60	0.80	0.08	M276	370
2MBI200VH-120-80	1200	±20	200	1110	1.75	200	0.60	0.80	0.08	M276	370
2MBI300VH-120-50	1200	±20	300	1600	1.75	300	0.60	0.80	0.08	M276	370
2MBI300VH-120-80	1200	±20	300	1600	1.75	300	0.60	0.80	0.08	M276	370
2MBI450VH-120-50	1200	±20	450	2400	1.80	450	0.60	0.80	0.08	M276	370
2MBI450VH-120-80	1200	±20	450	2400	1.80	450	0.60	0.80	0.08	M276	370
2MBI450VH-120F-50	1200	±20	450	2400	1.80	450	0.60	0.80	0.08	M276	370
2MBI450VH-120F-80	1200	±20	450	2400	1.80	450	0.60	0.80	0.08	M276	370
2MBI300VE-120-50	1200	±20	300	2200	1.85	300	0.60	0.80	0.08	M277	470
2MBI300VE-120-80	1200	±20	300	2200	1.85	300	0.60	0.80	0.08	M277	470
2MBI450VE-120-50	1200	±20	450	3350	1.80	450	0.60	0.80	0.08	M277	470
2MBI450VE-120-80	1200	±20	450	3350	1.80	450	0.60	0.80	0.08	M277	470
2MBI600VE-120-50	1200	±20	600	4800	1.75	600	0.60	0.80	0.08	M277	470
2MBI600VE-120-80	1200	±20	600	4800	1.75	600	0.60	0.80	0.08	M277	470
2MBI75VA-170-50	1700	±20	75	555	2.00	75	1.25	1.30	0.15	M263	180
2MBI100VA-170-50	1700	±20	100	665	2.00	100	1.25	1.30	0.15	M263	180
2MBI150VH-170-50	1700	±20	150	1110	2.00	150	0.95	1.05	0.14	M276	370
2MBI150VH-170-80	1700	±20	150	1110	2.00	150	0.95	1.05	0.14	M276	370
2MBI200VH-170-50	1700	±20	200	1250	2.00	200	1.15	1.05	0.14	M276	370
2MBI200VH-170-80	1700	±20	200	1250	2.00	200	1.15	1.05	0.14	M276	370
2MBI300VH-170-50	1700	±20	300	1805	2.00	300	1.15	1.05	0.14	M276	370
2MBI300VH-170-80	1700	±20	300	1805	2.00	300	1.15	1.05	0.14	M276	370
2MBI300VE-170-50	1700	±20	300	2830	2.00	300	1.15	1.05	0.14	M277	470
2MBI300VE-170-80	1700	±20	300	2830	2.00	300	1.15	1.05	0.14	M277	470
2MBI400VE-170-50	1700	±20	400	3840	2.00	400	1.15	1.05	0.14	M277	470
2MBI400VE-170-80	1700	±20	400	3840	2.00	400	1.15	1.05	0.14	M277	470

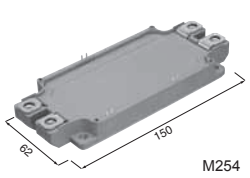
Note: "-80" : Pre-Applied Thermal-Interface-Material

$V_{CE(sat)}$: at T_{vj}=25°C, Chip

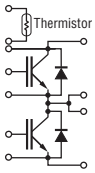
IGBT Module 2-Pack ＜V series＞

Standard 2-Pack 1200, 1700 volts class

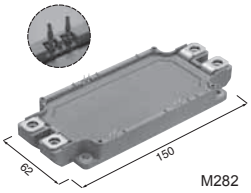
Solder pins



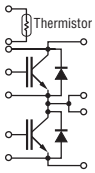
M254



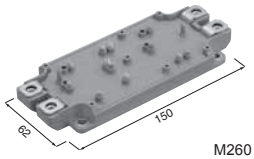
Press fit pins



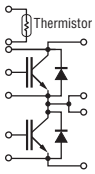
M282



Spring contacts



M260



I_C	1200V V series	1700V V series
225A	**2MBI225VN-120-50**	
	2MBI225VN-120-80	
	2MBI225VN-120S-50	
300A	**2MBI300VN-120-50**	**2MBI300VN-170-50**
	2MBI300VN-120-80	**2MBI300VN-170-80**
	2MBI300VN-120S-50	
	2MBI300VN-120S-80	
450A	**2MBI450VN-120-50**	**2MBI450VN-170-50**
	2MBI450VN-120-80	**2MBI450VN-170-80**
	2MBI450VN-120S-50	
	2MBI450VN-120S-80	
550A		**2MBI550VN-170-50**
		2MBI550VN-170-80
600A	**2MBI600VN-120-50**	
	2MBI600VN-120-80	
225A	**2MBI225VX-120-50**	**2MBI225VX-170-50**
	2MBI225VX-120-80	**2MBI225VX-170-80**
300A	**2MBI300VX-120-50**	**2MBI300VX-170-50**
	2MBI300VX-120-80	**2MBI300VX-170-80**
450A	**2MBI450VX-120-50**	**2MBI450VX-170-50**
	2MBI450VX-120-80	**2MBI450VX-170-80**
550A		**2MBI550VX-170-50**
		2MBI550VX-170-80
600A	**2MBI600VX-120-50**	
	2MBI600VX-120-80	
225A	**2MBI225VJ-120-50**	
300A	**2MBI300VJ-120-50**	
450A	**2MBI450VJ-120-50**	
	2MBI450VJ-120-80	
550A		**2MBI550VJ-170-50**
		2MBI550VJ-170-80
600A	**2MBI600VJ-120-50**	
	2MBI600VJ-120-80	

Dimension [mm]

Device type	V_{CES} Volts	V_{GES} Volts	I_C Cont. Amps.	P_C Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	Switching time t_{on} typ. µsec.	t_{off} typ. µsec.	t_f typ. µsec.	Package	Net mass Grams
2MBI225VN-120-50	1200	±20	225	1070	1.85	225	0.55	1.05	0.11	M254	350
2MBI225VN-120-80	1200	±20	225	1070	1.85	225	0.55	1.05	0.11	M254	350
2MBI225VN-120S-50*1	1200	±20	225	1360	1.85	225	0.40	0.55	0.05	M254	350
2MBI300VN-120-50	1200	±20	300	1595	1.75	300	0.55	1.05	0.11	M254	350
2MBI300VN-120-80	1200	±20	300	1595	1.75	300	0.55	1.05	0.11	M254	350
2MBI300VN-120S-50*1	1200	±20	300	2000	1.75	300	0.45	0.65	0.06	M254	350
2MBI300VN-120S-80*1	1200	±20	300	2000	1.75	300	0.45	0.65	0.06	M254	350
2MBI450VN-120-50	1200	±20	450	2270	1.75	450	0.55	1.05	0.11	M254	350
2MBI450VN-120-80	1200	±20	450	2270	1.75	450	0.55	1.05	0.11	M254	350
2MBI450VN-120S-50*1	1200	±20	450	3000	1.75	450	0.47	0.70	0.07	M254	350
2MBI450VN-120S-80*1	1200	±20	450	3000	1.75	450	0.47	0.70	0.07	M254	350
2MBI600VN-120-50	1200	±20	600	3750	1.85	600	0.55	1.05	0.11	M254	350
2MBI600VN-120-80	1200	±20	600	3750	1.85	600	0.55	1.05	0.11	M254	350

*1: The products with 'S' : Low Thermal Impedance Version

Note: -80 : Pre-Applied Thermal-Interface-Material

$V_{CE(sat)}$: at T_{vj}=25°C, Chip

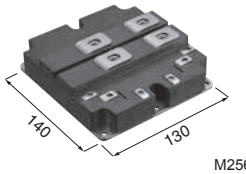
Device type	V_{CES}	V_{GES}	I_C Cont.	P_C	$V_{CE(sat)}$ (V_{GE}=15V) typ.	I_C	Switching time t_{on} typ.	t_{off} typ.	t_f typ.	Package	Net mass
	Volts	Volts	Amps.	Watts	Volts	Amps.	µsec.	µsec.	µsec.		Grams
2MBI225VX-120-50	1200	±20	225	1070	1.85	225	0.55	1.05	0.11	M282	350
2MBI225VX-120-80	1200	±20	225	1070	1.85	225	0.55	1.05	0.11	M282	350
2MBI300VX-120-50	1200	±20	300	1595	1.75	300	0.55	1.05	0.11	M282	350
2MBI300VX-120-80	1200	±20	300	1595	1.75	300	0.55	1.05	0.11	M282	350
2MBI450VX-120-50	1200	±20	450	2270	1.75	450	0.55	1.05	0.11	M282	350
2MBI450VX-120-80	1200	±20	450	2270	1.75	450	0.55	1.05	0.11	M282	350
2MBI600VX-120-50	1200	±20	600	3750	1.85	600	0.55	1.05	0.11	M282	350
2MBI600VX-120-80	1200	±20	600	3750	1.85	600	0.55	1.05	0.11	M282	350
2MBI225VJ-120-50	1200	±20	225	1070	1.85	225	0.55	1.05	0.11	M260	360
2MBI300VJ-120-50	1200	±20	300	1595	1.75	300	0.55	1.05	0.11	M260	360
2MBI450VJ-120-50	1200	±20	450	2270	1.75	450	0.55	1.05	0.11	M260	360
2MBI450VJ-120-80	1200	±20	450	2270	1.75	450	0.55	1.05	0.11	M260	360
2MBI600VJ-120-50	1200	±20	600	3750	1.85	600	0.55	1.05	0.11	M260	360
2MBI600VJ-120-80	1200	±20	600	3750	1.85	600	0.55	1.05	0.11	M260	360
2MBI300VN-170-50	1700	±20	300	1665	2.00	300	0.90	1.30	0.10	M254	350
2MBI300VN-170-80	1700	±20	300	1665	2.00	300	0.90	1.30	0.10	M254	350
2MBI450VN-170-50	1700	±20	450	2500	2.00	450	0.90	1.30	0.10	M254	350
2MBI450VN-170-80	1700	±20	450	2500	2.00	450	0.90	1.30	0.10	M254	350
2MBI550VN-170-50	1700	±20	550	3750	2.15	550	1.00	1.30	0.10	M254	350
2MBI550VN-170-80	1700	±20	550	3750	2.15	550	1.00	1.30	0.10	M254	350
2MBI225VX-170-50	1700	±20	225	1500	2.00	225	0.90	1.05	0.08	M282	350
2MBI225VX-170-80	1700	±20	225	1500	2.00	225	0.90	1.05	0.08	M282	350
2MBI300VX-170-50	1700	±20	300	1665	2.00	300	0.90	1.30	0.10	M282	350
2MBI300VX-170-80	1700	±20	300	1665	2.00	300	0.90	1.30	0.10	M282	350
2MBI450VX-170-50	1700	±20	450	2500	2.00	450	0.90	1.30	0.10	M282	350
2MBI450VX-170-80	1700	±20	450	2500	2.00	450	0.90	1.30	0.10	M282	350
2MBI550VX-170-50	1700	±20	550	3750	2.15	550	1.00	1.30	0.10	M282	350
2MBI550VX-170-80	1700	±20	550	3750	2.15	550	1.00	1.30	0.10	M282	350
2MBI550VJ-170-50	1700	±20	550	3750	2.15	550	1.00	1.30	0.10	M260	360
2MBI550VJ-170-80	1700	±20	550	3750	2.15	550	1.00	1.30	0.10	M260	360

Note: -80 : Pre-Applied Thermal-Interface-Material

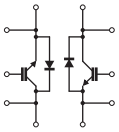
$V_{CE(sat)}$: at T_{vj}=25°C, Chip

IGBT Module 2-Pack ＜V series＞

■ High Power Module 1200, 1700 volts class



M256, M278



I_C	1200V V series Cu-baseplate	1700V V series Cu-baseplate	1700V V series AlSiC-baseplate
600A	**2MBI600VG-120P**	**2MBI600VG-170E**	**2MBI600VT-170E**
800A	**2MBI800VG-120P**	**2MBI800VG-170E**	**2MBI800VT-170E**
1200A	**2MBI1200VG-120P**	**2MBI1200VG-170E**	**2MBI1200VT-170E**

Dimension [mm]

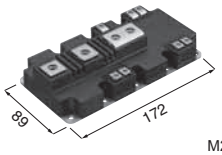
Device type	V_{CES} Volts	V_{GES} Volts	I_C Cont. Amps.	P_C Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	Switching time t_{on} typ. µsec.	t_{off} typ. µsec.	t_f typ. µsec.	Package	Net mass Grams
2MBI600VG-120P	1200	±20	600	3940	1.70	600	1.86	1.25	0.12	M256	1500
2MBI800VG-120P	1200	±20	800	5170	1.70	800	1.97	1.33	0.15	M256	1500
2MBI1200VG-120P	1200	±20	1200	6810	1.70	1200	2.55	1.67	0.16	M256	1500
2MBI600VG-170E	1700	±20	600	4410	2.00	600	2.28	2.07	0.58	M256	1500
2MBI800VG-170E	1700	±20	800	5760	2.00	800	2.41	2.13	0.55	M256	1500
2MBI1200VG-170E	1700	±20	1200	7500	2.00	1200	2.76	2.29	0.33	M256	1500
2MBI600VT-170E	1700	±20	600	4280	2.00	600	1.51	2.07	0.58	M278	900
2MBI800VT-170E	1700	±20	800	5370	2.00	800	2.00	2.13	0.55	M278	900
2MBI1200VT-170E	1700	±20	1200	7040	2.00	1200	2.14	2.29	0.33	M278	900

Note: M256: Cu-baseplate M278: AlSiC-baseplate

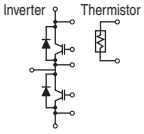
$V_{CE(sat)}$: at T_{vj}=25°C, Chip Switching time: at T_{vj}=125°C

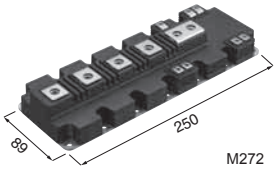
IGBT Module 2-Pack ＜V series＞

■ PrimePACK™ 1200, 1700 volts class

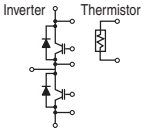


M271





M272



I_C	1200V V series Low switching loss	1200V V series Soft turn off	1700V V series Low switching loss	1700V V series Soft turn off
600A	**2MBI600VXA-120E-50**			
	2MBI600VXA-120E-80			
	2MBI600VXA-120E-54			
650A			**2MBI650VXA-170E-50**	
			2MBI650VXA-170E-80	
			2MBI650VXA-170E-54	
			2MBI650VXA-170EA-50	
			2MBI650VXA-170EA-80	
			2MBI650VXA-170EA-54	
900A	**2MBI900VXA-120E-50**	**2MBI900VXA-120P-50**		
	2MBI900VXA-120E-80	**2MBI900VXA-120P-80**		
	2MBI900VXA-120E-54	**2MBI900VXA-120P-54**		
1000A			**2MBI1000VXB-170E-50**	
			2MBI1000VXB-170E-80	
			2MBI1000VXB-170E-54	
			2MBI1000VXB-170EA-50	
			2MBI1000VXB-170EA-80	
			2MBI1000VXB-170EA-54	
1400A	**2MBI1400VXB-120E-50**	**2MBI1400VXB-120P-50**	**2MBI1400VXB-170E-50**	**2MBI1400VXB-170P-50**
	2MBI1400VXB-120E-80	**2MBI1400VXB-120P-80**	**2MBI1400VXB-170E-80**	**2MBI1400VXB-170P-80**
	2MBI1400VXB-120E-54	**2MBI1400VXB-120P-54**	**2MBI1400VXB-170E-54**	**2MBI1400VXB-170P-54**

Dimension [mm]

Device type	V_{CES} Volts	V_{GES} Volts	I_C Cont. Amps.	P_C Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	Switching time t_{on} typ. µsec.	t_{off} typ. µsec.	t_f typ. µsec.	Package	Net mass Grams
2MBI600VXA-120E-50	1200	±20	600	3350	1.75	600	1.00	1.20	0.15	M271	850
2MBI600VXA-120E-80	1200	±20	600	3350	1.75	600	1.00	1.20	0.15	M271	850
2MBI600VXA-120E-54	1200	±20	600	3350	1.75	600	1.00	1.20	0.15	M271	850
2MBI900VXA-120E-50	1200	±20	900	5100	1.75	900	1.00	1.20	0.15	M271	850
2MBI900VXA-120E-80	1200	±20	900	5100	1.75	900	1.00	1.20	0.15	M271	850
2MBI900VXA-120E-54	1200	±20	900	5100	1.75	900	1.00	1.20	0.15	M271	850
2MBI1400VXB-120E-50	1200	±20	1400	7650	1.75	1400	1.00	1.20	0.15	M272	1250
2MBI1400VXB-120E-80	1200	±20	1400	7650	1.75	1400	1.00	1.20	0.15	M272	1250
2MBI1400VXB-120E-54	1200	±20	1400	7650	1.75	1400	1.00	1.20	0.15	M272	1250
2MBI900VXA-120P-50	1200	±20	900	5100	1.65	900	1.00	1.20	0.15	M271	850
2MBI900VXA-120P-80	1200	±20	900	5100	1.65	900	1.00	1.20	0.15	M271	850
2MBI900VXA-120P-54	1200	±20	900	5100	1.65	900	1.00	1.20	0.15	M271	850
2MBI1400VXB-120P-50	1200	±20	1400	7650	1.65	1400	1.00	1.20	0.15	M272	1250
2MBI1400VXB-120P-80	1200	±20	1400	7650	1.65	1400	1.00	1.20	0.15	M272	1250
2MBI1400VXB-120P-54	1200	±20	1400	7650	1.65	1400	1.00	1.20	0.15	M272	1250
2MBI650VXA-170E-50	1700	±20	650	4150	2.00	650	1.25	1.55	0.15	M271	850
2MBI650VXA-170E-80	1700	±20	650	4150	2.00	650	1.25	1.55	0.15	M271	850
2MBI650VXA-170E-54	1700	±20	650	4150	2.00	650	1.25	1.55	0.15	M271	850
2MBI650VXA-170EA-50	1700	±20	650	4150	2.00	650	1.70	1.60	0.11	M271	850
2MBI650VXA-170EA-80	1700	±20	650	4150	2.00	650	1.70	1.60	0.11	M271	850
2MBI650VXA-170EA-54	1700	±20	650	4150	2.00	650	1.70	1.60	0.11	M271	850

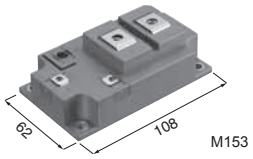
Note1: PrimePACK™ is registered trademark of Infineon Technologies AG, Germany.
Note2: The products with suffix '-54' on this page are labeled to specify the rank of $V_{CE(sat)}$ and V_F.
Note3: The products with 'EA' on this page have optimized FWD for the application causing heavy load through FWD. The optimized FWD reduces V_F and thermal resistance.
Note4: "-80" : Pre-Applied Thermal-Interface-Material for "-54"

Device type	V_{CES}	V_{GES}	I_C Cont.	P_C	$V_{CE(sat)}$ (V_{GE}=15V) typ.	I_C	Switching time t_{on} typ.	t_{off} typ.	t_f typ.	Package	Net mass
	Volts	Volts	Amps.	Watts	Volts	Amps.	µsec.	µsec.	µsec.		Grams
2MBI1000VXB-170E-50	1700	±20	1000	6250	2.00	1000	1.25	1.55	0.15	M272	1250
2MBI1000VXB-170E-80	1700	±20	1000	6250	2.00	1000	1.25	1.55	0.15	M272	1250
2MBI1000VXB-170E-54	1700	±20	1000	6250	2.00	1000	1.25	1.55	0.15	M272	1250
2MBI1000VXB-170EA-50	1700	±20	1000	6250	2.00	1000	1.70	1.60	0.11	M272	1250
2MBI1000VXB-170EA-80	1700	±20	1000	6250	2.00	1000	1.70	1.60	0.11	M272	1250
2MBI1000VXB-170EA-54	1700	±20	1000	6250	2.00	1000	1.70	1.60	0.11	M272	1250
2MBI1400VXB-170E-50	1700	±20	1400	8820	2.15	1400	1.25	1.55	0.15	M272	1250
2MBI1400VXB-170E-80	1700	±20	1400	8820	2.15	1400	1.25	1.55	0.15	M272	1250
2MBI1400VXB-170E-54	1700	±20	1400	8820	2.15	1400	1.25	1.55	0.15	M272	1250
2MBI1400VXB-170P-50	1700	±20	1400	8820	1.90	1400	1.35	1.80	0.20	M272	1250
2MBI1400VXB-170P-80	1700	±20	1400	8820	1.90	1400	1.35	1.80	0.20	M272	1250
2MBI1400VXB-170P-54	1700	±20	1400	8820	1.90	1400	1.35	1.80	0.20	M272	1250

Note1: PrimePACK™ is registered trademark of Infineon Technologies AG, Germany.
Note2: The products with suffix '-54' on this page are labeled to specify the rank of $V_{CE(sat)}$ and V_F.
Note3: The products with 'EA' on this page have optimized FWD for the application causing heavy load through FWD. The optimized FWD reduces V_F and thermal resistance.
Note4: "-80" : Pre-Applied Thermal-Interface-Material for "-54"

IGBT Module 1-Pack ＜V series＞

■ Standard 1-Pack 1200, 1700V volts class



I_C	1200V V series Aluminium oxide DCB	1200V V series Aluminium nitride DCB	1700V V series Aluminium oxide DCB
300A			**1MBI300V-170-50**
400A	**1MBI400V-120-50**	**1MBI400VF-120-50**	**1MBI400V-170-50**
600A	**1MBI600V-120-50**	**1MBI600VF-120-50**	**1MBI600V-170-50**
900A	**1MBI900V-120-50**		

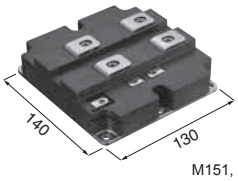
Dimension [mm]

Device type	V_{CES} Volts	V_{GES} Volts	I_C Cont. Amps.	P_C Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	Switching time t_{on} typ. µsec.	t_{off} typ. µsec.	t_f typ. µsec.	Package	Net mass Grams
1MBI400V-120-50	1200	±20	400	2410	1.75	400	0.60	1.10	0.14	M153	380
1MBI600V-120-50	1200	±20	600	3000	1.75	600	0.70	0.90	0.10	M153	380
1MBI900V-120-50	1200	±20	900	4280	1.90	900	0.70	0.85	0.10	M153	380
1MBI400VF-120-50	1200	±20	400	3330	1.75	400	0.60	1.10	0.14	M153	380
1MBI600VF-120-50	1200	±20	600	4680	1.75	600	0.70	0.90	0.10	M153	380
1MBI300V-170-50	1700	±20	300	1705	2.00	300	0.70	0.80	0.14	M153	380
1MBI400V-170-50	1700	±20	400	2500	2.00	400	0.70	0.80	0.14	M153	380
1MBI600V-170-50	1700	±20	600	3610	2.00	600	0.70	0.80	0.14	M153	380

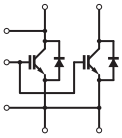
$V_{CE(sat)}$: at T_{vj}=25°C, Chip

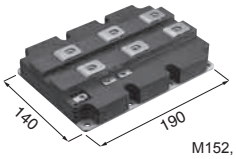
IGBT Module 1-Pack ＜V series / U series＞

■ High Power Module 1200, 1700, 3300 volts class

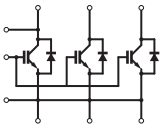


M151, M155





M152, M156



I_C	1200V V series Cu-baseplate	1700V V series Cu-baseplate	1700V V series AlSiC-baseplate	3300V U Series AlSiC-baseplate
800A				**1MBI800UG-330**
1000A				**1MBI1000UG-330**
				1MBI1000UG-330B
1200A	**1MBI1200VC-120P**	**1MBI1200VC-170E**	**1MBI1200VR-170E**	
1600A	**1MBI1600VC-120P**	**1MBI1600VC-170E**	**1MBI1600VR-170E**	
2400A	**1MBI2400VC-120P**	**1MBI2400VC-170E**	**1MBI2400VR-170E**	
1200A				**1MBI1200UE-330**
1500A				**1MBI1500UE-330**
				1MBI1500UE-330B
2400A	**1MBI2400VD-120P**	**1MBI2400VD-170E**	**1MBI2400VS-170E**	
3600A	**1MBI3600VD-120P**	**1MBI3600VD-170E**	**1MBI3600VS-170E**	

Dimension [mm]

Device type	V_{CES} Volts	V_{GES} Volts	I_C Cont. Amps.	P_C Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	Switching time t_{on} typ. µsec.	t_{off} typ. µsec.	t_f typ. µsec.	Package	Net mass Grams
1MBI1200VC-120P	1200	±20	1200	7890	1.70	1200	1.73	1.52	0.15	M151	1500
1MBI1600VC-120P	1200	±20	1600	10340	1.70	1600	2.22	1.47	0.19	M151	1500
1MBI2400VC-120P	1200	±20	2400	13630	1.70	2400	3.15	1.93	0.24	M151	1500
1MBI2400VD-120P	1200	±20	2400	15780	1.70	2400	2.38	1.64	0.21	M152	2300
1MBI3600VD-120P	1200	±20	3600	20540	1.70	3600	2.98	2.15	0.27	M152	2300
1MBI1200VC-170E	1700	±20	1200	8820	2.00	1200	2.18	2.20	0.45	M151	1500
1MBI1600VC-170E	1700	±20	1600	11700	2.00	1600	2.28	2.17	0.40	M151	1500
1MBI2400VC-170E	1700	±20	2400	15000	2.00	2400	2.63	2.41	0.38	M151	1500
1MBI2400VD-170E	1700	±20	2400	17640	2.00	2400	2.30	2.22	0.43	M152	2300
1MBI3600VD-170E	1700	±20	3600	22380	2.00	3600	2.27	2.67	0.31	M152	2300
1MBI1200VR-170E	1700	±20	1200	8570	2.00	1200	1.51	2.20	0.45	M155	900
1MBI1600VR-170E	1700	±20	1600	10710	2.00	1600	1.83	2.17	0.40	M155	900
1MBI2400VR-170E	1700	±20	2400	14010	2.00	2400	2.51	2.41	0.38	M155	900
1MBI2400VS-170E	1700	±20	2400	16120	2.00	2400	2.09	2.22	0.43	M156	1300
1MBI3600VS-170E	1700	±20	3600	21120	2.00	3600	2.70	2.66	0.32	M156	1300
1MBI800UG-330	3300	±20	800	9600	2.28	800	3.40	2.40	0.40	M155	900
1MBI1000UG-330	3300	±20	1000	10400	2.46	1000	2.50	2.00	0.50	M155	900
● **1MBI1000UG-330B**	3300	±20	1000	10400	2.75	1000	3.10	2.35	0.45	M155	900
1MBI1200UE-330	3300	±20	1200	14700	2.28	1200	3.40	2.40	0.40	M156	1300
1MBI1500UE-330	3300	±20	1500	15600	2.46	1500	3.10	2.60	0.50	M156	1300
● **1MBI1500UE-330B**	3300	±20	1500	15600	2.75	1500	3.10	2.35	0.45	M156	1300

●: New Products

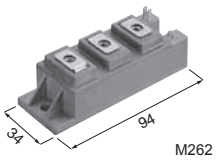
$V_{CE(sat)}$: at T_{vj}=25°C, Chip Switching time: at T_{vj}=125°C, at T_{vj}=150°C (3300V-1000A, 1500A only)

Note1: M151, M152: Cu-baseplate M155, M156: AlSiC-baseplate

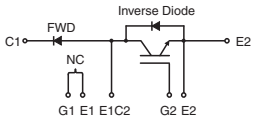
Note2: -330B type: Low switching losses

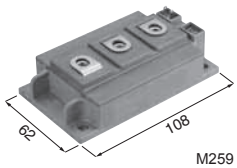
IGBT Module Chopper ＜V series / U series＞

■ Chopper 600, 1200 volts class

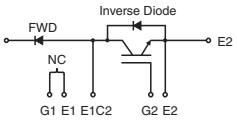


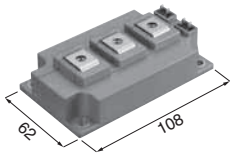
M262



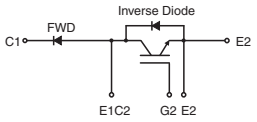


M259





M283



I_C	600V		1200V	
	U series	V series	U series	V series
50A			**1MBI50U4F-120L-50**	
75A			**1MBI75U4F-120L-50**	
100A			**1MBI100U4F-120L-50**	
150A				**1MBI150VA-120L-50**
200A				**1MBI200VA-120L-50**
200A			**1MBI200U4H-120L-50**	
300A	**1MBI300U2H-060L-50**			
400A		**1MBI400VH-060-L-50**		

Dimension [mm]

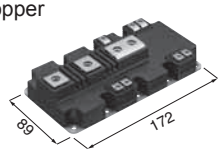
Device type	V_{CES}	V_{GES}	I_C Cont.	P_C	$V_{CE(sat)}$ (V_{GE}=15V) typ.	I_C	Switching time t_{on} typ.	t_{off} typ.	t_f typ.	Package	Net mass
	Volts	Volts	Amps.	Watts	Volts	Amps.	µsec.	µsec.	µsec.		Grams
1MBI300U2H-060L-50	600	±20	300	1000	2.45	300	0.40	0.48	0.07	M259	360
1MBI400VH-060-L-50	600	±20	400	1250	1.60	400	0.73	0.61	0.07	M283	370
1MBI50U4F-120L-50	1200	±20	50	400	2.15	50	0.32	0.41	0.07	M262	180
1MBI75U4F-120L-50	1200	±20	75	400	2.20	75	0.32	0.41	0.07	M262	180
1MBI100U4F-120L-50	1200	±20	100	540	2.20	100	0.32	0.41	0.07	M262	180
1MBI200U4H-120L-50	1200	±20	200	1040	2.25	200	0.32	0.41	0.07	M259	360
1MBI150VA-120L-50	1200	±20	150	785	1.85	150	0.60	0.60	0.04	M262	180
1MBI200VA-120L-50	1200	±20	200	880	1.80	200	0.60	0.60	0.04	M262	180

$V_{CE(sat)}$: at T_{vj}=25°C, Chip

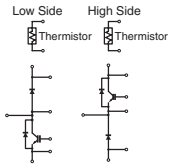
IGBT Module Chopper ＜V series＞

■ PrimePACK™ 1200, 1700 volts class

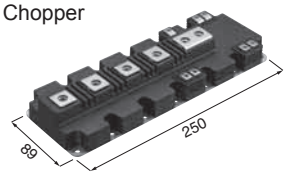
Chopper



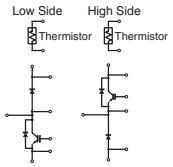
M271



Chopper



M272



Dimension [mm]

I_C	1200V V series		1700V V series	
	Low side configuration	High side configuration	Low side configuration	High side configuration
650A			1MBI650VXA-170EL-50	1MBI650VXA-170EH-50
			1MBI650VXA-170EL-80	1MBI650VXA-170EH-80
			1MBI650VXA-170EL-54	1MBI650VXA-170EH-54
1000A			1MBI1000VXB-170EL-50	1MBI1000VXB-170EH-50
			1MBI1000VXB-170EL-80	1MBI1000VXB-170EH-80
			1MBI1000VXB-170EL-54	1MBI1000VXB-170EH-54
1400A	1MBI1400VXB-120PL-54	1MBI1400VXB-120PH-54	1MBI1400VXB-170PL-50	1MBI1400VXB-170PH-50
	1MBI1400VXB-120PL-80	1MBI1400VXB-120PH-80	1MBI1400VXB-170PL-54	1MBI1400VXB-170PH-54

Device type	V_{CES}	V_{GES}	I_C Cont.	P_C	$V_{CE(sat)}$ (V_{GE}=15V) typ.	I_C	Switching time t_{on} typ.	t_{off} typ.	t_f typ.	Package	Net mass
	Volts	Volts	Amps.	Watts	Volts	Amps.	μsec.	μsec.	μsec.		Grams
1MBI1400VXB-120PL-54	1200	±20	1400	7650	1.65	1400	1.00	1.20	0.15	M272	1250
1MBI1400VXB-120PL-80	1200	±20	1400	7650	1.65	1400	1.00	1.20	0.15	M272	1250
1MBI1400VXB-120PH-54	1200	±20	1400	7650	1.65	1400	1.00	1.20	0.15	M272	1250
1MBI1400VXB-120PH-80	1200	±20	1400	7650	1.65	1400	1.00	1.20	0.15	M272	1250
1MBI650VXA-170EL-50	1700	±20	650	4150	2.00	650	1.25	1.55	0.15	M271	850
1MBI650VXA-170EL-80	1700	±20	650	4150	2.00	650	1.25	1.55	0.15	M271	850
1MBI650VXA-170EL-54	1700	±20	650	4150	2.00	650	1.25	1.55	0.15	M271	850
1MBI1000VXB-170EL-50	1700	±20	1000	6250	2.00	1000	1.25	1.55	0.15	M272	1250
1MBI1000VXB-170EL-80	1700	±20	1000	6250	2.00	1000	1.25	1.55	0.15	M272	1250
1MBI1000VXB-170EL-54	1700	±20	1000	6250	2.00	1000	1.25	1.55	0.15	M272	1250
● **1MBI1400VXB-170PL-50**	1700	±20	1400	8820	2.15	1400	1.25	1.55	0.15	M272	1250
● **1MBI1400VXB-170PL-54**	1700	±20	1400	8820	2.15	1400	1.25	1.55	0.15	M272	1250
1MBI650VXA-170EH-50	1700	±20	650	4150	2.00	650	1.25	1.55	0.15	M271	850
1MBI650VXA-170EH-80	1700	±20	650	4150	2.00	650	1.25	1.55	0.15	M271	850
1MBI650VXA-170EH-54	1700	±20	650	4150	2.00	650	1.25	1.55	0.15	M271	850
1MBI1000VXB-170EH-50	1700	±20	1000	6250	2.00	1000	1.25	1.55	0.15	M272	1250
1MBI1000VXB-170EH-80	1700	±20	1000	6250	2.00	1000	1.25	1.55	0.15	M272	1250
1MBI1000VXB-170EH-54	1700	±20	1000	6250	2.00	1000	1.25	1.55	0.15	M272	1250
● **1MBI1400VXB-170PH-50**	1700	±20	1400	8820	2.15	1400	1.25	1.55	0.15	M272	1250
● **1MBI1400VXB-170PH-54**	1700	±20	1400	8820	2.15	1400	1.25	1.55	0.15	M272	1250

●: New products

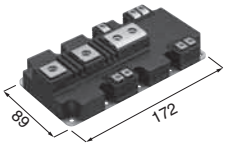
$V_{CE(sat)}$: at T_{vj}=25℃, Chip

Note1: PrimePACK™ is registered trademark of Infineon Technologies AG, Germany.
Note2: The products with suffix '-54' on this page are labeled to specify the rank of $V_{CE(sat)}$ and V_F.
Note3: "-80": Pre-Applied Thermal-Interface-Material for "-54"

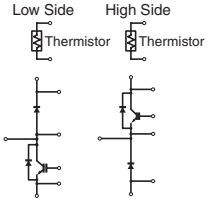
IGBT Module Chopper < V series >

■ PrimePACK™ 1200 volts class

Chopper



M271



I_C	1200V V series	
	Boost (Low side) Chopper	Buck (High side) Chopper
900A	**1MBI900VXA-120PD-50**	**1MBI900VXA-120PC-50**
	1MBI900VXA-120PD-54	**1MBI900VXA-120PC-54**
	1MBI900VXA-120PD-80	**1MBI900VXA-120PC-80**

Dimension [mm]

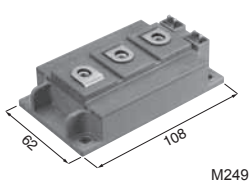
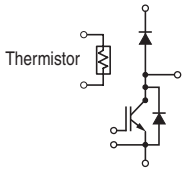
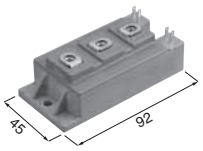
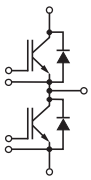
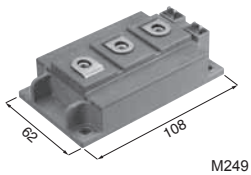
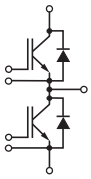
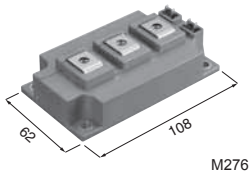
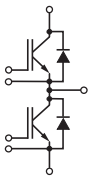
Device type	V_{CES}	V_{GES}	I_C Cont.	P_C	$V_{CE(sat)}$ (V_{GE}=15V) typ.	I_C	Switching time t_{on} typ.	t_{off} typ.	t_f typ.	Package	Net mass
	Volts	Volts	Amps.	Watts	Volts	Amps.	µsec.	µsec.	µsec.		Grams
1MBI900VXA-120PC-50	1200	±20	900	5100	1.65	900	1.10	1.20	0.15	M271	850
1MBI900VXA-120PC-54	1200	±20	900	5100	1.65	900	1.10	1.20	0.15	M271	850
1MBI900VXA-120PC-80	1200	±20	900	5100	1.65	900	1.10	1.20	0.15	M271	850
1MBI900VXA-120PD-50	1200	±20	900	5100	1.65	900	1.10	1.20	0.15	M271	850
1MBI900VXA-120PD-54	1200	±20	900	5100	1.65	900	1.10	1.20	0.15	M271	850
1MBI900VXA-120PD-80	1200	±20	900	5100	1.65	900	1.10	1.20	0.15	M271	850

Note1: PrimePACK™ is registered trademark of Infineon Technologies AG, Germany.
Note2: The products with suffix '-54' on this page are labeled to specify the rank of $V_{CE(sat)}$ and V_F.
Note3: Antiparallel diode current rating is 120A. Application circuit is Boost/Buck chopper only.
Note4: "-80": Pre-Applied Thermal-Interface-Material for "-54"

$V_{CE(sat)}$: at T_{vj}=25℃, Chip

IGBT Module High Speed

High Speed 1200 volts class

Chopper	I_C	1200V High Speed IGBT
 M249 	200A	**1MBI200HH-120L-50**
	300A	**1MBI300HH-120L-50**
	400A	**1MBI400HH-120L-50**
2-pack	100A	**2MBI100HB-120-50**
 M233 		
2-pack	150A	**2MBI150HH-120-50**
	200A	**2MBI200HH-120-50**
 M249 		
2-pack	100A	**2MBI100HJ-120-50**
	150A	**2MBI150HJ-120-50**
	200A	**2MBI200HJ-120-50**
	300A	**2MBI300HJ-120-50**
 M276 		

Dimension [mm]

Device type	V_{CES}	V_{GES}	I_C Cont.	P_C	$V_{CE(sat)}$ (V_{GE}=15V) typ.	I_C	Switching time t_{on} typ.	t_{off} typ.	t_f typ.	Package	Net mass
	Volts	Volts	Amps.	Watts	Volts	Amps.	µsec.	µsec.	µsec.		Grams
1MBI200HH-120L-50	1200	±20	200	1390	3.10	200	0.2	0.3	0.05	M249	370
1MBI300HH-120L-50	1200	±20	300	2090	3.20	300	0.2	0.3	0.05	M249	370
1MBI400HH-120L-50	1200	±20	400	2500	3.10	400	0.2	0.4	0.05	M249	370
2MBI100HB-120-50	1200	±20	100	1040	3.10	100	-	0.30	0.05	M233	240
2MBI150HH-120-50	1200	±20	150	1390	3.20	150	-	0.30	0.05	M249	370
2MBI200HH-120-50	1200	±20	200	1790	3.10	200	-	0.30	0.05	M249	370
2MBI100HJ-120-50	1200	±20	100	655	3.20	100	0.25	0.30	0.05	M276	370
2MBI150HJ-120-50	1200	±20	150	925	3.20	150	0.25	0.30	0.05	M276	370
2MBI200HJ-120-50	1200	±20	200	1385	3.20	200	0.25	0.30	0.05	M276	370
2MBI300HJ-120-50	1200	±20	300	1950	3.20	300	0.25	0.30	0.05	M276	370

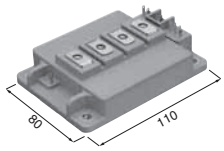
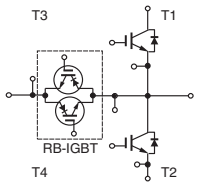
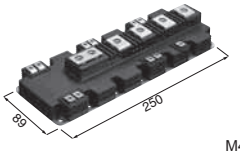
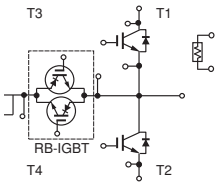
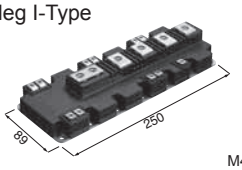
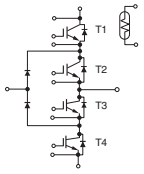
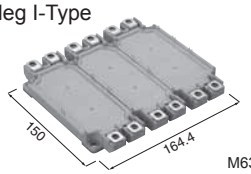
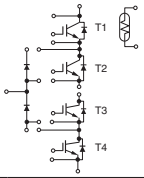
$V_{CE(sat)}$: at T_{vj}=25°C, Chip

IGBT Module 3-level ＜V series＞

■ T/I-type NPC 3-level Circuits 600, 1200, 1700 volts class

■ Features

- Applicable to T/I-type NPC 3-level circuit, for high power conversion efficiency.
- There are 1-leg or 3-leg (3 phase) circuits in one package and it is easier to makes external wiring of module.
- Lower surge voltage by smaller internal package stray inductance.
- Lower power loss can be achieved by using RB-IGBT*3 as for T-type AC-SW device.
- Lowest power loss can be achieved by using 6th Gen. IGBT and FWD as for Main-SW device.

		T1, T2	600V	1200V			1700V
		I_C T3, T4	600V	600V	900V	1200V	1200V
1-leg T-Type	 M403 	220A					4MBI220VF-170R2-50
		300A		4MBI300VG-120R-50	4MBI300VG-120R1-50		
		340A		4MBI340VF-120R-50			
		400A	4MBI400VG-060R-50	4MBI400VF-120R-50*1			
		450A		4MBI450VF-120RD-50*2			
1-leg T-Type	 M404 	450A			4MBI450VB-120R1-50		4MBI450VB-170R2-50
		600A					4MBI600VB-170R2-50
		650A			4MBI650VB-120R1-50		
		900A			4MBI900VB-120R1-50		
1-leg I-Type	 M404 	600A				4MBI600VC-120-50	
1-leg I-Type	 M639 	600A				4MBI600VM-120-50	

Dimension [mm]

Device type	T1, T2					T3, T4					Package	Net mass
	V_{CES} Volts	I_C Cont. Amps.	P_C Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	V_{CES} Volts	I_C Cont. Amps.	P_C Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.		Grams
4MBI400VG-060R-50	600	400	1135	1.60	400	600	400	1560	2.45	400	M403	460
4MBI300VG-120R-50	1200	300	1250	1.85	300	600	300	1250	2.45	300	M403	460
4MBI300VG-120R1-50	1200	300	1500	1.85	300	900	300	1550	2.30	300	M403	460
● **4MBI340VF-120R-50**	1200	340	1500	1.85	300	600	340	1500	2.45	300	M403	460
4MBI400VF-120R-50*1	1200	400	1835	2.00	400	600	450	2230	2.45	400	M403	460
○ **4MBI450VF-120RD-50***2	1200	250	1250	1.75	200	600	450	2230	2.45	400	M403	460
4MBI450VB-120R1-50	1200	450	2205	1.85	450	900	450	1980	2.30	450	M404	1300
4MBI650VB-120R1-50	1200	650	3060	1.80	650	900	650	2660	2.25	650	M404	1300
4MBI900VB-120R1-50	1200	900	3950	1.85	900	900	900	3675	2.30	900	M404	1300
● **4MBI600VC-120-50**	1200	600	2460	1.85	600	1200	600	2460	1.85	600	M404	1300
○ **4MBI600VM-120-50**	1200	600	TBD	TBD	600	1200	600	TBD	TBD	600	M639	950
● **4MBI220VF-170R2-50**	1700	220	1500	2.00	200	1200	220	1865	2.70	200	M403	460
● **4MBI450VB-170R2-50**	1700	450	2830	2.00	450	1200	450	2660	2.70	450	M404	1300
● **4MBI600VB-170R2-50**	1700	600	3410	2.00	600	1200	600	3680	2.70	600	M404	1300

●:New Products, ○:Under development

$V_{CE(sat)}$: at T_{vj}=25°C, Chip

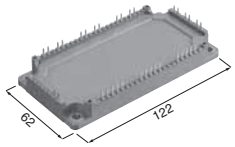
Note: VF type is lower thermal impedance version.

*1:Particular for Inverter *2:Particular for Converter *3:RB-IGBT Reverse-Blocking IGBT, which has reverse blocking capability (between emitter and collector)

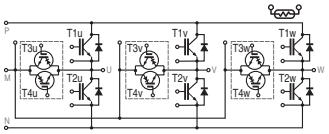
IGBT Module 3-level ＜V series＞

■ T/I-type NPC 3-level Circuits 1200 volts class

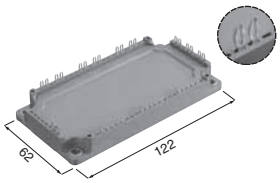
3-leg Solder pins



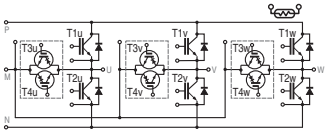
M1203



3-leg Press fit pins



M1202



I_C \ T1, T2 / T3, T4	1200V / 600V
50A	**12MBI50VN-120-50**
75A	**12MBI75VN-120-50**
100A	**12MBI100VN-120-50**
50A	**12MBI50VX-120-50**
75A	**12MBI75VX-120-50**
100A	**12MBI100VX-120-50**

Dimension [mm]

Device type	T1, T2					T3, T4					Package	Net mass
	V_{CES}	I_C Cont.	P_C	$V_{CE(sat)}$ (V_{GE}=15V) typ.	I_C	V_{CES}	I_C Cont.	P_C	$V_{CE(sat)}$ (V_{GE}=15V) typ.	I_C		
	Volts	Amps.	Watts	Volts	Amps.	Volts	Amps.	Watts	Volts	Amps.		Grams
12MBI50VN-120-50	1200	50	230	1.85	50	600	50	235	2.45	50	M1203	302
12MBI75VN-120-50	1200	75	320	1.85	75	600	75	305	2.45	75	M1203	302
12MBI100VN-120-50	1200	100	430	1.75	100	600	100	400	2.45	100	M1203	302
12MBI50VX-120-50	1200	50	230	1.85	50	600	50	235	2.45	50	M1202	302
12MBI75VX-120-50	1200	75	320	1.85	75	600	75	305	2.45	75	M1202	302
12MBI100VX-120-50	1200	100	430	1.75	100	600	100	400	2.45	100	M1202	302

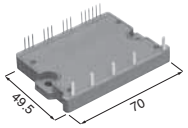
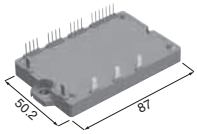
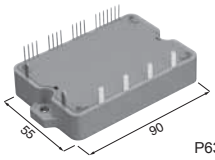
$V_{CE(sat)}$: at T_{vj}=25°C, Chip

IGBT Module IPM ＜V series＞

■ IPM (Intelligent Power Module) 600, 1200 volts class

Built-in protection functions

P-side fault status output (Alarm)
N-side fault status output (Alarm)
Under voltage protection (self shutdown)
Over current protection (self shutdown)
Overheating protection (self shutdown)

							600V		1200V	
							V series		V series	
						I_C	Without Brake-Chopper	With Brake-Chopper	Without Brake-Chopper	With Brake-Chopper
 P629	✓	✓	✓	✓		10A			**6MBP10VAA120-50**	
						15A			**6MBP15VAA120-50**	
						20A	**6MBP20VAA060-50**			
						25A			**6MBP25VAA120-50**	
						30A	**6MBP30VAA060-50**			
						50A	**6MBP50VAA060-50**			
 P626	✓	✓	✓	✓	✓	25A			**6MBP25VBA120-50**	
						35A			**6MBP35VBA120-50**	
						50A	**6MBP50VBA060-50**		**6MBP50VBA120-50**	
						75A	**6MBP75VBA060-50**			
 P636	✓	✓	✓	✓	✓	25A			**6MBP25VFN120-50**	**7MBP25VFN120-50**
						35A			**6MBP35VFN120-50**	**7MBP35VFN120-50**
						50A	**6MBP50VFN060-50**	**7MBP50VFN060-50**	**6MBP50VFN120-50**	**7MBP50VFN120-50**
						75A	**6MBP75VFN060-50**	**7MBP75VFN060-50**		
						100A	**6MBP100VFN060-50**	**7MBP100VFN060-50**		

Dimension [mm]

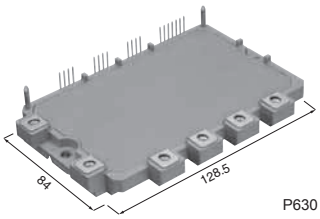
Device type	Inverter			Brake		Control							Package	Net mass
	V_{CES}	I_C Cont.	$V_{CE(sat)}$ typ.	V_{CES}	I_C Cont.	V_{CC} typ.	I_{OC}[INV] min.	V_{UV}	T_{jOH} min.	Alarm signal hold time OC typ.	UV typ.	T_{jOH} typ.		
	Volts	Amps.	Volts	Volts	Amps.	Volts	Amps.	Volts	℃	ms	ms	ms		Grams
6MBP20VAA060-50	600	20	1.4	-	-	15	30	11.0 to 12.5	150	2	4	8	P629	80
6MBP30VAA060-50	600	30	1.4	-	-	15	45	11.0 to 12.5	150	2	4	8	P629	80
6MBP50VAA060-50	600	50	1.4	-	-	15	75	11.0 to 12.5	150	2	4	8	P629	80
6MBP50VBA060-50	600	50	1.4	-	-	15	75	11.0 to 12.5	150	2	4	8	P626	100
6MBP75VBA060-50	600	75	1.4	-	-	15	113	11.0 to 12.5	150	2	4	8	P626	100
6MBP50VFN060-50	600	50	1.25	-	-	15	100	11.0 to 12.5	150	2	4	8	P636	190
6MBP75VFN060-50	600	75	1.25	-	-	15	150	11.0 to 12.5	150	2	4	8	P636	190
6MBP100VFN060-50	600	100	1.25	-	-	15	200	11.0 to 12.5	150	2	4	8	P636	190
7MBP50VFN060-50	600	50	1.25	600	30	15	100	11.0 to 12.5	150	2	4	8	P636	190
7MBP75VFN060-50	600	75	1.25	600	50	15	150	11.0 to 12.5	150	2	4	8	P636	190
7MBP100VFN060-50	600	100	1.25	600	50	15	200	11.0 to 12.5	150	2	4	8	P636	190
6MBP10VAA120-50	1200	10	1.7	-	-	15	15	11.0 to 12.5	150	2	4	8	P629	80
6MBP15VAA120-50	1200	15	1.7	-	-	15	23	11.0 to 12.5	150	2	4	8	P629	80
6MBP25VAA120-50	1200	25	1.7	-	-	15	38	11.0 to 12.5	150	2	4	8	P629	80
6MBP25VBA120-50	1200	25	1.7	-	-	15	38	11.0 to 12.5	150	2	4	8	P626	100
6MBP35VBA120-50	1200	35	1.7	-	-	15	53	11.0 to 12.5	150	2	4	8	P626	100
6MBP50VBA120-50	1200	50	1.7	-	-	15	75	11.0 to 12.5	150	2	4	8	P626	100
6MBP25VFN120-50	1200	25	1.7	-	-	15	50	11.0 to 12.5	150	2	4	8	P636	190
6MBP35VFN120-50	1200	35	1.7	-	-	15	70	11.0 to 12.5	150	2	4	8	P636	190
6MBP50VFN120-50	1200	50	1.7	-	-	15	100	11.0 to 12.5	150	2	4	8	P636	190
7MBP25VFN120-50	1200	25	1.7	1200	15	15	50	11.0 to 12.5	150	2	4	8	P636	190
7MBP35VFN120-50	1200	35	1.7	1200	25	15	70	11.0 to 12.5	150	2	4	8	P636	190
7MBP50VFN120-50	1200	50	1.7	1200	25	15	100	11.0 to 12.5	150	2	4	8	P636	190

IGBT Module IPM ＜V series＞

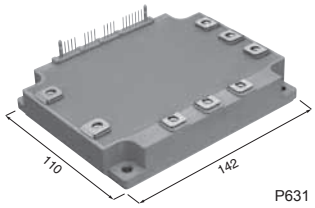
■ IPM (Intelligent Power Module) 600, 1200 volts class

Built-in protection functions

P-side fault status output (Alarm)
N-side fault status output (Alarm)
Under voltage protection (self shutdown)
Over current protection (self shutdown)
Overheating protection (self shutdown)



P630



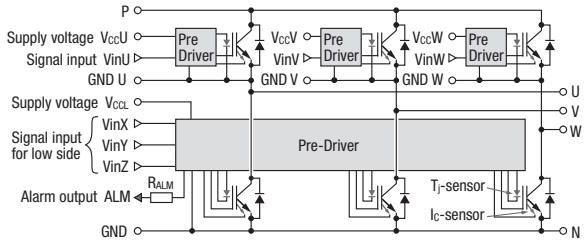
P631

							600V		1200V	
							V series		V series	
						I_C	Without Brake-Chopper	With Brake-Chopper	Without Brake-Chopper	With Brake-Chopper
P630	✓	✓	✓	✓	✓	25A			6MBP25VDA120-50	7MBP25VDA120-50
						35A			6MBP35VDA120-50	7MBP35VDA120-50
						50A	6MBP50VDA060-50	7MBP50VDA060-50	6MBP50VDA120-50	7MBP50VDA120-50
									6MBP50VDN120-50	7MBP50VDN120-50
						75A	6MBP75VDA060-50	7MBP75VDA060-50	6MBP75VDA120-50	7MBP75VDA120-50
									6MBP75VDN120-50	7MBP75VDN120-50
						100A	6MBP100VDA060-50	7MBP100VDA060-50	6MBP100VDA120-50	7MBP100VDA120-50
							6MBP100VDN060-50	7MBP100VDN060-50	6MBP100VDN120-50	7MBP100VDN120-50
						150A	6MBP150VDA060-50	7MBP150VDA060-50		
							6MBP150VDN060-50	7MBP150VDN060-50		
						200A	6MBP200VDA060-50	7MBP200VDA060-50		
							6MBP200VDN060-50	7MBP200VDN060-50		
P631	✓	✓	✓	✓	✓	100A			6MBP100VEA120-50	7MBP100VEA120-50
						150A			6MBP150VEA120-50	7MBP150VEA120-50
						200A	6MBP200VEA060-50	7MBP200VEA060-50	6MBP200VEA120-50	7MBP200VEA120-50
						300A	6MBP300VEA060-50	7MBP300VEA060-50		
						400A	6MBP400VEA060-50	7MBP400VEA060-50		

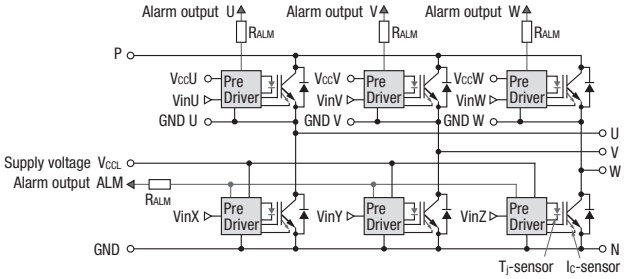
Dimension [mm]

●Block Diagram

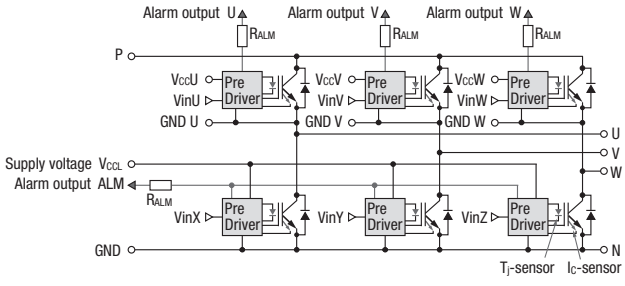
- 6MBP□VAA060-50
- 6MBP□VAA120-50



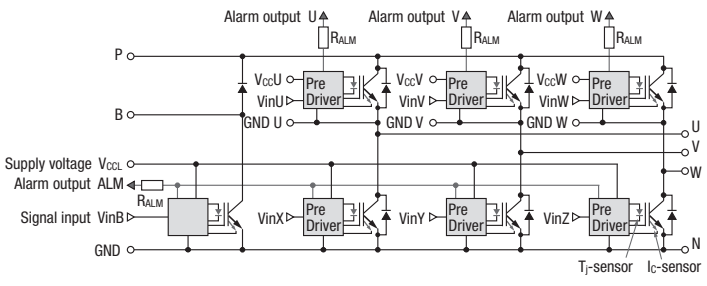
- 6MBP□VBA060-50
- 6MBP□VBA120-50



- 6MBP□VFN□-50
- 6MBP□VDA□-50
- 6MBP□VDN□-50
- 6MBP□VEA□-50



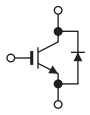
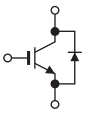
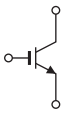
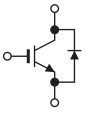
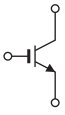
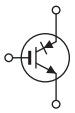
- 7MBP□VFN□-50
- 7MBP□VDA□-50
- 7MBP□VDN□-50
- 7MBP□VEA□-50



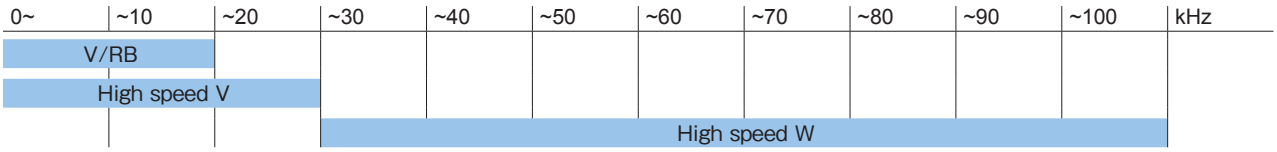
Device type	Inverter			Brake		Control				Alarm signal hold time			Package	Net mass
	V_{CES}	I_C Cont.	$V_{CE(sat)}$ typ.	V_{CES}	I_C Cont.	V_{CC} typ.	I_{OC}[INV] min.	V_{UV}	T_{jOH} min.	OC typ.	UV typ.	T_{jOH} typ.		
	Volts	Amps.	Volts	Volts	Amps.	Volts	Amps.	Volts	°C	ms	ms	ms		Grams
6MBP50VDA060-50	600	50	1.4	-	-	15	75	11.0 to 12.5	150	2	4	8	P630	290
6MBP75VDA060-50	600	75	1.4	-	-	15	113	11.0 to 12.5	150	2	4	8	P630	290
6MBP100VDA060-50	600	100	1.4	-	-	15	150	11.0 to 12.5	150	2	4	8	P630	290
6MBP100VDN060-50	600	100	1.4	-	-	15	150	11.0 to 12.5	150	2	4	8	P630	290
6MBP150VDA060-50	600	150	1.4	-	-	15	225	11.0 to 12.5	150	2	4	8	P630	290
6MBP150VDN060-50	600	150	1.4	-	-	15	225	11.0 to 12.5	150	2	4	8	P630	290
6MBP200VDA060-50	600	200	1.4	-	-	15	300	11.0 to 12.5	150	2	4	8	P630	290
6MBP200VDN060-50	600	200	1.4	-	-	15	300	11.0 to 12.5	150	2	4	8	P630	290
7MBP50VDA060-50	600	50	1.4	600	30	15	75	11.0 to 12.5	150	2	4	8	P630	290
7MBP75VDA060-50	600	75	1.4	600	50	15	113	11.0 to 12.5	150	2	4	8	P630	290
7MBP100VDA060-50	600	100	1.4	600	50	15	150	11.0 to 12.5	150	2	4	8	P630	290
7MBP100VDN060-50	600	100	1.4	600	50	15	150	11.0 to 12.5	150	2	4	8	P630	290
7MBP150VDA060-50	600	150	1.4	600	75	15	225	11.0 to 12.5	150	2	4	8	P630	290
7MBP150VDN060-50	600	150	1.4	600	75	15	225	11.0 to 12.5	150	2	4	8	P630	290
7MBP200VDA060-50	600	200	1.4	600	100	15	300	11.0 to 12.5	150	2	4	8	P630	290
7MBP200VDN060-50	600	200	1.4	600	100	15	300	11.0 to 12.5	150	2	4	8	P630	290
6MBP200VEA060-50	600	200	1.25	-	-	15	300	11.0 to 12.5	150	2	4	8	P631	940
6MBP300VEA060-50	600	300	1.25	-	-	15	450	11.0 to 12.5	150	2	4	8	P631	940
6MBP400VEA060-50	600	400	1.25	-	-	15	600	11.0 to 12.5	150	2	4	8	P631	940
7MBP200VEA060-50	600	200	1.25	600	100	15	300	11.0 to 12.5	150	2	4	8	P631	940
7MBP300VEA060-50	600	300	1.25	600	150	15	450	11.0 to 12.5	150	2	4	8	P631	940
7MBP400VEA060-50	600	400	1.25	600	200	15	600	11.0 to 12.5	150	2	4	8	P631	940
6MBP25VDA120-50	1200	25	1.7	-	-	15	38	11.0 to 12.5	150	2	4	8	P630	290
6MBP35VDA120-50	1200	35	1.7	-	-	15	53	11.0 to 12.5	150	2	4	8	P630	290
6MBP50VDA120-50	1200	50	1.7	-	-	15	75	11.0 to 12.5	150	2	4	8	P630	290
6MBP50VDN120-50	1200	50	1.7	-	-	15	75	11.0 to 12.5	150	2	4	8	P630	290
6MBP75VDA120-50	1200	75	1.7	-	-	15	113	11.0 to 12.5	150	2	4	8	P630	290
6MBP75VDN120-50	1200	75	1.7	-	-	15	113	11.0 to 12.5	150	2	4	8	P630	290
6MBP100VDA120-50	1200	100	1.7	-	-	15	150	11.0 to 12.5	150	2	4	8	P630	290
6MBP100VDN120-50	1200	100	1.7	-	-	15	150	11.0 to 12.5	150	2	4	8	P630	290
7MBP25VDA120-50	1200	25	1.7	1200	15	15	38	11.0 to 12.5	150	2	4	8	P630	290
7MBP35VDA120-50	1200	35	1.7	1200	15	15	53	11.0 to 12.5	150	2	4	8	P630	290
7MBP50VDA120-50	1200	50	1.7	1200	25	15	75	11.0 to 12.5	150	2	4	8	P630	290
7MBP50VDN120-50	1200	50	1.7	1200	25	15	75	11.0 to 12.5	150	2	4	8	P630	290
7MBP75VDA120-50	1200	75	1.7	1200	35	15	113	11.0 to 12.5	150	2	4	8	P630	290
7MBP75VDN120-50	1200	75	1.7	1200	35	15	113	11.0 to 12.5	150	2	4	8	P630	290
7MBP100VDA120-50	1200	100	1.7	1200	50	15	150	11.0 to 12.5	150	2	4	8	P630	290
7MBP100VDN120-50	1200	100	1.7	1200	50	15	150	11.0 to 12.5	150	2	4	8	P630	290
6MBP100VEA120-50	1200	100	1.7	-	-	15	150	11.0 to 12.5	150	2	4	8	P631	940
6MBP150VEA120-50	1200	150	1.7	-	-	15	225	11.0 to 12.5	150	2	4	8	P631	940
6MBP200VEA120-50	1200	200	1.7	-	-	15	300	11.0 to 12.5	150	2	4	8	P631	940
7MBP100VEA120-50	1200	100	1.7	1200	50	15	150	11.0 to 12.5	150	2	4	8	P631	940
7MBP150VEA120-50	1200	150	1.7	1200	75	15	225	11.0 to 12.5	150	2	4	8	P631	940
7MBP200VEA120-50	1200	200	1.7	1200	100	15	300	11.0 to 12.5	150	2	4	8	P631	940

Note：The products with "VDN" on this page have high heat dissipation characteristics.

Discrete IGBT

Package	V_{CES} (V)	I_C (A)	Trench-FS					RB-IGBT
			V Series	High-Speed V Series		High-Speed W Series		
								
 TO-247-P2	600/650	30	FGW30N60VD					
		35		FGW35N60HD FGW35N60HC	FGW35N60H			
		40				FGW40N65WD FGW40N65WE	FGW40N65W	
		50	FGW50N60VD	FGW50N60HD FGW50N60HC	FGW50N60H	FGW50N65WD FGW50N65WE	FGW50N65W	
		60				FGW60N65WD FGW60N65WE	FGW60N65W	
		75		FGW75N60HD FGW75N60HC	FGW75N60H	FGW75N65WE	FGW75N65W	
		85						FGW85N60RB
	1200	15	FGW15N120VD	FGW15N120HD	FGW15N120H			
		25	FGW25N120VD			FGW25N120WD FGW25N120WE	FGW25N120W	
		30		FGW30N120HD	FGW30N120H			
		40	FGW40N120VD	FGW40N120HD	FGW40N120H	FGW40N120WD FGW40N120WE	FGW40N120W	
 TO-247-4-P2	650	50				FGZ50N65WD FGZ50N65WE		
		75				FGZ75N65WE		
	1200	40				FGZ40N120WE		

■ Recommended operating frequency



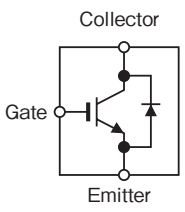
■ Part numbers

FGW35N60HD (example)

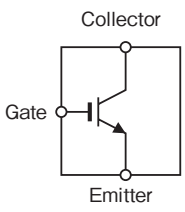
F	G		W		40	N		65		W		D	
Company	Device code		Package code		Current	Polarity		Voltage		Series		Diode Type	
Fuji	G	IGBT	W	TO-247-P2	×1	N	N-ch	60	600V	W	High Speed W series	C,E	w/ Diode (Full rated)
			Z	TO-247-4-P2				65	650V	H	High Speed V series		
								120	1200V	V	V series	D	w/ Diode
										RB	RB-IGBT	Blank	w/o Diode

■ Equivalent circuit

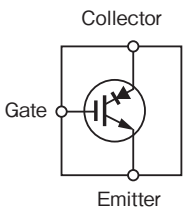
(a) with Diode



(b) without Diode



(c) Discrete RB-IGBT



Discrete IGBT High Speed W series 650V,1200V class

Features

- IGBT in Trench-gate structure and Field-stop technology
- Low $V_{CE(sat)}$ and low switching Loss
- High switching frequency (to 100kHz)

IGBT in field-stop technology and trench-gate structure with Ultra fast FWD
650,1200 volts class

Device type	Maximum Ratings				$V_{CE(sat)}$	E_{on}	E_{off}	Q_G	V_F		Q_{rr}	Package	Net mass
	V_{CES}	I_C T_C=100° C	I_{CP}	P_D IGBT	(V_{GE}=15V) typ.	(r_g=10Ω) typ.		typ.	typ.	I_F T_C=100° C	typ.		
	Volts	Amps.	Amps.	Watts	Volts	mJ	mJ	nC	Volts	Amps.	μC		Grams
● **FGW40N65W**	650	40	160	260	1.8	0.29	0.29	180	-	-	-	TO-247-P2	6.0
● **FGW40N65WD**	650	40	160	260	1.8	0.29	0.29	180	2.5	20	0.26	TO-247-P2	6.0
● **FGW40N65WE**	650	40	160	260	1.8	0.29	0.29	180	2.5	40	0.29	TO-247-P2	6.0
● **FGW50N65W**	650	50	200	330	1.8	0.42	0.46	215	-	-	-	TO-247-P2	6.0
● **FGW50N65WD**	650	50	200	330	1.8	0.42	0.46	215	2.5	25	0.32	TO-247-P2	6.0
● **FGW50N65WE**	650	50	200	330	1.8	0.42	0.46	215	2.5	50	0.35	TO-247-P2	6.0
● **FGZ50N65WD**	650	50	200	330	1.8	0.12	0.40	215	2.5	25	0.32	TO-247-4-P2	6.0
● **FGZ50N65WE**	650	50	200	330	1.8	0.12	0.40	215	2.5	50	0.35	TO-247-4-P2	6.0
● **FGW60N65W**	650	60	240	405	1.8	0.6	0.67	250	-	-	-	TO-247-P2	6.0
● **FGW60N65WD**	650	60	240	405	1.8	0.6	0.67	250	2.5	30	0.3	TO-247-P2	6.0
● **FGW60N65WE**	650	60	240	405	1.8	0.6	0.67	250	2.5	60	0.33	TO-247-P2	6.0
● **FGW75N65W**	650	75	300	520	1.8	0.95	1.2	300	-	-	-	TO-247-P2	6.0
● **FGW75N65WE**	650	75	300	520	1.8	0.95	1.2	300	2.5	75	0.41	TO-247-P2	6.0
● **FGZ75N65WE**	650	75	300	520	1.8	0.37	0.68	300	2.5	75	0.41	TO-247-4-P2	6.0
● **FGW25N120W**	1200	25	100	270	2.0	0.9	1.3	80	-	-	-	TO-247-P2	6.0
● **FGW25N120WD**	1200	25	100	270	2.0	0.9	1.3	80	2.2	12	0.6	TO-247-P2	6.0
● **FGW25N120WE**	1200	25	100	270	2.0	0.9	1.3	80	2.2	25	0.6	TO-247-P2	6.0
● **FGW40N120W**	1200	40	160	430	2.0	2.8	1.6	120	-	-	-	TO-247-P2	6.0
● **FGW40N120WD**	1200	40	160	430	2.0	2.8	1.6	120	2.2	20	0.95	TO-247-P2	6.0
● **FGW40N120WE**	1200	40	160	430	2.0	2.8	1.6	120	2.4	40	2.2	TO-247-P2	6.0
● **FGZ40N120WE**	1200	40	160	430	2.0	1.1	1.4	120	2.4	40	2.2	TO-247-4-P2	6.0

● : New Products

Discrete IGBT V/High Speed V series 600V, 1200V class

Features

- IGBT in Trench-gate structure and Field-stop technology
- Low $V_{CE(sat)}$ and low switching Loss
  (High Speed V series)
- Short circuit withstand time; t_{sc}=10µs (V series)

IGBT in field-stop technology and trench-gate structure with Ultra fast FWD
600 volts class

Device type	Maximum Ratings				$V_{CE(sat)}$	E_{on}	E_{off}	Q_G	V_F		Q_{rr}	Package	Net mass
	V_{CES}	I_C T_C=100° C	I_{CP}	P_D IGBT	(V_{GE}=15V) typ.	(r_g=10Ω) typ.		typ.	typ.	I_F	typ.		
	Volts	Amps.	Amps.	Watts	Volts	mJ	mJ	nC	Volts	Amps.	µC		Grams
FGW30N60VD	600	30	60	230	1.6	1.2	0.7	225	1.5	25	0.7	TO-247-P2	6.0
FGW35N60H	600	35	105	230	1.5	0.9	0.85	210	-	-	-	TO-247-P2	6.0
FGW35N60HD	600	35	105	230	1.5	0.9	0.85	210	2.0	15	0.06	TO-247-P2	6.0
FGW35N60HC	600	35	105	230	1.5	0.95	0.85	210	2.35	35	0.13	TO-247-P2	6.0
FGW50N60H	600	50	150	360	1.5	1.4	1.7	305	-	-	-	TO-247-P2	6.0
FGW50N60HD	600	50	150	360	1.5	1.4	1.7	305	2.0	25	0.08	TO-247-P2	6.0
FGW50N60HC	600	50	150	360	1.5	1.5	1.7	305	2.3	50	0.07	TO-247-P2	6.0
FGW50N60VD	600	50	100	360	1.6	2.4	1.4	360	1.5	35	0.75	TO-247-P2	6.0
FGW75N60H	600	75	225	500	1.5	3.0	4.2	460	-	-	0.12	TO-247-P2	6.0
FGW75N60HD	600	75	225	500	1.5	3.0	4.2	460	2.0	35	0.13	TO-247-P2	6.0
FGW75N60HC	600	75	225	500	1.5	3.8	4.2	460	2.3	75	0.3	TO-247-P2	6.0

1200 volts class

Device type	Maximum Ratings				$V_{CE(sat)}$	E_{on}	E_{off}	Q_G	V_F		Q_{rr}	Package	Net mass
	V_{CES}	I_C T_C=100° C	I_{CP}	P_D IGBT	(V_{GE}=15V) typ.	(r_g=10Ω) typ.		typ.	typ.	I_F	typ.		
	Volts	Amps.	Amps.	Watts	Volts	mJ	mJ	nC	Volts	Amps.	µC		Grams
FGW15N120H	1200	15	45	155	1.8	0.6	0.8	140	-	-	-	TO-247-P2	6.0
FGW15N120HD	1200	15	45	155	1.8	0.6	0.8	140	2.2	12	0.6	TO-247-P2	6.0
FGW15N120VD	1200	15	30	155	1.85	1.1	0.8	150	1.7	15	0.85	TO-247-P2	6.0
FGW25N120VD	1200	25	50	260	1.85	2.2	1.4	235	1.7	25	1.2	TO-247-P2	6.0
FGW30N120H	1200	30	90	260	1.8	1.6	1.5	230	-	-	-	TO-247-P2	6.0
FGW30N120HD	1200	30	90	260	1.8	1.6	1.5	230	2.2	20	0.95	TO-247-P2	6.0
FGW40N120H	1200	40	120	340	1.8	2.8	1.8	300	-	-	-	TO-247-P2	6.0
FGW40N120HD	1200	40	120	340	1.8	2.8	1.8	300	2.2	30	1.35	TO-247-P2	6.0
FGW40N120VD	1200	40	80	340	1.85	4.3	2.2	320	1.7	30	1.45	TO-247-P2	6.0

Discrete RB-IGBT

Features

- Reverse blocking character is realized for 1 chip by Fuji's original technology.
- High efficiency by applying to T-type 3 level inverter circuit.

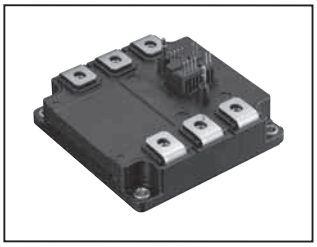
Characteristics

Device type	Maximum Ratings					$V_{CE(sat)}$	E_{on}	E_{off}	Q_G	t_{rr}	Package	Net mass
	V_{CES}	I_C T_C=100° C	I_{CP}	t_{sc}	P_D IGBT	(V_{GE}=15V) typ.	(r_g=10Ω) typ.		typ.	typ.		
	Volts	Amps.	Amps.	µsec.	Watts	Volts	mJ	mJ	nC	n sec		Grams
FGW85N60RB	600	85	170	10	600	2.45	4.7	2.4	300	165	TO-247-P2	6.0

IGBT Module for Electric Vehicle and Hybrid Electric Vehicle

IGBT IPM for Electric Vehicle and Hybrid Electric Vehicle

Features



- Including circuit board which has IGBT drive and protection function
  - Optical isolated
    (signal input, IGBT's temperature monitor, alarm output)
  - Detection and protection
    (short-circuit, over-temperature, under-voltage)
  - Lead Free Package

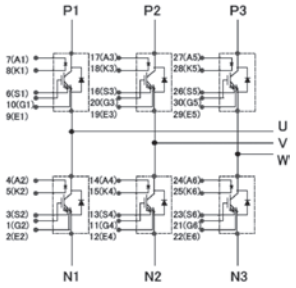
Characteristics

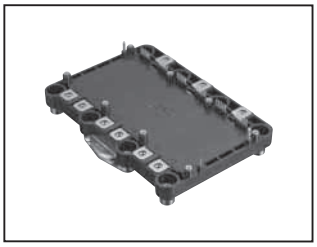
(T_{vj}=25°C)

Device type	V_{CES} Volts	$I_{C(Cont)}$ Amps.	$V_{CE(sat)}$ typ. Volts	V_F typ. Volts	Package	Net mass Grams
2MBP600UN120V	1200	600	2.00	2.20	P401	680

IGBT Module for Electric Vehicle and Hybrid Electric Vehicle

Features





- 7th Generation "RC-IGBT" 750V-IGBT
- Direct liquid Cooling AL Water jacket
- High power density, small and light weight package
- High reliability : T_{vjmax} 175℃ guaranteed
- RoHS compliant

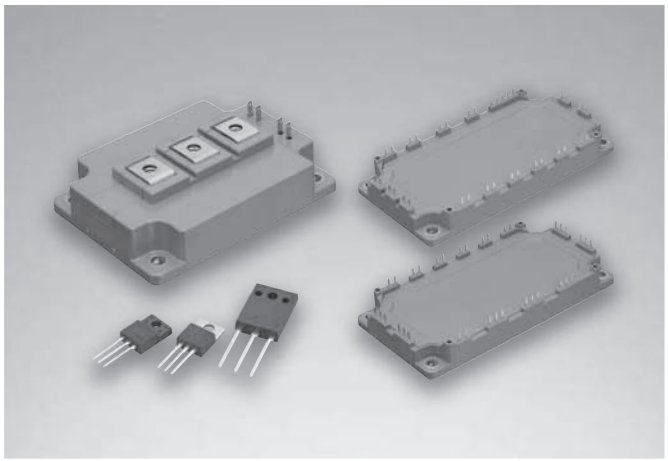
Characteristics

$V_{CE\ (sat)}$: at T_{vj}=25°C, Chip

Device type	V_{CES} Volts	$I_{C(Cont)}$ Amps.	$I_{C(Peak)}$ Amps.	$V_{CE(sat)}$ typ. Volts	V_F typ. Volts	Package	Net mass Grams
6MBI800XV-075V-01	750	570	1600	1.45 (I_C=800A)	1.50 (I_F=800A)	M653	560

SiC Devices

SiC devices have excellent characteristics that realize high blocking voltage, low power dissipation, high-frequency operation and high-temperature operation.
Power semiconductors that make use of SiC achieve significant reduction in energy consumption, and can be used to develop smaller and lighter products.



IGBT Hybrid Modules with SiC-SBD V series

■ Features

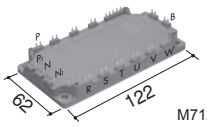
- High performance chips
  - · V series IGBT for low loss operation
  - · SiC-SBD for low loss operation
- The same package lineup as the conventional Si-IGBT modules

■Part numbers

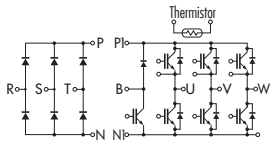
2MSI300VAH-120C-53 (example)

2	MS	I	300	V	A	H	120	C	53
Number of IGBT Switches	Chip : Si-IGBT+SiC-SBD	Internal Configuration	Rated Current	IGBT Device Technology	SBD Dvice	Package Type	Max V_{CE}	SiC-SBD for converter	RoHS Compliant
		I: Standard Modules	× 1	V: V series (6th Generation)	A: 1st gen.		060: 600V	C: Large current	None, 01 to 49 Non RoHS Compliant
		R: Power Integrated Modules					120: 1200V		50 to 99 RoHS Compliant
							170: 1700V		

■ PIM/Built-in converter and brake EconoPIM™ 600, 1200 volts class



M712



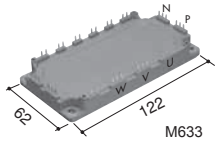
I_C	600V	1200V
	IGBT Hybrid Modules with SiC-SBD V series	
35A		**7MSR35VAB120-50**
50A	**7MSR50VAB060-50**	**7MSR50VAB120-50**
75A	**7MSR75VAB060-50**	
100A	**7MSR100VAB060-50**	

Dimension [mm]

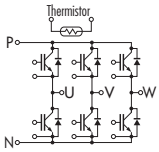
Device type	Inverter [IGBT]				Brake [IGBT+FED]			Converter [Diode]				Package	Net mass
	V_{CES}	I_C Cont.	P_C	$V_{CE(sat)}$ typ.	V_{CES}	I_C Cont.	V_{RRM}	V_{RRM}	I_O Cont.	V_{FM} typ.	I_{FSM}		
	Volts	Amps.	Watts	Volts	Volts	Amps.	Volts	Volts	Amps.	Volts	Amps.		Grams
● **7MSR50VAB060-50**	600	50	215	1.6	600	50	600	800	50	1.3	210	M712	330
● **7MSR75VAB060-50**	600	75	300	1.6	600	50	600	800	75	1.25	500	M712	330
● **7MSR100VAB060-50**	600	100	335	1.6	600	50	600	800	100	1.25	700	M712	330
● **7MSR35VAB120-50**	1200	35	210	1.85	1200	25	1200	1600	35	1.35	260	M712	330
● **7MSR50VAB120-50**	1200	50	280	1.85	1200	35	1200	1600	50	1.35	360	M712	330

● : New Products
Note: EconoPIM™ is registered trademarks of Infineon Technologies AG, Germany.

■ 6-pack EconoPACK™ 1200 volts class



M633



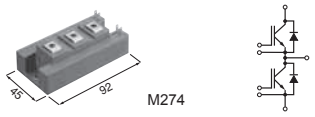
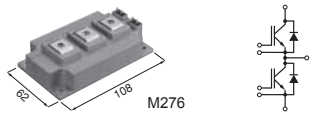
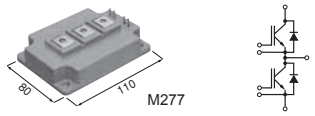
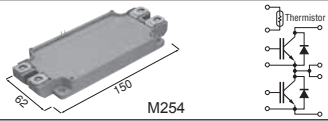
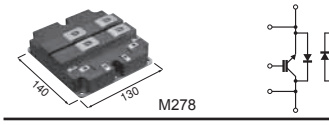
I_C	1200V
	IGBT Hybrid Modules with SiC-SBD V series
100A	**6MSI100VAB-120-50**

Dimension [mm]

Device type	V_{CES}	V_{GES}	I_C Cont.	P_C	$V_{CE(sat)}$ (V_{GE}=15V) typ.	I_C	Switching time t_{on} typ.	t_{off} typ.	t_f typ.	Package	Net mass
	Volts	Volts	Amps.	Watts	Volts	Amps.	µsec.	µsec.	µsec.		Grams
● **6MSI100VAB-120-50**	1200	±20	100	520	1.75	100	0.39	0.42	0.05	M633	300

● : New Products
Note: EconoPACK™ is registered trademarks of Infineon Technologies AG, Germany.

■ Standard 2-pack 1200, 1700 volts class

	I_C	1200V	1700V
		IGBT Hybrid Modules with SiC-SBD V series	
 M274	200A	**2MSI200VAB-120-53**	
 M276	300A	**2MSI300VAH-120C-53**	
 M277	400A		**2MSI400VAE-170-53**
 M254	300A	**2MSI300VAN-120-53**	
	450A	**2MSI450VAN-120-53**	**2MSI450VAN-170-53**
	550A		**2MSI550VAN-170-53**
	600A	**2MSI600VAN-120-53**	
 M278	1200A		**2MSI1200VAT-170PC**
			2MSI1200VAT-170EC

Dimension [mm]

Device type	V_{CES} Volts	V_{GES} Volts	I_C Cont. Amps.	P_C Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	Switching time t_{on} typ. µsec.	t_{off} typ. µsec.	t_f typ. µsec.	Package	Net mass Grams
● **2MSI200VAB-120-53**	1200	±20	200	1500	1.75	200	0.64	0.70	0.07	M274	270
● **2MSI300VAH-120C-53**	1200	±20	300	1600	1.75	300	0.82	0.84	0.09	M276	370
○ **2MSI300VAN-120-53**	1200	±20	300	1595	1.75	300	TBD	TBD	TBD	M254	300
● **2MSI450VAN-120-53**	1200	±20	450	2270	1.75	450	0.36	0.72	0.07	M254	300
○ **2MSI600VAN-120-53**	1200	±20	600	3750	1.85	600	TBD	TBD	TBD	M254	300
○ **2MSI450VAN-170-53**	1700	±20	450	2500	2.00	450	TBD	TBD	TBD	M254	300
○ **2MSI550VAN-170-53**	1700	±20	550	3750	2.15	550	TBD	TBD	TBD	M254	300
● **2MSI400VAE-170-53**	1700	±20	400	4540	2.00	400	1.05	1.95	0.09	M277	470
● **2MSI1200VAT-170PC**	1700	±20	1200	7040	1.80	1200	3.05	2.42	0.34	M278	900
● **2MSI1200VAT-170EC**	1700	±20	1200	7040	2.00	1200	1.24	1.87	0.21	M278	900

● : New Products ○ : Under development

SiC Schottky-Barrier Diodes (SBD)

Features

- High speed switching
  - High-frequency operation,miniaturization,weight saving
- Low-V_F
- Low-I_R
  - T_{vj}=175°C Guaranteed, High-temperature operation, Low-Loss, High efficiency
- High avalanche capability

Part numbers

FDCP10S65A(example)

F	DC		P		10	S		65		A	
Company code	Device code		Package code		Current	Polarity		Voltage		Application	
Fuji	DC	SiCSBD	A	TO-220F	× 1	S, T	Single	65	650V	A	For Automotive
			C	T-Pack(s)		C	Cathode Common	120	1200V		
			P	TO-220							
			Y	TO-247							
			W	TO-247-P2							

SiC-SBD Series

SiC-SBD Series			TO-220-2	TO-220	TO-220F-2	TO-220F	TO-247-2-P2	TO-247	T-Pack(s)
Chip	V_{RRM} (V)	I_F (A)							
Single	650	10	✓		✓			✓	✓
		25	✓		✓			✓	✓
	1200	18			✓		✓	✓	
Dual	650	20		✓		✓		✓	✓
		50						✓	
	1200	36						✓	

Device type	Maximaum rating			Thermal rating	Characteristics (T_a=25°C)		Package	Net mass
	V_{RRM} Volts	I_F Amps.	I_{FSM} *1 Amps.	T_{vj} max.(°C)	V_F max. Volts	I_{RRM} *2 max. μA		Grams
FDCP10S65	650	10	50	175	1.8	10	TO-220-2	2.0
FDCP20C65	650	20	50	175	1.8	10	TO-220	2.0
FDCP25S65	650	25	100	175	1.6	10	TO-220-2	2.0
FDCA10S65	650	10	50	175	1.8	10	TO-220F-2	1.7
FDCA20C65	650	20	50	175	1.8	10	TO-220F	1.7
FDCA25S65	650	25	100	175	1.6	10	TO-220F-2	1.7
FDCY10S65	650	10	50	175	1.8	10	TO-247	6.4
FDCY20C65	650	20	50	175	1.8	10	TO-247	6.4
FDCY25S65	650	25	100	175	1.6	10	TO-247	6.4
FDCY50C65	650	50	100	175	1.6	10	TO-247	6.4
FDCC10S65	650	10	50	175	1.8	10	T-Pack(S)	1.6
FDCC20C65	650	20	50	175	1.8	10	T-Pack(S)	1.6
FDCC25S65	650	25	100	175	1.6	10	T-Pack(S)	1.6
FDCA18S120	1200	18	90	175	1.7	10	TO-220F-2	1.7
FDCY18S120	1200	18	90	175	1.7	10	TO-247	6.4
● **FDCW18T120**	1200	18	90	175	1.7	10	TO-247-2-P2	6.0
FDCY36C120	1200	36	90	175	1.7	10	TO-247	6.4

● : New Products

*1: Half sine wave t_p=10ms
*2: V_R=V_{RRM}

■ Automotive SiC Schottky-Barrier Diodes

SiC-SBD Series			TO-220-2	TO-220	TO-247	T-Pack(s)
						
Chip	V_{RRM} (V)	I_F (A)				
Single	650	10	✓		✓	✓
		25	✓		✓	✓
	1200	18			✓	
Dual	650	20		✓	✓	✓
		50			✓	
	1200	36			✓	

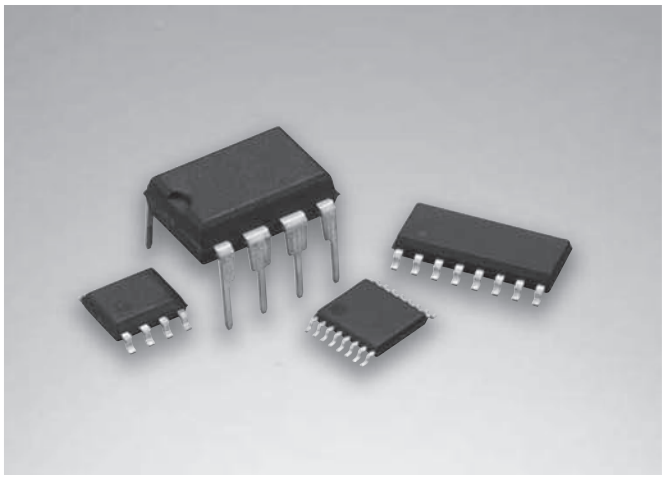
Device type	Maximaum rating			Thermal rating	Characteristics (T_a=25°C)		Package	Net mass
	V_{RRM} Volts	I_F Amps.	I_{FSM} *1 Amps.	T_{vj} and T_{stg} °C	V_F max. Volts	I_{RRM} *2 max. µA		Grams
FDCP10S65A	650	10	50	-55 to +175	1.8	5	TO-220-2	2.0
FDCY10S65A	650	10	50	-55 to +175	1.8	5	TO-247	6.4
FDCC10S65A	650	10	50	-55 to +175	1.8	5	T-Pack(S)	1.6
FDCP20C65A	650	20	100	-55 to +175	1.8	5	TO-220	2.0
FDCY20C65A	650	20	100	-55 to +175	1.8	5	TO-247	6.4
FDCC20C65A	650	20	100	-55 to +175	1.8	5	T-pack(S)	1.6
FDCP25S65A	650	25	100	-55 to +175	1.7	10	TO-220-2	2.0
FDCY25S65A	650	25	100	-55 to +175	1.7	10	TO-247	6.4
FDCC25S65A	650	25	100	-55 to +175	1.7	10	T-pack(S)	1.6
FDCY50C65A	650	50	200	-55 to +175	1.7	10	TO-247	6.4
FDCY18C120A	1200	18	90	-55 to +175	1.8	10	TO-247	6.4
FDCY36C120A	1200	36	180	-55 to +175	1.8	10	TO-247	6.4

*1: Half sine wave t_p=10ms
*2: V_R=V_{RRM}

3 Integrated Circuits

Integrated Circuits

Fuji Electric offers a lineup of AC/DC and DC/DC power supply control ICs that support a variety of power circuits. These highly efficient, low-noise products with low standby power consumption are compatible with environmental regulations. Furthermore, many protection functions are built into the ICs themselves, allowing for smaller power circuits.



Features of Power Supply control ICs

Green Mode PWM-ICs

■ Features

- Built-in 500/650V withstand voltage start up circuit
- Green mode functions (Intermittent Switching/Linerary reduced switching frequency)
- Protect functions (Over voltage/Brown out/2 stage Over power)
- Low EMI noise

Green Mode Quasi-resonant ICs

■ Features

- Built-in 500V withstand voltage start up circuit
- Green mode functions (Intermittent Switching/Linerary reduced switching frequency)
- Protect functions (Over voltage/Over load etc.)

Power Factor Correction ICs

■ Features

- Wide electric power range(From 75W to 1kW)
- Power factor ≧ 0.99
- Protect functions (FB Pin open short/Over voltage etc.)

Current Resonant ICs

■ Features

- Realize 1 convertor circuit structure at world wide input power
- Built-in High side driver
- Preventing capacitive region operation
- Protect functions (Over current/Over voltage/Over load/Over heat/Brown out)
- Green mode function (Intermittent switching)

High and Low side driver IC

■ Features

- High negative transient voltage on VS terminal
- Wide range supply voltage up to 30V (FA5650/5651)
- 3.3V logic compatible
- Built-in under voltage lockout
- Allowable offset supply voltage transient dVs/dt up to 50kV/us
- High speed response: Turn on/off delay time 125ns (Typ) (FA5650/5651/5751)

■ Part numbers

FA8A00N (example)

F		A		8		A		00	N	
Company Symbol		Control System		Series		Generation		Number	Package code	
F	Fuji	A	Analog	1	CRMPFC	A	1G	Two-digit integer	N	SOP
				6	LLC	B	2G		P	DIP
				8	PWM	C	3G			
						…	…			

FA5590N (example)

F		A		55		90	N	
Company Symbol		Control System		Series		Number	Package code	
F	Fuji	A	Analog	3X	AC/DC	Two-digit integer	N/S	SOP
				5X	AC/DC		P	DIP
				7X	DC/DC			
				13X	AC/DC			

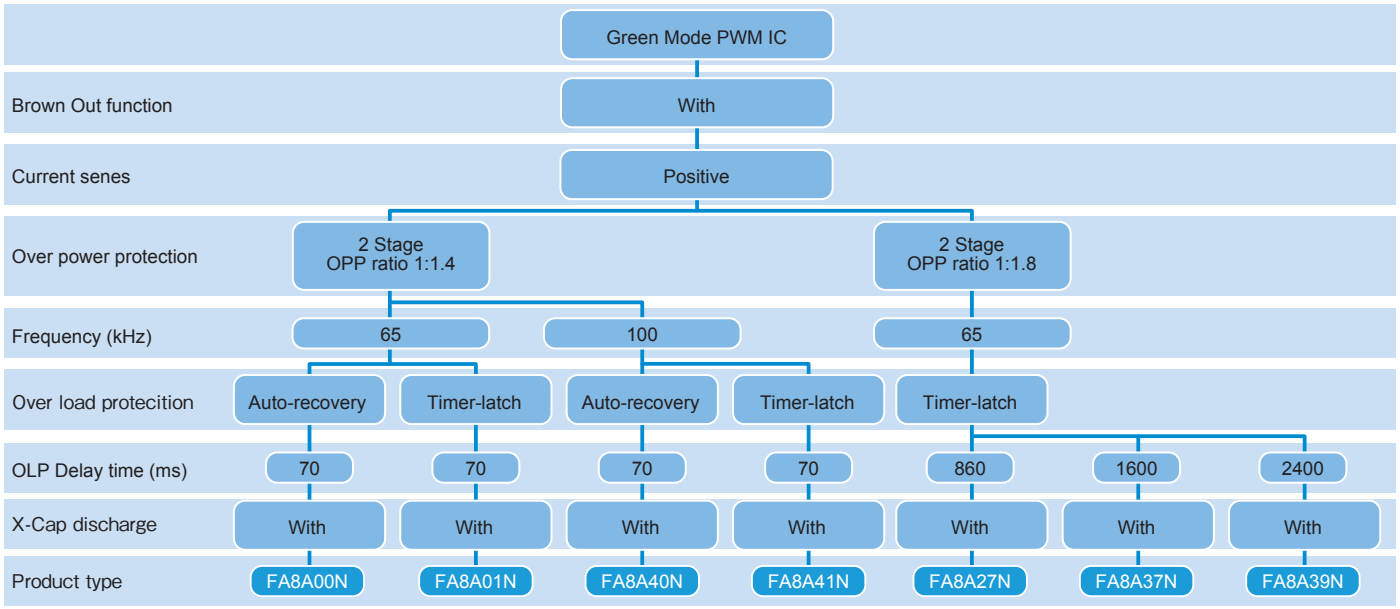
AC/DC Power Supply control ICs

● Green mode PWM-ICs (Current mode)

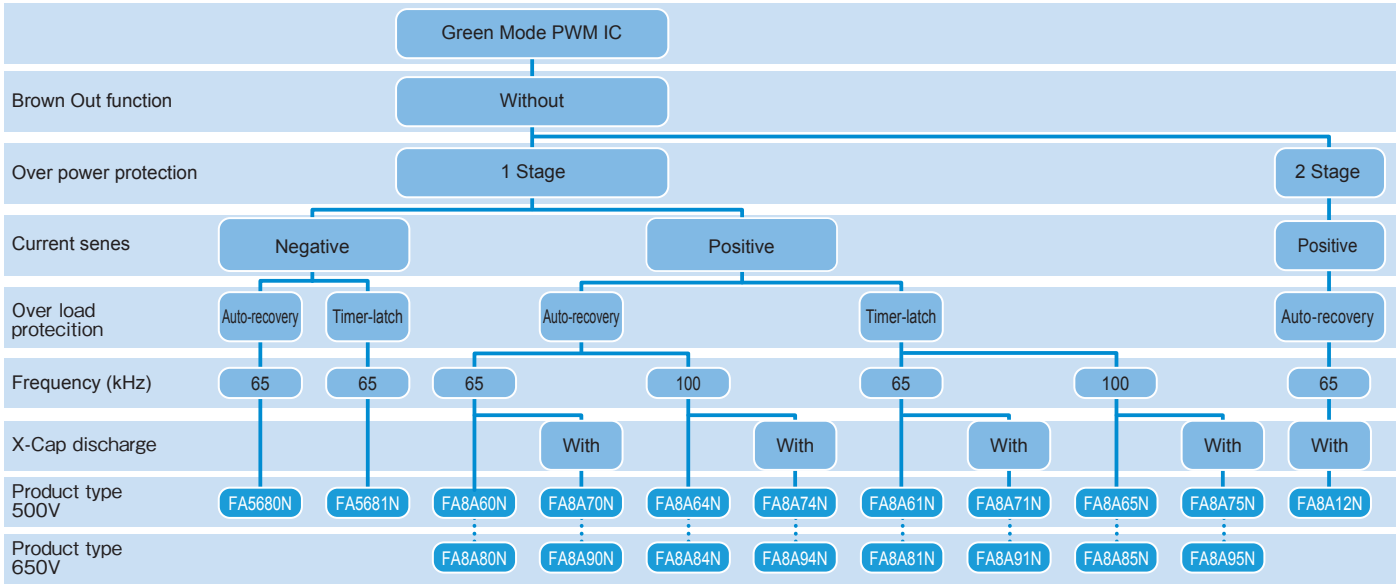
Type Name	Duty	Input voltage	Frequency		Current sense	Over load protection	Over power protection	Over voltage protection	Built-in start up circuit	Green mode function	X-Cap discharge function
			65kHz	100kHz							
With Brown out function											
FA8A00N	83%	12 - 24V	✓		Positive	Auto-Recovery	2Stage (OPP ratio 1:1.4)	Latch	500V	Linerary frequency reduction Intermittent opration	✓
FA8A40N				✓							
FA8A01N			✓			Timer-latch					
FA8A41N				✓							
FA8A27N		10 - 28V	✓				2Stage (OPP ratio 1:1.8)				
FA8A37N											
FA8A39N											
Without Brown out function											
FA5680N	85%	11 - 24V	✓		Negative	Auto-Recovery	1Stage	Latch	500V	Linerary frequency reduction Intermittent opration	
FA5681N			✓			Timer-latch					
FA8A60N	83%	10 - 24V	✓		Positive	Auto-Recovery					
FA8A64N				✓							
FA8A61N			✓			Timer-latch					
FA8A65N				✓							
FA8A70N			✓			Auto-Recovery					✓
FA8A74N				✓							
FA8A71N			✓			Timer-latch					
FA8A75N				✓							
FA8A12N			✓			Auto-Recovery	2Stage				
FA8A80N			✓			Auto-Recovery	1Stage		650V		
FA8A84N				✓							
FA8A81N			✓			Timer-latch					
FA8A85N				✓							
FA8A90N			✓			Auto-Recovery					
FA8A94N				✓							✓
FA8A91N			✓			Timer-latch					
FA8A95N				✓							

PKG: All 8pin

● Green mode PWM-ICs with Brown Out function

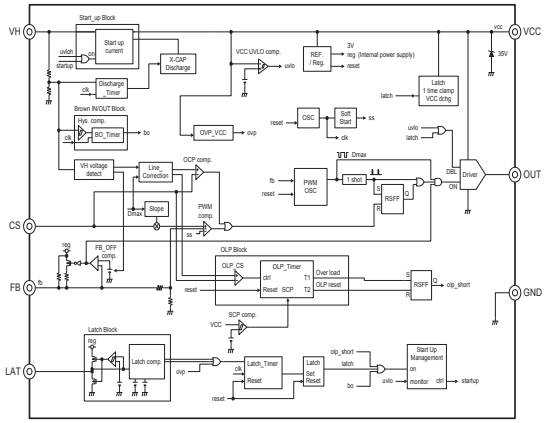


● Green mode PWM-ICs without Brown Out function

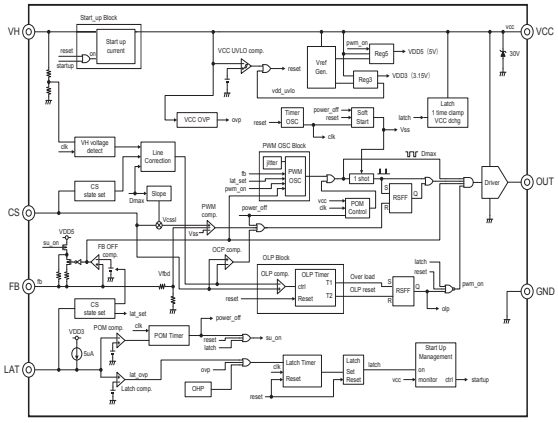


● Block diagram (Main model)

FA8A00N（With Brown out)



FA8A61N（Without Brown out)

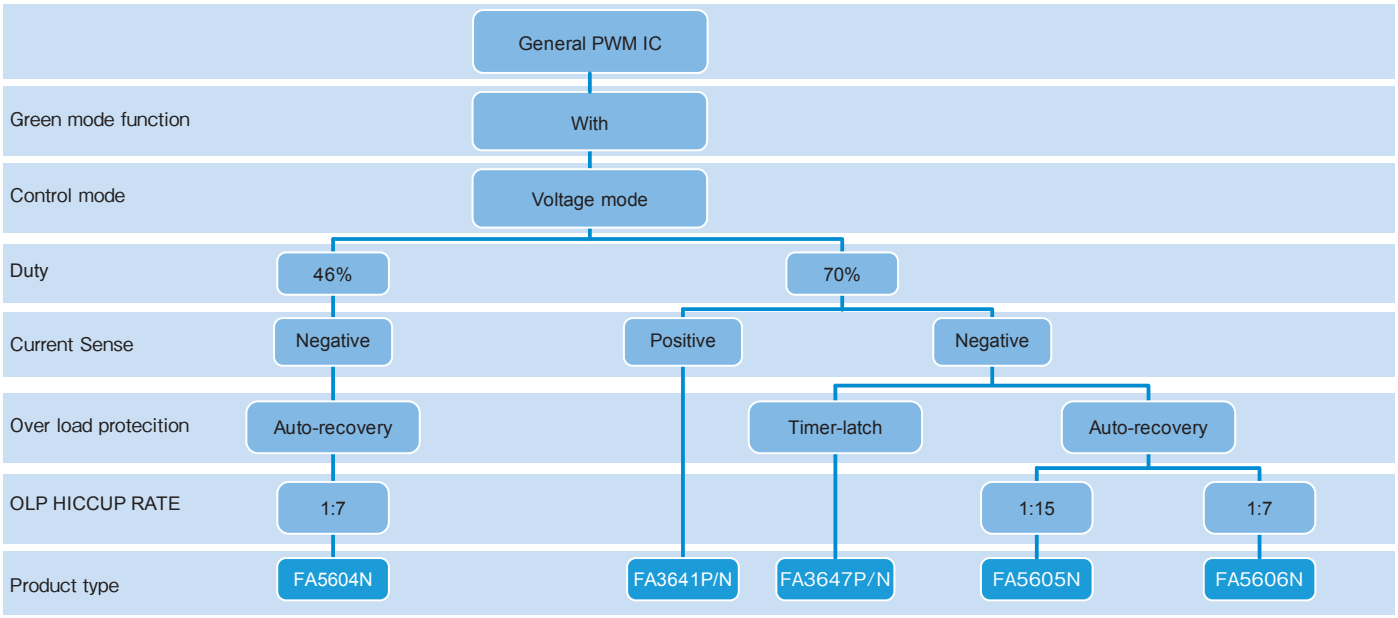


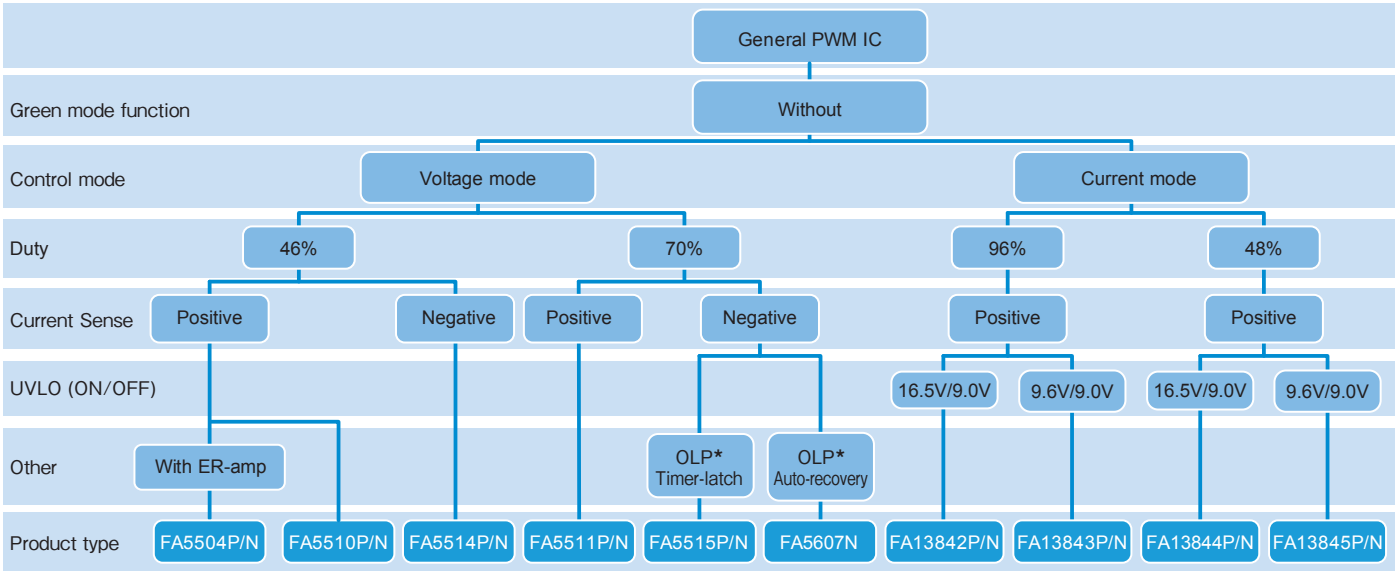
● General PWM-ICs

Type Name	Control mode	Duty	Input voltage	Current sense	Over load protection	Over voltage protection	Under-voltage lockout (ON/OFF)	Remarks
With Green mode function								
FA3641P/N	Voltage mode	70%	10 - 28V	Positive	Timer-latch	Latch	–	
FA3647P/N				Negative			–	
FA5604N		46%	10 - 30V	Negative	Auto-Recovery		17.5V/9.7V	Frequency reduction start/stop FB voltage under light load 1.8V/1.95V
FA5605N		70%						
FA5606N								Frequency reduction start/stop FB voltage under light load 1.55V/1.65V
Without Green mode function								
FA13842P/N	Current mode	96%	10 - 25V	Positive	–	–	16.5V/9.0V	
FA13843P/N								
FA13844P/N		48%						
FA13845P/N								
FA5504P/N	Voltage mode	46%	10 - 28V		Timer-latch	Latch	–	With error amplifier
FA5510P/N								
FA5511P/N		70%						
FA5514P/N		46%		Negative				
FA5515P/N		70%						
FA5607N			10 - 30V		Auto-Recovery		17.5V/9.7V	

PKG: All 8pin
Frequency: Adjustable

● General PWM-ICs

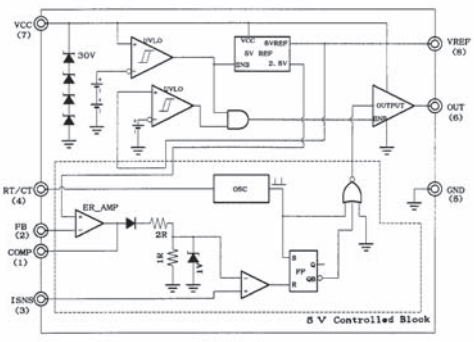




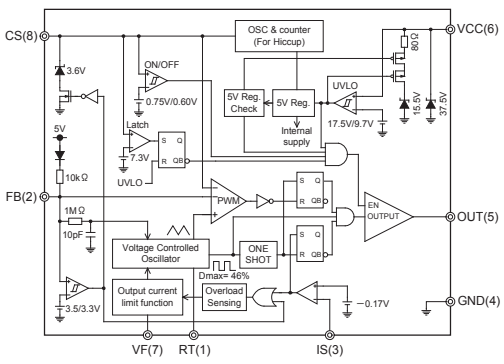
*OLP : Over Load Protection

● Block diagram (Main model)

FA13842P/N



FA5604N

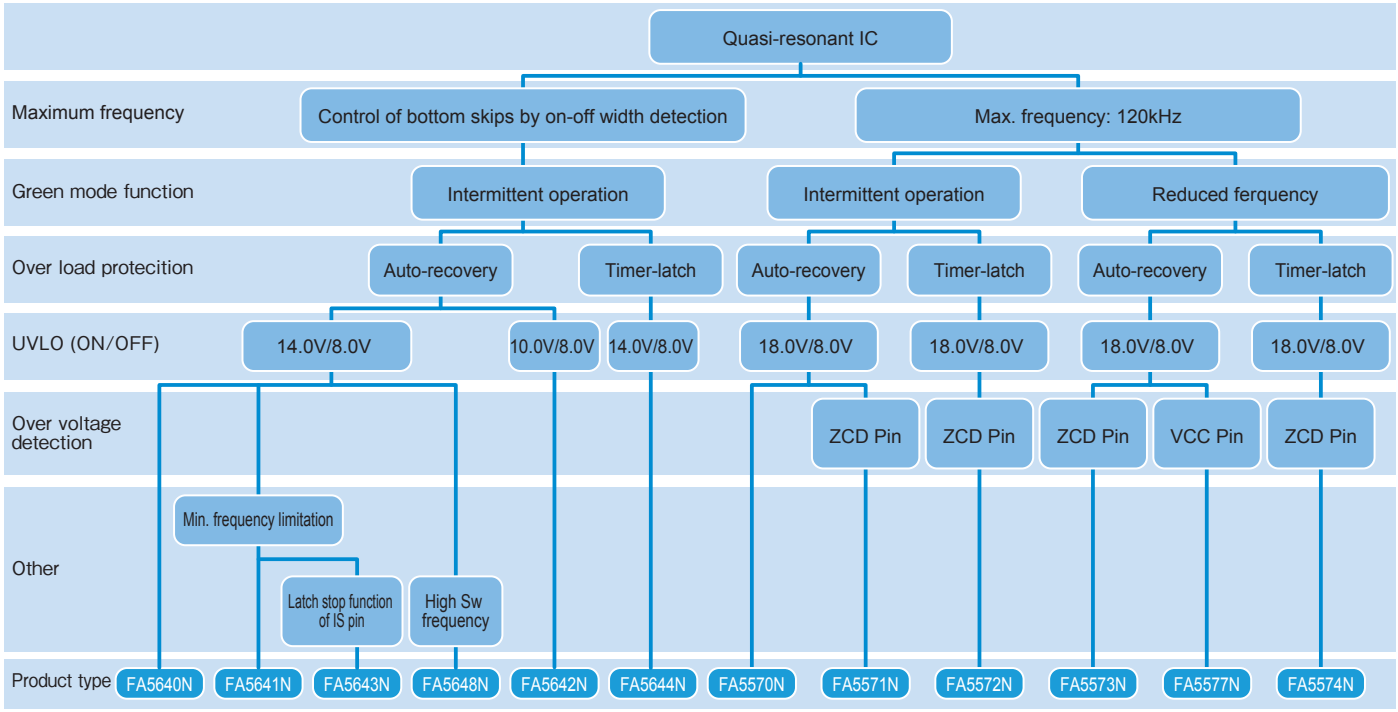


● Green mode Quasi-resonant ICs（Current mode）

Type Name	Input voltage	Maximum frequency	Over load protection	Over voltage sense	Built-in start up circuit	Green mode function	Under-voltage lockout (ON/OFF)	Remarks
FA5570N	10 - 28V	120kHz	Auto-Recovery	–	500V	Intermittent operation	18V/8V	
FA5571N				ZCD Pin				Over voltage protection Latch
FA5572N			Timer-latch					
FA5573N			Auto-Recovery			Linerary frequency reduction		
FA5574N			Timer-latch					
FA5577N			Auto-Recovery	VCC Pin				
FA5640N	11 - 26V	Bottom skip control by on-off width detection	Auto-Recovery	ZCD Pin		Intermittent operation	14V/8V	
FA5641N								Min. frequency limitation
FA5642N							10V/8V	
FA5643N							14V/8V	Min. frequency limitation Latch stop function (IS pin)
FA5644N			Timer-latch					
FA5648N			Auto-Recovery					For High SW frequency

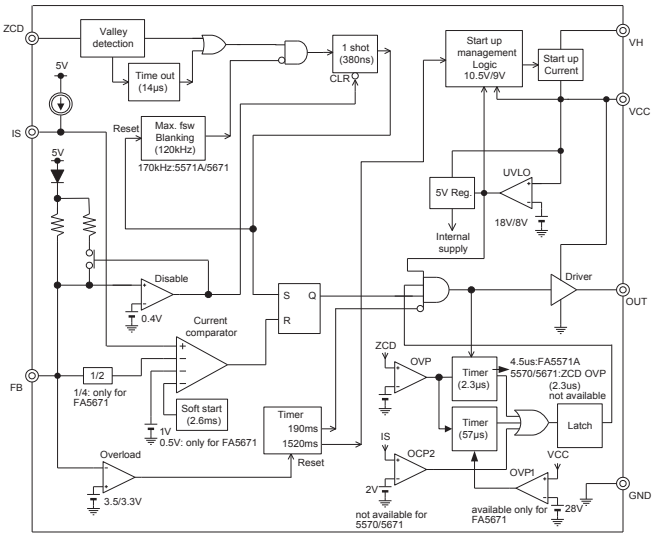
PKG: All 8pin

● Green mode Quasi-resonant ICs

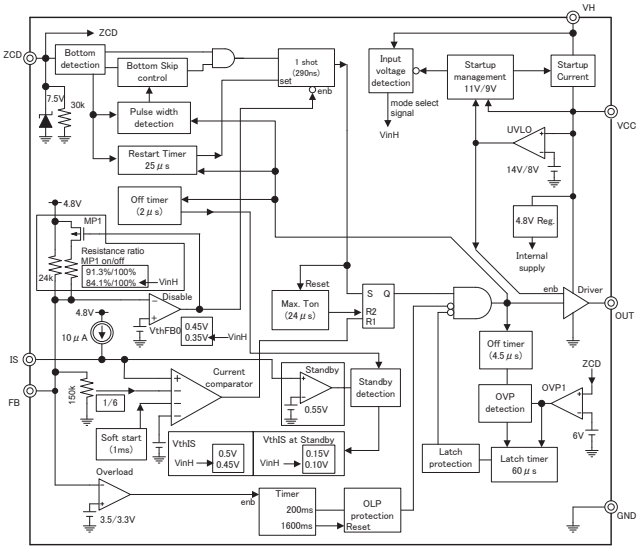


● Block diagram (Main model)

FA5570N



FA5640N

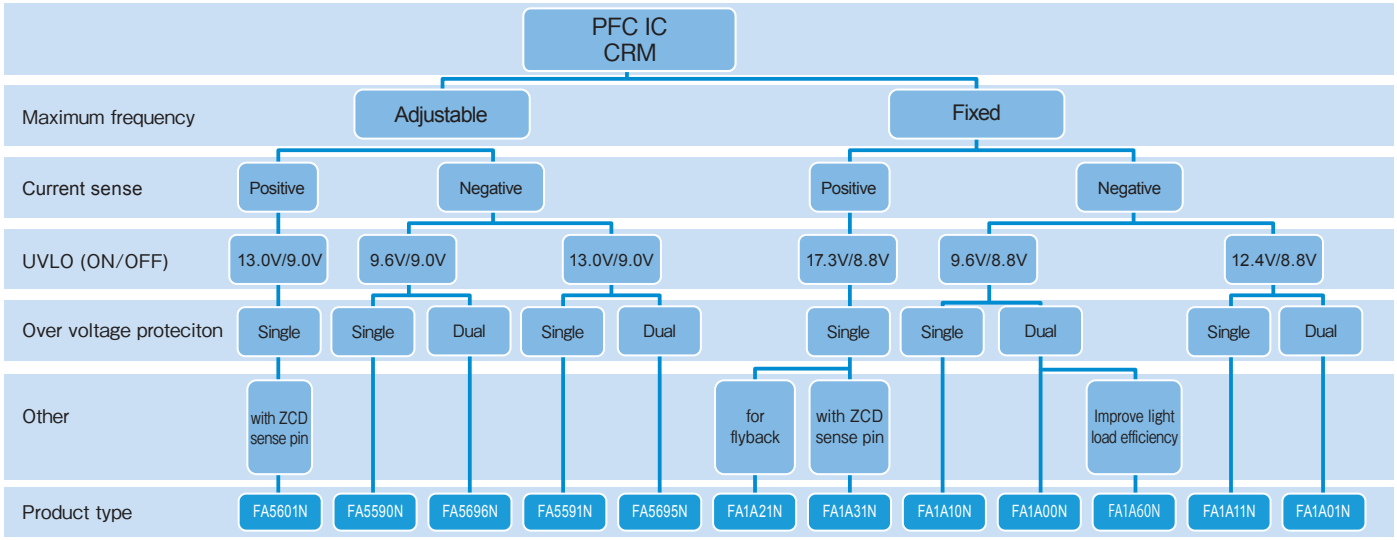


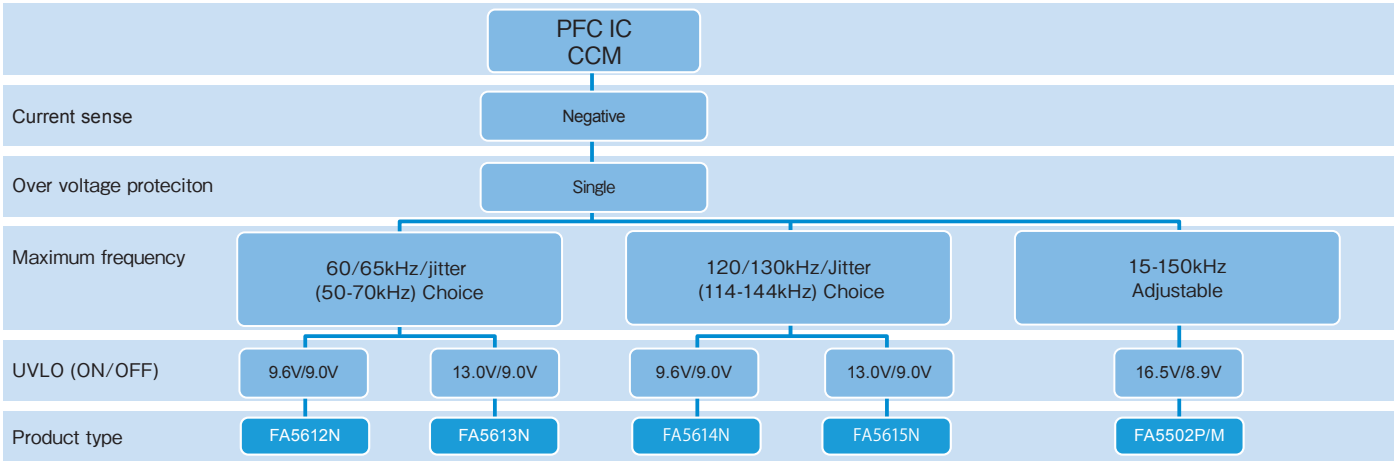
● Power factor correction ICs

Type Name	Input voltage	Duty	Current sense	Under-voltage lockout (ON/OFF)	Frequency	Maximum frequency	Zero Current Detection	FB open short protection	Over voltage protection	Remarks
CRMPFC										
FA5590N	10 - 26V	–	Negative	9.6V/9.0V	Self-oscillation	Adjustable	Current sence	✓	Voltage-Limit by Pulse width	
FA5591N				13.0V/9.0V						
FA1A10N				9.6V/8.8V		Fixed				
FA1A11N				12.4V/8.8V						
FA1A60N●				12.5V/7.5V					Voltage-Limit by Pulse width and Voltage-Limit	Improve light load efficiency
FA5695N				13.0V/9.0V		Adjustable				
FA5696N				9.6V/9.0V						
FA1A00N				9.6V/8.8V		Fixed				
FA1A01N				12.4V/8.8V						
FA5601N			Positive	13.0V/9.0V		Adjustable	Auxiliary-winding		Voltage-Limit by Pulse width	
FA1A31N○				17.3V/8.8V		Fixed				
FA1A21N				17.3V/8.8V				–	Voltage-Limit (V_{CC})	For fly Back Over load protection
CCMPFC										
FA5502P/M	10 - 28V	94%	Negative	16.5V/8.9V	Adjustable	150kHz	–	–	Voltage-Limit	
FA5612N	10 - 26V			9.6V/9.0V	Choice 65/60kHz/jitter (50-70kHz)	–		✓	Voltage-Limit by Pulse width	
FA5613N				13.0V/9.0V						
FA5614N●	10 - 26V			9.6V/9.0V	Choice 130/120kHz/jitter (114-144kHz)					
FA5615N●				13.0V/9.0V						

●: New Product
○: Under development
PKG: FA5502 is 16pin, others are 8pin

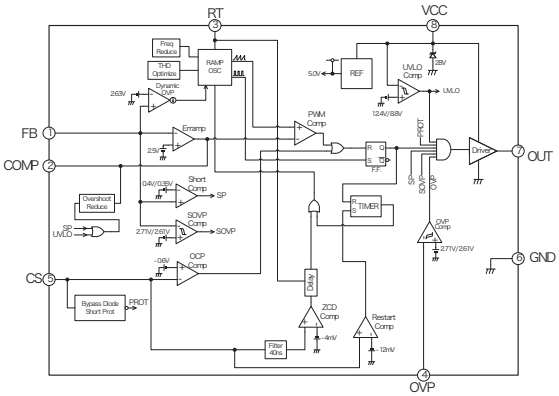
● Power factor correction ICs



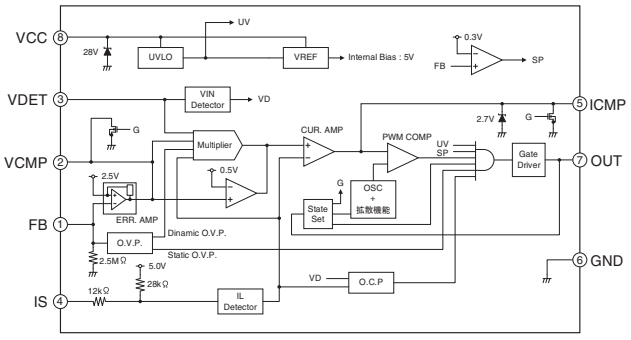


● Block diagram (Main model)

FA5591N



FA5613N, FA5615N

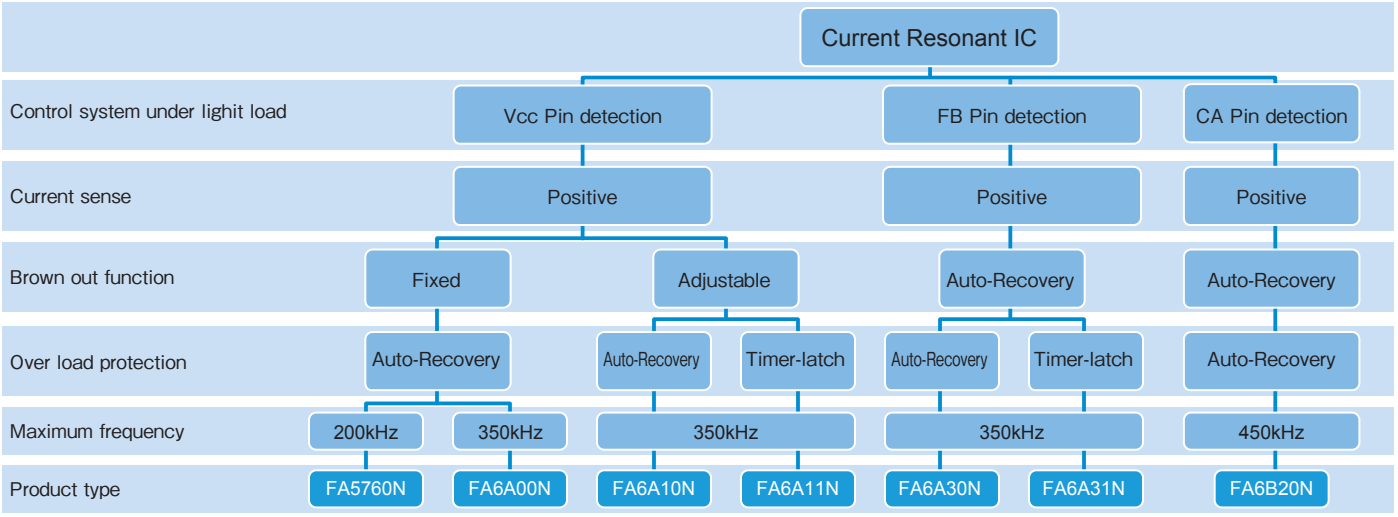


● Current Resonant ICs

Type Name	Control mode	Input voltage	Under-voltage lockout (ON/OFF)	Current sense	Frequency	Maximum frequency	Over load protection	Over voltage protection	Built-in start up circuit	Brown out function
FA5760N	Voltage mode	10 - 24V	12.0V/8.9V	Positive	Self-oscillation	200kHz	Auto-Recovery	Timer-latch	500V	Fixed
FA6A00N		14 - 27V	12.0V/9.0V			350kHz				
FA6A10N						350kHz				Adjustable
FA6A11N						350kHz	Timer-latch			
FA6A30N							Auto-Recovery			
FA6A31N							Timer-latch			
FA6B20N●		14 - 29V	14.0V/9.0V			450kHz	Auto-Recovery	Auto-Recovery		Fixed

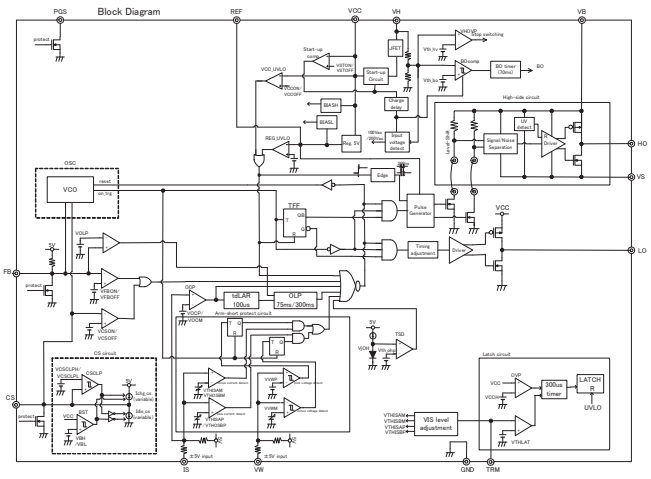
●: New Product PKG: All 16pin

● Current Resonant ICs

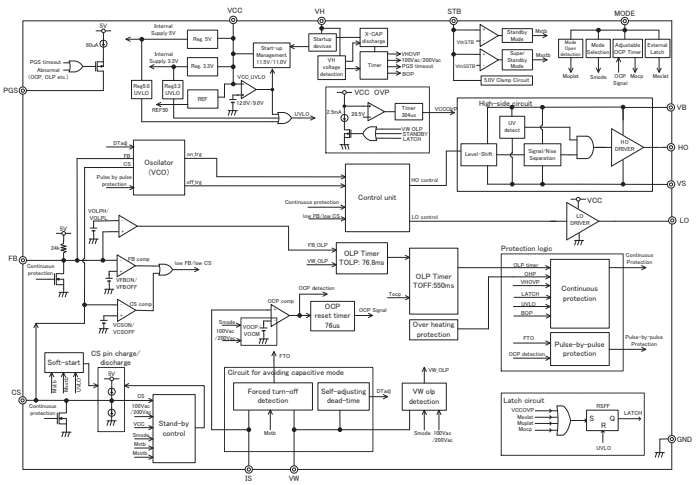


● Block diagram (Main model)

FA5760N



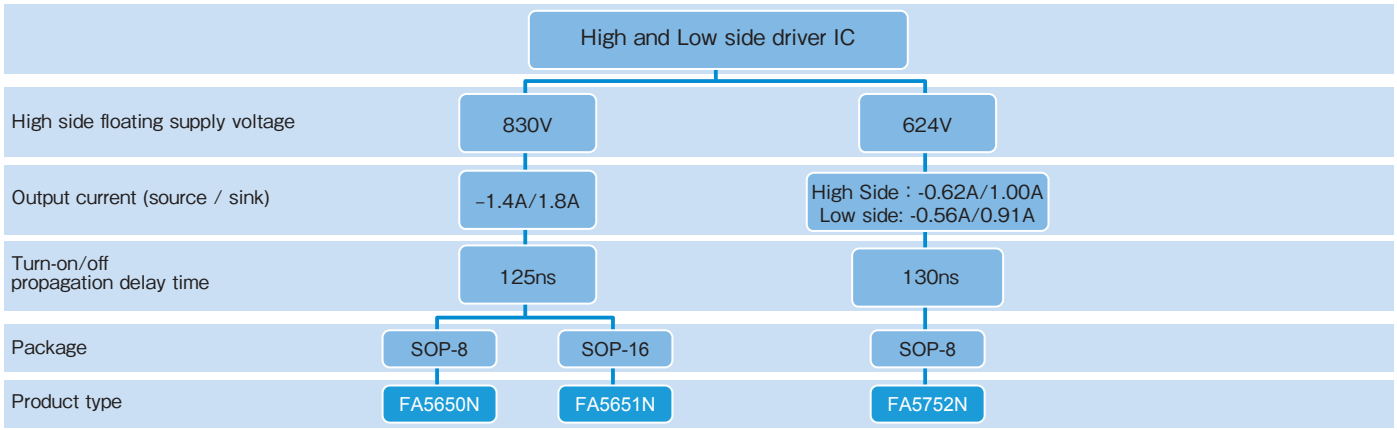
FA6A00N



High and Low side driver ICs

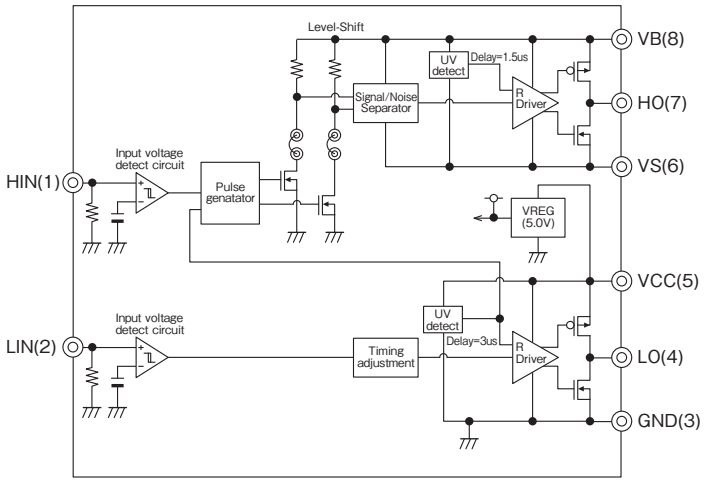
Type name	Absolute maximum ratings				Electrical characteristics				
	High side floating supply voltage	Maximum supply voltage	Output current source / sink	Maximum input frequency	Logic"1" / "0" Input voltage level (typ.)	Turn-on/off propagation delay time (typ.)	VCC and VBS supply under-voltage threshold (typ.)	Number of Input terminal	Package
FA5650N	830V	30V	-1.4A/1.8A	500kHz	Logic"1" 2.1V Logic"0" 1.1V	125ns	positive going 8.9V negative going 8.2V	2	SOP-8
FA5651N									SOP-16
FA5752N	624V	24V	High side IHO: -0.62A/1.00A Low side ILO: -0.56A/0.91A		Logic"1" 2.1V Logic"0" 1.3V	130ns			SOP-8

● High and Low side driver IC

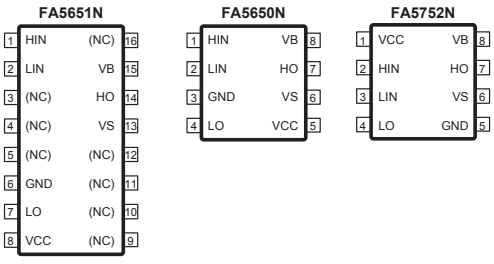


● Block diagram (Main model)

FA5650N



■ Pin Layout

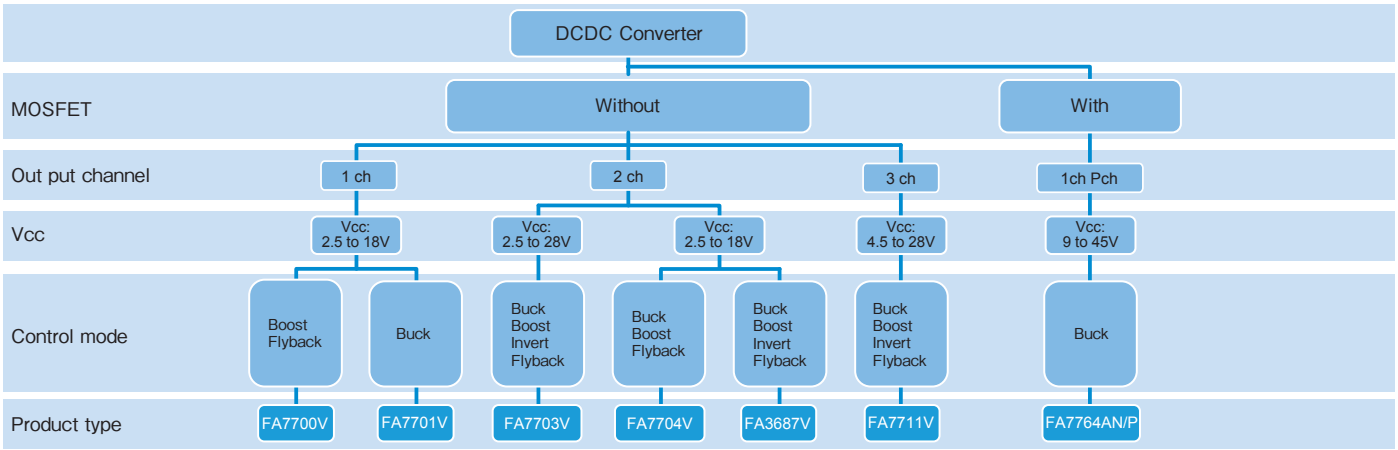


DC/DC Power Supply control ICs

● DC/DC Power Supply control ICs

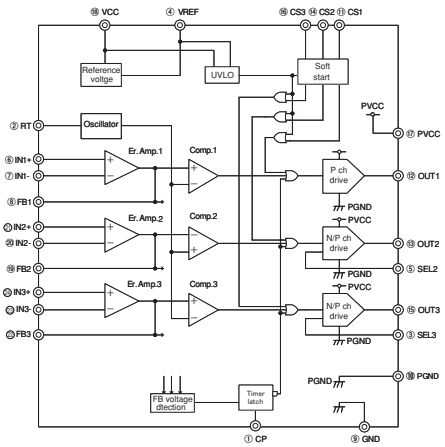
Type Name	Control mode				Output channel	Input voltage	Frequency	Reference Voltage	Operating Ambient Temperature	Output Current	MOSFET Output MOSFET	Package
	Boost	Fly back	Buck	Inverting								
FA7700V	✓	✓			1	2.5 - 18V	50k - 1MHz	0.88V	-30 — +85℃	—	—	TSSOP-8
FA7701V			✓		1	2.5 - 18V	50k - 1MHz	0.88V	-30 — +85℃	—	—	TSSOP-8
FA7703V	✓	✓	✓	✓	2	2.5 - 28V	50k - 1MHz	1.0V	-30 — +85℃	—	—	TSSOP-16 SOP-16
FA7704V	✓	✓	✓		2	2.5 - 18V	50k - 1MHz	1.0V	-30 — +85℃	—	—	TSSOP-16
FA3687V	✓	✓	✓	✓	2	2.5 - 18V	300k - 1.5MHz	1.0V	-40 — +85℃	—	—	TSSOP-16
FA7711V	✓	✓	✓	✓	3	4.5 - 28V	200k - 800kHz	Adjustable	-20 — +85℃	—	—	TSSOP-24
FA7764AN/P			✓		1	9 - 45V	30k - 400kHz	1.0V	-20 — +85℃	1.5A	With	SOP-8E

● DC/DC Power Supply control ICs

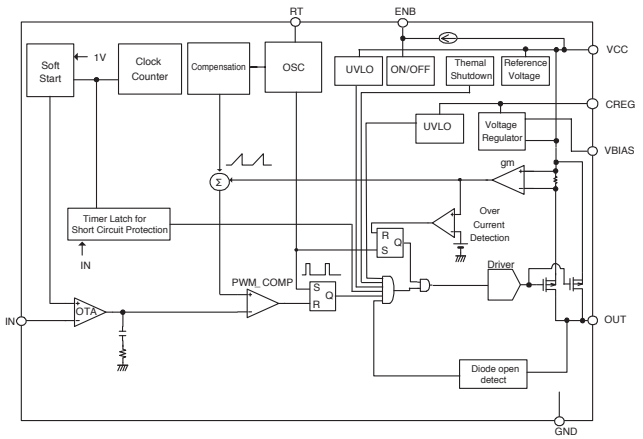


● Block diagram (Main model)

FA7711V

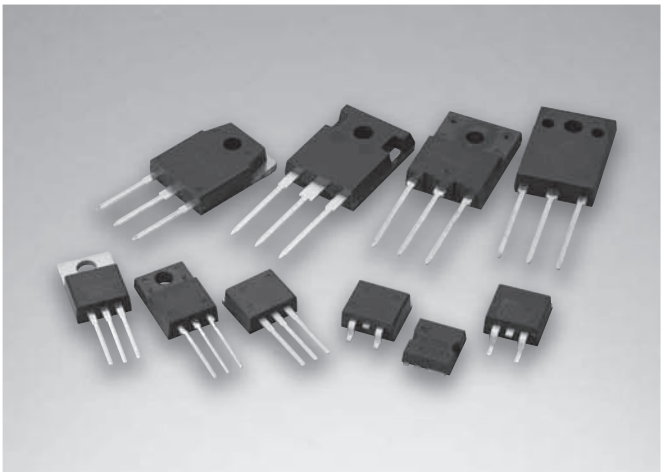


FA7764AN/P



Power MOSFETs

Fuji Electric has a lineup of power MOSFETs ranging from medium to high-voltage types with features such as low power loss, low noise, and low on-resistance.
The “Super J-MOS®” Series uses superjunction technology, and was developed primarily for models with a withstand voltage of 600 V.



MOSFET Super J MOS®S2 Series

■ Concept

Superjunction technology has much improved trade-off characterisity between On-resistance and Breakdown voltage. Super J MOS® S2 has the same turn-off loss and turn-off d*v*/d*t* capabilities at conventional Super J MOS® S1. As a result, It contributs to high efficiency and miniaturization of power supply.

■ Applications

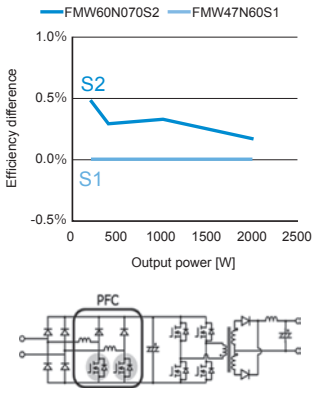
PFC or PWM converter for Server, PC, PCS, UPS, LCD-TV, Lighting and Standard power supply

■ Features & Benefit of Super J MOS® S2 series

Feature	Benefit
Low on-state resistance Low switching loss	→ High efficiency High power density
Low gate charge（Q_G） Low energy stored in output capacitance（E_{OSS}）	→ High efficiency at low load
Easy to use (more controllable d*v*/d*t* by R_G and Low V_{DS} surge)	→ Easy to design
100% avalanche tasted	→ High reliability

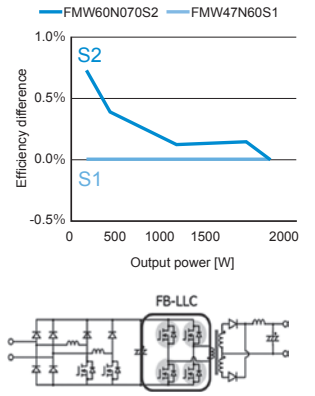
■ Benefit (Efficiency) of Super J MOS® S2 series

PFC stage
Efficiency difference



Circuit : PFC+LLC(Exchanged PFC MOS)
Input : 230V AC 50Hz
Output:53.5V/Iout=37A
External R_G : 2Ω
Sample : 600V/70mΩ max

LLC stage
Efficiency difference

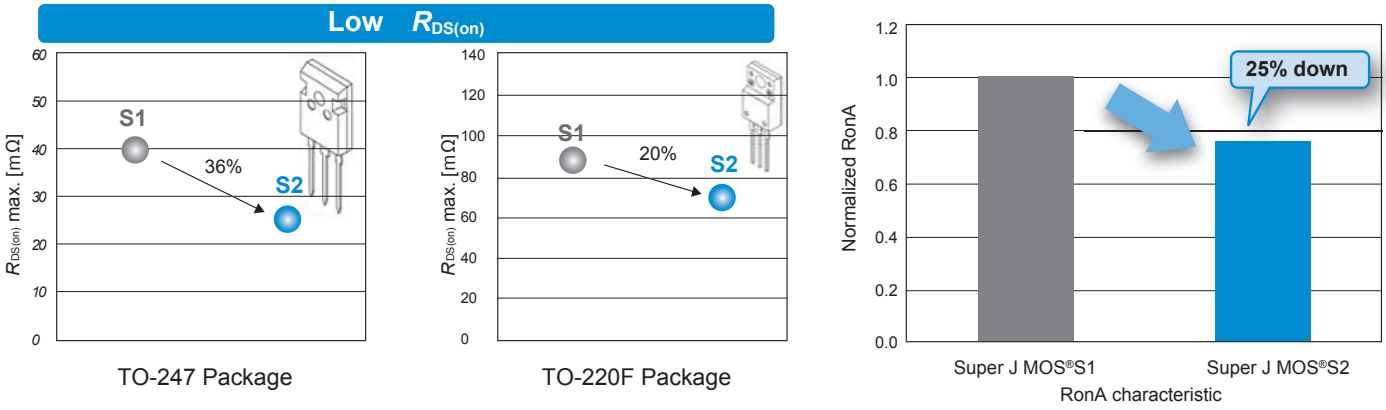


Circuit : PFC+LLC(Exchanged LLC MOS)
Input : 230V AC 50Hz
Output : 49V/Iout=6.12~56.01A
External R_G : 5.1Ω
Sample : 600V/70mΩ max.

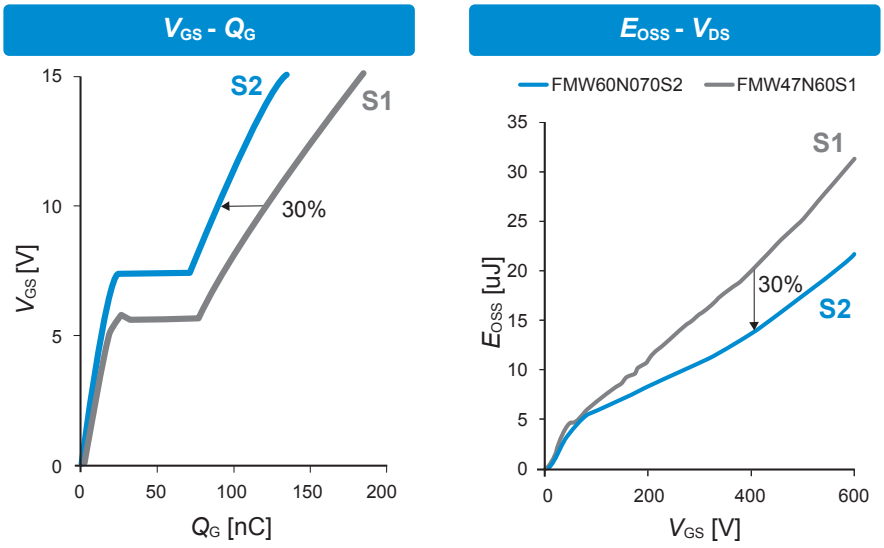
Super J MOS® is registered trademarks of Fuji Electric.

■ Features of Super J MOS® S2 series

- Low $R_{DS(on)}$・A　25% lower than our conventional MOSFET (Super J MOS® S1)
- Due to low $R_{DS(on)}$, Selectable smaller package
  ex) 600V/0.07Ω/TO-3P → 600V/0.07Ω/TO-220F



- Low Q_G　30% lower than our conventional MOSFET (Super J MOS® S1)
- Low E_{oss}　30% lower than our conventional MOSFET (Super J MOS® S1)

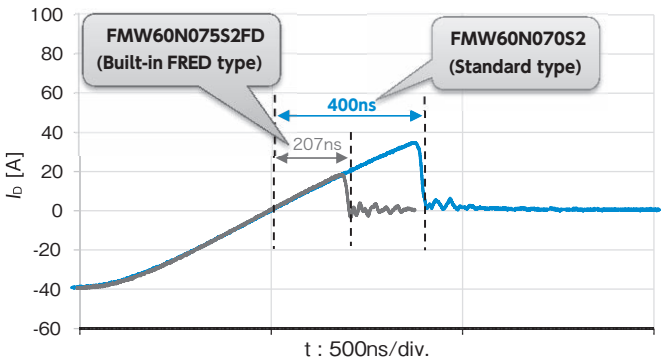


■ Features of Super J MOS® S2FD series (Built-in FRED type)

- t_{rr} of S2FD is 50% faster than S2
- High diode recovery ruggedness (High -di_{DR}/dt ruggedness)
- Guaranteed avalanche robustness

■ Applications

For resonant switching topologies in applications like UPS, Server,Telecom, LED lighting, Power conditioner system and Power supply.



Conditions : V_{DD}=400V, I_{DR}=39.4A, -di_{DR}/dt=100A/us, T_{ch}=25℃

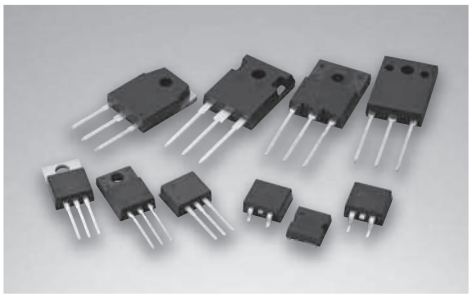
Built-in diode recovery wave form

Super J MOS® is registered trademarks of Fuji Electric.

Features of SuperFAP-E^3, E^{3S} Series

■ Concept

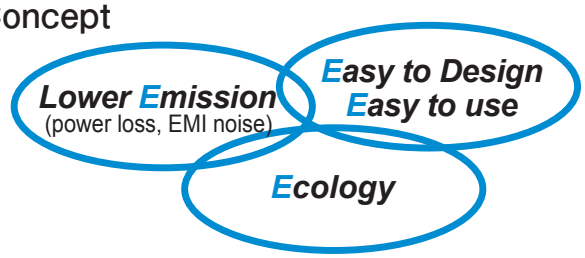
The second generation Quasi-Planer Junction technology copes with both low loss/noise and usability.
And this technology lets us achive high performance for power supply's circuit design.

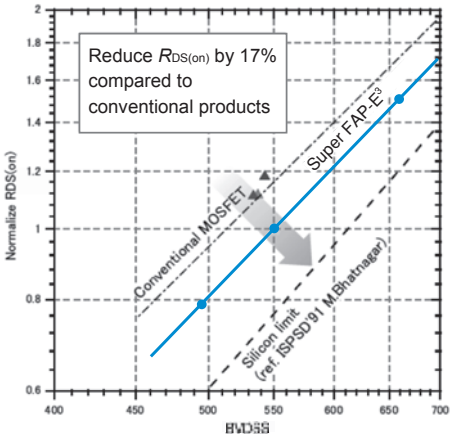


■ Features

- Coping with both low loss and low noise
- Low $R_{DS(on)}$
- High controllability of gate resistance during switching
- Low V_{GS} ringing waveform during switching
- Narrow band of the gate threshold voltage (3.0±0.5V)
- High avalanche durability

Concept





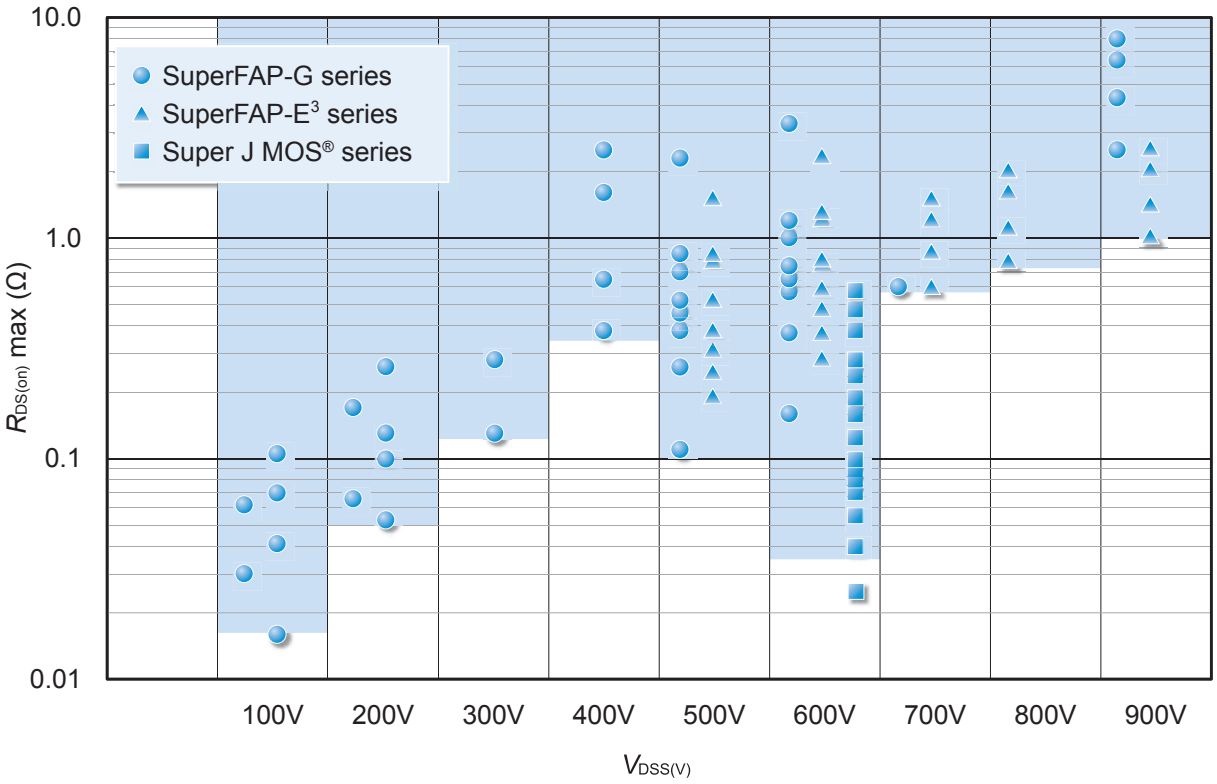
Features of SuperFAP-G Series

The Quasi-Planer Junction technology achieve low $R_{DS(on)}$ and low switching loss (low Q_{GD}).

■ Features

- Low turn off loss　75% lower than our conventional type
- Low Gate charge　60% lower than our conventional type
- High avalanche durability
- Due to low $R_{DS(on)}$, Selectable smaller package
  ex) 500V/0.4Ω/TO-3P → 500V/0.38Ω/TO-220

■ Series map



■ Part numbers

FMV20N60S1 (example)

F	M		V		20	N		60	S1	
Company Symbol	Device code		Package code		Current	Polarity		Voltage	Series	
Fuji	M	MOSFET	A	TO-220F	× 1	N	N-ch	× 1/10	S1	Super J MOS®
			C	T-pack (S)					S1FD	Super J MOS® (FRED)
			H	TO-3P					S1A	Super J MOS® for Automotive
			I	T-pack (L)					S1FDA	Super J MOS® (FRED) for Automotive
			P	TO-220					E	SuperFAP-E^3
			R	TO-3PF					ES	SuperFAP-E^{3S}
			V	TO-220F (SLS)					G	SuperFAP-G
			Y	TO-247					GF	SuperFAP-G (FRED)
			W	TO-247-P2					T2	Trench
									R	3G-Trench

FMV60N190S2 (example)

F	M		V		60	N		190	S2	
Company Symbol	Device code		Package code		Voltage	Polarity		Ron(mΩ)	Series	
Fuji	M	MOSFET	C	T-pack(s)	× 1/10	N	N-ch	× 1	S2	Super J MOS®
			D	TO-252					S2FD	Super J MOS® (FRED)
			H	TO-3P					S2A	Super J MOS® for Automotive
			P	TO-220					S2FDA	Super J MOS® (FRED) for Automotive
			V	TO-220F (SLS)						
			Y	TO-247						
			W	TO-247-P2						

■ Super J MOS® S2 series

Low-on resistance, low switching noise and low switching loss

Super J MOS® S2 series			TO-220	TO-220F (SLS)	TO-3P(Q)	TO-247-P2	TO-252
							
V_{DS} (V)	$R_{DS(on)}$ (Ω)	I_D (A)					
600	0.3800	10.0	✓	✓			✓
	0.2800	13.0	✓	✓	✓		✓
	0.1900	20.0	✓	✓	✓	✓	
	0.1600	23.9	✓	✓		✓	
	0.1250	30.1	✓	✓		✓	
	0.0990	38.1	✓	✓		✓	
	0.0880	42.3	✓	✓		✓	
	0.0790	47.9	✓	✓		✓	
	0.0700	53.2		✓		✓	
	0.0550	64.4				✓	
	0.0400	77.5				✓	
	0.0254	95.5				✓	
650	(0.1040)	(31.3)	✓	✓		✓	
	(0.0920)	(35.0)	✓	✓		✓	
	(0.0700)	(53.6)		✓		✓	
	(0.0370)	(83.5)				✓	

■ 600V class

Device type	V_{DSS} Volts	I_D Amps.	I_D (pulse) Amps.	$R_{DS(on)}$ max. Ohms	P_{tot} Watts	V_{GS} Volts	$V_{GS(th)}$ Volts	Q_G typ. nC	Package	Net mass Grams
● **FMP60N380S2**	600	10.0	32.4	0.3800	62	30	3.0±0.5	27.5	TO-220	2.0
● **FMV60N380S2**	600	10.0	32.4	0.3800	20	30	3.0±0.5	27.5	TO-220F(SLS)	2.0
● **FMD60N380S2**	600	10.0	32.4	0.3800	58	30	3.0±0.5	27.5	TO-252	(0.3)
● **FMP60N280S2**	600	13.0	41.6	0.2800	75	30	3.0±0.5	33	TO-220	2.0
● **FMV60N280S2**	600	13.0	41.6	0.2800	26	30	3.0±0.5	33	TO-220F(SLS)	2.0
● **FMH60N280S2**	600	13.0	41.6	0.2800	65	30	3.0±0.5	33	TO-3P(Q)	5.0
● **FMD60N280S2**	600	13.0	41.6	0.2800	75	30	3.0±0.5	33	TO-252	(0.3)
● **FMP60N190S2**	600	20.0	62.0	0.1900	113	30	3.0±0.5	46	TO-220	2.0
● **FMV60N190S2**	600	20.0	62.0	0.1900	38	30	3.0±0.5	46	TO-220F(SLS)	2.0
● **FMH60N190S2**	600	20.0	62.0	0.1900	94	30	3.0±0.5	46	TO-3P(Q)	5.0
● **FMW60N190S2**	600	20.0	62.0	0.1900	94	30	3.0±0.5	46	TO-247-P2	6.0
● **FMP60N160S2**	600	23.9	71.6	0.1600	127	30	4.0±0.5	43	TO-220	2.0
● **FMV60N160S2**	600	23.9	71.6	0.1600	45	30	4.0±0.5	43	TO-220F(SLS)	2.0
● **FMW60N160S2**	600	23.9	71.6	0.1600	110	30	4.0±0.5	43	TO-247-P2	6.0
● **FMP60N125S2**	600	30.1	90.8	0.1250	160	30	4.0±0.5	53	TO-220	2.0
● **FMV60N125S2**	600	30.1	90.8	0.1250	57	30	4.0±0.5	53	TO-220F(SLS)	2.0
● **FMW60N125S2**	600	30.1	90.8	0.1250	140	30	4.0±0.5	53	TO-247-P2	6.0
● **FMP60N099S2**	600	38.1	117	0.0990	210	30	4.0±0.5	65	TO-220	2.0
● **FMV60N099S2**	600	38.1	117	0.0990	75	30	4.0±0.5	65	TO-220F(SLS)	2.0
● **FMW60N099S2**	600	38.1	117	0.0990	185	30	4.0±0.5	65	TO-247-P2	6.0

● : New Products

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Letter symbols
V_{DSS}: Drain-source voltage
I_D: Continuous drain current
I_D(pulse): Pulsed drain current
R_{DS}(on): Drain-source on-state resistance
P_{tot}: Maximum power dissipation
V_{GS}: Gate-source voltage
$V_{GS(th)}$: Gate threshold voltage
Q_G: Total gate charge

The Super J MOS® series products satisfies the quality assurance level of general consumer use.
If you intend to use the products for equipment requiring higher reliability, such as equipment for automobiles and medical equipment, please contact Fuji Electric.
Do not use the products for equipment requiring strict reliability such as aerospace equipment.

■ 600V class

	Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. Ohms	P_{tot} Watts	V_{GS} Volts	$V_{GS\ (th)}$ Volts	Q_G typ. nC	Package	Net mass Grams
●	**FMP60N088S2**	600	42.3	131	0.0880	235	30	4.0±0.5	72	TO-220	2.0
●	**FMV60N088S2**	600	42.3	131	0.0880	85	30	4.0±0.5	72	TO-220F(SLS)	2.0
●	**FMW60N088S2**	600	42.3	131	0.0880	205	30	4.0±0.5	72	TO-247-P2	6.0
●	**FMP60N079S2**	600	47.9	148	0.0790	270	30	4.0±0.5	80	TO-220	2.0
●	**FMV60N079S2**	600	47.9	148	0.0790	95	30	4.0±0.5	80	TO-220F(SLS)	2.0
●	**FMW60N079S2**	600	47.9	148	0.0790	235	30	4.0±0.5	80	TO-247-P2	6.0
●	**FMV60N070S2**	600	53.2	158	0.0700	110	30	4.0±0.5	90	TO-220F(SLS)	2.0
●	**FMW60N070S2**	600	53.2	158	0.0700	270	30	4.0±0.5	90	TO-247-P2	6.0
●	**FMW60N055S2**	600	64.4	200	0.0550	340	30	4.0±0.5	110	TO-247-P2	6.0
●	**FMW60N040S2**	600	77.5	265	0.0400	435	30	4.0±0.5	147	TO-247-P2	6.0
●	**FMW60N025S2**	600	95.5	286.5	0.0254	575	30	4.0±0.5	222	TO-247-P2	6.0

●:New Product

■ 650V class

	Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. Ohms	P_{tot} Watts	V_{GS} Volts	$V_{GS\ (th)}$ Volts	Q_G typ. nC	Package	Net mass Grams
○	**(FMP65N104S2)**	650	(31.3)	(120.8)	(0.1040)	(235)	(30)	(4.0±0.5)	(72)	TO-220	2.0
○	**(FMV65N104S2)**	650	(31.3)	(120.8)	(0.1040)	(85)	(30)	(4.0±0.5)	(72)	TO-220F(SLS)	2.0
○	**(FMW65N104S2)**	650	(31.3)	(120.8)	(0.1040)	(205)	(30)	(4.0±0.5)	(72)	TO-247-P2	6.0
○	**(FMP65N092S2)**	650	(38.0)	(137.6)	(0.0920)	(270)	(30)	(4.0±0.5)	(78)	TO-220	2.0
○	**(FMV65N092S2)**	650	(38.0)	(137.6)	(0.0920)	(95)	(30)	(4.0±0.5)	(78)	TO-220F(SLS)	2.0
○	**(FMW65N092S2)**	650	(38.0)	(137.6)	(0.0920)	(235)	(30)	(4.0±0.5)	(78)	TO-247-P2	6.0
○	**(FMV65N070S2)**	650	(53.6)	(170.4)	(0.0700)	(130)	(30)	(4.0±0.5)	(101)	TO-220F(SLS)	2.0
○	**(FMW65N070S2)**	650	(53.6)	(170.4)	(0.0700)	(315)	(30)	(4.0±0.5)	(101)	TO-247-P2	6.0
○	**(FMW65N037S2)**	650	(83.5)	(295.2)	(0.0370)	(500)	(30)	(4.0±0.5)	(181)	TO-247-P2	6.0

○:Under development

The Super J MOS® series products satisfies the quality assurance level of general consumer use.
If you intend to use the products for equipment requiring higher reliability, such as equipment for automobiles and medical equipment, please contact Fuji Electric.
Do not use the products for equipment requiring strict reliability such as aerospace equipment.

■ Super J MOS® S2FD series (Built-in FRED type)

Low-on resistance, low switching noise and low switching loss

Super J MOS® S2FD Series (Built-in FRED type)			TO-220	TO-220F (SLS)	TO-247-P2
					
V_{DS} (V)	$R_{DS(on)}$ (Ω)	I_D (A)			
600	0.1700	23.9	✓	✓	✓
	0.1330	30.1	✓	✓	✓
	0.1050	38.1	✓	✓	✓
	0.0940	42.3	✓	✓	✓
	0.0840	47.9	✓	✓	✓
	0.0750	53.2		✓	✓
	0.0590	64.4			✓
	0.0430	77.5			✓
	0.0270	95.5			✓
650	(0.1100)	(31.3)	✓	✓	✓
	(0.0980)	(38.0)	✓	✓	✓
	(0.0750)	(53.6)		✓	✓
	(0.0390)	(83.5)			✓

■ 600V class

	Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. Ohms	P_{tot} Watts	V_{GS} Volts	$V_{GS\ (th)}$ Volts	Q_G typ. nC	t_{rr} typ. ns	Package	Net mass Grams
●	**FMP60N170S2FD**	600	23.9	71.6	0.170	127	30	4.0±1.0	(47)	150	TO-220	2.0
●	**FMV60N170S2FD**	600	23.9	71.6	0.170	45	30	4.0±1.0	(47)	150	TO-220F(SLS)	2.0
●	**FMW60N170S2FD**	600	23.9	71.6	0.170	110	30	4.0±1.0	(47)	150	TO-247-P2	6.0
●	**FMP60N133S2FD**	600	30.1	90.8	0.133	160	30	4.0±1.0	(59)	160	TO-220	2.0
●	**FMV60N133S2FD**	600	30.1	90.8	0.133	57	30	4.0±1.0	(59)	160	TO-220F(SLS)	2.0
●	**FMW60N133S2FD**	600	30.1	90.8	0.133	140	30	4.0±1.0	(59)	160	TO-247-P2	6.0
●	**FMP60N105S2FD**	600	38.1	117	0.105	210	30	4.0±1.0	75	174	TO-220	2.0
●	**FMV60N105S2FD**	600	38.1	117	0.105	75	30	4.0±1.0	75	174	TO-220F(SLS)	2.0
●	**FMW60N105S2FD**	600	38.1	117	0.105	185	30	4.0±1.0	75	174	TO-247-P2	6.0
●	**FMP60N094S2FD**	600	42.3	131	0.094	235	30	4.0±1.0	83	185	TO-220	2.0
●	**FMV60N094S2FD**	600	42.3	131	0.094	85	30	4.0±1.0	83	185	TO-220F(SLS)	2.0
●	**FMW60N094S2FD**	600	42.3	131	0.094	205	30	4.0±1.0	83	185	TO-247-P2	6.0
●	**FMP60N084S2FD**	600	47.9	148	0.084	270	30	4.0±1.0	(91)	190	TO-220	2.0
●	**FMV60N084S2FD**	600	47.9	148	0.084	95	30	4.0±1.0	(91)	190	TO-220F(SLS)	2.0
●	**FMW60N084S2FD**	600	47.9	148	0.084	235	30	4.0±1.0	(91)	190	TO-247-P2	6.0
●	**FMV60N075S2FD**	600	53.2	158	0.075	110	30	4.0±1.0	97	207	TO-220F(SLS)	2.0
●	**FMW60N075S2FD**	600	53.2	158	0.075	270	30	4.0±1.0	97	207	TO-247-P2	6.0
●	**FMW60N059S2FD**	600	64.4	200	0.059	340	30	4.0±1.0	(127)	215	TO-247-P2	6.0
●	**FMW60N043S2FD**	600	77.5	265	0.043	435	30	4.0±1.0	177	250	TO-247-P2	6.0
●	**FMW60N027S2FD**	600	95.5	286.5	0.027	575	30	4.0±1.0	(274)	288	TO-247-P2	6.0

●: New Product

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■ 650V class

	Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. Ohms	P_{tot} Watts	V_{GS} Volts	$V_{GS\ (th)}$ Volts	Q_G typ. nC	t_{rr} typ. ns	Package	Net mass Grams
○	**(FMP65N110S2FD)**	650	(31.3)	(120.8)	(0.1100)	(235)	(30)	(4.0±1.0)	(83)	(185)	TO-220	2.0
○	**(FMV65N110S2FD)**	650	(31.3)	(120.8)	(0.1100)	(85)	(30)	(4.0±1.0)	(83)	(185)	TO-220F(SLS)	2.0
○	**(FMW65N110S2FD)**	650	(31.3)	(120.8)	(0.1100)	(205)	(30)	(4.0±1.0)	(83)	(185)	TO-247-P2	6.0
○	**(FMP65N098S2FD)**	650	(38.0)	(137.6)	(0.0980)	(270)	(30)	(4.0±1.0)	(93)	(190)	TO-220	2.0
○	**(FMV65N098S2FD)**	650	(38.0)	(137.6)	(0.0980)	(95)	(30)	(4.0±1.0)	(93)	(190)	TO-220F(SLS)	2.0
○	**(FMW65N098S2FD)**	650	(38.0)	(137.6)	(0.0980)	(235)	(30)	(4.0±1.0)	(93)	(190)	TO-247-P2	6.0
○	**(FMV65N075S2FD)**	650	(53.6)	(170.4)	(0.0750)	(130)	(30)	(4.0±1.0)	(116)	(210)	TO-220F(SLS)	2.0
○	**(FMW65N075S2FD)**	650	(53.6)	(170.4)	(0.0750)	(315)	(30)	(4.0±1.0)	(116)	(210)	TO-247-P2	6.0
○	**(FMW65N039S2FD)**	650	(83.5)	(295.2)	(0.0390)	(500)	(30)	(4.0±1.0)	(209)	(250)	TO-247-P2	6.0

○: Under development

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Super J MOS® S1 series

Low-on resistance, low switching noise and low switching loss

Super J MOS® S1 series			TO-220	TO-220F (SLS)	TO-3P(Q)	TO-247-P2
						
V_{DS} (V)	$R_{DS(on)}$ (Ω)	I_D (A)				
600	0.580	6.5	✓	✓		
	0.470	8	✓	✓		
	0.380	10	✓	✓		
	0.280	13	✓	✓	✓	
	0.230	15	✓	✓	✓	✓
	0.190	20	✓	✓	✓	✓
	0.160	22	✓	✓	✓	✓
	0.125	30	✓	✓	✓	✓
	0.099	35		✓	✓	✓
	0.088	40		✓	✓	✓
	0.070	47			✓	✓
	0.055	57				✓
	0.040	68				✓

600V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. Ohms	P_{tot} Watts	V_{GS} Volts	$V_{GS\ (th)}$ Volts	Q_G typ. nC	Package	Net mass Grams
FMP07N60S1	600	6.5	19.5	0.580	60	30	3±0.5	21	TO-220	2.0
FMV07N60S1	600	6.5	19.5	0.580	21	30	3±0.5	21	TO-220F(SLS)	2.0
FMP08N60S1	600	8	24	0.470	70	30	3±0.5	25	TO-220	2.0
FMV08N60S1	600	8	24	0.470	25	30	3±0.5	25	TO-220F(SLS)	2.0
FMP10N60S1	600	10	30	0.380	90	30	3±0.5	28	TO-220	2.0
FMV10N60S1	600	10	30	0.380	32	30	3±0.5	28	TO-220F(SLS)	2.0
FMP13N60S1	600	13	39	0.280	120	30	3±0.5	35	TO-220	2.0
FMV13N60S1	600	13	39	0.280	43	30	3±0.5	35	TO-220F(SLS)	2.0
FMH13N60S1	600	13	39	0.280	105	30	3±0.5	35	TO-3P(Q)	5.0
FMP15N60S1	600	15	45	0.230	135	30	3±0.5	43	TO-220	2.0
FMV15N60S1	600	15	45	0.230	48	30	3±0.5	43	TO-220F(SLS)	2.0
FMH15N60S1	600	15	45	0.230	115	30	3±0.5	43	TO-3P(Q)	5.0
FMW15N60S1	600	15	45	0.230	115	30	3±0.5	43	TO-247-P2	6.0
FMP20N60S1	600	20	60	0.190	150	30	3±0.5	48	TO-220	2.0
FMV20N60S1	600	20	60	0.190	60	30	3±0.5	48	TO-220F(SLS)	2.0
FMH20N60S1	600	20	60	0.190	130	30	3±0.5	48	TO-3P(Q)	5.0
FMW20N60S1	600	20	60	0.190	130	30	3±0.5	48	TO-247-P2	6.0
FMP22N60S1	600	22	66	0.160	195	30	3±0.5	57	TO-220	2.0
FMV22N60S1	600	22	66	0.160	70	30	3±0.5	57	TO-220F(SLS)	2.0
FMH22N60S1	600	22	66	0.160	170	30	3±0.5	57	TO-3P(Q)	5.0
FMW22N60S1	600	22	66	0.160	170	30	3±0.5	57	TO-247-P2	6.0
FMP30N60S1	600	30	90	0.125	250	30	3±0.5	73	TO-220	2.0
FMV30N60S1	600	30	90	0.125	90	30	3±0.5	73	TO-220F(SLS)	2.0
FMH30N60S1	600	30	90	0.125	220	30	3±0.5	73	TO-3P(Q)	5.0
FMW30N60S1	600	30	90	0.125	220	30	3±0.5	73	TO-247-P2	6.0
FMV35N60S1	600	35	105	0.099	110	30	3±0.5	87	TO-220F(SLS)	2.0
FMH35N60S1	600	35	105	0.099	270	30	3±0.5	87	TO-3P(Q)	5.0
FMW35N60S1	600	35	105	0.099	270	30	3±0.5	87	TO-247-P2	6.0
FMV40N60S1	600	40	120	0.088	130	30	3±0.5	100	TO-220F(SLS)	2.0
FMH40N60S1	600	40	120	0.088	315	30	3±0.5	100	TO-3P(Q)	5.0
FMW40N60S1	600	40	120	0.088	315	30	3±0.5	100	TO-247-P2	6.0
FMH47N60S1	600	47	141	0.070	390	30	3±0.5	125	TO-3P(Q)	5.0
FMW47N60S1	600	47	141	0.070	390	30	3±0.5	125	TO-247-P2	6.0
FMW57N60S1	600	57	171	0.055	445	30	3±0.5	153	TO-247-P2	6.0
FMW79N60S1	600	68	204	0.040	545	30	3±0.5	203	TO-247-P2	6.0

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■ Super J MOS® S1FD series (Built-in FRED type)

Low-on resistance, low switching noise and low switching loss

Super J MOS® S1FD series (Built-in FRED type)			TO-220	TO-220F (SLS)	TO-3P(Q)	TO-247-P2
						
V_{DS} (V)	$R_{DS(on)}$ (Ω)	I_D (A)				
600	0.200	20	✓	✓	✓	✓
	0.170	22	✓	✓	✓	✓
	0.132	30	✓	✓	✓	✓
	0.105	35		✓	✓	✓
	0.093	40			✓	✓
	0.074	47			✓	✓
	0.058	57				✓
	0.042	68				✓

■ 600V class

Device type	V_{DSS}	I_D	$I_{D\ (pulse)}$	$R_{DS\ (on)}$ max.	P_{tot}	V_{GS}	$V_{GS\ (th)}$	Q_G typ.	t_{rr} typ.	Package	Net mass
	Volts	Amps.	Amps.	Ohms	Watts	Volts	Volts	nC	ns		Grams
FMP20N60S1FD	600	20	60	0.200	150	30	4.0±1.0	52	150	TO-220	2.0
FMV20N60S1FD	600	20	60	0.200	60	30	4.0±1.0	52	150	TO-220F(SLS)	2.0
FMH20N60S1FD	600	20	60	0.200	130	30	4.0±1.0	52	150	TO-3P(Q)	5.0
FMW20N60S1FD	600	20	60	0.200	130	30	4.0±1.0	52	150	TO-247-P2	6.0
FMP22N60S1FD	600	22	66	0.170	195	30	4.0±1.0	58	165	TO-220	2.0
FMV22N60S1FD	600	22	66	0.170	70	30	4.0±1.0	58	165	TO-220F(SLS)	2.0
FMH22N60S1FD	600	22	66	0.170	170	30	4.0±1.0	58	165	TO-3P(Q)	5.0
FMW22N60S1FD	600	22	66	0.170	170	30	4.0±1.0	58	165	TO-247-P2	6.0
FMP30N60S1FD	600	30	90	0.132	250	30	4.0±1.0	73	180	TO-220	2.0
FMV30N60S1FD	600	30	90	0.132	90	30	4.0±1.0	73	180	TO-220F(SLS)	2.0
FMH30N60S1FD	600	30	90	0.132	220	30	4.0±1.0	73	180	TO-3P(Q)	5.0
FMW30N60S1FD	600	30	90	0.132	220	30	4.0±1.0	73	180	TO-247-P2	6.0
FMV35N60S1FD	600	35	105	0.105	110	30	4.0±1.0	92	185	TO-220F(SLS)	2.0
FMH35N60S1FD	600	35	105	0.105	270	30	4.0±1.0	92	185	TO-3P(Q)	5.0
FMW35N60S1FD	600	35	105	0.105	270	30	4.0±1.0	92	185	TO-247-P2	6.0
FMH40N60S1FD	600	40	120	0.093	315	30	4.0±1.0	104	200	TO-3P(Q)	5.0
FMW40N60S1FD	600	40	120	0.093	315	30	4.0±1.0	104	200	TO-247-P2	6.0
FMH47N60S1FD	600	47	141	0.074	390	30	4.0±1.0	127	210	TO-3P(Q)	5.0
FMW47N60S1FD	600	47	141	0.074	390	30	4.0±1.0	127	210	TO-247-P2	6.0
FMW57N60S1FD	600	68	171	0.058	445	30	4.0±1.0	158	220	TO-247-P2	6.0
FMW79N60S1FD	600	68	204	0.042	545	30	4.0±1.0	209	230	TO-247-P2	6.0

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SuperFAP-E^3 series

Low-on resistance and low switching noise

SuperFAP-E^3 series			TO-220	TO-220 (SLS)	TO-3P (Q)	TO-3PF	T-Pack(L)	T-Pack(S)
								
V_{DS} (V)	$R_{DS(on)}$ (Ω)	I_D (A)						
500	1.5	5	✓	✓			✓	✓
	0.85	6.5	✓	✓			✓	✓
	0.79	7.5	✓	✓				
	0.52	12	✓	✓			✓	✓
	0.38	16	✓	✓	✓		✓	✓
	0.31	20	✓	✓	✓		✓	✓
	0.245	23		✓	✓	✓		
	0.19	28			✓	✓		
600	2.3	3	✓	✓			✓	✓
	1.3	6	✓	✓			✓	✓
	1.2	6	✓	✓				
	0.79	10	✓	✓			✓	✓
	0.75	11	✓	✓			✓	✓
	0.58	13	✓	✓			✓	✓
	0.47	16	✓	✓			✓	✓
	0.365	19		✓	✓	✓		
	0.28	23			✓	✓		
650	1.47	7		✓				
	0.97	9		✓				
700	1.5	7		✓	✓			
	1.2	9		✓	✓			
	0.85	11		✓	✓			
	0.59	15		✓				
800	2	6		✓	✓		✓	✓
	1.6	8		✓	✓		✓	✓
	1.1	10		✓	✓			
	0.78	13		✓	✓			
900	2.5	6		✓	✓		✓	✓
	2	7		✓	✓		✓	✓
	1.4	9		✓	✓	✓		
	1	11		✓	✓	✓		

SuperFAP-E^3 series

500V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ Volts	Q_G typ. nC	Package	Net mass Grams
FMP05N50E	500	5	20	1.5	60	30	3±0.5	21	TO-220	2.0
FMV05N50E	500	5	20	1.5	21	30	3±0.5	21	TO-220F(SLS)	1.7
FMI05N50E	500	5	20	1.5	60	30	3±0.5	21	T-Pack(L)	1.6
FMC05N50E	500	5	20	1.5	60	30	3±0.5	21	T-Pack(S)	1.6
FMP07N50E	500	6.5	26	0.85	90	30	3±0.5	32	TO-220	2.0
FMV07N50E	500	6.5	26	0.85	32	30	3±0.5	32	TO-220F(SLS)	1.7
FMI07N50E	500	6.5	26	0.85	90	30	3±0.5	32	T-Pack(L)	1.6
FMC07N50E	500	6.5	26	0.85	90	30	3±0.5	32	T-Pack(S)	1.6
FMP08N50E	500	7.5	30	0.79	105	30	3±0.5	35	TO-220	2.0
FMV08N50E	500	7.5	30	0.79	37	30	3±0.5	35	TO-220F(SLS)	1.7
FMP12N50E	500	12	48	0.52	165	30	3±0.5	60	TO-220	2.0
FMV12N50E	500	12	48	0.52	60	30	3±0.5	60	TO-220F(SLS)	1.7
FMI12N50E	500	12	48	0.52	165	30	3±0.5	60	T-Pack(L)	1.6
FMC12N50E	500	12	48	0.52	165	30	3±0.5	60	T-Pack(S)	1.6
FMP16N50E	500	16	64	0.38	225	30	3±0.5	60	TO-220	2.0
FMV16N50E	500	16	64	0.38	80	30	3±0.5	60	TO-220F(SLS)	1.7
FMI16N50E	500	16	64	0.38	225	30	3±0.5	60	T-Pack(L)	1.6
FMC16N50E	500	16	64	0.38	225	30	3±0.5	60	T-Pack(S)	1.6
FMH16N50E	500	16	64	0.38	195	30	3±0.5	60	TO-3P(Q)	5.1
FMP20N50E	500	20	80	0.31	270	30	3±0.5	77	TO-220	2.0
FMV20N50E	500	20	80	0.31	95	30	3±0.5	77	TO-220F(SLS)	1.7
FMI20N50E	500	20	80	0.31	270	30	3±0.5	77	T-Pack(L)	1.6
FMC20N50E	500	20	80	0.31	270	30	3±0.5	77	T-Pack(S)	1.6
FMH20N50E	500	20	80	0.31	235	30	3±0.5	77	TO-3P(Q)	5.1
FMV23N50E	500	23	92	0.245	130	30	3±0.5	93	TO-220F(SLS)	1.7
FMH23N50E	500	23	92	0.245	315	30	3±0.5	93	TO-3P(Q)	5.1
FMR23N50E	500	23	92	0.245	150	30	3±0.5	93	TO-3PF	6.0
FMH28N50E	500	28	112	0.19	400	30	3±0.5	130	TO-3P(Q)	5.1
FMR28N50E	500	28	112	0.19	200	30	3±0.5	130	TO-3PF	6.0

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

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SuperFAP-E^3 series

600 – 800V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ Volts	Q_G typ. nC	Package	Net mass Grams
FMP03N60E	600	3	12	2.3	60	30	3±0.5	21.5	TO-220	2.0
FMV03N60E	600	3	12	2.3	21	30	3±0.5	21.5	TO-220F(SLS)	1.7
FMI03N60E	600	3	12	2.3	60	30	3±0.5	21.5	T-Pack(L)	1.6
FMC03N60E	600	3	12	2.3	60	30	3±0.5	21.5	T-Pack(S)	1.6
FMP05N60E	600	5.5	22	1.3	90	30	3±0.5	33	TO-220	2.0
FMV05N60E	600	5.5	22	1.3	32	30	3±0.5	33	TO-220F(SLS)	1.7
FMI05N60E	600	5.5	22	1.3	90	30	3±0.5	33	T-Pack(L)	1.6
FMC05N60E	600	5.5	22	1.3	90	30	3±0.5	33	T-Pack(S)	1.6
FMP06N60E	600	6	24	1.2	105	30	3±0.5	35	TO-220	2.0
FMV06N60E	600	6	24	1.2	37	30	3±0.5	35	TO-220F(SLS)	1.7
FMP10N60E	600	10	40	0.79	165	30	3±0.5	47	TO-220	2.0
FMV10N60E	600	10	40	0.79	60	30	3±0.5	47	TO-220F(SLS)	1.7
FMI10N60E	600	10	40	0.79	165	30	3±0.5	47	T-Pack(L)	1.6
FMC10N60E	600	10	40	0.79	165	30	3±0.5	47	T-Pack(S)	1.6
FMP11N60E	600	11	44	0.75	180	30	3±0.5	48.5	TO-220	2.0
FMV11N60E	600	11	44	0.75	65	30	3±0.5	48.5	TO-220F(SLS)	1.7
FMI11N60E	600	11	44	0.75	180	30	3±0.5	48.5	T-Pack(L)	1.6
FMC11N60E	600	11	44	0.75	180	30	3±0.5	48.5	T-Pack(S)	1.6
FMP13N60E	600	13	52	0.58	225	30	3±0.5	60	TO-220	2.0
FMV13N60E	600	13	52	0.58	80	30	3±0.5	60	TO-220F(SLS)	1.7
FMI13N60E	600	13	52	0.58	225	30	3±0.5	60	T-Pack(L)	1.6
FMC13N60E	600	13	52	0.58	225	30	3±0.5	60	T-Pack(S)	1.6
FMP16N60E	600	16	64	0.47	270	30	3±0.5	76	TO-220	2.0
FMV16N60E	600	16	64	0.47	95	30	3±0.5	76	TO-220F(SLS)	1.7
FMI16N60E	600	16	64	0.47	270	30	3±0.5	76	T-Pack(L)	1.6
FMC16N60E	600	16	64	0.47	270	30	3±0.5	76	T-Pack(S)	1.6
FMV19N60E	600	19	76	0.365	130	30	3±0.5	105	TO-220F(SLS)	1.7
FMH19N60E	600	19	76	0.365	315	30	3±0.5	105	TO-3P(Q)	5.1
FMR19N60E	600	19	76	0.365	150	30	3±0.5	105	TO-3PF	6.0
FMH23N60E	600	23	92	0.28	400	30	3±0.5	130	TO-3P(Q)	5.1
FMR23N60E	600	23	92	0.28	200	30	3±0.5	130	TO-3PF	6.0
FMV07N65E	650	7	28	1.47	37	30	3±0.5	35	TO-220F(SLS)	1.7
FMV09N65E	650	9	36	0.97	60	30	3±0.5	47	TO-220F(SLS)	1.7
FMV07N70E	700	7	28	1.5	48	30	4±0.5	32	TO-220F(SLS)	1.7
FMH07N70E	700	7	28	1.5	115	30	4±0.5	32	TO-3P(Q)	5.1
FMV09N70E	700	9	36	1.2	60	30	4±0.5	38	TO-220F(SLS)	1.7
FMH09N70E	700	9	36	1.2	145	30	4±0.5	38	TO-3P(Q)	5.1
FMV11N70E	700	11	44	0.85	85	30	4±0.5	50	TO-220F(SLS)	1.7
FMH11N70E	700	11	44	0.85	205	30	4±0.5	50	TO-3P(Q)	5.1
FMV15N70E	700	15	60	0.59	120	30	4±0.5	66	TO-220F(SLS)	1.7
FMV06N80E	800	6	24	2.0	48	30	4±0.5	32	TO-220F(SLS)	1.7
FMH06N80E	800	6	24	2.0	115	30	4±0.5	32	TO-3P(Q)	5.1
FMI06N80E	800	6	24	2.0	135	30	4±0.5	32	T-Pack(L)	1.6
FMC06N80E	800	6	24	2.0	135	30	4±0.5	32	T-Pack(S)	1.6
FMV08N80E	800	8	32	1.6	60	30	4±0.5	38	TO-220F(SLS)	1.7
FMH08N80E	800	8	32	1.6	145	30	4±0.5	38	TO-3P(Q)	5.1
FMI08N80E	800	8	32	1.6	165	30	4±0.5	38	T-Pack(L)	1.6
FMC08N80E	800	8	32	1.6	165	30	4±0.5	38	T-Pack(S)	1.6
FMV10N80E	800	10	40	1.1	85	30	4±0.5	50	TO-220F(SLS)	1.7
FMH10N80E	800	10	40	1.1	205	30	4±0.5	50	TO-3P(Q)	5.1
FMV13N80E	800	13	52	0.78	120	30	4±0.5	66	TO-220F(SLS)	1.7
FMH13N80E	800	13	52	0.78	285	30	4±0.5	66	TO-3P(Q)	5.1

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

SuperFAP-E^3 series

900V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ Volts	Q_G typ. nC	Package	Net mass Grams
FMH06N90E	900	6	24	2.5	115	30	4±0.5	33	TO-3P(Q)	5.1
FMV06N90E	900	6	24	2.5	48	30	4±0.5	33	TO-220F(SLS)	1.7
FMI06N90E	900	6	24	2.5	135	30	4±0.5	33	T-Pack(L)	1.6
FMC06N90E	900	6	24	2.5	135	30	4±0.5	33	T-Pack(S)	1.6
FMH07N90E	900	7	28	2.0	145	30	4±0.5	39	TO-3P(Q)	5.1
FMV07N90E	900	7	28	2.0	60	30	4±0.5	39	TO-220F(SLS)	1.7
FMI07N90E	900	7	28	2.0	165	30	4±0.5	39	T-Pack(L)	1.6
FMC07N90E	900	7	28	2.0	165	30	4±0.5	39	T-Pack(S)	1.6
FMH09N90E	900	9	36	1.4	205	30	4±0.5	50	TO-3P(Q)	5.1
FMV09N90E	900	9	36	1.4	85	30	4±0.5	50	TO-220F(SLS)	1.7
FMR09N90E	900	9	36	1.4	100	30	4±0.5	50	TO-3PF	6.0
FMH11N90E	900	11	44	1.0	285	30	4±0.5	60	TO-3P(Q)	5.1
FMV11N90E	900	11	44	1.0	120	30	4±0.5	60	TO-220F(SLS)	1.7
FMR11N90E	900	11	44	1.0	135	30	4±0.5	60	TO-3PF	6.0

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

SuperFAP-E^{3S} Low Qg series

Low-on resistance, low switching noise and low switching loss

SuperFAP-E^{3S} Low Qg series			TO-220	TO-220 (SLS)	TO-3P (Q)	TO-3PF	T-Pack(L)	T-Pack(S)	TFP
V_{DS} (V)	$R_{DS(on)}$ (Ω)	I_D (A)							
500	0.5	12	✓	✓			✓	✓	✓
	0.38	16	✓	✓	✓		✓	✓	✓
	0.31	20	✓	✓	✓		✓	✓	✓
	0.27	21		✓	✓	✓			
	0.245	23		✓	✓	✓			
	0.19	28			✓	✓			
600	1.2	6	✓	✓			✓	✓	
	0.75	12	✓	✓			✓	✓	✓
	0.58	13	✓		✓		✓	✓	✓
	0.47	16	✓	✓	✓		✓	✓	✓
	0.4	17		✓	✓	✓			
	0.365	19		✓	✓	✓			
	0.28	23			✓	✓			

500V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ Volts	Q_G typ. nC	Package	Net mass Grams
FMP12N50ES	500	12	48	0.5	180	30	3.7±0.5	41	TO-220	2.0
FMV12N50ES	500	12	48	0.5	65	30	3.7±0.5	41	TO-220F(SLS)	1.7
FMI12N50ES	500	12	48	0.5	180	30	3.7±0.5	41	T-Pack(L)	1.6
FMC12N50ES	500	12	48	0.5	180	30	3.7±0.5	41	T-Pack(S)	1.6
FML12N50ES	500	12	48	0.5	180	30	3.7±0.5	41	TFP	1.6
FMP16N50ES	500	16	64	0.38	225	30	3.7±0.5	52	TO-220	2.0
FMV16N50ES	500	16	64	0.38	80	30	3.7±0.5	52	TO-220F(SLS)	1.7
FMI16N50ES	500	16	64	0.38	225	30	3.7±0.5	52	T-Pack(L)	1.6
FMC16N50ES	500	16	64	0.38	225	30	3.7±0.5	52	T-Pack(S)	1.6
FMH16N50ES	500	16	64	0.38	195	30	3.7±0.5	52	TO-3P(Q)	5.1
FML16N50ES	500	16	64	0.38	225	30	3.7±0.5	52	TFP	1.6
FMP20N50ES	500	20	80	0.31	270	30	4.2±0.5	57	TO-220	2.0
FMV20N50ES	500	20	80	0.31	95	30	4.2±0.5	57	TO-220F(SLS)	1.7
FMI20N50ES	500	20	80	0.31	270	30	4.2±0.5	57	T-Pack(L)	1.6
FMC20N50ES	500	20	80	0.31	270	30	4.2±0.5	57	T-Pack(S)	1.6
FMH20N50ES	500	20	80	0.31	235	30	4.2±0.5	57	TO-3P(Q)	5.1
FML20N50ES	500	20	80	0.31	270	30	4.2±0.5	57	TFP	1.6
FMV21N50ES	500	21	84	0.27	120	30	4.2±0.5	67	TO-220F(SLS)	1.7
FMR21N50ES	500	21	84	0.27	135	30	4.2±0.5	67	TO-3PF	6.0
FMH21N50ES	500	21	84	0.27	285	30	4.2±0.5	67	TO-3P(Q)	5.1
FMV23N50ES	500	23	92	0.245	130	30	4.2±0.5	74	TO-220F(SLS)	1.7
FMR23N50ES	500	23	92	0.245	150	30	4.2±0.5	74	TO-3PF	6.0
FMH23N50ES	500	23	92	0.245	315	30	4.2±0.5	74	TO-3P(Q)	5.1
FMR28N50ES	500	28	112	0.19	200	30	4.2±0.5	92	TO-3PF	6.0
FMH28N50ES	500	28	112	0.19	400	30	4.2±0.5	92	TO-3P(Q)	5.1

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

The SuperFAP-E^{3S}series products satisfies the quality assurance level of general consumer use.
If you intend to use the products for equipment requiring higher reliability, such as equipment for automobiles and medical equipment, please contact Fuji Electric.
Do not use the products for equipment requiring strict reliability such as aerospace equipment.

SuperFAP-E^{3S} Low Qg series

600V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ Volts	Q_G typ. nC	Package	Net mass Grams
FMP06N60ES	600	6	24	1.2	105	30	3.7±0.5	31	TO-220	2.0
FMV06N60ES	600	6	24	1.2	37	30	3.7±0.5	31	TO-220F(SLS)	1.7
FMI06N60ES	600	6	24	1.2	105	30	3.7±0.5	31	T-Pack(L)	1.6
FMC06N60ES	600	6	24	1.2	105	30	3.7±0.5	31	T-Pack(S)	1.6
FMP12N60ES	600	12	48	0.75	180	30	4.2±0.5	37	TO-220	2.0
FMV12N60ES	600	12	48	0.75	65	30	4.2±0.5	37	TO-220F(SLS)	1.7
FMI12N60ES	600	12	48	0.75	180	30	4.2±0.5	37	T-Pack(L)	1.6
FMC12N60ES	600	12	48	0.75	180	30	4.2±0.5	37	T-Pack(S)	1.6
FML12N60ES	600	12	48	0.75	180	30	4.2±0.5	37	TFP	1.6
FMP13N60ES	600	13	48	0.58	225	30	4.2±0.5	48	TO-220	2.0
FMV13N60ES	600	13	48	0.58	225	30	4.2±0.5	48	TO-220F(SLS)	1.7
FMI13N60ES	600	13	48	0.58	225	30	4.2±0.5	48	T-Pack(L)	1.6
FMC13N60ES	600	13	48	0.58	225	30	4.2±0.5	48	T-Pack(S)	1.6
FMH13N60ES	600	13	48	0.58	195	30	4.2±0.5	48	TO-3P(Q)	5.1
FML13N60ES	600	13	48	1.58	225	30	4.2±0.5	48	TFP	1.6
FMP16N60ES	600	16	64	0.47	270	30	4.2±0.5	56	TO-220	2.0
FMV16N60ES	600	16	64	0.47	95	30	4.2±0.5	56	TO-220F(SLS)	1.7
FMI16N60ES	600	16	64	0.47	270	30	4.2±0.5	56	T-Pack(L)	1.6
FMC16N60ES	600	16	64	0.47	270	30	4.2±0.5	56	T-Pack(S)	1.6
FMH16N60ES	600	16	64	0.47	235	30	4.2±0.5	56	TO-3P(Q)	5.1
FML16N60ES	600	16	64	0.47	270	30	4.2±0.5	56	TFP	1.6
FMV17N60ES	600	17	68	0.4	120	30	4.2±0.5	68	TO-220F(SLS)	1.7
FMR17N60ES	600	17	68	0.4	135	30	4.2±0.5	68	TO-3PF	6.0
FMH17N60ES	600	17	68	0.4	285	30	4.2±0.5	68	TO-3P(Q)	5.1
FMV19N60ES	600	19	76	0.365	130	30	4.2±0.5	74	TO-220F(SLS)	1.7
FMR19N60ES	600	19	76	0.365	150	30	4.2±0.5	74	TO-3PF	6.0
FMH19N60ES	600	19	76	0.365	315	30	4.2±0.5	74	TO-3P(Q)	5.1
FMR23N60ES	600	23	92	0.28	200	30	4.2±0.5	92	TO-3PF	6.0
FMH23N60ES	600	23	92	0.28	400	30	4.2±0.5	92	TO-3P(Q)	5.1

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

The SuperFAP-E^{3S}series products satisfies the quality assurance level of general consumer use.
If you intend to use the products for equipment requiring higher reliability, such as equipment for automobiles and medical equipment, please contact Fuji Electric.
Do not use the products for equipment requiring strict reliability such as aerospace equipment.

SuperFAP-G series

Low-on resistance and low gate charge

SuperFAP-G series			TO-220	TO-220F	TO-220 (SLS)	TO-3PF	TO-247	T-Pack(L)	T-Pack(S)	TFP
										
V_{DS} (V)	$R_{DS(on)}$ (Ω)	I_D (A)								
100	0.062	29	✓	✓				✓	✓	
120	0.03	67	✓	✓				✓	✓	✓
150	0.105	23	✓	✓				✓	✓	
	0.1	23								
	0.07	33	✓	✓				✓	✓	✓
	0.041	57	✓	✓				✓	✓	✓
	0.016	100					✓			
200	0.17	18	✓	✓				✓	✓	✓
	0.066	45	✓	✓				✓	✓	✓
250	0.26	14	✓	✓				✓	✓	
	0.13	24			✓					
	0.1	37	✓	✓		✓		✓	✓	✓
	0.053	59				✓	✓			
280	0.061	56				✓	✓			
300	0.28	15		✓						
	0.13	32	✓	✓				✓	✓	✓
450	2.5	3	✓	✓						
	1.6	4	✓	✓						
	0.65	10	✓	✓				✓	✓	
	0.38	17	✓	✓				✓	✓	✓
500	2.3	4	✓	✓				✓	✓	
	0.85	9	✓	✓				✓	✓	
	0.7	11	✓	✓				✓	✓	
	0.52	14	✓	✓				✓	✓	
	0.46	16	✓	✓				✓	✓	
	0.38	19	✓	✓			✓	✓	✓	✓
	0.26	25				✓	✓			
	0.11	51					✓			
600	3.3	3	✓	✓				✓	✓	
	1.2	8	✓	✓				✓	✓	
	1	9	✓	✓				✓	✓	
	0.75	12	✓	✓				✓	✓	
	0.65	13	✓	✓		✓				
	0.57	16	✓	✓			✓	✓	✓	
	0.37	21				✓	✓			
700	0.6	17				✓				
900	8	2.2	✓	✓						
	6.4	2.6	✓	✓				✓	✓	
	4.3	3.7	✓	✓						
	2.5	6.0						✓	✓	

SuperFAP-G series

100 – 250V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ Volts	Q_G typ. nC	Package	Net mass Grams
2SK3598-01	100	29	116	0.062	105	±30	3 to 5	22	TO-220	2.0
2SK3599-01MR	100	29	116	0.062	37	±30	3 to 5	22	TO-220F	1.7
2SK3600-01L, S	100	29	116	0.062	105	±30	3 to 5	22	T-pack	1.6
2SK3920-01	120	67	268	0.03	270	±30	3 to 5	52	TO-220	2.0
2SK3886-01MR	120	67	268	0.03	95	±30	3 to 5	52	TO-220F	1.7
2SK3921-01L, S	120	67	268	0.03	270	±30	3 to 5	52	T-pack	1.6
2SK3922-01	120	67	268	0.03	270	±30	3 to 5	52	TFP	0.8
2SK3602-01	150	23	92	0.105	105	±30	3 to 5	21	TO-220	2.0
2SK3603-01MR	150	23	92	0.105	37	±30	3 to 5	21	TO-220F	1.7
2SK3604-01L, S	150	23	92	0.105	105	±30	3 to 5	21	T-pack	1.6
2SK3648-01	150	33	132	0.07	150	±30	3 to 5	34	TO-220	2.0
2SK3649-01MR	150	33	132	0.07	53	±30	3 to 5	34	TO-220F	1.7
2SK3650-01L, S	150	33	132	0.07	150	±30	3 to 5	34	T-pack	1.6
2SK3474-01	150	33	132	0.07	150	±30	3 to 5	34	TFP	0.8
2SK3537-01MR	150	33	132	0.07	53	±20	1 to 2.5	46	TO-220F	1.7
2SK3590-01	150	57	228	0.041	270	±30	3 to 5	52	TO-220	2.0
2SK3591-01MR	150	57	228	0.041	95	±30	3 to 5	52	TO-220F	1.7
2SK3592-01L, S	150	57	228	0.041	270	±30	3 to 5	52	T-pack	1.6
2SK3593-01	150	57	228	0.041	270	±30	3 to 5	52	TFP	0.8
2SK3882-01	150	100	400	0.016	600	±30	3 to 5	140	TO-247	4.9
2SK3606-01	200	18	72	0.17	105	±30	3 to 5	21	TO-220	2.0
2SK3607-01MR	200	18	72	0.17	37	±30	3 to 5	21	TO-220F	1.7
2SK3608-01L, S	200	18	72	0.17	105	±30	3 to 5	21	T-pack	1.6
2SK3609-01	200	18	72	0.17	105	±30	3 to 5	21	TFP	0.8
2SK3594-01	200	45	180	0.066	270	±30	3 to 5	51	TO-220	2.0
2SK3595-01MR	200	45	180	0.066	95	±30	3 to 5	51	TO-220F	1.7
2SK3596-01L, S	200	45	180	0.066	270	±30	3 to 5	51	T-pack	1.6
2SK3597-01	200	45	180	0.066	270	±30	3 to 5	51	TFP	0.8
2SK3610-01	250	14	56	0.26	105	±30	3 to 5	21	TO-220	2.0
2SK3611-01MR	250	14	56	0.26	37	±30	3 to 5	21	TO-220F	1.7
2SK3612-01L, S	250	14	56	0.26	105	±30	3 to 5	21	T-pack	1.6
FMV24N25G	250	24	96	0.13	65	±30	3 to 5	36	TO-220F(SLS)	1.7
2SK3554-01	250	37	148	0.1	270	±30	3 to 5	44	TO-220	2.0
2SK3555-01MR	250	37	148	0.1	95	±30	3 to 5	44	TO-220F	1.7
2SK3556-01L, S	250	37	148	0.1	270	±30	3 to 5	44	T-pack	1.6
2SK3535-01	250	37	148	0.1	270	±30	3 to 5	44	TFP	0.8
2SK3651-01R	250	37	148	0.1	115	±30	3 to 5	44	TO-3PF	6.0
2SK3778-01	250	59	236	0.053	410	±30	3 to 5	80	TO-247	4.9
2SK3779-01R	250	59	236	0.053	210	±30	3 to 5	80	TO-3PF	6.0

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

The Super FAP-G series products satisfies the quality assurance level of general consumer use.
If you intend to use the products for equipment requiring higher reliability, such as equipment for automobiles and medical equipment, please contact Fuji Electric.
Do not use the products for equipment requiring strict reliability such as aerospace equipment.

SuperFAP-G series

300 – 500V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ Volts	Q_G typ. nC	Package	Net mass Grams
2SK3580-01MR	300	15	60	0.28	48	±30	3.5 to 4.5	23	TO-220F	1.7
2SK3772-01	300	32	128	0.13	270	±30	3 to 5	44.5	TO-220	2.0
2SK3773-01MR	300	32	128	0.13	95	±30	3 to 5	44.5	TO-220F	1.7
2SK3774-01L, S	300	32	128	0.13	270	±30	3 to 5	44.5	T-pack	1.6
2SK3775-01	300	32	128	0.13	270	±30	3 to 5	44.5	TFP	0.8
2SK3725-01	450	3	12	2.5	50	±30	3 to 5	10.5	TO-220	2.0
2SK3726-01MR	450	3	12	2.5	17	±30	3 to 5	10.5	TO-220F	1.7
2SK3916-01	450	4.3	17.2	1.6	21	±30	3 to 5	13	TO-220	2.0
2SK3917-01MR	450	4.3	17.2	1.6	21	±30	3 to 5	13	TO-220F	1.7
2SK3514-01	450	10	40	0.65	135	±30	3 to 5	22	TO-220	2.0
2SK3515-01MR	450	10	40	0.65	48	±30	3 to 5	22	TO-220F	1.7
2SK3516-01L, S	450	10	40	0.65	135	±30	3 to 5	22	T-pack	1.6
2SK3692-01	450	17	68	0.38	225	±30	3 to 5	33	TO-220	2.0
2SK3693-01MR	450	17	68	0.38	80	±30	3 to 5	33	TO-220F	1.7
2SK3694-01L, S	450	17	68	0.38	225	±30	3 to 5	33	T-pack	1.6
2SK4040-01	450	17	68	0.38	225	±30	3 to 5	33	TFP	0.8
2SK3985-01	500	3.6	14.4	2.3	60	±30	3 to 5	13	TO-220	2.0
2SK3986-01MR	500	3.6	14.4	2.3	21	±30	3 to 5	13	TO-220F	1.7
2SK3987-01L, S	500	3.6	14.4	2.3	60	±30	3 to 5	13	T-pack	1.6
2SK3519-01	500	9	36	0.85	135	±30	3 to 5	20	TO-220	2.0
2SK3520-01MR	500	9	36	0.85	48	±30	3 to 5	20	TO-220F	1.7
2SK4004-01MR	500	9	36	0.85	48	±30	2.5 to 3.5	24	TO-220F	1.7
2SK3521-01L, S	500	9	36	0.85	135	±30	3 to 5	20	T-pack	1.6
2SK3931-01	500	11	44	0.70	165	±30	3 to 5	25	TO-220	2.0
2SK3932-01MR	500	11	44	0.70	60	±30	3 to 5	25	TO-220F	1.7
2SK3933-01L, S	500	11	44	0.70	165	±30	3 to 5	25	T-pack	1.6
2SK3468-01	500	14	56	0.52	195	±30	3 to 5	30	TO-220	2.0
2SK3469-01MR	500	14	56	0.52	70	±30	3 to 5	30	TO-220F	1.7
2SK3512-01L, S	500	14	56	0.52	195	±30	3 to 5	30	T-pack	1.6
2SK3504-01	500	16	64	0.46	225	±30	3 to 5	33	TO-220	2.0
2SK3505-01MR	500	16	64	0.46	80	±30	3 to 5	33	TO-220F	1.7
2SK3581-01L, S	500	16	64	0.46	225	±30	3 to 5	33	T-pack	1.6
2SK3682-01	500	19	76	0.38	270	±30	3 to 5	32	TO-220	2.0
2SK3683-01MR	500	19	76	0.38	95	±30	3 to 5	32	TO-220F	1.7
2SK3684-01L, S	500	19	76	0.38	270	±30	3 to 5	32	T-pack	1.6
2SK3685-01	500	19	76	0.38	235	±30	3 to 5	32	TO-247	4.9
FML19N50G	500	19	76	0.38	270	±30	3 to 5	32	TFP	0.8
2SK3522-01	500	25	100	0.26	335	±30	3 to 5	54	TO-247	4.9
2SK3523-01R	500	25	100	0.26	160	±30	3 to 5	54	TO-3PF	6.0
2SK3680-01	500	51	208	0.11	600	±30	3 to 5	118	TO-247	4.9

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

SuperFAP-G series

600 – 900V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ Volts	Q_G typ. nC	Package	Net mass Grams
2SK3988-01	600	3	12	3.3	60	±30	3 to 5	13	TO-220	2.0
2SK3989-01MR	600	3	12	3.3	21	±30	3 to 5	13	TO-220F	1.7
2SK3990-01L, S	600	3	12	3.3	60	±30	3 to 5	13	T-pack	1.6
2SK3524-01	600	8	32	1.2	135	±30	3 to 5	20	TO-220	2.0
2SK3525-01MR	600	8	32	1.2	48	±30	3 to 5	20	TO-220F	1.7
2SK3526-01L, S	600	8	32	1.2	135	±30	3 to 5	20	T-pack	1.6
2SK3887-01	600	9	36	1.0	165	±30	3 to 5	25	TO-220	2.0
2SK3888-01MR	600	9	36	1.0	60	±30	3 to 5	25	TO-220F	1.7
2SK3889-01L, S	600	9	36	1.0	165	±30	3 to 5	25	T-pack	1.6
2SK3501-01	600	12	48	0.75	195	±30	3 to 5	30	TO-220	2.0
2SK3502-01MR	600	12	48	0.75	70	±30	3 to 5	30	TO-220F	1.7
2SK3513-01L, S	600	12	48	0.75	195	±30	3 to 5	30	T-pack	1.6
2SK3450-01	600	13	52	0.65	225	±30	3 to 5	34	TO-220	2.0
2SK3451-01MR	600	13	52	0.65	80	±30	3 to 5	34	TO-220F	1.7
2SK3753-01R	600	13	52	0.65	95	±30	3 to 5	34	TO-3PF	6.0
2SK3686-01	600	16	64	0.57	270	±30	3 to 5	33	TO-220	2.0
2SK3687-01MR	600	16	64	0.57	97	±30	3 to 5	33	TO-220F	1.7
2SK3688-01L, S	600	16	64	0.57	270	±30	3 to 5	33	T-pack	1.6
2SK3689-01	600	16	64	0.57	235	±30	3 to 5	33	TO-247	4.9
2SK3527-01	600	21	84	0.37	335	±30	3 to 5	54	TO-247	4.9
2SK3528-01R	600	21	84	0.37	160	±30	3 to 5	54	TO-3PF	6.0
2SK3681-01	600	43	172	0.16	600	±30	3 to 5	118	TO-247	4.9
2SK3891-01R	700	17	68	0.6	170	±30	3 to 5	46	TO-3PF	6.0
2SK3727-01	900	2.2	8.8	8.0	75	±30	3.5 to 4.5	8.3	TO-220	2.0
2SK3728-01MR	900	2.2	8.8	8.0	26	±30	3.5 to 4.5	8	TO-220F	1.7
2SK3981-01	900	2.6	10.4	6.4	90	±30	3 to 5	13	TO-220	2.0
2SK3982-01MR	900	2.6	10.4	6.4	32	±30	3 to 5	13	TO-220F	1.7
2SK3983-01L, S	900	2.6	10.4	6.4	90	±30	3 to 5	13	T-pack	1.6
2SK3698-01	900	3.7	14.8	4.3	120	±30	3.5 to 4.5	13	TO-220	2.0
2SK3699-01MR	900	3.7	14.8	4.3	43	±30	3.5 to 4.5	13	TO-220F	1.7
2SK3676-01L, S	900	6	24	2.5	195	±30	3 to 5	21.5	T-pack	1.6

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

SuperFAP-G Built-in FRED series

SuperFAP-G Built-in FRED series			TO-220	TO-220F	TO-247	T-Pack (L)	T-Pack (S)
							
V_{DS} (V)	$R_{DS(on)}$ (Ω)	I_D (A)					
500	0.55	13	✓	✓			
600	0.8	11	✓	✓		✓	✓
	0.17	42			✓		

500 – 600V class

Device type	V_{DSS}	I_D	$I_{D\ (pulse)}$	$R_{DS\ (on)}$ max. *1	P_{tot} *2	V_{GS}	$V_{GS\ (th)}$	Q_G typ.	Package	Net mass
	Volts	Amps.	Amps.	Ohms	Watts	Volts	Volts	nC		Grams
2SK3695-01	500	13	52	0.55	195	±30	3 to 5	28	TO-220	2.0
2SK3696-01MR	500	13	52	0.55	70	±30	3 to 5	28	TO-220F	1.7
2SK3928-01	600	11	44	0.8	195	±30	3 to 5	30	TO-220	2.0
2SK3929-01MR	600	11	44	0.8	70	±30	3 to 5	30	TO-220F	1.7
2SK3930-01L, S	600	11	44	0.8	195	±30	3 to 5	30	T-pack	1.6
2SK3697-01	600	42	168	0.17	600	±30	3 to 5	105	TO-247	4.9

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

■ Trench Power MOSFET

Low-on resistance and high gate capability

Trench Power MOSFET			TO-220	TO-220F	TO-3P (Q)	TO-247	T-Pack(L)	T-Pack(S)	D2-pack
									
V_{DS} (V)	$R_{DS(on)}$ (Ω)	I_D (A)							
40	0.060	70				✓			
60	0.0065	70		✓					
		80	✓				✓	✓	✓
	0.0065	100			✓				
75	0.0079	70		✓					
	0.0085	70						✓	
100	0.0067	80						✓	
	0.0067	100				✓			
	0.0128	80	✓	✓			✓	✓	
150	0.0245	65	✓	✓			✓	✓	
200	0.0470	49	✓	✓			✓	✓	

■ 60 – 100V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ typ. Volts	Package	Net mass Grams
2SK4068-01	40	70	280	0.006	115	+30/-20	3.0	TO-247	4.9
2SK3273-01MR	60	70	280	0.0065	70	+30/-20	3.0	TO-220F	1.7
2SK3270-01	60	80	320	0.0065	135	+30/-20	3.0	TO-220	2.0
2SK3272-01L, S	60	80	320	0.0065	135	+30/-20	3.0	T-pack (L, S)	1.6
2SK3272-01SJ	60	80	320	0.0065	135	+30/-20	3.0	D2-pack	1.6
2SK4047-01S	60	80	320	0.0065	195	+30/-20	3.0	T-pack (S)	1.6
2SK3271-01	60	100	400	0.0065	155	+30/-20	3.0	TO-3P	5.5
2SK3730-01MR	75	70	280	0.0079	70	±20	3.0	TO-220F	1.7
2SK3804-01S	75	70	280	0.0085	162	±20	3.0	T-pack (S)	1.6
FMC80N10R6	100	80	320	0.0067	180	+30/-20	3.0	T-pack (S)	1.6
FMY100N10R6	100	100	400	0.0067	280	+30/-20	3.0	TO-247	6.3

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

■ 100 – 200V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ typ. Volts	Package	Net mass Grams
FMP80N10T2	100	80	320	0.0128	270	+30/-20	2 to 4	TO-220	2.0
FMA80N10T2	100	80	320	0.0128	95	+30/-20	2 to 4	TO-220F	1.7
FMI80N10T2	100	80	320	0.0128	270	+30/-20	2 to 4	T-pack(L)	1.6
FMC80N10T2	100	80	320	0.0128	270	+30/-20	2 to 4	T-pack(S)	1.6
FMP65N15T2	150	65	260	0.0245	270	+30/-20	2 to 4	TO-220	2.0
FMA65N15T2	150	65	260	0.0245	95	+30/-20	2 to 4	TO-220F	1.7
FMI65N15T2	150	65	260	0.0245	270	+30/-20	2 to 4	T-pack(L)	1.6
FMC65N15T2	150	65	260	0.0245	270	+30/-20	2 to 4	T-pack(S)	1.6
FMP49N20T2	200	49	196	0.047	270	+30/-20	2 to 4	TO-220	2.0
FMA49N20T2	200	49	196	0.047	95	+30/-20	2 to 4	TO-220F	1.7
FMI49N20T2	200	49	196	0.047	270	+30/-20	2 to 4	T-pack(L)	1.6
FMC49N20T2	200	49	196	0.047	270	+30/-20	2 to 4	T-pack(S)	1.6

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

The Trench Power MOSFET series products satisfies the quality assurance level of general consumer use.
If you intend to use the products for equipment requiring higher reliability, such as equipment for automobiles and medical equipment, please contact Fuji Electric.
Do not use the products for equipment requiring strict reliability such as aerospace equipment.

Automotive Super J MOS® S1 series

Low-on resistance, low switching noise and low switching loss

Automotive Super J MOS® S1 Series			TO-247	T-Pack(S)
				
V_{DS} (V)	$R_{DS(on)}$ (Ω)	I_D (A)		
600	0.145	29	✓	✓
	0.082	46	✓	
	0.070	47	✓	
	0.071	52	✓	
	0.062	53	✓	
	0.046	67	✓	
	0.040	68	✓	

600V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ typ. Volts	Q_G typ. nC	Package	Net mass Grams
FMY47N60S1A	600	47	141	0.070	390	30	3.0±0.5	125	TO-247	6.4
FMY53N60S1A	600	53	159	0.062	480	30	3.0±0.5	164	TO-247	6.4
FMY68N60S1A	600	68	204	0.040	545	30	3.0±0.5	203	TO-247	6.4

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

Automotive Super J MOS® S1 series of products satisfies the quality assurance level of general automobile use (conforms to AEC-Q101).
Do not use the products for equipment requiring strict reliability such as aerospace equipment.

Automotive Super J MOS® S1FD series (Built-in FRED type)

600V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ typ. Volts	Q_G typ. nC	t_{rr} typ. nsec	Package	Net mass Grams
FMC29N60S1FDA	600	29	87	0.145	220	30	4.0±1	73	170	T-Pack	1.6
FMY29N60S1FDA	600	29	87	0.145	220	30	4.0±1	73	170	TO-247	6.4
FMY46N60S1FDA	600	46	138	0.082	390	30	4.0±1	125	210	TO-247	6.4
FMY52N60S1FDA	600	52	156	0.071	480	30	4.0±1	164	280	TO-247	6.4
FMY67N60S1FDA	600	67	201	0.046	545	30	4.0±1	203	280	TO-247	6.4
FMY52N65S1FDA	650	52	156	0.071	480	30	4.0±1	164	280	TO-247	6.4

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

The Automotive Super J MOS® S1FD series of products satisfies the quality assurance level of general automobile use (conforms to AEC-Q101).
Do not use the products for equipment requiring strict reliability such as aerospace equipment.

Automotive Super J MOS® S2 series

AEC Q101

Low-on resistance, low switching noise and low switching loss

Automotive Super J MOS® S2 Series			TO-247	T-Pack(S)
				
V_{DS} (V)	$R_{DS(on)}$ (Ω)	I_D (A)		
400	0.060	42		✓
500	0.071	38.9	✓	✓
600	0.160	17.9	✓	✓
	0.133	22.8	✓	✓
	0.125	22.8	✓	✓
	0.105	29.3	✓	✓
	0.099	29.3	✓	✓
	0.088	32.8	✓	✓
	0.081	37.1	✓	✓
	0.079	37.1	✓	✓
	0.070	39.4	✓	
	0.040	66.2	✓	
	0.025	95.5	✓	

600V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ typ. Volts	Q_G typ. nC	Package	Net mass Grams
FMY60N160S2A	600	17.9	53.7	0.160	110	30	4.0±0.5	43	TO-247	6.4
FMC60N160S2A	600	17.9	53.7	0.160	127	30	4.0±0.5	43	T-Pack	1.6
FMY60N125S2A	600	22.8	68.2	0.125	140	30	4.0±0.5	53	TO-247	6.4
FMC60N125S2A	600	22.8	68.2	0.125	160	30	4.0±0.5	53	T-Pack	1.6
FMY60N099S2A	600	29.3	87.7	0.099	185	30	4.0±0.5	65	TO-247	6.4
FMC60N099S2A	600	29.3	87.7	0.099	210	30	4.0±0.5	65	T-Pack	1.6
FMY60N088S2A	600	32.8	98.4	0.088	205	30	4.0±0.5	72	TO-247	6.4
FMC60N088S2A	600	32.8	98.4	0.088	235	30	4.0±0.5	72	T-Pack	1.6
FMY60N079S2A	600	37.1	111.3	0.079	235	30	4.0±0.5	80	TO-247	6.4
FMC60N079S2A	600	37.1	111.3	0.079	270	30	4.0±0.5	80	T-Pack	1.6
FMY60N070S2A	600	39.4	118.2	0.070	270	30	4.0±0.5	90	TO-247	6.4
FMY60N040S2A	600	66.2	198.6	0.040	435	30	4.0±0.5	147	TO-247	6.4
FMY60N025S2A	600	95.5	286.5	0.025	575	30	4.0±0.5	222	TO-247	6.4

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

The Automotive Super J MOS® S1FD series of products satisfies the quality assurance level of general automobile use (conforms to AEC-Q101).
Do not use the products for equipment requiring strict reliability such as aerospace equipment.

Automotive Super J MOS® S2FD series (Built-in FRED type)

400V, 500V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ typ. Volts	Q_G typ. nC	Package	Net mass Grams
FMC40N060S2FDA	400	42	126	0.060	270	30	4.0±1	120	T-Pack	1.6
FMY50N071S2FDA	500	38.9	116.7	0.071	235	30	4.0±1	98	TO-247	6.4
FMC50N071S2FDA	500	38.9	116.7	0.071	270	30	4.0±1	98	T-Pack	1.6

600V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ typ. Volts	Q_G typ. nC	Package	Net mass Grams
FMY60N133S2FDA	600	22.8	68.2	0.133	140	30	4.0±1	59	TO-247	6.4
FMC60N133S2FDA	600	22.8	68.2	0.133	160	30	4.0±1	59	T-Pack	1.6
FMY60N105S2FDA	600	29.3	87.7	0.105	185	30	4.0±1	75	TO-247	6.4
FMC60N105S2FDA	600	29.3	87.7	0.105	210	30	4.0±1	75	T-Pack	1.6
FMY60N081S2FDA	600	37.1	111.3	0.081	235	30	4.0±1	93	TO-247	6.4
FMC60N081S2FDA	600	37.1	111.3	0.081	270	30	4.0±1	93	T-Pack	1.6

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

The Automotive Super J MOS® S2FD series of products satisfies the quality assurance level of general automobile use (conforms to AEC-Q101).
Do not use the products for equipment requiring strict reliability such as aerospace equipment.

Automotive MOSFET （Trench Power MOS、SuperFAP-E^{3S}）

Automotive Trench Power MOSFET SuperFAP-E^{3S} Low Qg series			TO-220	TO-220F	TO-3P (Q)	TO-247	T-Pack(L)	T-Pack(S)	D2-pack
									
V_{DS} (V)	$R_{DS(on)}$ (Ω)	I_D (A)							
40	0.006	70				✓			
60	0.0065	70		✓					
		80	✓				✓	✓	✓
								✓	
	0.0065	100			✓	✓			
75	0.0079	70		✓					
	0.0085	70						✓	
100	0.0067	80					✓		
	0.0128	80							
	0.0067	100				✓			
150	0.0245	65							
200	0.047	49							
300	0.085	47				✓			
	0.072	50				✓			
	0.053	67				✓			
	0.045	72				✓			
600	0.29	22				✓			
	0.28	24				✓			
	0.21	30				✓			
	0.20	31				✓			
	0.17	35				✓			
	0.16	36				✓			

■ Automotive SuperFAP-E^{3S} Low Qg series

■ 300 – 600V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ typ. Volts	Q_G typ. nC	Package	Net mass Grams
FMY50N30ES	300	50	200	0.072	400	+30/-30	4.2±0.5	97	TO-247	6.4
FMY72N30ES	300	72	288	0.045	570	+30/-30	4.2±0.5	155	TO-247	6.4
FMY24N60ES	600	24	96	0.280	400	+30/-30	4.2±0.5	95	TO-247	6.4
FMY31N60ES	600	31	124	0.200	495	+30/-30	4.2±0.5	125	TO-247	6.4
FMY36N60ES	600	36	144	0.160	570	+30/-30	4.2±0.5	155	TO-247	6.4

*1: $R_{DS\ (on)}$: V_{GS}=10V, *2: P_{tot}: T_C=25°C

The Automotive SuperFAP-E^{3S} Low Qg series of products satisfies the quality assurance level of general automobile use (conforms to AEC-Q101).
Do not use the products for equipment requiring strict reliability such as aerospace equipment.

■ Automotive SuperFAP-E^{3S} Low Qg Built-in FRED series

Low-on resistance, low switching noise and low switching loss

■ 300 – 600V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ typ. Volts	Q_G typ. nC	t_{rr} typ. nsec	Package	Net mass Grams
FMY47N30ESF	300	47	188	0.085	400	+30/-30	4.2±1.0	96	130	TO-247	6.4
FMY67N30ESF	300	67	268	0.053	570	+30/-30	4.2±1.0	155	150	TO-247	6.4
FMY22N60ESF	600	22	88	0.290	400	+30/-30	4.2±1.0	95	150	TO-247	6.4
FMY30N60ESF	600	30	120	0.210	495	+30/-30	4.2±1.0	125	160	TO-247	6.4
FMY35N60ESF	600	35	140	0.170	570	+30/-30	4.2±1.0	155	160	TO-247	6.4

*1: $R_{DS\ (on)}$: V_{GS}=10V, *2: P_{tot}: T_C=25°C

Automotive SuperFAP-E^{3S} Low Qg Built-in FRED series of products satisfies the quality assurance level of general automobile use (conforms to AEC-Q101).
Do not use the products for equipment requiring strict reliability such as aerospace equipment.

■ Automotive Trench Power MOSFET

■ 40 – 100V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ typ. Volts	Package	Net mass Grams
2SK4068-01	40	70	280	0.006	115	+30/-20	3.0	TO-247	4.9
2SK3273-01MR	60	70	280	0.0065	70	+30/-20	3.0	TO-220F	1.7
2SK3270-01	60	80	320	0.0065	135	+30/-20	3.0	TO-220	2.0
2SK3272-01L, S	60	80	320	0.0065	135	+30/-20	3.0	T-pack	1.6
2SK3272-01SJ	60	80	320	0.0065	135	+30/-20	3.0	D2-pack	1.6
2SK4047-01S	60	80	320	0.0065	195	+30/-20	3.0	T-pack	1.6
FMY100N06T *3	60	100	400	0.0065	135	+30/-20	3.0	TO-247	6.3
2SK3271-01	60	100	400	0.0065	155	+30/-20	3.0	TO-3P	5.5
2SK3730-01MR	75	70	280	0.0079	70	±20	3.0	TO-220F	1.7
2SK3804-01S	75	70	280	0.0085	135	±20	3.0	T-pack	1.6
FMC80N10R6	100	80	320	0.0067	324	+30/-20	3.0	T-Pack	1.6
FMY100N10R6 *3	100	100	400	0.0067	280	+30/-20	3.0	TO-247	6.3

*1: $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C
*3: FMY100N06T and FMY100N10R6 satisfies the quality assurance level of general automobile use (conforms to AEC-Q101).
Do not use the products for equipment requiring strict reliability such as aerospace equipment.

Automotive IPS series (Intelligent Power Switches)

Self protection

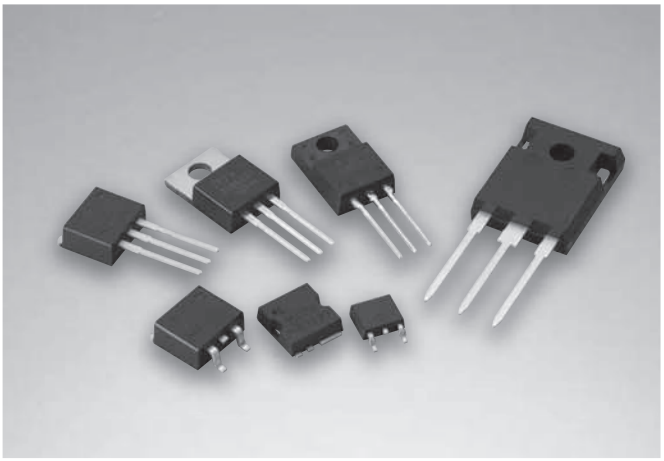
Device type	Type	Channels	V_{CC} DC (pulse) Volts	I_D Amps.	$R_{DS\ (on)}$ typ. Ohms	$R_{DS\ (on)}$ max. Ohms	P_{tot} Watts	Package	Net mass Grams	Remarks
F5044H	High side	1	33 (50)	2.5	0.09 *1	0.12 *1	1.5	SOP-8	0.2	
F5045P	High side	1	33 (50)	1	0.37 *1	0.60 *1	1.5	SOP-8	0.2	
● **F5106H**	High side	1	35 (50)	2	0.1 *1	0.12 *1	1.5	SOP-8	0.2	Note1
● **F5112H**	High side	1	35 (50)	2	0.1 *1	0.12 *1	2	SOP-8	0.2	Note2
F5062H	High side	1	35 (50)	50	0.006 *1	0.008 *1	114	PSOP-12	0.4	
F5074H	High side	1	35 (50)	80	0.004 *1	0.005 *1	114	PSOP-12	0.4	
F5018	Low side	1	40	8	0.088 *2	0.14 *2	15	K-pack	0.6	
F5019	Low side	1	40	12	0.088 *2	0.14 *2	30	T-pack	1.6	
F5020	Low side	1	40	3	0.25 *2	0.40 *2	10	K-pack	0.6	
F5033	Low side	2	40	1	0.41 *2	0.60 *2	1.5	SOP-8	0.2	
F5041	Low side	2	40	1	0.47 *2	0.60 *2	1.5	SOP-8	0.2	
F5042	Low side	1	40	8	0.088 *2	0.14 *2	15	K-pack	0.6	Note3
F5043	Low side	1	40	12	0.088 *2	0.14 *2	30	T-pack	1.6	Note4
F5048	Low side	1	80	15	0.091 *2	0.125 *2	43	T-pack	1.6	
F5055	Low side	2	40	5.9	0.088 *2	0.14 *2	7.8	SSOP-20	0.3	
F5063L	Low side	2	40	1.9	0.095 *2	0.14 *2	1.75	SOP-8	0.2	

● : New Product *1: $R_{DS\ (on)}$: V_{CC}=13V *2: $R_{DS\ (on)}$: V_{IN}/V_{GS}=5V

Note1: Built-in Amp
Note2: Low stand by current version for F5044H
Note3: High frequency switching version for F5018
Note4: High frequency switching version for F5019

Rectifier Diodes

Fuji Electric's rectifier diodes have features such as low V_F characteristics and low I_R, and are compatible with PFC circuits of power supplies and secondary-side rectification circuits.



Features of SBD, LLD

Ultra Low-IR SBD (Schottky-Barrier Diode)

■ Features

- Guaranteed T_{vj}=175°C
- V_F is same level and I_R is reduced by less than 1/10.

LLD (Low Loss Diode)　Super LLD series for PFC circuit

■ Features

Super LLD-3 for CCM-PFC

- Realize acceleration and low V_F compaired with existing model.

Super LLD-2 for DCM-PFC

- Achieved low power loss by low V_F
- Achieved low noise by soft recovery

■ Part numbers

FDRW50C60L (example)

F	DR		W		50	C		60		L	
Company code	Device code		Package code		Current	Polarity		Voltage		Series	
Fuji	DR	FWD	P	TO-220	×1	S、T	Single	60	600V	L	Ultra Fast Recovery
			W	TO-247-P2		C	Cathode Common	65	650V		
								120	1200V	J	Sort/Fast Recovery

5 Rectifier Diodes

■ Part numbers

YA875C10R (example)

YA		87		5		C		10							R
Package code		Series		Current		Polarity		Voltage							Additional code
KP	K-Pack (L)	8x	SBD	1	5A	S	Single	SBD	02	20V	LLD	2	200V		R or RR
KS	K-Pack (S)	9x	LLD	2	10A	C	Cathode Common		03	30V		3	300V		
MS	TFP			3	15A				04	40V		4	400V		
PA	TO-3P			4	15A				06	60V		6	600V		
PG	TO-3PF			5	20A				08	80V		8	800V		
PH	TO-247			6	30A				09	90V		10	1000V		
TP	T-Pack (L)			8	30A				10	100V		12	1200V		
TS	T-Pack (S)			9	40A				12	120V		15	1500V		
YA	TO-220			0	40A				15	150V					
YG	TO-220F								20	200V					

■ Part numbers

ESAD92M02R (example)

ESA		D			92		M		02						R
Chip		Current			Series		Package code		Voltage						Additional code
ESA	Dual chips	Lead	ERA	≦1A	8x	SBD	non	Non Isolation	SBD	004	40V	LLD	02	200V	R or RR
ER	Single chip		ERB	≦2A	9x	LLD	M	Full mold		006	60V		03	300V	
			ERC	≦3A						009	90V				
			ERD	-											
		TOPKG	ERC	≦5A											
			ESAB	5A-10A											
			ESAC	10A-20A											
			ESAD	20A-30A											

Schottky-Barrier Diodes(SBD)

Schottky-Barrier Diodes(SBD)					TO-220F	K-Pack(L)	K-Pack(S)	TFP
								
Chip	V_{RRM} (V)	Io (A)	V_F (V)	I_R (mA)				
Single	40	5	0.55	5	✓		✓	
	45	10	0.60	2	✓			
	60	5	0.59	5	✓			
		15	0.63	20	✓			
Dual	20	7	0.39	10		✓	✓	
	30	5	0.47	5			✓	
	40	5	0.55	5	✓		✓	
		10	0.55	5	✓			
		20	0.6	15	✓			
		30	0.53	8	✓			✓
	60	5	0.58	5	✓			
		10	0.58	5	✓			
		15	0.58	5	✓			
		20	0.58	15	✓			
		30	0.58	3				✓
	90	5	0.9	5			✓	
	100	5	0.8	0.7	✓			
		10	0.8	1.2	✓			
		20	0.8	2.5	✓			
		30	0.8	20	✓			

1 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)			Package	Net mass
	V_{RRM} Volts	I_O *1 Amps.	I_{FSM} *2 Amps.	T_{vj} and T_{stg} °C	V_{FM} max. Volts	I_{RRM} *3 max.mA	$R_{th\ (j\text{-}c)}$ °C/W		Grams
KS826S04	40	5.0 (T_C=110°C)	80	-40 to +150	0.55 (I_F=5.0A)	5	10	K-pack(S)	0.6
YG811S04R	40	5.0 (T_C=122°C)	120	-40 to +150	0.55 (I_F=5.0A)	5	5.0	TO-220F	1.7
YG812S04R	45	10 (T_C=124°C)	120	-40 to +150	0.6 (I_F=10A)	2	2.5	TO-220F	1.7
YG811S06R	60	5.0 (T_C=127°C)	80	-40 to +150	0.59 (I_F=5.0A)	5	5.0	TO-220F	1.7
YG804S06R	60	15 (T_C=99°C)	120	-40 to +150	0.63 (I_F=15A)	20	2.2	TO-220F	1.7

( ) Conditions
*1: 50Hz Square wave duty=1/2
*2: Sine wave, 10ms *3: V_R=V_{RRM}

Letter symbols

V_{RRM}	Repetitive peak reverse voltage
V_{RSM}	Non-repetitive peak reverse voltage
I_O	Average output current
I_{FSM}	Surge current
T_{vj}	Junction temperature
T_a	Ambient temperature
T_c	Case temperature
T_{stg}	Storage temperature
V_{FM}	Forward voltage
I_{RRM}	Reverse current
t_{rr}	Reverse recovery time
$R_{th\ (j\text{-}c)}$	Thermal resistance (Junction to case)
T_l	Lead temperature
$I_{F(AV)}$	Average forward current

Schottky-Barrier Diodes(SBD)

2 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)			Package	Net mass
	V_{RRM} Volts	I_O *1 Amps.	I_{FSM} *2 Amps.	T_{vj} and T_{stg} °C	V_{FM} *3 max. Volts	I_{RRM} *4 max.mA	$R_{th\ (j\text{-}c)}$ °C/W		Grams
KP883C02	20	7.0 (T_C=89°C)	60	-40 to +125	0.39 (I_F=2.5A)	10	10.0	K-Pack(L)	0.6
KS883C02	20	7.0 (T_C=89°C)	60	-40 to +125	0.39 (I_F=2.5A)	10	10.0	K-pack(S)	0.6
KS823C03	30	5.0 (T_C=117°C)	60	-40 to +150	0.47 (I_F=2.5A)	5	10.0	K-pack(S)	0.6
KS823C04	40	5.0 (T_C=107°C)	60	-40 to +150	0.55 (I_F=2.5A)	5	10.0	K-pack(S)	0.6
YG801C04R	40	5.0 (T_C=125°C)	100	-40 to +150	0.55 (I_F=2.0A)	5	5.0	TO-220F	1.7
YG802C04R	40	10 (T_C=110°C)	120	-40 to +150	0.55 (I_F=4.0A)	5	3.5	TO-220F	1.7
YG805C04R	40	20 (T_C=100°C)	120	-40 to +150	0.6 (I_F=10A)	15	2.5	TO-220F	1.7
YG838C04R	40	30 (T_C=85°C)	180	-40 to +150	0.53 (I_F=12.5A)	8	2.0	TO-220F	1.7
MS838C04	40	30 (T_C=111°C)	180	-40 to +150	0.53 (I_F=12.5A)	8	1.2	TFP	0.8
YG801C06R	60	5.0 (T_C=125°C)	60	-40 to +150	0.58 (I_F=2.0A)	5	5.0	TO-220F	1.7
YG802C06R	60	10 (T_C=118°C)	80	-40 to +150	0.58 (I_F=4.0A)	5	3.5	TO-220F	1.7
YG803C06R	60	15 (T_C=94°C)	100	-40 to +150	0.58 (I_F=6.0A)	5	3.0	TO-220F	1.7
YG805C06R	60	20 (T_C=108°C)	80	-40 to +150	0.58 (I_F=8.0A)	15	2.5	TO-220F	1.7
MS808C06	60	30 (T_C=118°C)	150	-40 to +150	0.58 (I_F=12.5A)	3	1.2	TFP	0.8
KS823C09	90	5.0 (T_C=100°C)	60	-40 to +150	0.9 (I_F=2.5A)	5	10.0	K-pack(S)	0.6
YG801C10R	100	5.0 (T_C=117°C)	60	-40 to +150	0.8 (I_F=1.5A)	0.7	5.0	TO-220F	1.7
YG802C10R	100	10 (T_C=102°C)	80	-40 to +150	0.8 (I_F=3.0A)	1.2	3.5	TO-220F	1.7
YG805C10R	100	20 (T_C=91°C)	100	-40 to +150	0.8 (I_F=5.0A)	2.5	2.5	TO-220F	1.7
YG808C10R	100	30 (T_C=80°C)	180	-40 to +150	0.8 (I_F=10A)	20	2.0	TO-220F	1.7

( ) Conditions
*1: 50Hz Square wave duty=1/2 (Average forward current of centertap full wave connection)
*2: Sine wave, 10ms per element *3: I_F=0.5I_O per element
*4: V_R=V_{RRM} per element

Ultra Low IR Schottky-Barrier Diodes

Ultra Low IR Schottky-Barrier Diodes					TO-220	TO-220F
						
Chip	V_{RRM} (V)	I_O (A)	V_F (V)	I_R (mA)		
Dual	100	10	0.82	0.015	✓	✓
		20	0.86	0.02	✓	✓
		30	0.86	0.03	✓	✓
	120	10	0.84	0.015	✓	✓
		20	0.88	0.02	✓	✓
		30	0.88	0.03	✓	✓
	150	10	0.86	0.015	✓	✓
		20	0.89	0.02	✓	✓
		30	0.89	0.03	✓	✓
	200	10	0.89	0.015	✓	✓
		20	0.93	0.02	✓	✓
		30	0.93	0.03	✓	✓

2 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)			Package	Net mass
	V_{RRM} Volts	I_O *1 Amps.	I_{FSM} *2 Amps.	T_{vj} and T_{stg} °C	V_{FM} *3 max. Volts	I_{RRM} *4 max.mA	$R_{th\ (j\text{-}c)}$ °C/W		Grams
YG872C10R	100	10 (T_C=146°C)	125	-40 to +175	0.82	0.015	3.5	TO-220F	1.7
YA872C10R	100	10 (T_C=158°C)	125	-40 to +175	0.82	0.015	2.0	TO-220	2.0
YG875C10R	100	20 (T_C=131°C)	145	-40 to +175	0.86	0.020	2.5	TO-220F	1.7
YA875C10R	100	20 (T_C=144°C)	145	-40 to +175	0.86	0.020	1.75	TO-220	2.0
YG878C10R	100	30 (T_C=122°C)	160	-40 to +175	0.86	0.030	2.0	TO-220F	1.7
YA878C10R	100	30 (T_C=142°C)	160	-40 to +175	0.86	0.030	1.25	TO-220	2.0
YG872C12R	120	10 (T_C=143°C)	125	-40 to +175	0.84	0.015	3.5	TO-220F	1.7
YA872C12R	120	10 (T_C=158°C)	125	-40 to +175	0.84	0.015	2.0	TO-220	2.0
YG875C12R	120	20 (T_C=127°C)	145	-40 to +175	0.88	0.020	2.5	TO-220F	1.7
YA875C12R	120	20 (T_C=144°C)	145	-40 to +175	0.88	0.020	1.75	TO-220	2.0
YG878C12R	120	30 (T_C=116°C)	160	-40 to +175	0.88	0.030	2.0	TO-220F	1.7
YA878C12R	120	30 (T_C=141°C)	160	-40 to +175	0.88	0.030	1.25	TO-220	2.0
YG872C15R	150	10 (T_C=144°C)	125	-40 to +175	0.86	0.015	3.5	TO-220F	1.7
YA872C15R	150	10 (T_C=157°C)	125	-40 to +175	0.86	0.015	2.0	TO-220	2.0
YG875C15R	150	20 (T_C=130°C)	145	-40 to +175	0.89	0.020	2.5	TO-220F	1.7
YA875C15R	150	20 (T_C=143°C)	145	-40 to +175	0.89	0.020	1.75	TO-220	2.0
YG878C15R	150	30 (T_C=120°C)	160	-40 to +175	0.89	0.030	2.0	TO-220F	1.7
YA878C15R	150	30 (T_C=140°C)	160	-40 to +175	0.89	0.030	1.25	TO-220	2.0
YG872C20R	200	10 (T_C=143°C)	125	-40 to +175	0.89	0.015	3.5	TO-220F	1.7
YA872C20R	200	10 (T_C=157°C)	125	-40 to +175	0.89	0.015	2.0	TO-220	2.0
YG875C20R	200	20 (T_C=127°C)	145	-40 to +175	0.93	0.020	2.5	TO-220F	1.7
YA875C20R	200	20 (T_C=141°C)	145	-40 to +175	0.93	0.020	1.75	TO-220	2.0
YG878C20R	200	30 (T_C=116°C)	160	-40 to +175	0.93	0.030	2.0	TO-220F	1.7
YA878C20R	200	30 (T_C=138°C)	160	-40 to +175	0.93	0.030	1.25	TO-220	2.0

( ) Conditions
*1: 50Hz Square wave duty=1/2 (Average forward current of centertap full wave connection)
*2: Sine wave, 10ms per element *3: I_F=0.5I_O per element
*4: V_R=V_{RRM} per element

Low IR Schottky-Barrier Diodes

Low IR Schottky-Barrier Diodes					TO-220	TO-220F	TO-3P (Q)	TO-3PF	TO-247	T-Pack(L)	T-Pack(S)	TFP
												
Chip	V_{RRM} (V)	I_O (A)	V_F (V)	I_R (mA)								
Single	120	5	0.88	0.15		✓						
	150	5	0.9	0.15		✓						
Dual	45	20	0.63	0.175	✓	✓					✓	✓
		30	0.63	0.2	✓	✓					✓	✓
	60	10	0.68	0.15	✓	✓					✓	
		20	0.74	0.175	✓	✓					✓	
		30	0.74	0.2	✓	✓					✓	
		40	0.7	0.2	✓	✓				✓		
	80	10	0.76	0.15	✓	✓					✓	✓
		20	0.76	0.175	✓	✓					✓	✓
		30	0.76	0.2	✓	✓					✓	
		40	0.71	0.2	✓	✓				✓		
	100	10	0.86	0.15	✓	✓					✓	
		20	0.86	0.175	✓	✓					✓	✓
		30	0.86	0.2	✓	✓	✓			✓	✓	✓
		40	0.82	0.2	✓	✓				✓		
	120	10	0.88	0.15	✓	✓				✓	✓	
		20	0.88	0.15	✓	✓			✓	✓	✓	✓
		30	0.88	0.2	✓	✓			✓		✓	✓
		30	1.01	0.2								
		40	0.95	0.2	✓	✓						
	150	10	0.9	0.15	✓	✓				✓	✓	
		20	0.9	0.15	✓	✓		✓	✓	✓	✓	✓
		30	0.9	0.2	✓	✓	✓		✓		✓	✓
		40	0.97	0.2	✓	✓						

1 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)			Package	Net mass
	V_{RRM} Volts	I_O *1 Amps.	I_{FSM} *2 Amps.	T_{vj} and T_{stg} °C	V_{FM} *3 max. Volts	I_{RRM} *4 max.mA	$R_{th\ (j\text{-}c)}$ °C/W		Grams
YG861S12R	120	5 (T_C=104°C)	75	-40 to +150	0.88	0.15	5.0	TO-220F	1.7
YG861S15R	150	5 (T_C=94°C)	75	-40 to +150	0.90	0.15	5.0	TO-220F	1.7

( ) Conditions
*1: 50Hz Square wave duty=1/2
*2: Sine wave, 10ms *3: I_F=I_O *4: V_R=V_{RRM}

Low IR Schottky-Barrier Diodes

2 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)			Package	Net mass
	V_{RRM} Volts	I_O *1 Amps.	I_{FSM} *2 Amps.	T_{vj} and T_{stg} °C	V_{FM} *3 max. Volts	I_{RRM} *4 max.mA	$R_{th(j-c)}$ °C/W		Grams
YG865C04R	45	20 (T_C=115°C)	145	-40 to +150	0.63	0.175	2.5	TO-220F	1.7
YA865C04R	45	20 (T_C=126°C)	145	-40 to +150	0.63	0.175	1.75	TO-220	2.0
TS865C04R	45	20 (T_C=126°C)	145	-40 to +150	0.63	0.175	1.75	T-pack(S)	1.6
MS865C04	45	20 (T_C=125°C)	145	-40 to +150	0.63	0.175	1.75	TFP	0.8
YG868C04R	45	30 (T_C=105°C)	160	-40 to +150	0.63	0.20	2.0	TO-220F	1.7
YA868C04R	45	30 (T_C=122°C)	160	-40 to +150	0.63	0.20	1.25	TO-220	2.0
TS868C04R	45	30 (T_C=122°C)	160	-40 to +150	0.63	0.20	1.25	T-pack(S)	1.6
MS868C04	45	30 (T_C=122°C)	160	-40 to +150	0.63	0.20	1.25	TFP	0.8
YG862C06R	60	10 (T_C=124°C)	125	-40 to +150	0.68	0.15	3.5	TO-220F	1.7
YA862C06R	60	10 (T_C=136°C)	125	-40 to +150	0.68	0.15	2.0	TO-220	2.0
TS862C06R	60	10 (T_C=136°C)	125	-40 to +150	0.68	0.15	2.0	T-pack(S)	1.6
YG865C06R	60	20 (T_C=109°C)	145	-40 to +150	0.74	0.175	2.5	TO-220F	1.7
YA865C06R	60	20 (T_C=122°C)	145	-40 to +150	0.74	0.175	1.75	TO-220	2.0
TS865C06R	60	20 (T_C=122°C)	145	-40 to +150	0.74	0.175	1.75	T-pack(S)	1.6
YG868C06R	60	30 (T_C=101°C)	160	-40 to +150	0.74	0.20	2.0	TO-220F	1.7
YA868C06R	60	30 (T_C=119°C)	160	-40 to +150	0.74	0.20	1.25	TO-220	2.0
TS868C06R	60	30 (T_C=119°C)	160	-40 to +150	0.74	0.20	1.25	T-pack(S)	1.6
YG869C06R	60	40 (T_C=105°C)	190	-40 to +150	0.70	0.20	1.2	TO-220F	1.7
YA869C06R	60	40 (T_C=114°C)	190	-40 to +150	0.70	0.20	1.0	TO-220	2.0
TP869C06R	60	40 (T_C=114°C)	190	-40 to +150	0.70	0.20	1.0	T-Pack(L)	1.6
YG862C08R	80	10 (T_C=109°C)	125	-40 to +150	0.76	0.15	3.5	TO-220F	1.7
YA862C08R	80	10 (T_C=126°C)	125	-40 to +150	0.76	0.15	2.0	TO-220	2.0
TS862C08R	80	10 (T_C=126°C)	125	-40 to +150	0.76	0.15	2.0	T-pack(S)	1.6
MS862C08	80	10 (T_C=115°C)	125	-40 to +150	0.76	0.15	3.0	TFP	0.8
YG865C08R	80	20 (T_C=89°C)	145	-40 to +150	0.76	0.175	2.5	TO-220F	1.7
YA865C08R	80	20 (T_C=107°C)	145	-40 to +150	0.76	0.175	1.75	TO-220	2.0
TS865C08R	80	20 (T_C=107°C)	145	-40 to +150	0.76	0.175	1.75	T-pack(S)	1.6
MS865C08	80	20 (T_C=108°C)	145	-40 to +150	0.76	0.175	1.75	TFP	0.8
YG868C08R	80	30 (T_C=72°C)	160	-40 to +150	0.76	0.20	2.0	TO-220F	1.7
YA868C08R	80	30 (T_C=105°C)	160	-40 to +150	0.76	0.20	1.25	TO-220	2.0
TS868C08R	80	30 (T_C=105°C)	160	-40 to +150	0.76	0.20	1.25	T-pack(S)	1.6
YG869C08R	80	40 (T_C=86°C)	190	-40 to +150	0.71	0.20	1.2	TO-220F	1.7
YA869C08R	80	40 (T_C=98°C)	190	-40 to +150	0.71	0.20	1.0	TO-220	2.0
TP869C08R	80	40 (T_C=98°C)	190	-40 to +150	0.71	0.20	1.0	T-Pack(L)	1.6

( ) Conditions
*1: 50Hz Square wave duty=1/2 (Average forward current of centertap full wave connection)
*2: Sine wave, 10ms per element *3: I_F=0.5I_O per element
*4: V_R=V_{RRM} per element

Low IR Schottky-Barrier Diodes

2 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)			Package	Net mass
	V_{RRM} Volts	I_O *1 Amps.	I_{FSM} *2 Amps.	T_{vj} and T_{stg} °C	V_{FM} *3 max. Volts	I_{RRM} *4 max.mA	$R_{th\ (j\text{-}c)}$ °C/W		Grams
YG862C10R	100	10 (T_C=118°C)	125	-40 to +150	0.86	0.15	3.5	TO-220F	1.7
YA862C10R	100	10 (T_C=132°C)	125	-40 to +150	0.86	0.15	2.0	TO-220	2.0
TS862C10R	100	10 (T_C=132°C)	125	-40 to +150	0.86	0.15	2.0	T-pack(S)	1.6
YG865C10R	100	20 (T_C=103°C)	145	-40 to +150	0.86	0.175	2.5	TO-220F	1.7
YA865C10R	100	20 (T_C=117°C)	145	-40 to +150	0.86	0.175	1.75	TO-220	2.0
TS865C10R	100	20 (T_C=117°C)	145	-40 to +150	0.86	0.175	1.75	T-pack(S)	1.6
MS865C10	100	20 (T_C=117°C)	145	-40 to +150	0.86	0.175	1.75	TFP	0.8
YG868C10R	100	30 (T_C=91°C)	160	-40 to +150	0.86	0.20	2.0	TO-220F	1.7
YA868C10R	100	30 (T_C=113°C)	160	-40 to +150	0.86	0.20	1.25	TO-220	2.0
TS868C10R	100	30 (T_C=113°C)	160	-40 to +150	0.86	0.20	1.25	T-pack(S)	1.6
TP868C10R	100	30 (T_C=113°C)	160	-40 to +150	0.86	0.20	1.25	T-Pack(L)	1.6
MS868C10	100	30 (T_C=114°C)	160	-40 to +150	0.86	0.20	1.2	TFP	0.8
PA868C10R	100	30 (T_C=107°C)	160	-40 to +150	0.86	0.20	1.5	TO-3P(Q)	5.1
YG869C10R	100	40 (T_C=94°C)	190	-40 to +150	0.82	0.20	1.2	TO-220F	1.7
YA869C10R	100	40 (T_C=105°C)	190	-40 to +150	0.82	0.20	1.0	TO-220	2.0
TP869C10R	100	40 (T_C=105°C)	190	-40 to +150	0.82	0.20	1.0	T-Pack(L)	1.6
YG862C12R	120	10 (T_C=122°C)	75	-40 to +150	0.88	0.15	3.00	TO-220F	1.7
YA862C12R	120	10 (T_C=137°C)	75	-40 to +150	0.88	0.15	1.20	TO-220	2.0
TP862C12R	120	10 (T_C=137°C)	75	-40 to +150	0.88	0.15	1.50	T-Pack(L)	1.6
TS862C12R	120	10 (T_C=137°C)	75	-40 to +150	0.88	0.15	1.50	T-pack(S)	1.6
YG865C12R	120	20 (T_C=116°C)	150	-40 to +150	0.88	0.15	1.75	TO-220F	1.7
YA865C12R	120	20 (T_C=126°C)	150	-40 to +150	0.88	0.15	1.25	TO-220	2.0
PH865C12	120	20 (T_C=126°C)	150	-40 to +150	0.88	0.15	1.50	TO-247	4.9
TP865C12R	120	20 (T_C=126°C)	150	-40 to +150	0.88	0.15	1.25	T-Pack(L)	1.6
TS865C12R	120	20 (T_C=126°C)	150	-40 to +150	0.88	0.15	1.25	T-pack(S)	1.6
MS865C12	120	20 (T_C=126°C)	150	-40 to +150	0.88	0.15	1.25	TFP	0.8
YG868C12R	120	30 (T_C=116°C)	190	-40 to +150	0.88	0.20	1.20	TO-220F	1.7
YA868C12R	120	30 (T_C=122°C)	190	-40 to +150	0.88	0.20	1.00	TO-220	2.0
PH868C12	120	30 (T_C=122°C)	190	-40 to +150	0.88	0.20	1.20	TO-247	4.9
TS868C12R	120	30 (T_C=122°C)	190	-40 to +150	0.88	0.20	1.00	T-pack(S)	1.6
MS868C12	120	30 (T_C=115°C)	190	-40 to +150	0.88	0.20	1.20	TFP	0.8
YG869C12R	120	40 (T_C=95°C)	190	-40 to +150	0.95	0.20	1.20	TO-220F	1.7
YA869C12R	120	40 (T_C=104°C)	190	-40 to +150	0.95	0.20	1.00	TO-220	2.0
YG862C15R	150	10 (T_C=117°C)	75	-40 to +150	0.90	0.15	3.00	TO-220F	1.7
YA862C15R	150	10 (T_C=134°C)	75	-40 to +150	0.90	0.15	1.50	TO-220	2.0
TP862C15R	150	10 (T_C=134°C)	75	-40 to +150	0.90	0.15	1.50	T-Pack(L)	1.6
TS862C15R	150	10 (T_C=134°C)	75	-40 to +150	0.90	0.15	1.50	T-pack(S)	1.6
YG865C15R	150	20 (T_C=101°C)	150	-40 to +150	0.90	0.15	1.75	TO-220F	1.7
PH865C15	150	20 (T_C=109°C)	150	-40 to +150	0.90	0.15	1.50	TO-247	4.9
PG865C15R	150	20 (T_C=80°C)	150	-40 to +150	0.90	0.15	2.50	TO-3PF	6.0
YA865C15R	150	20 (T_C=115°C)	150	-40 to +150	0.90	0.15	1.25	TO-220	2.0
TP865C15R	150	20 (T_C=115°C)	150	-40 to +150	0.90	0.15	1.25	T-Pack(L)	1.6
TS865C15R	150	20 (T_C=115°C)	150	-40 to +150	0.90	0.15	1.25	T-pack(S)	1.6
MS865C15	150	20 (T_C=115°C)	150	-40 to +150	0.90	0.15	1.25	TFP	0.8
YG868C15R	150	30 (T_C=113°C)	190	-40 to +150	0.90	0.20	1.20	TO-220F	1.7
YA868C15R	150	30 (T_C=119°C)	190	-40 to +150	0.90	0.20	1.00	TO-220	2.0
TS868C15R	150	30 (T_C=119°C)	190	-40 to +150	0.90	0.20	1.00	T-pack(S)	1.6
MS868C15	150	30 (T_C=113°C)	190	-40 to +150	0.90	0.20	1.20	TFP	0.8
PA868C15R	150	30 (T_C=129°C)	190	-40 to +150	0.90	0.20	1.20	TO-3P	5.5
PH868C15	150	30 (T_C=129°C)	190	-40 to +150	0.90	0.20	1.20	TO-247	4.9
YG869C15R	150	40 (T_C=90°C)	190	-40 to +150	0.97	0.20	1.20	TO-220F	1.7
YA869C15R	150	40 (T_C=100°C)	190	-40 to +150	0.97	0.20	1.00	TO-220	2.0

( ) Conditions
*1: 50Hz Square wave duty=1/2 (Average forward current of centertap full wave connection)
*2: Sine wave, 10ms per element *3: I_F=0.5/I_O per element
*4: V_R=V_{RRM} per element

Super LLD 2 (Critical mode PFC)

Super LLD 2 (Critical mode PFC)						TO-220	TO-220F	TO-247
								
Chip	V_{RRM} (V)	I_O (A)	V_F (V)	I_R(μA)	t_{rr} (μsec)			
Single	600	8	1.55	10	0.05	✓	✓	
		10	1.55	10	0.05	✓	✓	
	800	5	2.2	10	0.05		✓	
Dual	600	10	1.55	10	0.05	✓	✓	✓

1 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)				Package	Net mass
	V_{RRM} Volts	I_O *1 Amps.	I_{FSM} *2 Amps.	T_{vj} and T_{stg} °C	V_{FM} max. Volts	I_{RRM} *3 max. μA	t_{rr} *4 μ sec.	$R_{th\ (j\text{-}c)}$ °C/W		Grams
YA971S6R	600	8 (T_C=116°C)	70	-40 to +150	1.55 (I_F=8A)	10	0.05	2.5	TO-220	2.0
YG971S6R	600	8 (T_C=89°C)	70	-40 to +150	1.55 (I_F=8A)	10	0.05	4.5	TO-220F	1.7
YA972S6R	600	10 (T_C=115°C)	100	-40 to +150	1.55 (I_F=10A)	10	0.05	2.0	TO-220	2.0
YG972S6R	600	10 (T_C=89°C)	100	-40 to +150	1.55 (I_F=10A)	10	0.05	3.5	TO-220F	1.7
YG971S8R	800	5 (T_C=93°C)	60	-40 to +150	2.2 (I_F=5A)	10	0.05	4.5	TO-220F	1.7

( ) Conditions
*1: 50Hz Square wave duty=1/2
*2: Sine wave, 10ms *3: V_R=V_{RRM}
*4: I_F=0.1A, I_R=0.2A, Irec=0.05A

2 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)				Package	Net mass
	V_{RRM} Volts	I_O *1 Amps.	I_{FSM} *2 Amps.	T_{vj} and T_{stg} °C	V_{FM} max. Volts	I_{RRM} *3 max. μA	t_{rr} *4 μ sec.	$R_{th\ (j\text{-}c)}$ °C/W		Grams
YA975C6R	600	20 (T_C=106°C)	100	-40 to +150	1.55 (I_F=10A)	10	0.05	1.25	TO-220	2.0
YG975C6R	600	20 (T_C=89°C)	100	-40 to +150	1.55 (I_F=10A)	10	0.05	1.75	TO-220F	1.7
PH975C6	600	20 (T_C=97°C)	100	-40 to +150	1.55 (I_F=10A)	10	0.05	1.5	TO-247	4.9

( ) Conditions
*1: 50Hz Square wave duty=1/2 (Average forward current of centertap full wave connection)
*2: Sine wave, 10ms per element *3: V_R=V_{RRM} per element
*4: I_F=0.1A, I_R=0.2A, Irec=0.05A

Super LLD 3 (Continuous mode PFC)

Super LLD 3 (Continuous mode PFC)						TO-220	TO-220F	TO-247	T-Pack (S)
									
Chip	V_{RRM} (V)	I_O (A)	V_F (V)	I_R(μA)	t_{rr} (μsec)				
Single	600	8	3	25	0.026	✓	✓		
		10	3	30	0.028	✓	✓		
Dual	600	16	3	25	0.026	✓	✓		✓
		20	3	30	0.028	✓	✓	✓	✓

1 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)				Package	Net mass
	V_{RRM} Volts	I_O *1 Amps.	I_{FSM} *2 Amps.	T_{vj} and T_{stg} °C	V_{FM} max. Volts	I_{RRM} *3 max. μA	t_{rr} *4 μsec.	$R_{th\ (j\text{-}c)}$ °C/W		Grams
YA981S6R	600	8 (T_C=99°C)	40	-40 to +150	3.0 (I_F=8A)	25	0.026	2.5	TO-220	2.0
YG981S6R	600	8 (T_C=58°C)	40	-40 to +150	3.0 (I_F=8A)	25	0.026	4.5	TO-220F	1.7
YA982S6R	600	10 (T_C=99°C)	50	-40 to +150	3.0 (I_F=10A)	30	0.028	2.0	TO-220	2.0
YG982S6R	600	10 (T_C=60°C)	50	-40 to +150	3.0 (I_F=10A)	30	0.028	3.5	TO-220F	1.7

( ) Conditions
*1: 50Hz Square wave duty=1/2
*2: Sine wave, 10ms *3: V_R=V_{RRM}
*4: I_F=0.1A, I_R=0.2A, Irec=0.05A

2 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)				Package	Net mass
	V_{RRM} Volts	I_O *1 Amps.	I_{FSM} *2 Amps.	T_{vj} and T_{stg} °C	V_{FM} max. Volts	I_{RRM} *3 max. μA	t_{rr} *4 μsec.	$R_{th\ (j\text{-}c)}$ °C/W		Grams
YA982C6R	600	16 (T_C=88°C)	40	-40 to +150	3.0 (I_F=8A)	25	0.026	1.5	TO-220	2.0
TS982C6R	600	16 (T_C=88°C)	40	-40 to +150	3.0 (I_F=8A)	25	0.026	1.5	T-pack(S)	1.6
YG982C6R	600	16 (T_C=68°C)	40	-40 to +150	3.0 (I_F=8A)	25	0.026	2	TO-220F	1.7
YA985C6R	600	20 (T_C=86°C)	50	-40 to +150	3.0 (I_F=10A)	30	0.028	1.25	TO-220	2.0
TS985C6R	600	20 (T_C=86°C)	50	-40 to +150	3.0 (I_F=10A)	30	0.028	1.25	T-pack(S)	1.6
YG985C6R	600	20 (T_C=60°C)	50	-40 to +150	3.0 (I_F=10A)	30	0.028	1.75	TO-220F	1.7
PH985C6	600	20 (T_C=73°C)	50	-40 to +150	3.0 (I_F=10A)	30	0.028	1.5	TO-247	4.9

( ) Conditions
*1: 50Hz Square wave duty 1/2 (Average forward current of centertap full wave connection)
*2: Sine wave, 10ms per element *3: V_R=V_{RRM} per element
*4: I_F=0.1A. I_R=0.2A. Irec=0.05A

Low-Loss Fast Recovery Diodes (LLD)

Low-Loss Fast Recovery Diodes (LLD)						TO-220F	K-Pack(L)	K-Pack(S)	TFP
									
Chip	V_{RRM} (V)	I_O (A)	V_F (V)	I_R(μA)	t_{rr} (μsec)				
Single	200	5	0.95	100	0.035	✓	✓	✓	
		10	0.98	200	0.035	✓			
	300	5	1.2	100	0.035	✓			
Dual	200	5	0.95	100	0.035	✓	✓	✓	
		10	0.95	100	0.035	✓			
		20	0.98	200	0.035	✓			✓
	300	5	1.2	100	0.035	✓			
		10	1.2	100	0.035	✓			
		20	1.2	200	0.035				✓

1 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)				Package	Net mass
	V_{RRM} Volts	I_O *1 Amps.	I_{FSM} *2 Amps.	T_{vj} and T_{stg} °C	V_{FM} *3 max. Volts	I_{RRM} *4 max. μA	t_{rr} *5 μ sec.	$R_{th\ (j\text{-}c)}$ °C/W		Grams
KP926S2	200	5 (T_C=106°C)	70	-40 to +150	0.95	100	0.035	10.0	K-Pack(L)	0.6
KS926S2	200	5 (T_C=106°C)	70	-40 to +150	0.95	100	0.035	10.0	K-pack(S)	0.6
YG911S2R	200	5 (T_C=134°C)	50	-40 to +150	0.95	100	0.035	3.5	TO-220F	1.7
YG912S2R	200	10 (T_C=116°C)	80	-40 to +150	0.98	200	0.035	3.5	TO-220F	1.7
YG911S3R	300	5 (T_C=128°C)	40	-40 to +150	1.2	100	0.035	3.5	TO-220F	1.7

( ) Conditions
*1: 50Hz Square wave duty 1/2
*2: Sine wave, 10ms *3: I_F=I_O *4: V_R=V_{RRM}
*5: I_F=0.1A. I_R=0.2A. Irec=0.05A

2 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)				Package	Net mass
	V_{RRM} Volts	I_O *1 Amps.	I_{FSM} *2 Amps.	T_{vj} and T_{stg} °C	V_{FM} *3 max. Volts	I_{RRM} *4 max. μA	t_{rr} *5 μ sec.	$R_{th\ (j\text{-}c)}$ °C/W		Grams
KP923C2	200	5 (T_C=103°C)	50	-40 to +150	0.95	100	0.035	10.0	K-Pack(L)	0.6
KS923C2	200	5 (T_C=103°C)	50	-40 to +150	0.95	100	0.035	10.0	K-pack(S)	0.6
YG901C2R	200	5 (T_C=120°C)	25	-40 to +150	0.95	100	0.035	5.0	TO-220F	1.7
YG902C2R	200	10 (T_C=115°C)	50	-40 to +150	0.95	100	0.035	3.5	TO-220F	1.7
YG906C2R	200	20 (T_C=102°C)	80	-40 to +150	0.98	200	0.035	2.5	TO-220F	1.7
MS906C2	200	20 (T_C=105°C)	80	-40 to +150	0.98	200	0.035	2.0	TFP	0.8
YG901C3R	300	5 (T_C=105°C)	25	-40 to +150	1.2	100	0.035	5.0	TO-220F	1.7
YG902C3R	300	10 (T_C=101°C)	40	-40 to +150	1.2	100	0.035	3.5	TO-220F	1.7
MS906C3	300	20 (T_C=95°C)	80	-40 to +150	1.2	200	0.035	2.0	TFP	0.8

( ) Conditions
*1: 50Hz Square wave duty=1/2 (Average forward current of centertap full wave connection)
*2: Sine wave, 10ms per element *3: I_F=0.5I_O per element
*4: V_R=V_{RRM} per element
*5: I_F=0.1A. I_R=0.2A. Irec=0.05A

Low-Loss Fast Soft Recovery Diodes (LLD)

Low-Loss Fast Soft Recovery Diodes (LLD)						TO-220	TO-220F	TO-3PF	T-Pack (S)	K-Pack (S)	TFP
											
Chip	V_{RRM} (V)	I_O (A)	V_F (V)	I_R(μA)	t_{rr} (μsec)						
Single	300	5	1.3	20	0.04					✓	
	400	5	1.45	20	0.05					✓	
Dual	300	10	1.3	20	0.04	✓	✓		✓		
		20	1.3	35	0.04	✓	✓	✓	✓		✓
	400	10	1.45	20	0.05	✓	✓		✓		
		20	1.45	35	0.05	✓	✓	✓	✓		✓

1 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)				Package	Net mass
	V_{RRM} Volts	I_O *1 Amps.	I_{FSM} *2 Amps.	T_{vj} and T_{stg} °C	V_{FM} *3 max. Volts	I_{RRM} *4 max. μA	t_{rr} *5 μ sec.	$R_{th(j-c)}$ °C/W		Grams
KS986S3	300	5 (T_C=128°C)	90	-40 to +150	1.3	20	0.04	3.5	K-pack(S)	0.6
KS986S4	400	5 (T_C=125°C)	80	-40 to +150	1.45	20	0.05	3.5	K-pack(S)	0.6

( ) Conditions
*1: 50Hz Square wave duty=1/2
*2: Sine wave, 10ms *3: I_F=I_O per element *4: V_R=V_{RRM}
*5: I_F=0.1A. I_R=0.2A. Irec=0.05A

2 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)				Package	Net mass
	V_{RRM} Volts	I_O *1 Amps.	I_{FSM} *2 Amps.	T_{vj} and T_{stg} °C	V_{FM} *3 max. Volts	I_{RRM} *4 max. μA	t_{rr} *5 μ sec.	$R_{th(j-c)}$ °C/W		Grams
YG982C3R	300	10 (T_C=112°C)	90	-40 to +150	1.3	20	0.04	3	TO-220F	1.7
YA982C3R	300	10 (T_C=128°C)	90	-40 to +150	1.3	20	0.04	1.75	TO-220	2.0
TS982C3R	300	10 (T_C=128°C)	90	-40 to +150	1.3	20	0.04	1.75	T-pack(S)	1.6
YG985C3R	300	20 (T_C=105°C)	110	-40 to +150	1.3	35	0.04	1.75	TO-220F	1.7
YA985C3R	300	20 (T_C=118°C)	110	-40 to +150	1.3	35	0.04	1.25	TO-220	2.0
TS985C3R	300	20 (T_C=118°C)	110	-40 to +150	1.3	35	0.04	1.25	T-pack(S)	1.6
MS985C3	300	20 (T_C=118°C)	110	-40 to +150	1.3	35	0.04	1.25	TFP	0.8
PG985C3R	300	20 (T_C=73°C)	110	-40 to +150	1.3	35	0.04	3	TO-3PF	6.0
YG982C4R	400	10 (T_C=107°C)	80	-40 to +150	1.45	20	0.05	3	TO-220F	1.7
YA982C4R	400	10 (T_C=125°C)	80	-40 to +150	1.45	20	0.05	1.75	TO-220	2.0
TS982C4R	400	10 (T_C=125°C)	80	-40 to +150	1.45	20	0.05	1.75	T-pack(S)	1.6
YG985C4R	400	20 (T_C=100°C)	100	-40 to +150	1.45	35	0.05	1.75	TO-220F	1.7
YA985C4R	400	20 (T_C=114°C)	100	-40 to +150	1.45	35	0.05	1.25	TO-220	2.0
TS985C4R	400	20 (T_C=114°C)	100	-40 to +150	1.45	35	0.05	1.25	T-pack(S)	1.6
MS985C4	400	20 (T_C=114°C)	100	-40 to +150	1.45	35	0.05	1.25	TFP	0.8
PG985C4R	400	20 (T_C=64°C)	100	-40 to +150	1.45	35	0.05	3	TO-3PF	6.0

( ) Conditions
*1: 50Hz Square wave duty=1/2 (Average forward current of centertap full wave connection)
*2: Sine wave, 10ms per element *3: I_F=0.5I_O per element
*4: V_R=V_{RRM} per element
*5: I_F=0.1A. I_R=0.2A. Irec=0.05A

Schottky-Barrier Diodes (SBD)

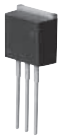
Schottky-Barrier Diodes (SBD)					TO-3P(Q)	TO-3PF	T-Pack (S)	T-Pack (L)
								
Chip	V_{RRM} (V)	I_O (A)	V_F (V)	I_R(μA)				
Single/ Dual	40	10	0.55	5			✓	✓
		20	0.6	15			✓	
		30	0.55	20	✓	✓		
	60	30	0.58	20	✓	✓	✓	

1 in one-package/2 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)			Package	Net mass
	V_{RRM} Volts	I_O *1 Amps.	I_{FSM} *2 Amps.	T_{vj} and T_{stg} °C	V_{FM} *3 max. Volts	I_{RRM} *4 max.mA	$R_{th\ (j-c)}$ °C/W		Grams
TP802C04R	40	10 (T_C=116°C)	120	-40 to +150	0.55 (I_F=4.0A)	5	3.0	T-Pack(L)	1.6
TS802C04R	40	10 (T_C=116°C)	120	-40 to +150	0.55 (I_F=4.0A)	5	3.0	T-pack(S)	1.6
TS805C04R	40	20 (T_C=110°C)	120	-40 to +150	0.6 (I_F=10A)	15	2.0	T-pack(S)	1.6
ESAD83M-004RR	40	30 (T_C=105°C)	150	-40 to +150	0.55 (I_F=12.5A)	20	1.7	TO-3PF	6.0
ESAD83-004R	40	30 (T_C=118°C)	150	-40 to +150	0.55 (I_F=12.5A)	20	1.2	TO-3P	5.5
ESAD83M-006RR	60	30 (T_C=106°C)	120	-40 to +150	0.58 (I_F=12.5A)	20	1.7	TO-3PF	6.0
TS808C06R	60	30 (T_C=115°C)	120	-40 to +150	0.58 (I_F=12.5A)	20	1.2	T-pack(S)	1.6
ESAD83-006R	60	30 (T_C=119°C)	120	-40 to +150	0.58 (I_F=12.5A)	20	1.2	TO-3P	5.5

( ) Conditions
*1: 50Hz Square wave duty=1/2 (Average forward current of centertap full wave connection)
*2: Sine wave, 10ms per element *3: per element
*4: V_R=V_{RRM} per element

Low-Loss Fast Recovery Diodes (LLD)

Low-Loss Fast Recovery Diodes (LLD)						TO-3P(Q)	TO-3PF	T-Pack (S)	T-Pack (L)
									
Chip	V_{RRM} (V)	I_O (A)	V_F (V)	I_R(μA)	t_{rr} (μsec)				
Single/ Dual	200	5	0.95	100	0.035				✓
		10	0.95	100	0.035			✓	✓
		20	0.95	200	0.04	✓	✓		
		20	0.98	200	0.035			✓	✓
	300	10	1.2	100	0.035			✓	✓
		20	1.2	200	0.04	✓	✓		
	400	20	1.5	500	0.05	✓			

1 in one-package/2 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)				Package	Net mass
	V_{RRM} Volts	I_O *1 Amps.	I_{FSM} *2 Amps.	T_{vj} and T_{stg} °C	V_{FM} *3 max. Volts	I_{RRM} *4 max.μA	t_{rr} *5 μsec.	$R_{th\ (j-c)}$ °C/W		Grams
TP901C2R	200	5 (T_C=120°C)	25	-40 to +150	0.95 (I_F=2.5A)	100	0.035	5.0	T-Pack(L)	1.6
TP902C2R	200	10 (T_C=125°C)	50	-40 to +150	0.95 (I_F=5A)	100	0.035	2.5	T-Pack(L)	1.6
TS902C2R	200	10 (T_C=125°C)	50	-40 to +150	0.95 (I_F=5A)	100	0.035	2.5	T-pack(S)	1.6
ESAD92M-02RR	200	20 (T_C=108°C)	100	-40 to +150	0.95 (I_F=10A)	200	0.04	2.0	TO-3PF	6.0
TP906C2R	200	20 (T_C=110°C)	80	-40 to +150	0.98 (I_F=10A)	200	0.035	2.0	T-Pack(L)	1.6
TS906C2R	200	20 (T_C=110°C)	80	-40 to +150	0.98 (I_F=10A)	200	0.035	2.0	T-pack(S)	1.6
ESAD92-02R	200	20 (T_C=115°C)	100	-40 to +150	0.95 (I_F=10A)	200	0.04	1.5	TO-3P	5.5
TP902C3R	300	10 (T_C=115°C)	40	-40 to +150	1.2 (I_F=5A)	100	0.035	2.5	T-Pack(L)	1.6
TS902C3R	300	10 (T_C=115°C)	40	-40 to +150	1.2 (I_F=5A)	100	0.035	2.5	T-pack(S)	1.6
ESAD92-03R	300	20 (T_C=110°C)	80	-40 to +150	1.2 (I_F=10A)	200	0.04	1.5	TO-3P	5.5
ESAD92M-03RR	300	20 (T_C=96°C)	80	-40 to +150	1.2 (I_F=10A)	200	0.04	2.0	TO-3PF	6.0
PA905C4R	400	20 (T_C=107°C)	70	-40 to +150	1.5 (I_F=10A)	500	0.05	1.5	TO-3P	5.5

( ) Conditions
*1: 50Hz Square wave duty=1/2 (Average forward current of centertap full wave connection)
*2: Sine wave, 10ms per element *3: per element
*4: V_R=V_{RRM} per element *5: I_F=0.1A, I_R=0.2A, Irec.=0.05A

Ultra Fast Recovery Diodes

Ultra Fast Recovery Diodes						TO-220	TO-247-P2	TO-247-2-P2
								
Chip	V_{RRM} (V)	I_O (A)	V_F (V)	I_R(μA)	t_{rr} (μsec)			
Single	600	15	2.6	250	0.031	✓	✓	
		25	2.6	250	0.033	✓	✓	
		35	2.6	250	0.036		✓	
		75	2.95	250	0.060			✓
	650	60	3.2	250	0.060			✓
Dual	600	50	2.6	250	0.033		✓	
		70	2.6	250	0.036		✓	

1 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)				Package	Net mass
	V_{RRM} Volts	I_O *1 Amps.	I_{FSM} *2 Amps.	T_{vj} and T_{stg} °C	V_{FM} *3 max. Volts	I_{RRM} *4 max. μA	t_{rr} *5 μsec.	$R_{th(j-c)}$ °C/W		Grams
FDRP15S60L	600	15 (T_C=98°C)	110	-40 to +150	2.6	250	0.031	1.6	TO-220	2.0
FDRW15S60L	600	15 (T_C=85°C)	110	-40 to +150	2.6	250	0.031	2.0	TO-247-P2	4.9
FDRP25S60L	600	25 (T_C=86°C)	125	-40 to +150	2.6	250	0.033	1.2	TO-220	2.0
FDRW25S60L	600	25 (T_C=86°C)	125	-40 to +150	2.6	250	0.033	1.2	TO-247-P2	4.9
FDRW35S60L	600	35 (T_C=91°C)	140	-40 to +150	2.6	250	0.036	0.8	TO-247-P2	4.9
FDRW75T60L	600	75 (TC=49°C)	300	-40 to +150	2.95	250	0.060	0.57	TO-247-2-P2	4.9
FDRW60T65L	650	60 (TC=50°C)	250	-40 to +150	3.2	250	0.060	0.68	TO-247-2-P2	4.9

( ) Conditions
*1: 50Hz Square wave duty=1/2
*2: Sine wave, 10ms 1shot *3: I_F=I_O
*4: V_R=V_{RRM} *5: V_R=30V, I_F=0.1 I_O, -di/dt=200A/us

2 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)				Package	Net mass
	V_{RRM} Volts	I_O *1 Amps.	I_{FSM} *2 Amps.	T_{vj} and T_{stg} °C	V_{FM} *3 max. Volts	I_{RRM} *4 max. μA	t_{rr} *5 μsec.	$R_{th(j-c)}$ °C/W		Grams
FDRW50C60L	600	50 (T_C=86°C)	125	-40 to +150	2.6	250	0.033	0.6	TO-247-P2	4.9
FDRW70C60L	600	70 (T_C=91°C)	140	-40 to +150	2.6	250	0.036	0.4	TO-247-P2	4.9

( ) Conditions
*1: 50Hz Square wave duty=1/2, Output Current of center tap full wave connection
*2: Sine wave, 10ms 1shot, Rating per element *3: I_F=0.5 I_O, Rating per element
*4: V_R=V_{RRM}, Rating per element
*5: V_R=30V, I_F=0.05 I_O, -di/dt=200A/us, Rating per element

Soft Recovery Fast Recovery Diodes

Soft Recovery Fast Recovery Diodes						TO-247-P2
						
Chip	V_{RRM} (V)	I_O (A)	V_F (V)	I_R(μA)	t_{rr} (μsec)	
Single	1200	12	2.8	250	0.042	✓
		20	2.8	250	0.055	✓
		30	2.8	250	0.063	✓
Dual	1200	40	2.8	250	0.055	✓
		60	2.8	250	0.063	✓

1 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)				Package	Net mass
	V_{RRM} Volts	I_O *1 Amps.	I_{FSM} *2 Amps.	T_{vj} and T_{stg} °C	V_{FM} *3 max. Volts	I_{RRM} *4 max. μA	t_{rr} *5 μsec.	$R_{th\ (j-c)}$ °C/W		Grams
FDRW12S120J	1200	12 (T_C=97°C)	100	-40 to +150	2.8	250	0.042	1.6	TO-247-P2	4.9
FDRW20S120J	1200	20 (T_C=88°C)	120	-40 to +150	2.8	250	0.055	1.2	TO-247-P2	4.9
FDRW30S120J	1200	30 (T_C=89°C)	150	-40 to +150	2.8	250	0.063	0.781	TO-247-P2	4.9

( ) Conditions
*1: 50Hz Square wave duty=1/2
*2: Sine wave, 10ms 1shot *3: I_F=I_O
*4: V_R=V_{RRM} *5: V_R=30V, I_F=0.1 I_O, -di/dt=200A/us

2 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)				Package	Net mass
	V_{RRM} Volts	I_O *1 Amps.	I_{FSM} *2 Amps.	T_{vj} and T_{stg} °C	V_{FM} *3 max. Volts	I_{RRM} *4 max. μA	t_{rr} *5 μsec.	$R_{th\ (j-c)}$ °C/W		Grams
FDRW40C120J	1200	40 (T_C=98°C)	120	-40 to +150	2.8	250	0.055	0.5	TO-247-P2	4.9
FDRW60C120J	1200	60 (T_C=87°C)	150	-40 to +150	2.8	250	0.063	0.397	TO-247-P2	4.9

( ) Conditions
*1: 50Hz Square wave duty=1/2, Output Current of center tap full wave connection
*2: Sine wave, 10ms 1shot, Rating per element *3: I_F=0.5 I_O, Rating per element
*4: V_R=V_{RRM}, Rating per element
*5: V_R=30V, I_F=0.05 I_O, -di/dt=200A/us, Rating per element

Pressure Sensors

TS 16949

Fuji Electric's pressure sensors combine piezo resistance, adjustment circuits, and EMC protection on single chip and contribute to reduction of system size. They operate in wide pressure range and are applicable to various uses.

Features of Pressure Sensors

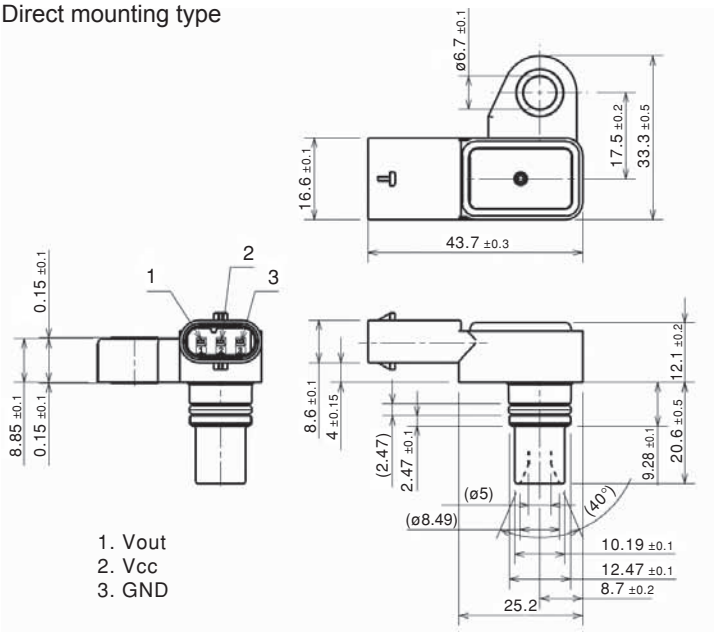
- Absolute pressure measurement
- High accuracy with digital trimming
- Wide pressure range, full scale of 100kPa to 300kPa
- Provided with overvoltage protection circuit, EMC filter, and surge protective device in the sensor chip
- Surge protection conforms to ISO7637-level 4 for automotive components
- Diagnostic self-detecting function in the event of a wire opened among Vcc, Vout and GND terminals
- High reliability ensured by EPROM bit redundancy

■ Products

Device type	Max. applied voltage (kPa.abs)	Allowable voltage (V)	Operating temperature (°C)	Operating pressure (kPa.abs)	Operating voltage (V)	Output Voltage range (V)	Absolute pressure/ Relative pressure	Package
EPL4PC-R3S	500	7	-40 to 125	20 to 106.7	5.0±0.25	0.789 to 4.211	Absolute pressure	Assembly type
EPL6GC-R3S	500	7	-40 to 125	25 to 242	5.0±0.25	0.5 to 4.5	Absolute pressure	Assembly type

■ Dimensions, mm

Direct mounting type



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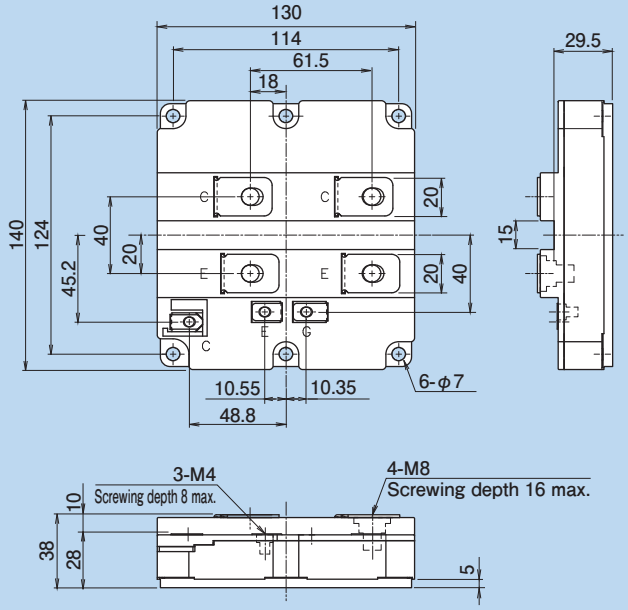
Unit: mm

M151



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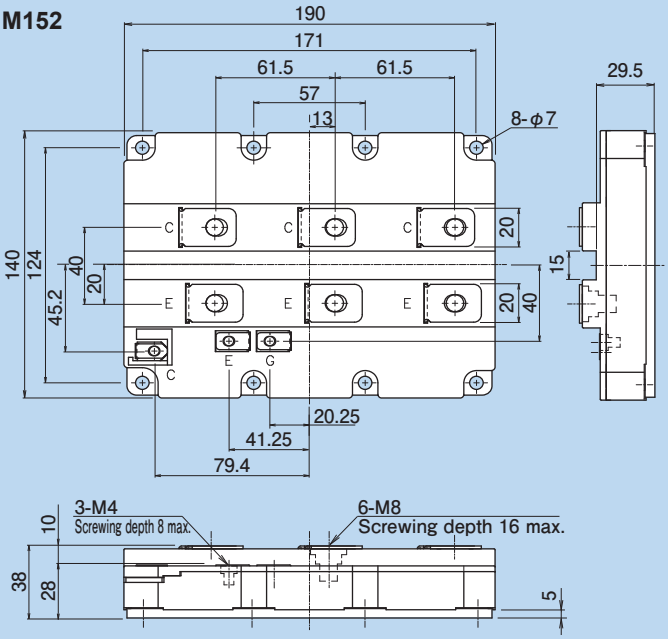

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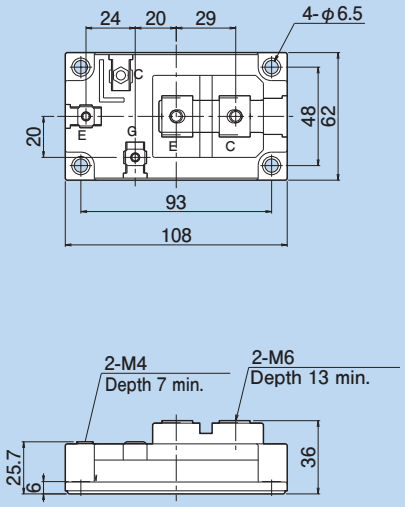
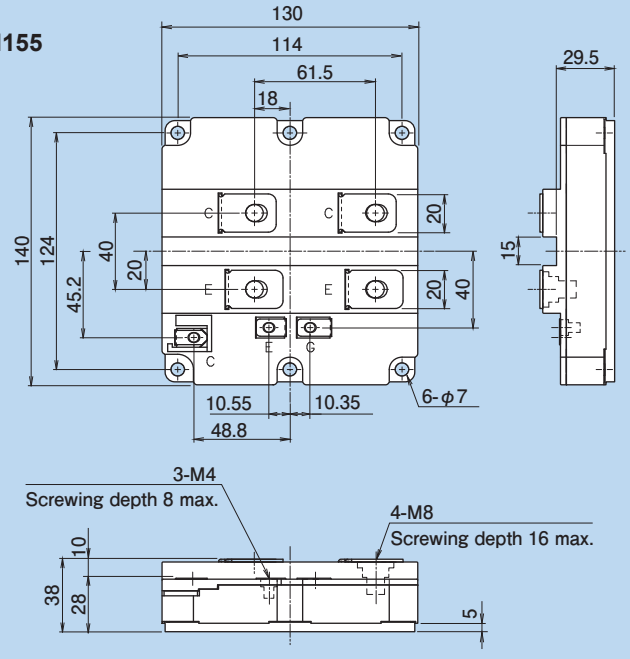


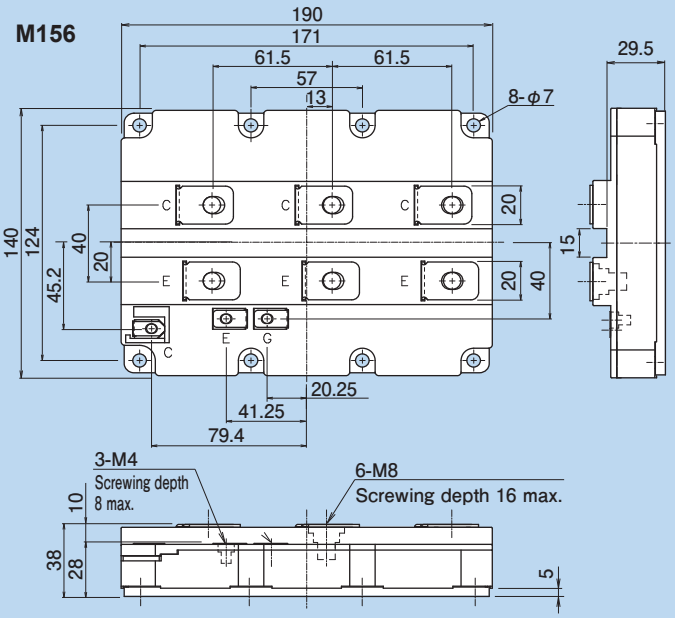
M155



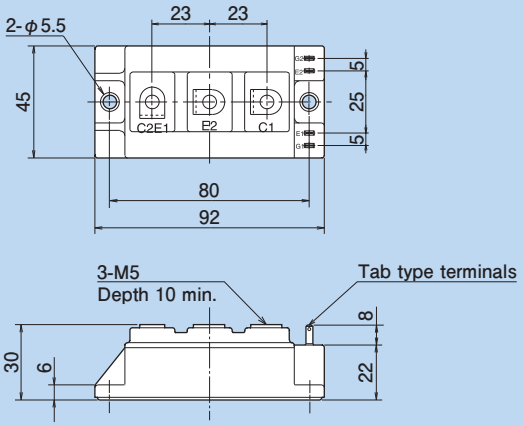
Outline

Unit: mm

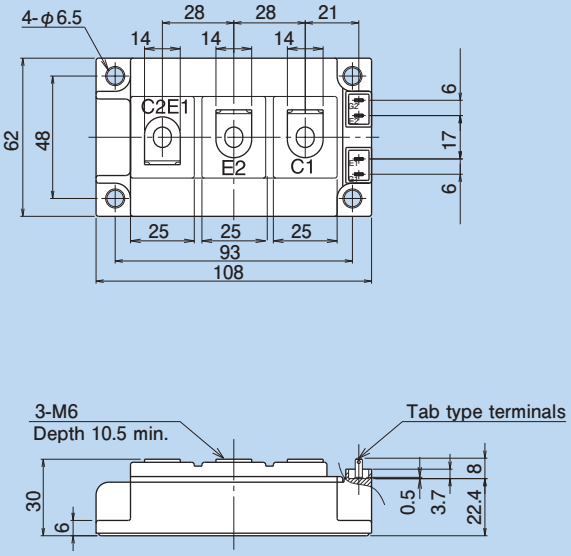
M156



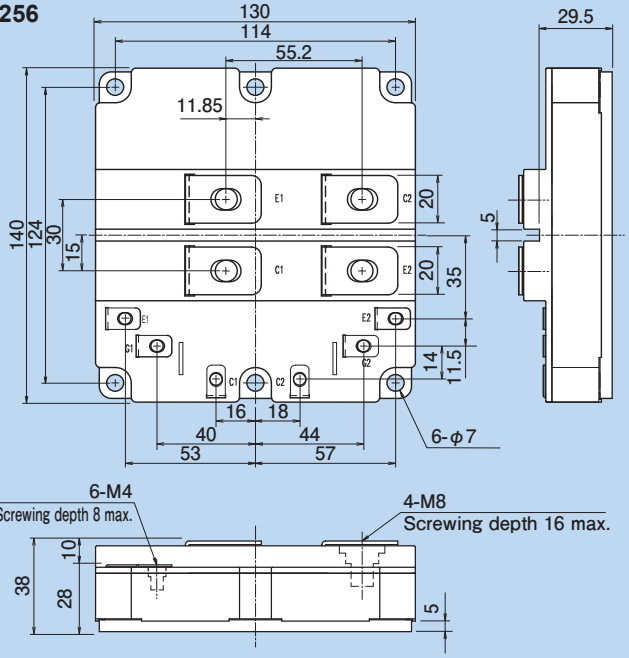
M233



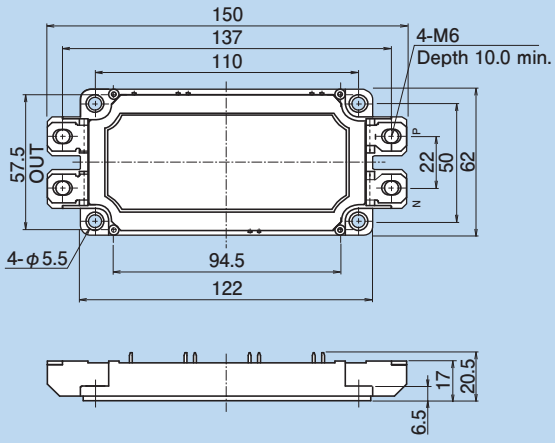
M249



M256

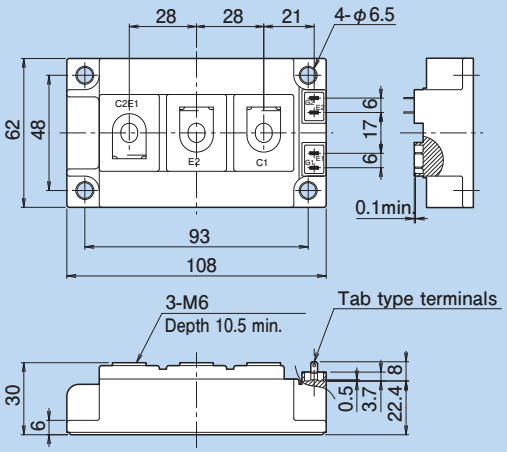


M254



Unit: mm

M259



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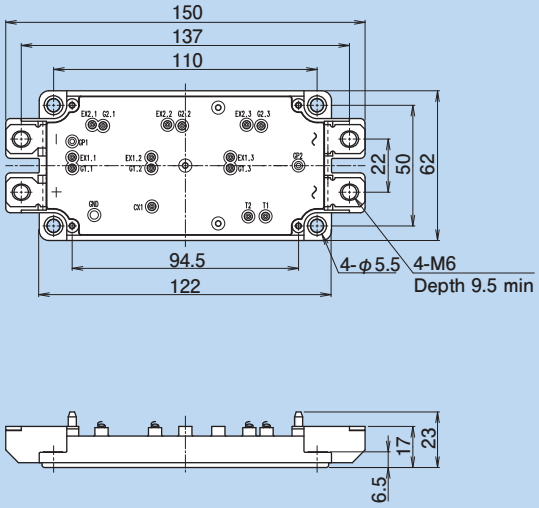
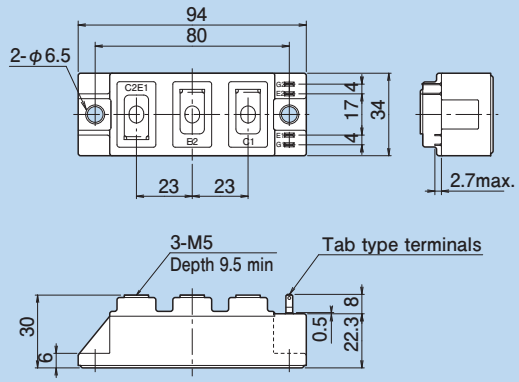
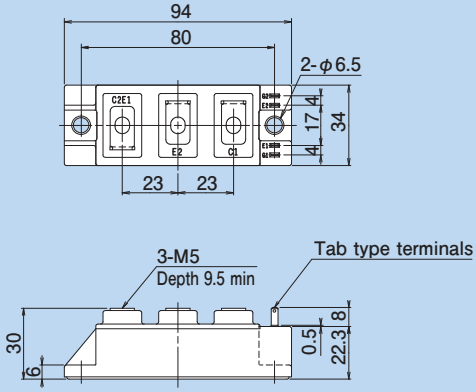


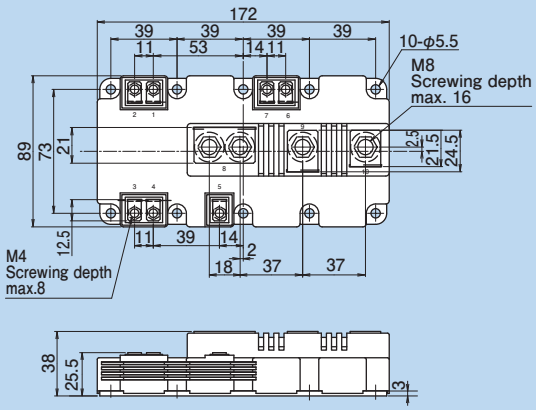
M262



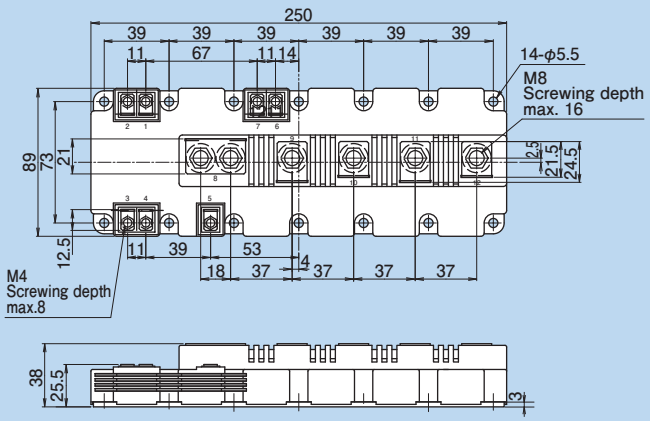
M263



M271



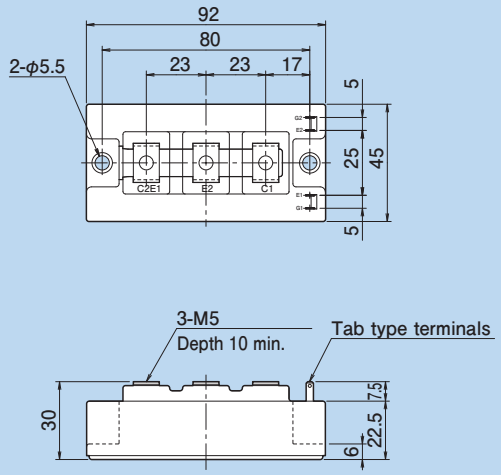
M272



Outline

Unit: mm

M274



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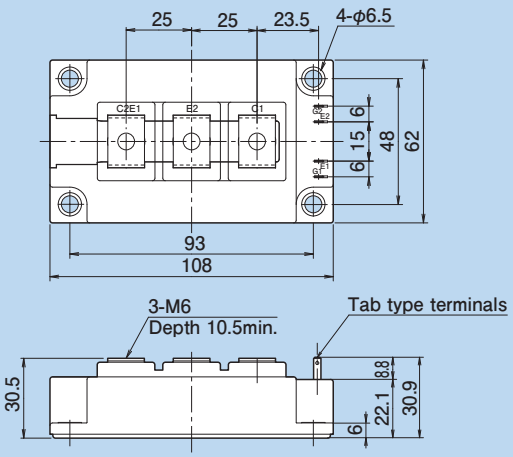
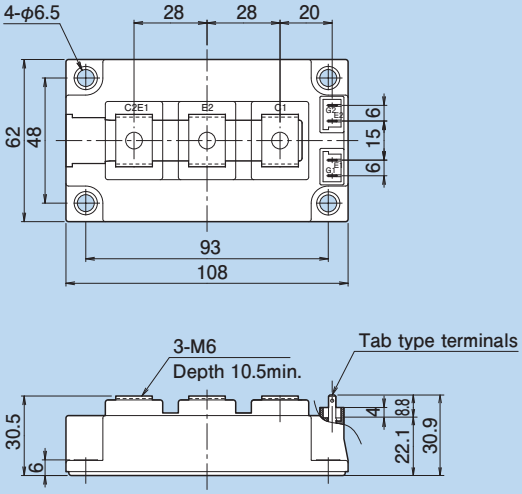


M276



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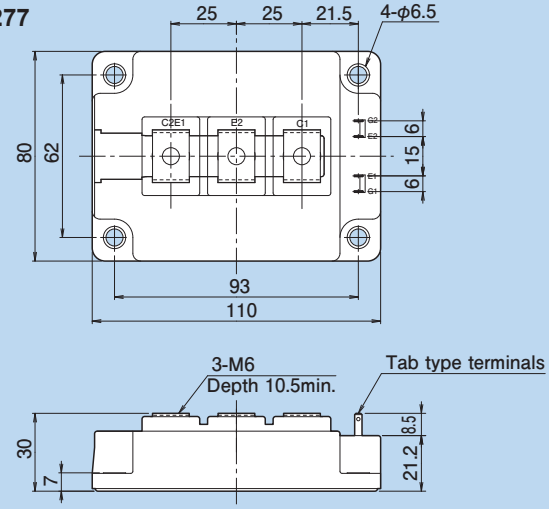
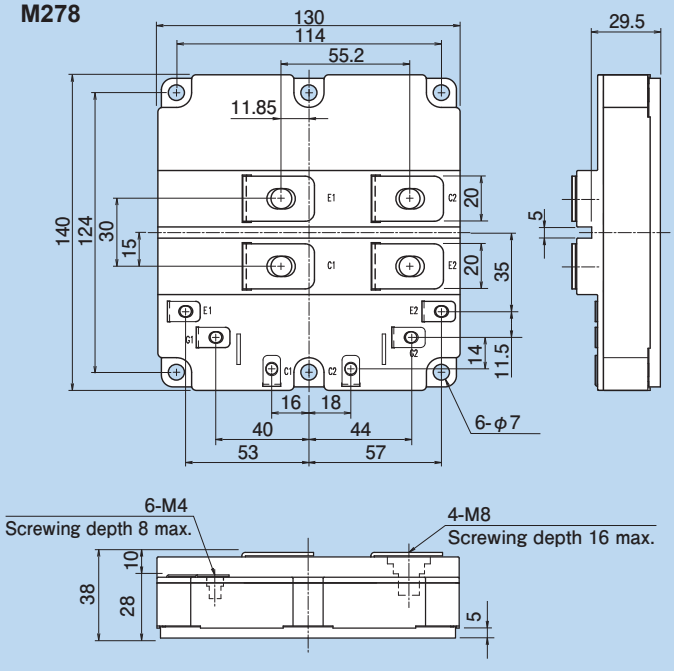
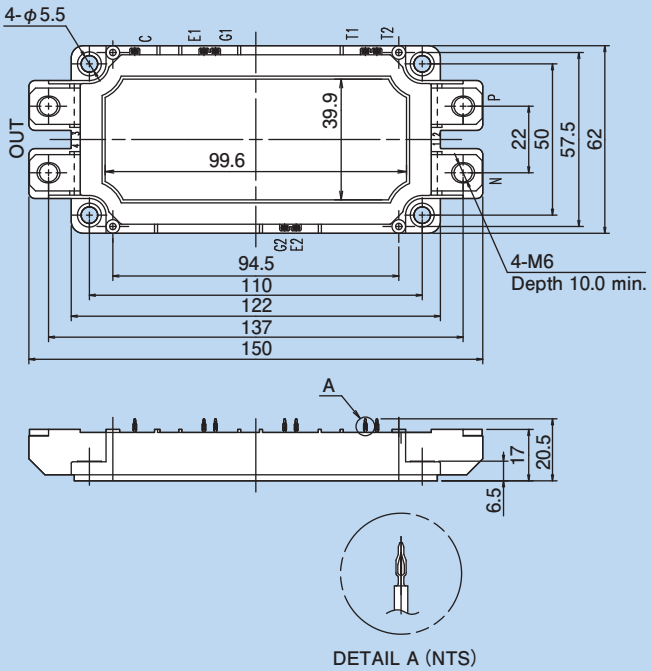


M278

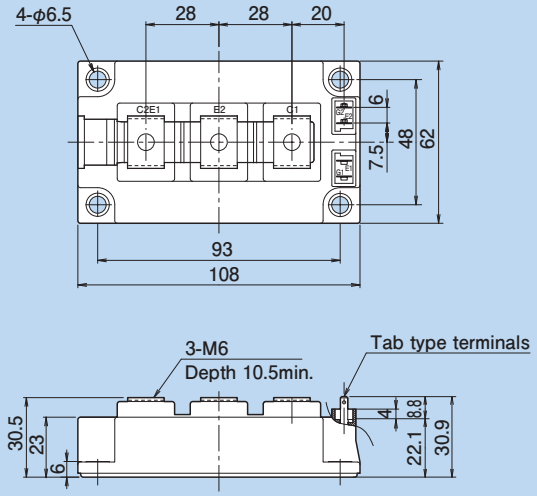


M282

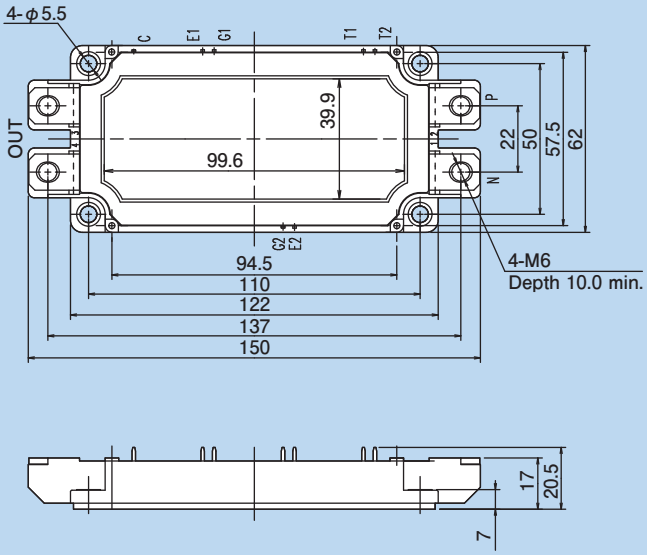


Unit: mm

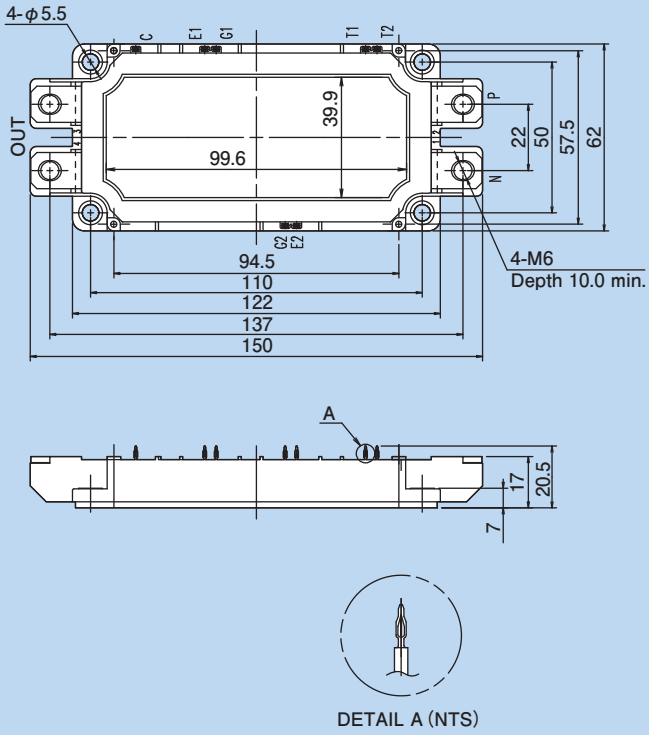
M283



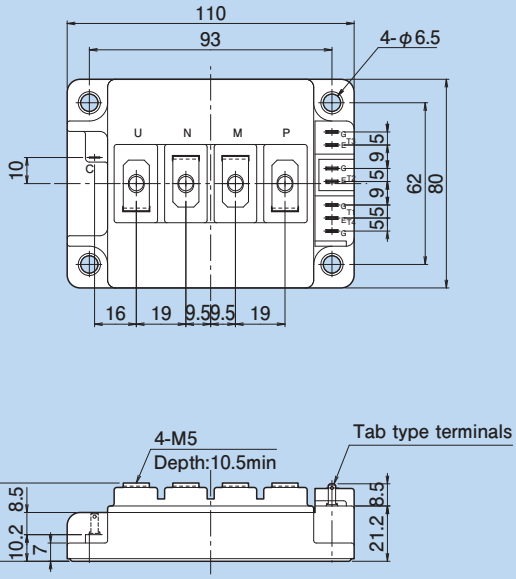
M285



M286



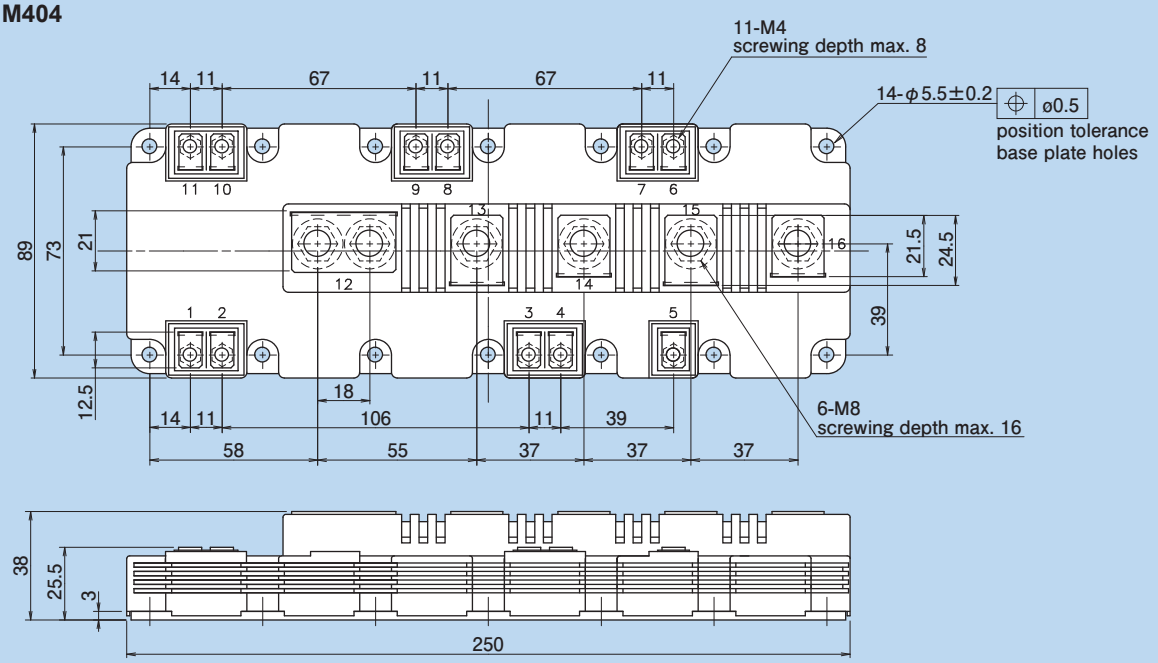
M403



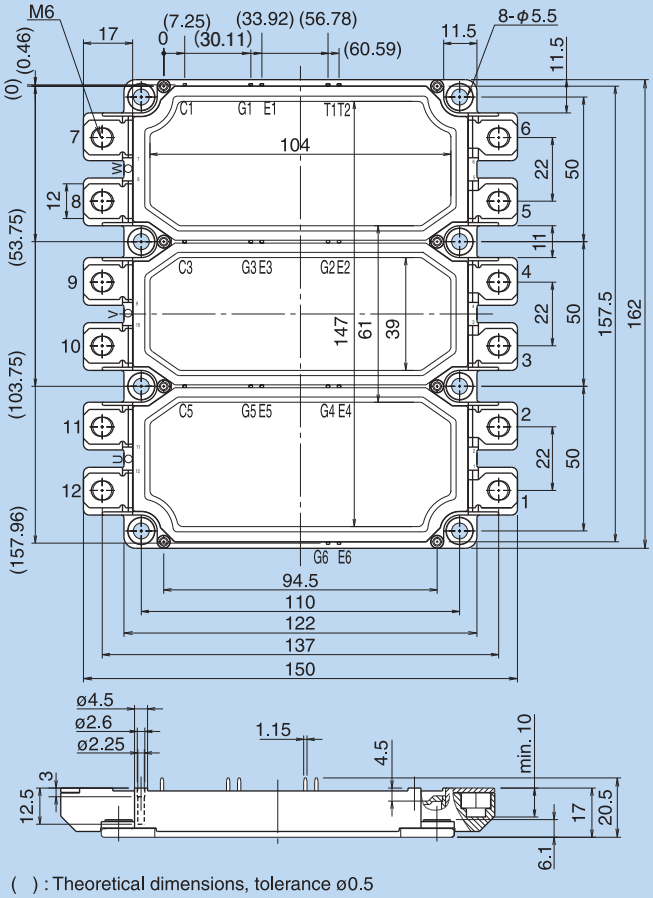
Outline

Unit: mm

M404

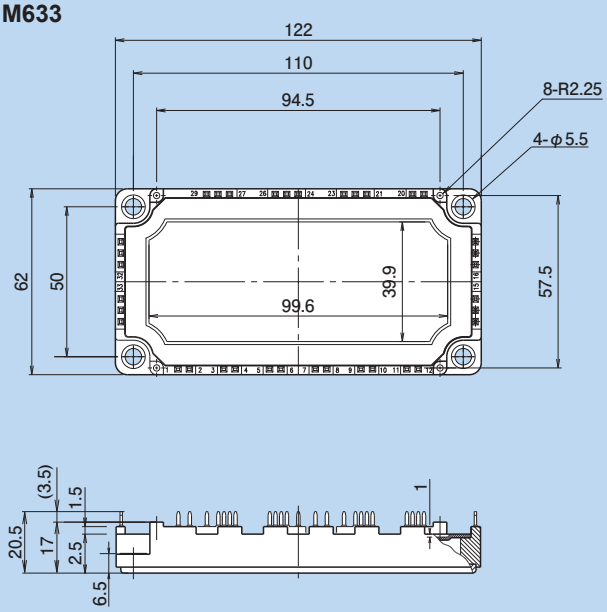


M629



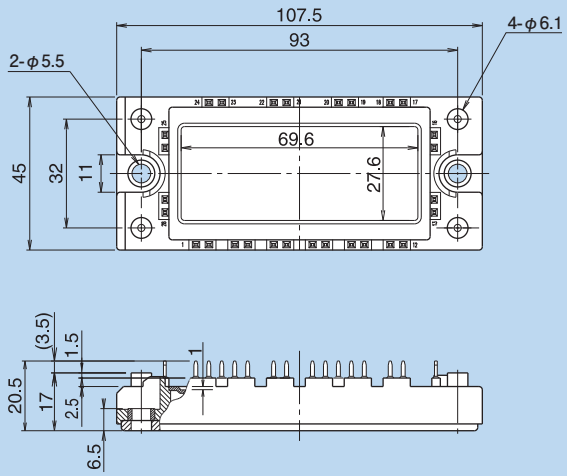
( ) : Theoretical dimensions, tolerance ø0.5

M633

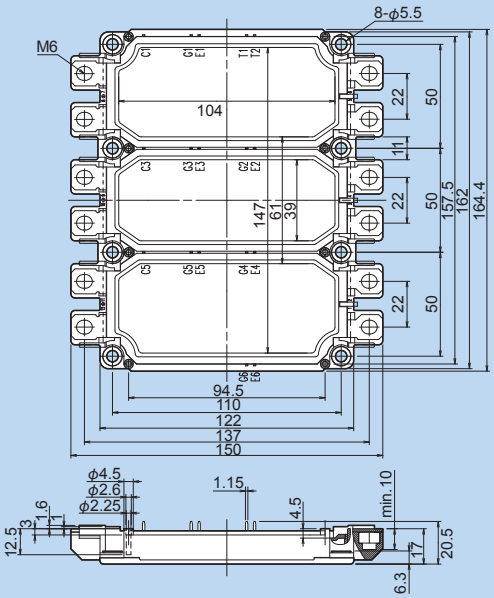


Unit: mm

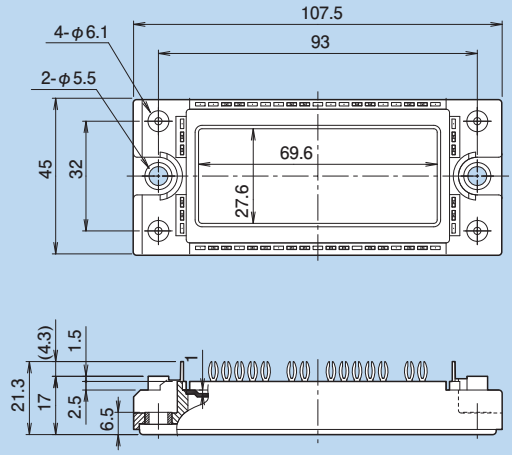
M636



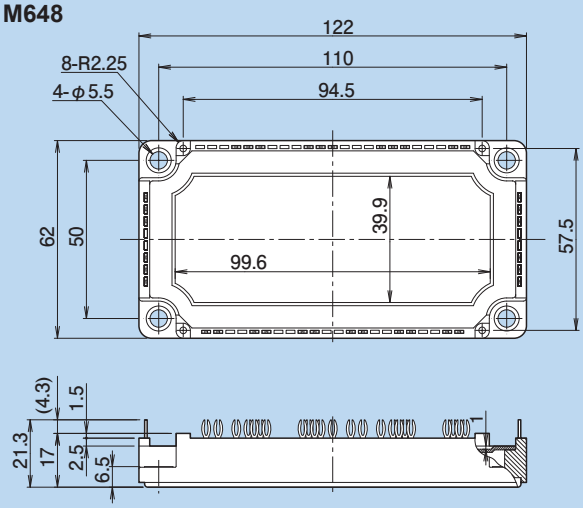
M639



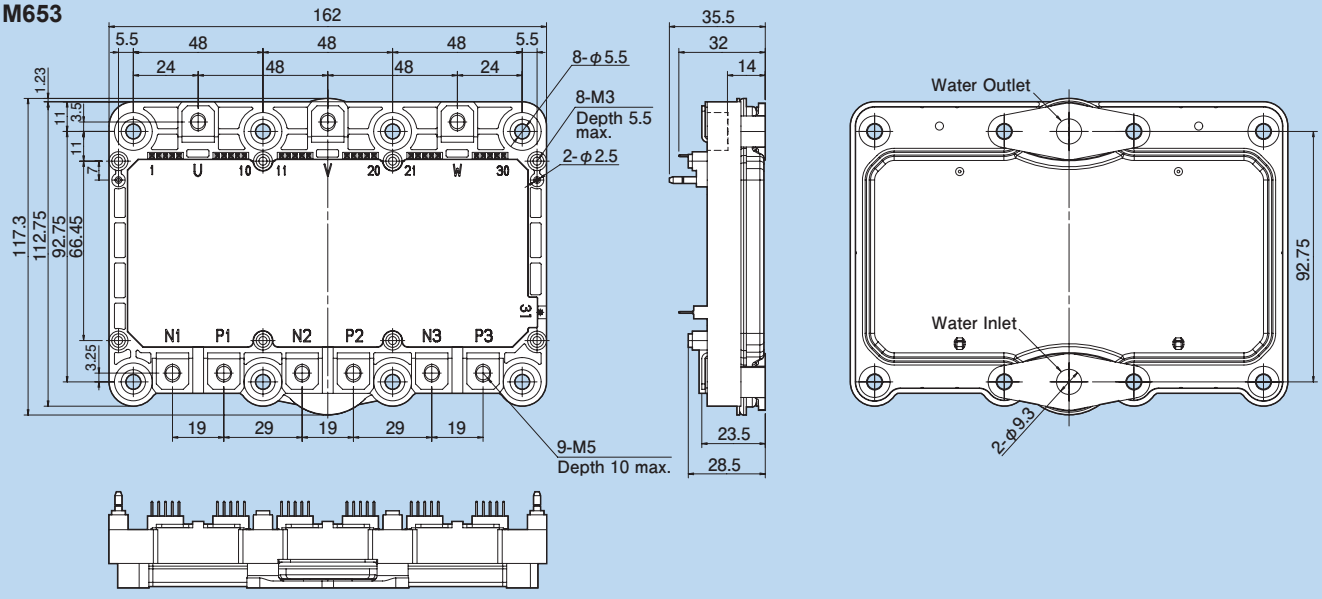
M647



M648



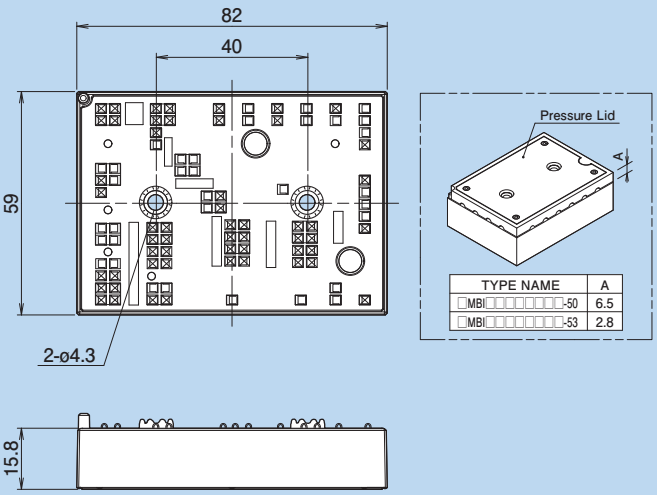
M653



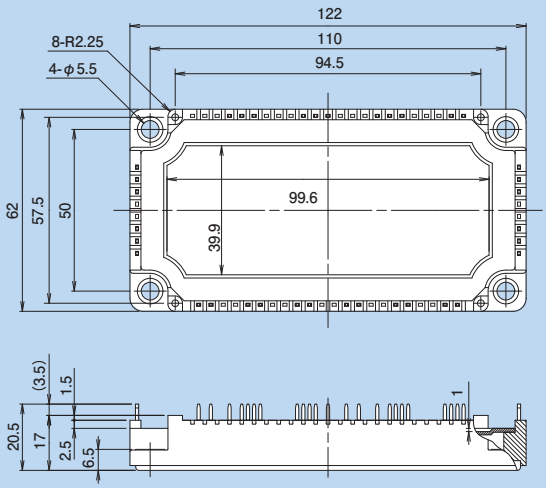
Outline

Unit: mm

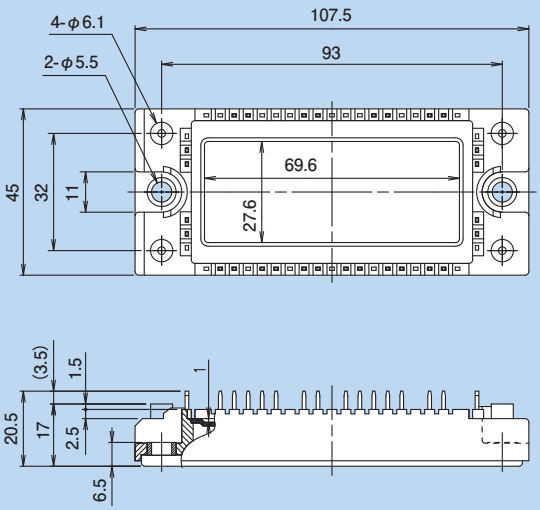
M664



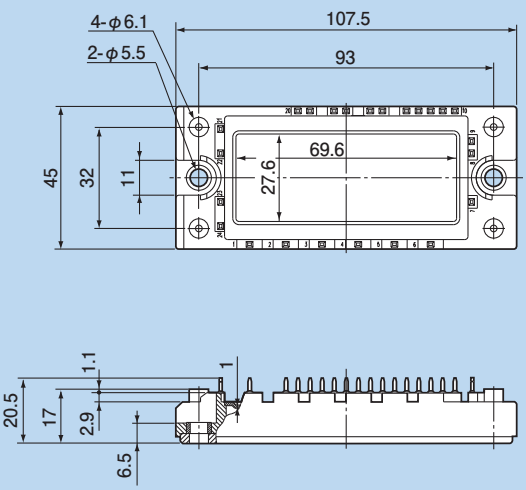
M668



M669



M711



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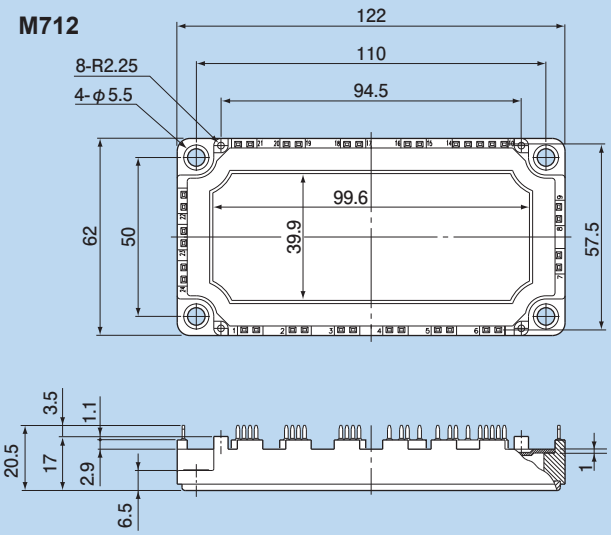

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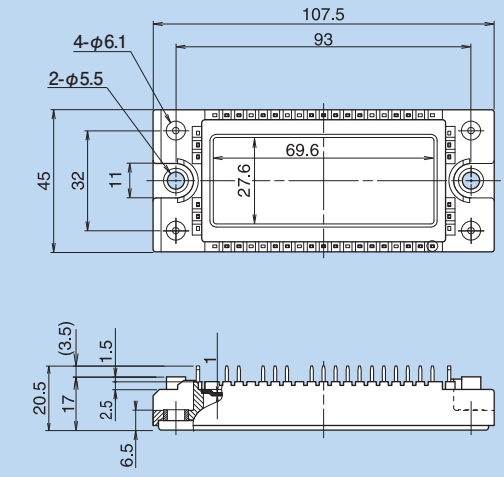
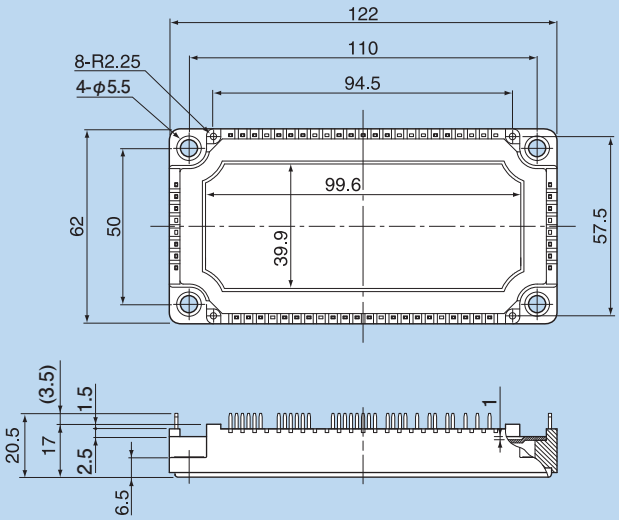
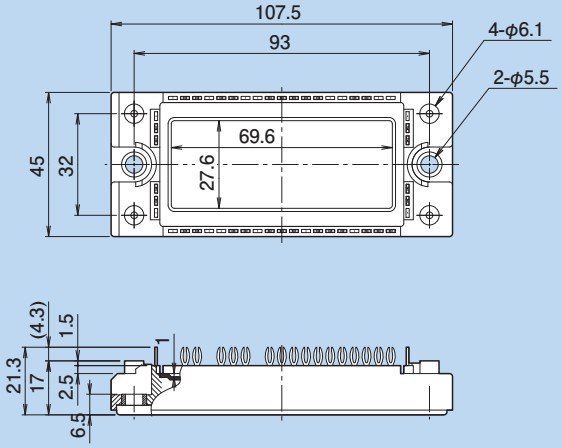


Unit: mm

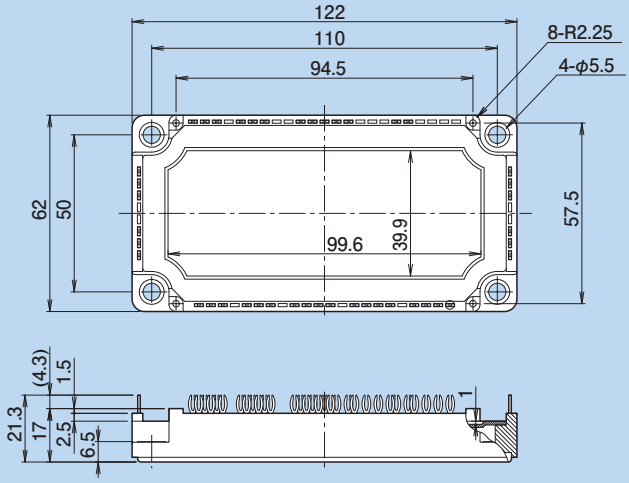
M720



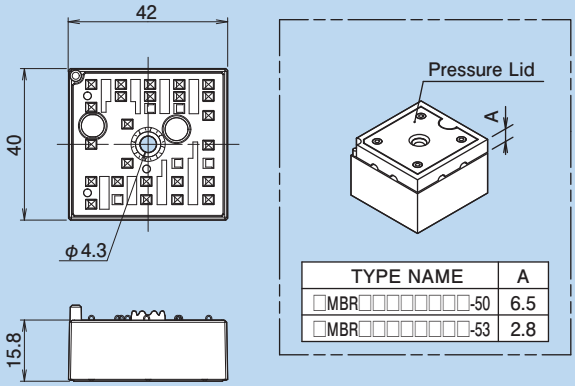
M721



M722

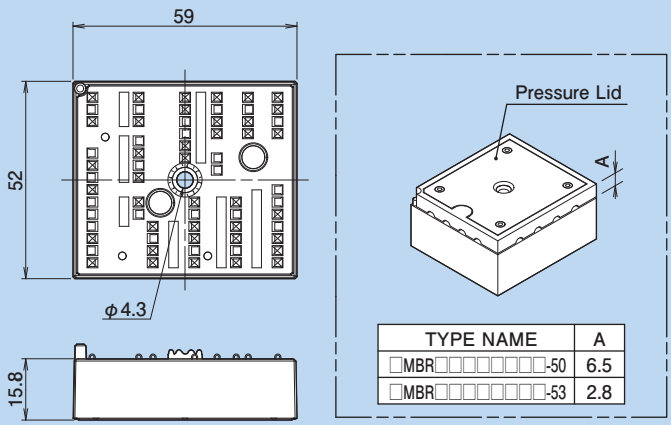


M723



TYPE NAME	A
□MBR□□□□□□□□-50	6.5
□MBR□□□□□□□□-53	2.8

M724

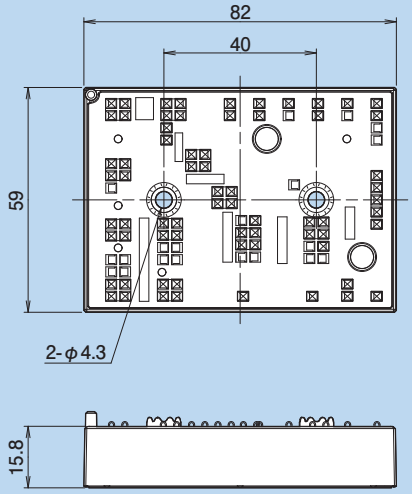


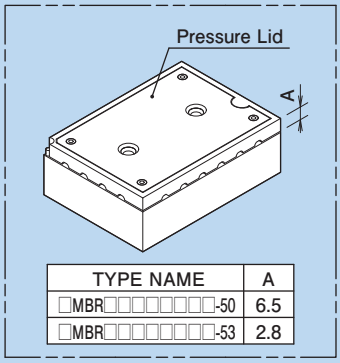
TYPE NAME	A
□MBR□□□□□□□□-50	6.5
□MBR□□□□□□□□-53	2.8

Outline

Unit: mm

M725





TYPE NAME	A
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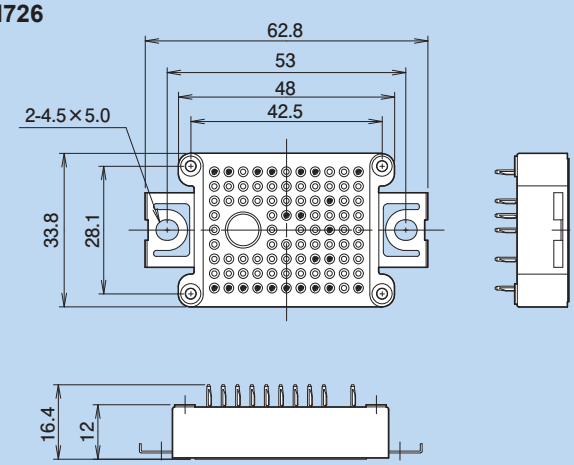
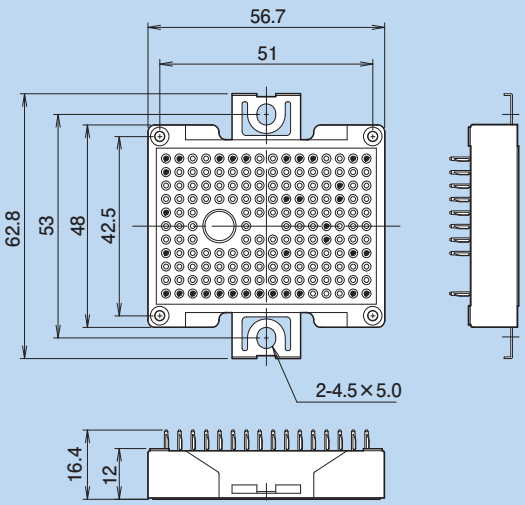
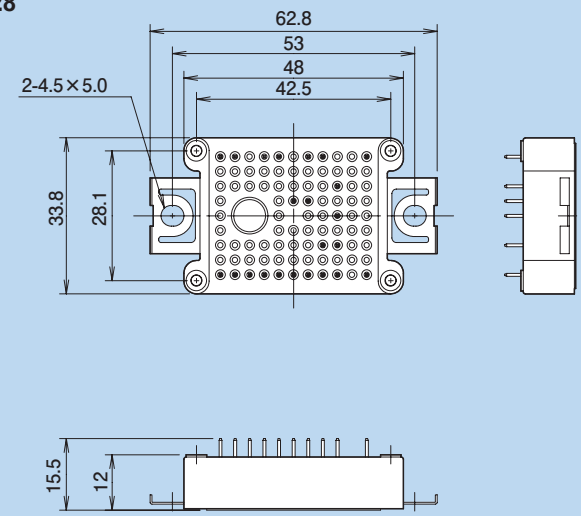
M726



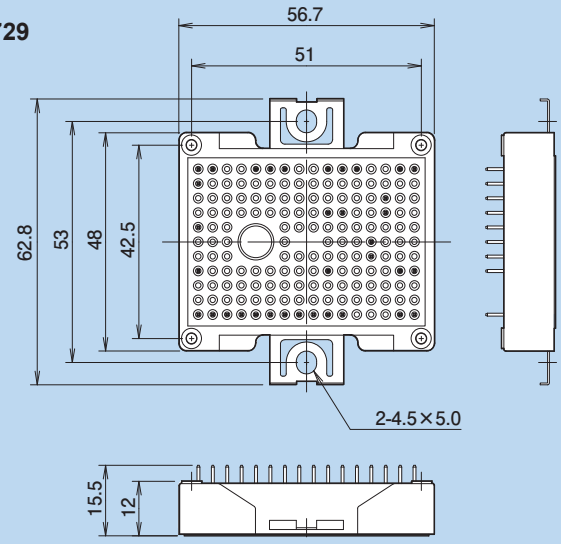
M727



M728

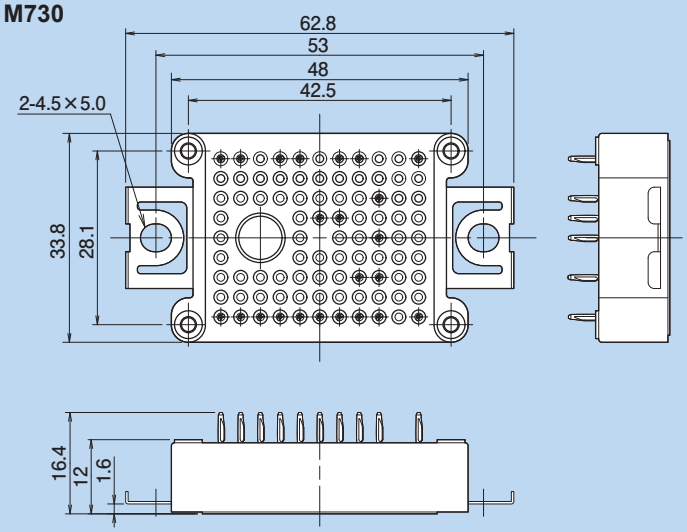


M729

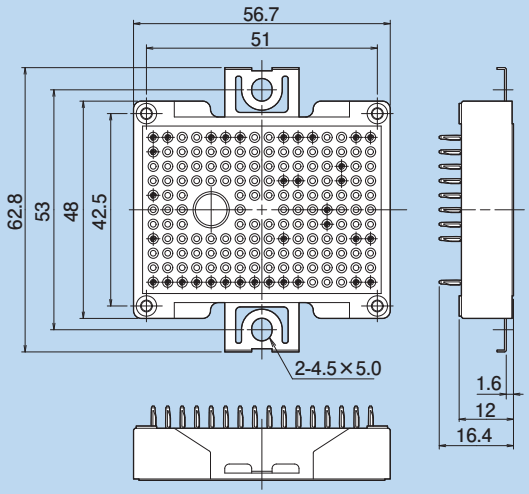


Unit: mm

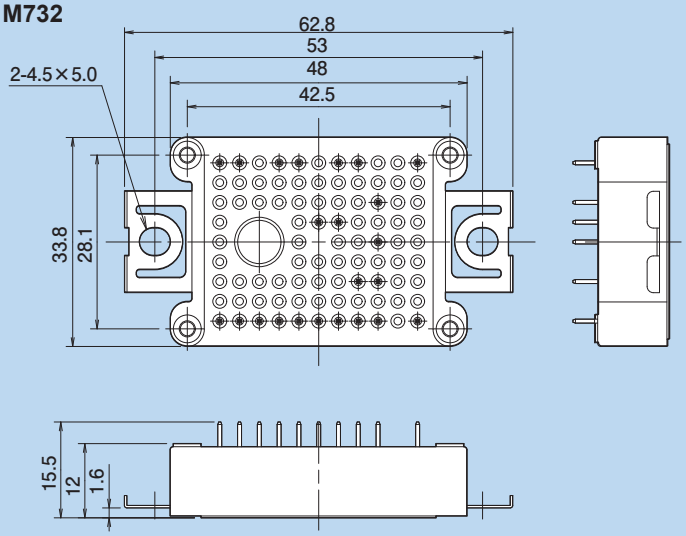
M730



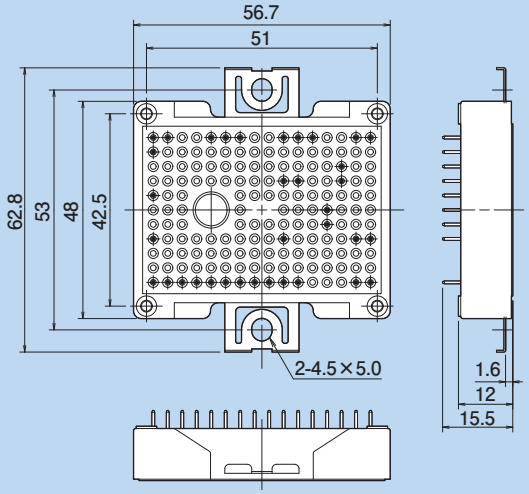
M731



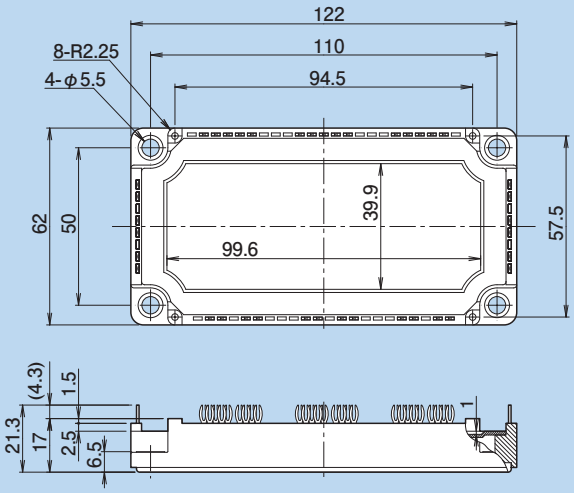
M732



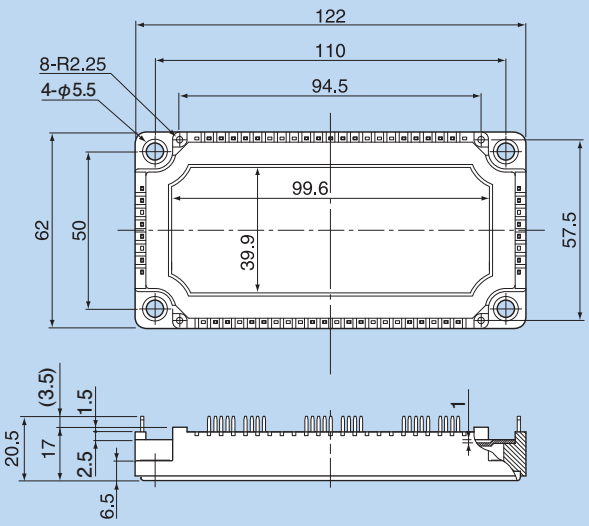
M733



M1202



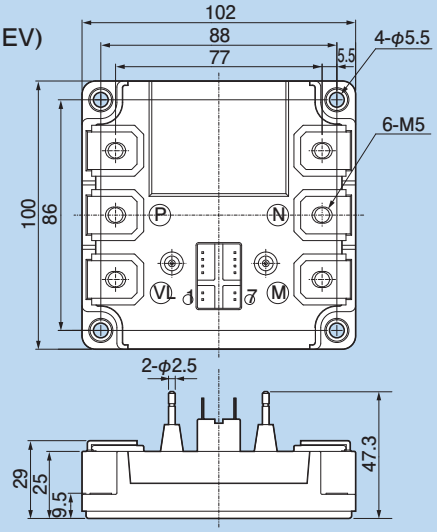
M1203



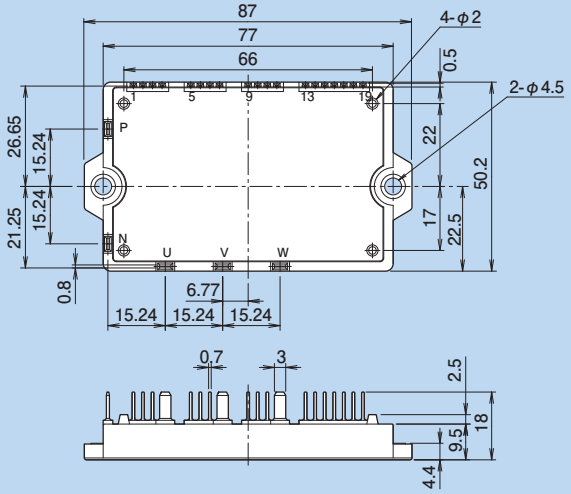
Outline

Unit: mm

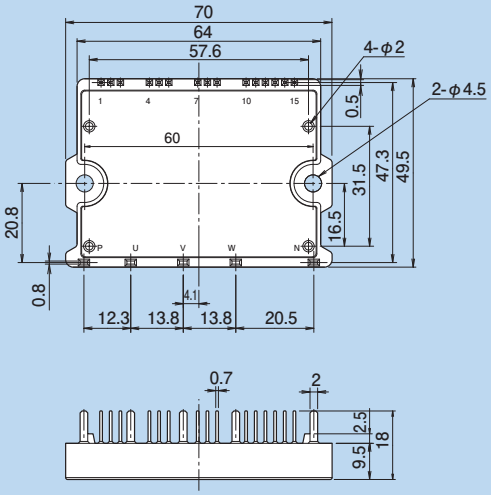
P401
(EV, HEV)



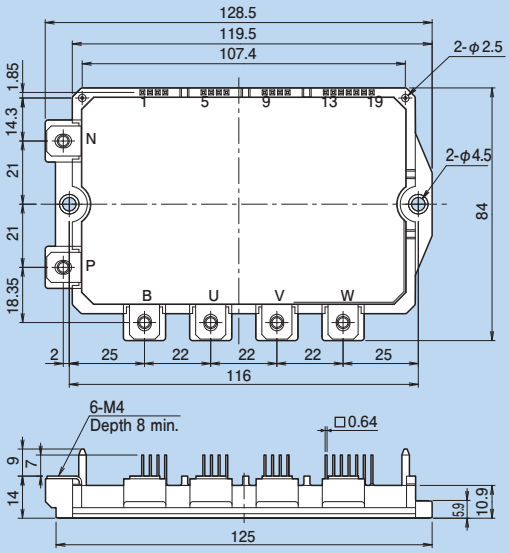
P626



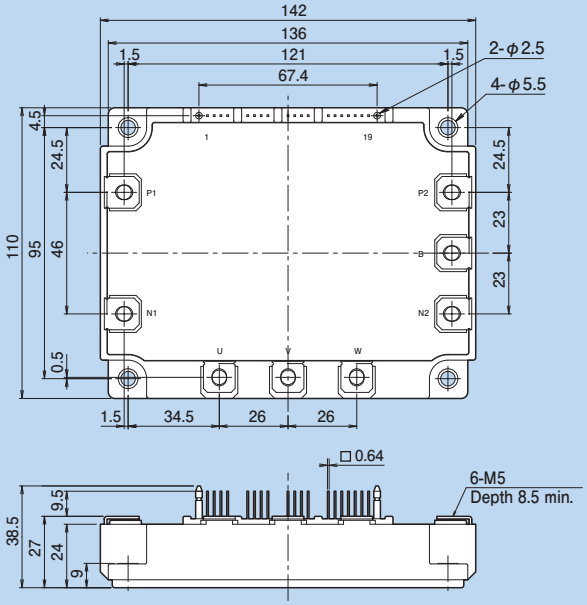
P629



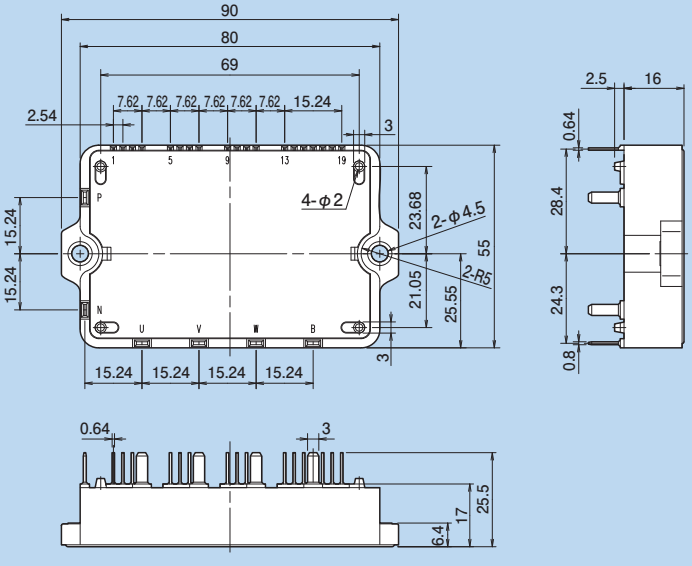
P630



P631

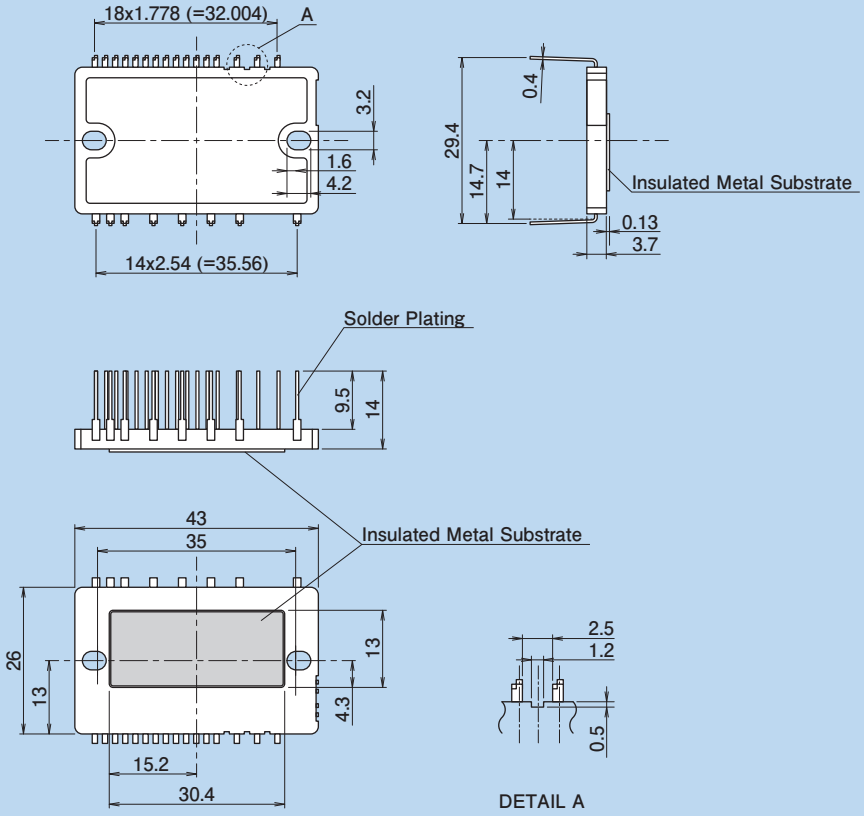


P636



Unit: mm

P633A

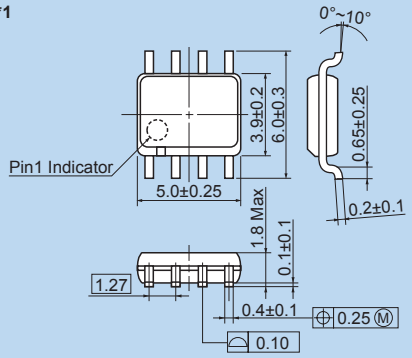


Outline

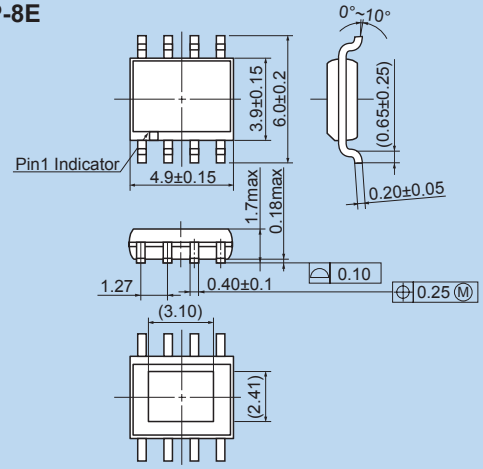
<Integrated circuits>

Unit: mm

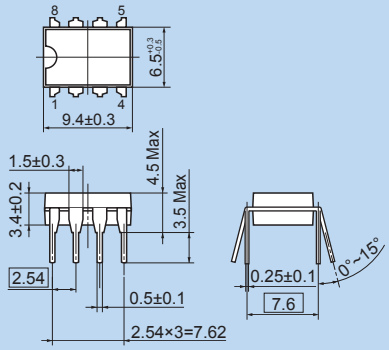
SOP-8*1



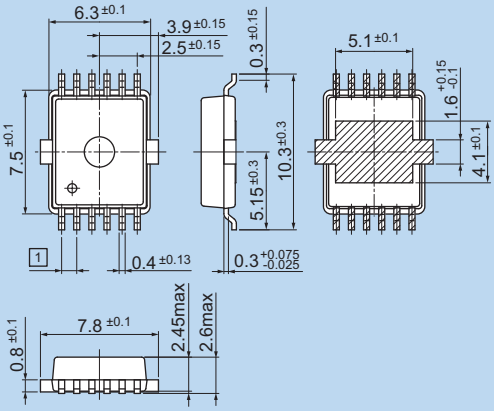
SOP-8E



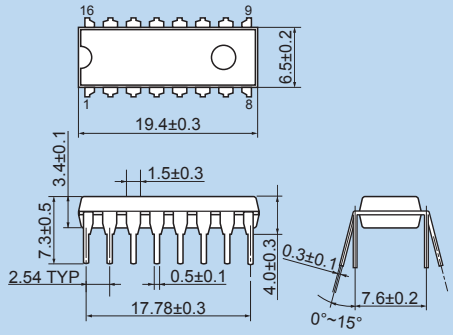
DIP-8



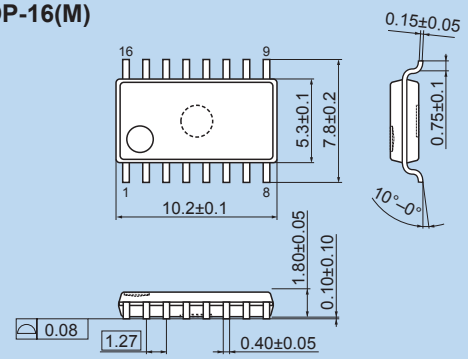
PSOP-12



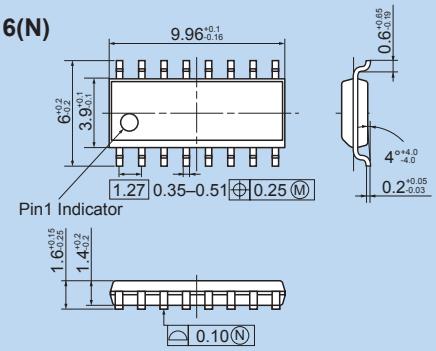
DIP-16



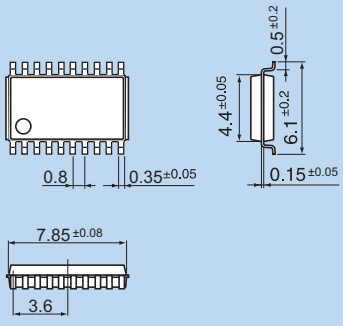
SOP-16(M)



SOP-16(N)



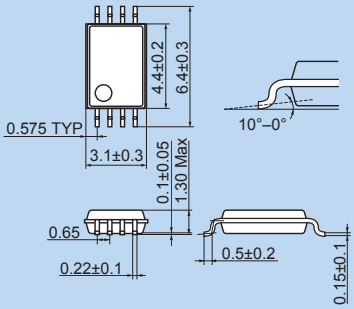
SSOP-20



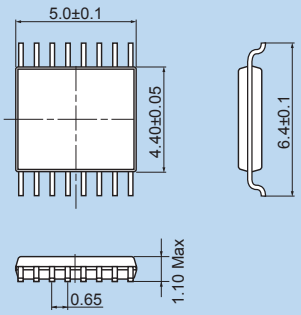
*1) This is the package size for the representative device type (FA8AxxN). For other ICs, please refer to the separate application note (specifications).

Unit: mm

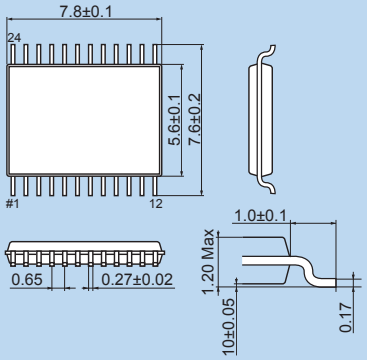
TSSOP-8



TSSOP-16



TSSOP-24

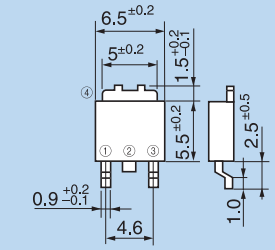


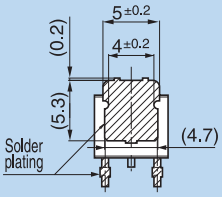
Outline

<Discrete devices>

Unit: mm

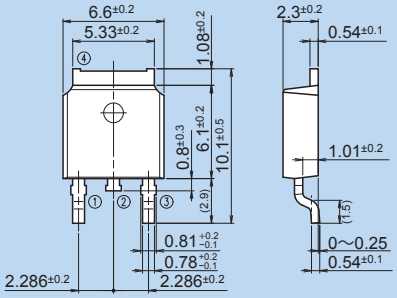
K-pack(S)

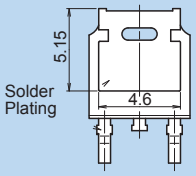




Power MOSFET
1. Gate
2, 4. Drain
3. Source

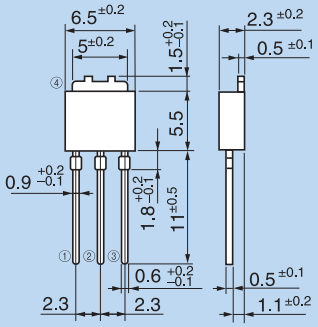
TO-252





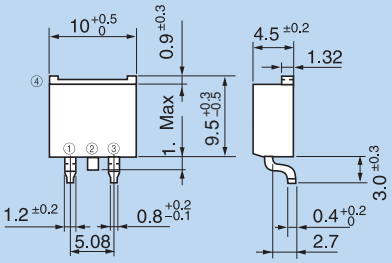
Power MOSFET
1. Gate
2, 4. Drain
3. Source

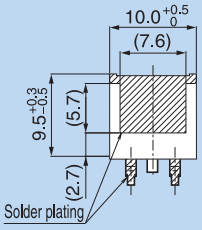
K-pack(L)/I-pack: Power MOSFET
K-pack(P)/I-pack: Diode



Power MOSFET
1. Gate
2, 4. Drain
3. Source

T-pack(S)

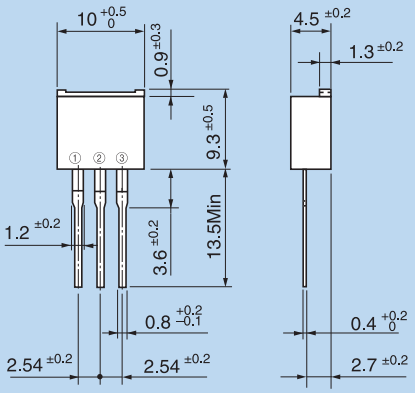




Power MOSFET
1. Gate
2, 4. Drain
3. Source

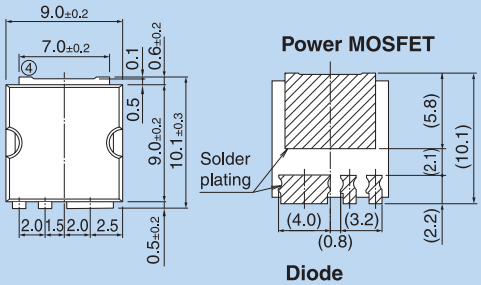
IGBT
1. Gate
2. Collector
3. Emitter

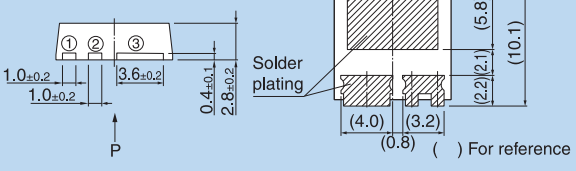
T-pack(L): Power MOSFET
T-pack(P): Diode



Power MOSFET
1. Gate
2. Drain
3. Source

TFP



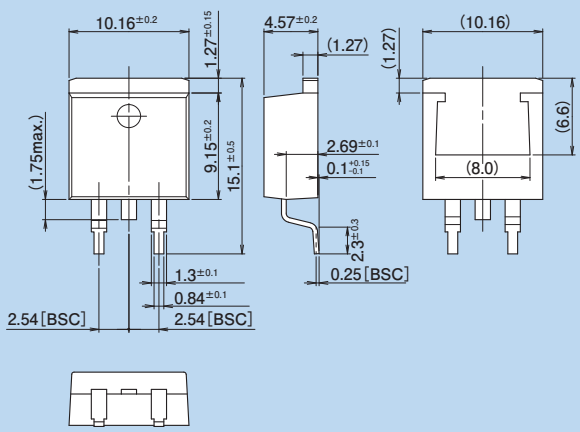


View from P

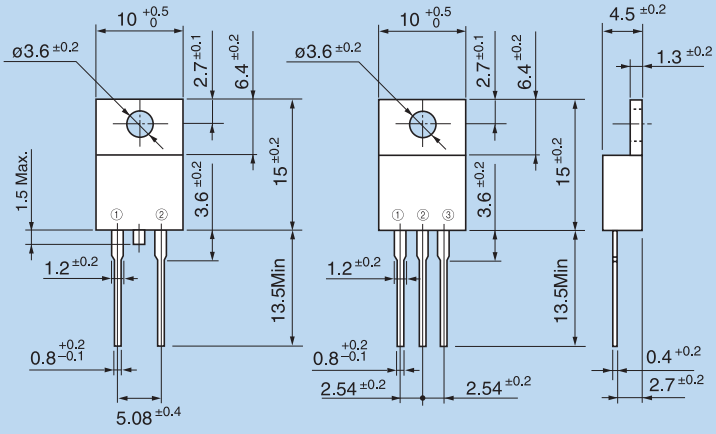
1. Gate
2, 3. Source
4. Drain

Unit: mm

D2-Pack



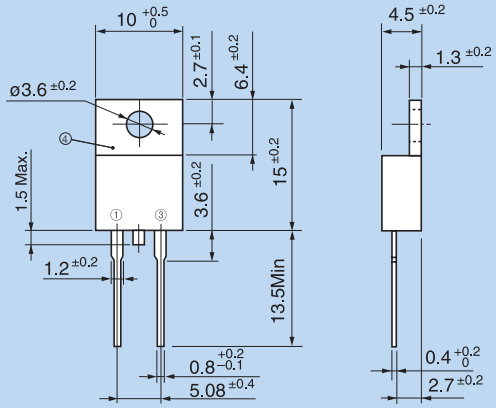
TO-220AB



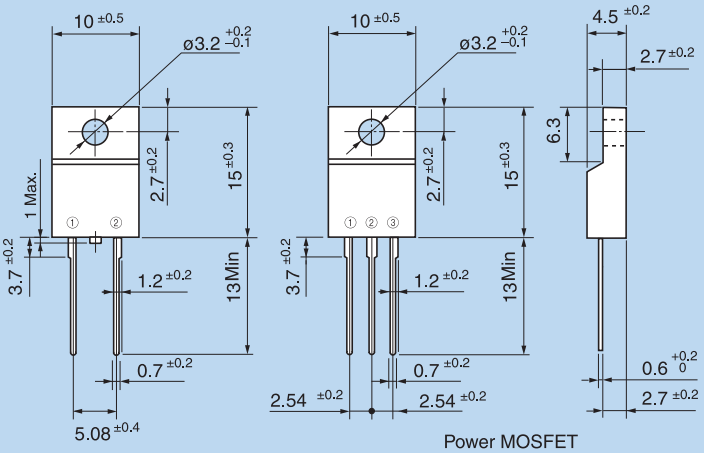
Power MOSFET
1. Gate
2. Drain
3. Source

IGBT
1. Gate
2. Collector
3. Emitter

TO-220-2

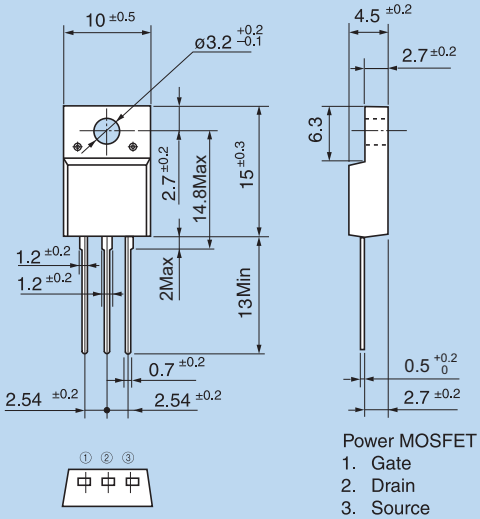


TO-220F



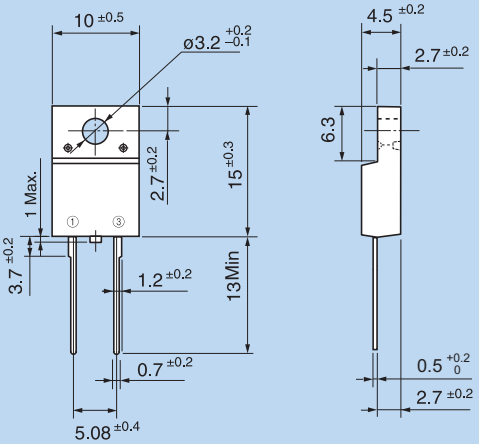
Power MOSFET
1. Gate
2. Drain
3. Source

TO-220F (SLS)



Power MOSFET
1. Gate
2. Drain
3. Source

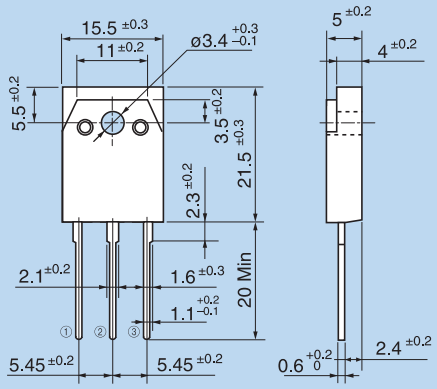
TO-220F-2



Outline

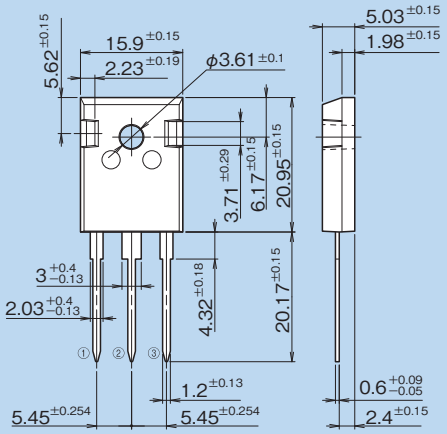
Unit: mm

TO-247



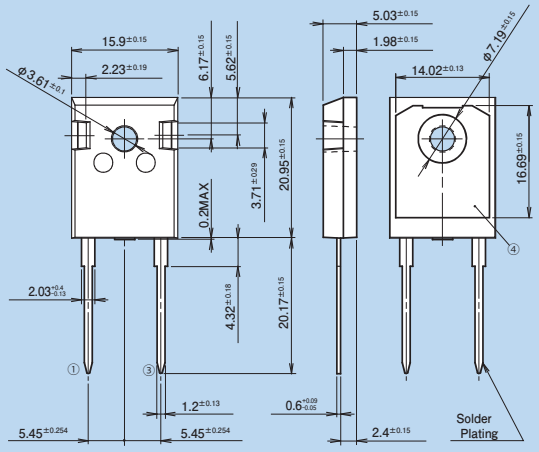
Power MOSFET
1. Gate
2. Drain
3. Source

TO-247-P2



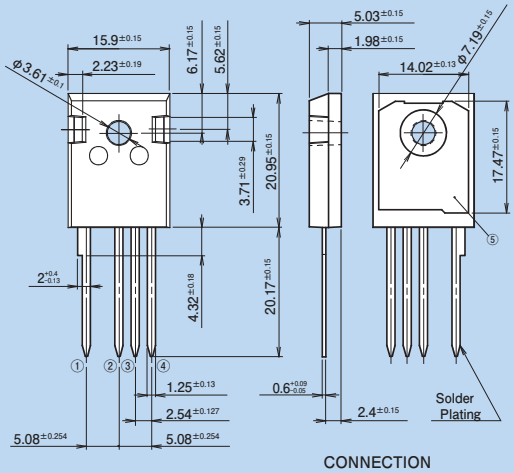
Power MOSFET	IGBT	FWD
1. Gate	1. Gate	1. Anode
2. Drain	2. Collector	2. Cathode
3. Source	3. Emitter	3. Anode

TO-247-2-P2

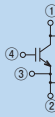


CONNECTION
①,④CATHODE
③ANODE

TO-247-4-P2

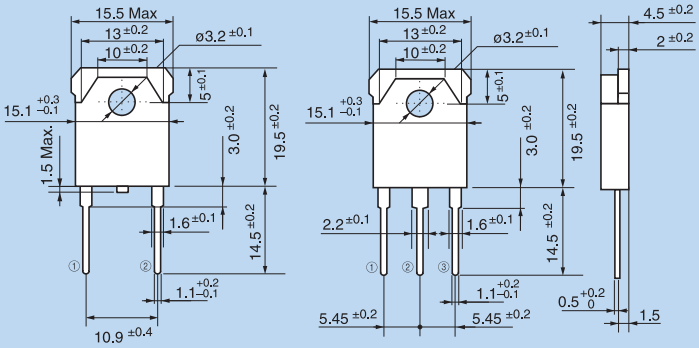


CONNECTION



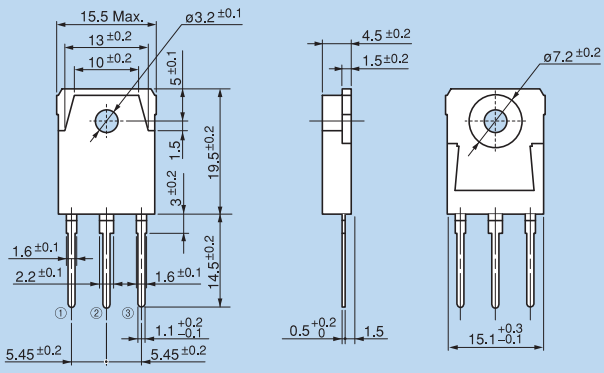
1. COLLECTOR
2. EMITTER
3. SUB EMITTER
4. GATE

TO-3P



Power MOSFET	IGBT
1. Gate	1. Gate
2. Drain	2. Collector
3. Source	3. Emitter

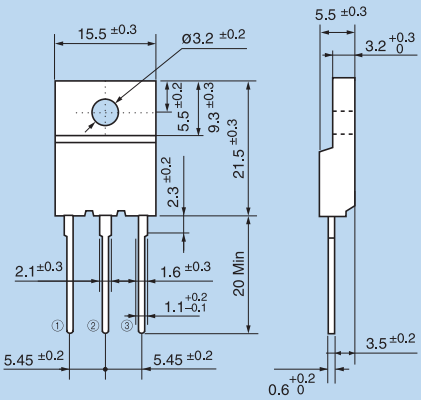
TO-3P(Q)



Power MOSFET
1. Gate
2. Drain
3. Source

Unit: mm

TO-3PF



Power MOSFET
1. Gate
2. Drain
3. Source

Order Quantity

・Order unit is the number in “Min. quantity per order” or its integral multiplication.
・This table covers single or reel package items (Except for taping items).
・Order unit of taping package is different for each specification.
Please contact us for more detail.

Products	Package	Type number	Min. quantity per order	Min. quantity per packing
Power MOSFETs Diodes	TO-220	All types	100	500
	TO-220F/TO-220F (SLS)		100	500
	TFP		1,500	1,500
	TO-247		100	500
	TO-3P, TO-3P (Q)		100	500
	TO-3PF		100	500
	TO-3PL		50	50
	K-pack (S)		3,000	3,000
	T-pack (S)		1,000	1,000
	K-pack (L, P)		500	500
	T-pack (L, P)		100	500
	TO-220	-S2□PP (Tube)	1,000	1,000
	TO-220F	-S3□PP (Tube)	1,000	1,000
Power MOSFETs Discrete IGBTs Diodes	TO-247-P2	All types	600	600
ICs		All types (except for below types)	2,000	2,000
		FA8A-□□, FA6A-□□, FA1A-□□	3,000	3,000
		FA5627, 28	3,000	3,000
		FA5637	3,000	3,000
		FA5641, 42, 43, 44	3,000	3,000
		FA5680, FA5681	3,000	3,000
		FA5696	3,000	3,000
		FA5651	3,000	3,000
		FA5752	3,000	3,000
		FA5760	3,000	3,000

Type Number Index

Type Number Index

Type Number Index

Type Number Index

Type Number Index

Maintenance products

・Models listed below are for maintenance products only.
・Do not use them for new designing

Products	Type number	Products	Type number	Products	Type number
Power Devices	6MBP100RA060	Power Devices	7MBP25RJ120	Rectifier Diodes	CB803-03
	6MBP100RA120		7MBP25RU2A120		CB863-06
	6MBP100RTB060		7MBP25TEA120-50		CB863-12
	6MBP100RTJ060		7MBP300RA060		CB863-15
	6MBP100TEA060-50		7MBP50RA060		ERA81-004
	6MBP150RA060		7MBP50RA120		ERA82-004
	6MBP150RA120		7MBP50RJ120		ERA83-004
	6MBP150RTB060		7MBP50RTB060		ERA83-006
	6MBP150RTJ060		7MBP50RTJ060		ERA84-009
	6MBP150TEA060-50		7MBP50RU2A120		ERA85-009
	6MBP15RA120		7MBP50TEA060-50		ERA91-02
	6MBP200RA060		7MBP50TEA120-50		ERA92-02
	6MBP20RTA060		7MBP75RA060		ERB81-004
	6MBP25RA120		7MBP75RA120		ERB83-004
	6MBP25RJ120		7MBP75RJ120		ERB83-006
	6MBP25RU2A120		7MBP75RTB060		ERB84-009
	6MBP25TEA120-50		7MBP75RTJ060		ERB91-02
	6MBP300RA060		7MBP75RU2A120		ERB93-02
	6MBP50RA060		7MBP75TEA060-50		ERC81-004
	6MBP50RA120		7MBP75TEA120-50		ERC81-006
	6MBP50RJ120		7MBR10UF120		ERC81S-004
	6MBP50RTB060		7MBR15UF060		ERC84-009
	6MBP50RTJ060		7MBR15UF120		ERC91-02
	6MBP50RU2A120		7MBR20UF060		FD867-12
	6MBP50TEA060-50		7MBR30UF060		FD867-15
	6MBP50TEA120-50				FD868-12
	6MBP75RA060				FD868-15
	6MBP75RA120				SC802-04
	6MBP75RJ120				SC802-06
	6MBP75RTB060				SC802-09
	6MBP75RTJ060				SC902-2
	6MBP75RU2A120				SD832-03
	6MBP75TEA060-50				SD832-04
	6MBP75TEA120-50				SD833-03
	7MBP100RA060				SD833-04
	7MBP100RA120				SD833-06
	7MBP100RTB060				SD833-09
	7MBP100RTJ060				SD834-03
	7MBP100TEA060-50				SD834-04
	7MBP150RA060				SD862-04
	7MBP150RA120				SD863-04
	7MBP150RTB060				SD863-06
	7MBP150RTJ060				SD863-10
	7MBP150TEA060-50				SD882-02
	7MBP200RA060				SD883-02
	7MBP25RA120				SD883-04

Discontinued products

・Models listed below are discontinued products.
・Do not use them for new designing

Products	Type number
Power Devices	1MBI150NH-060
	1MBI150NK-060
	1MBI200N-120
	1MBI200NH-060
	1MBI200NK-060
	1MBI300N-120
	1MBI300NN-120
	1MBI300NP-120
	1MBI400N-120
	1MBI400NN-120
	1MBI400NP-120
	1MBI600NN-060
	1MBI600NP-060
	2MBI100N-060
	2MBI100N-120
	2MBI100NB-120
	2MBI100NC-120
	2MBI150N-060
	2MBI150N-120
	2MBI150NB-120
	2MBI150NC-060
	2MBI150NC-120
	2MBI200N-060
	2MBI200N-060-03
	2MBI200N-120
	2MBI200NB-120
	2MBI200NB-120-01
	2MBI300N-060
	2MBI300N-060-04
	2MBI300N-120
	2MBI300N-120-01
	2MBI300NB-060
	2MBI300NB-060-01
	2MBI400N-060
	2MBI400N-060-01
	2MBI50N-060
	2MBI50N-120
	2MBI600NT-060
	2MBI75N-060
	2MBI75N-120
	4MBI75T-060
	4MBI100T-060
	4MBI150T-060
	4MBI200T-060
	1MBI600PX-120
	1MBI600PX-140
	2MBI100PC-140
	2MBI100SC-120
	2MBI150PC-140
	2MBI150SC-120
	2MBI200PB-140
	2MBI200S-120
	2MBI300P-140
	2MBI300S-120
	2MBI50P-140
	2MBI75P-140
	6MBI100S-060
	6MBI100S-120
	6MBI100S-140
	6MBI10S-120
	6MBI15S-120
	6MBI25S-120
	6MBI35S-120

Products	Type number
Power Devices	6MBI35S-140
	6MBI50S-060
	6MBI50S-120
	6MBI50S-140
	6MBI75S-060
	6MBI75S-120
	6MBI75S-140
	6MBP15RH060-50
	6MBP20RH060-50
	6MBP30RH060-50
	7MBR100SB060
	7MBR100SD060
	7MBR10SA120
	7MBR10SA140
	7MBR10SC120
	7MBR15SA120
	7MBR15SA140
	7MBR15SC120
	7MBR20SC060
	7MBR25SA120
	7MBR25SA140
	7MBR25SC120
	7MBR30SA060
	7MBR30SC060
	7MBR35SB120
	7MBR35SB140
	7MBR35SD120
	7MBR50SA060
	7MBR50SB060
	7MBR50SB120
	7MBR50SB140
	7MBR50SC060
	7MBR50SD120
	7MBR75SB060
	7MBR75SD060
Integrated Circuits	FA3675F-H1
	FA7709R-H1
	FA7716R-H4
	FA7723R-H4
	FA7724R-H4
	FA7724AR-H4
	FA7728F-D1
	FA7729R-H1
	FA7730F-D1
	FA7731F-D1
	FA7743N-D1
Hybrid ICs for IGBT Drive	EXB840
	EXB841
IPS (Intelligent Power switch)	F5016H
	F5017H
	F5021H
	F5022
	F5038H
Rectifier Diodes	FDLA20C20
	FDLC20C20
	FDLH20C20
	FDLP20C20

Products	Type number
Rectifier Diodes	FDLR20C20
	KP823C03
	KP823C04
	KP823C09
	PA955C6R
	PG985C6R
	TP858C12R
	TP869C04R
	TS862C04R
	TS906C3R
	TS952C6R
	TS955C6R
	YA852C12R
	YA852C15R
	YA855C12R
	YA855C15R
	YA858C12R
	YA858C15R
	YA862C04R
	YA869C04R
	YA951S6R
	YA952C6R
	YA952S6R
	YA955C6R
	YG801C09R
	YG802C03R
	YG802C09R
	YG803C04R
	YG811S09R
	YG831C03R
	YG831C04R
	YG832C03R
	YG832C04R
	YG835C03R
	YG835C04R
	YG838C03R
	YG852C12R
	YG852C15R
	YG855C12R
	YG855C15R
	YG858C12R
	YG858C15R
	YG862C04R
	YG864S06R
	YG869C04R
	YG881C02R
	YG882C02R
	YG885C02R
	YG906C3R
	YG951S6R
	YG952C6R
	YG952S6R
	YG955C6R
Power MOSFET	2SJ314-01L, S
	2SJ472-01L, S
	2SJ473-01L, S
	2SJ474-01L, S
	2SJ475-01
	2SJ476-01L, S
	2SJ477-01MR
	2SK2687-01
	2SK2688-01L, S

Discontinued products

Products	Type number	Products	Type number
Power MOSFET	2SK2689-01MR	Power MOSFET	2SK3613-01
	2SK2690-01		2SK3644-01
	2SK2691-01R		2SK3645-01MR
	2SK2806-01		2SK3646-01L, S
	2SK2807-01L, S		2SK3647-01
	2SK2808-01MR		2SK3673-01MR
	2SK2809-01MR		2SK3674-01L, S
	2SK2890-01MR		2SK3675-01
	2SK2891-01		2SK3677-01MR
	2SK2892-01R		2SK3678-01
	2SK2893-01		2SK3679-01MR
	2SK2894-01R		2SK3690-01
	2SK2895-01		2SK3691-01MR
	2SK2896-01L, S		2SK3769-01MR
	2SK2897-01MR		2SK3770-01MR
	2SK2898-01		2SK3771-01MR
	2SK2899-01R		2SK3776-01
	2SK2900-01		2SK3777-01R
	2SK2901-01L, S		2SK3780-01
	2SK2902-01MR		2SK3781-01R
	2SK2903-01MR		2SK3788-01
	2SK2904-01		2SK3789-01R
	2SK2905-01R		2SK3870-01
	2SK2906-01		2SK3871-01MR
	2SK2907-01R		2SK3872-01L, S
	2SK3362-01		2SK3873-01
	2SK3363-01		2SK3874-01R
	2SK3364-01		2SK3875-01
	2SK3517-01		2SK3876-01R
	2SK3518-01MR		2SK3883-01
	2SK3529-01		2SK3884-01
	2SK3530-01MR		2SK3885-01
	2SK3531-01		2SK3913-01MR
	2SK3532-01MR		2SK3914-01
	2SK3533-01		2SK3915-01MR
	2SK3534-01MR		2SK3923-01
	2SK3549-01		2SK3924-01L, S
	2SK3550-01R		2SK3925-01
	2SK3586-01		2SK3926-01MR
	2SK3587-01MR		2SK3927-01L, S
	2SK3588-01L, S		2SK4005-01MR
	2SK3589-01		2SK4006-01L, S
	2SK3601-01		FMA18N25G
	2SK3605-01		

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4. The products introduced in this Catalog are intended for use in the following electronic and electrical equipment which has normal reliability requirements.
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   - Communications equipment (terminal devices)
   - Measurement equipment
   - Machine tools
   - Audiovisual equipment
   - Electrical home appliances
   - Personal equipment
   - Industrial robots etc.

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   - Traffic-signal control equipment
   - Gas leakage detectors with an auto-shut-off feature
   - Emergency equipment for responding to disasters and anti-burglary devices
   - Safety devices
   - Medical equipment

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   - Aeronautic equipment
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   - Submarine repeater equipment

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