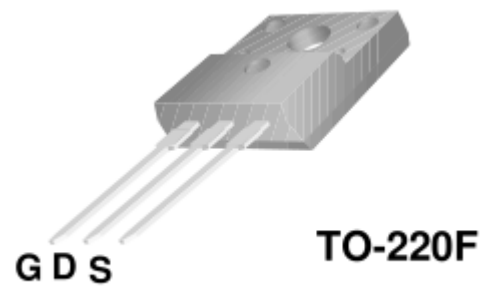


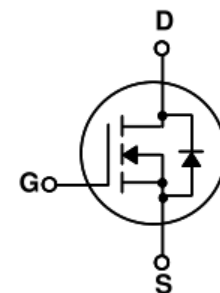
Features

- ◆ 10A, 650V, $R_{DS(on)} = 0.85 \Omega @ V_{GS} = 10V$
- ◆ Fast Switching
- ◆ Improved dv/dt capability
- ◆ 100% avalanche tested
- ◆ Low gate charge



Application

- ◆ Electronic Ballast
- ◆ Electronic Transformer
- ◆ Switching mode power supply



Absolute Maximum Ratings (T_c=25°C unless otherwise noted)

Symbol	Parameters	Value	Unit	
V _{DSS}	Drain-source Voltage	650	V	
V _{GS}	Gate-source Voltage	±30	V	
I _D	Continuous Drain Current	--TC=25°C	10	A
		--TC=100°C	5.8	A
I _{DM}	Drain Current-Pulsed ①	40	A	
P _D	Power Dissipation	--(TC = 25°C)	50	W
		-- Derate above 25°C	4.8	W/°C
T _j	Junction Temperature	150	°C	
T _{STG}	Storage Temperature	-55-150	°C	
E _{AS}	Single Pulse Avalanche Energy②	250	mJ	
I _{AR}	Avalanche Current①	10	A	

Thermal Characteristics

Symbol	Parameters	Min	Typ	Max	Unit
R _{θJC}	Thermal Resistance Junction-case			2.5	°C /W
R _{θJA}	Thermal Resistance Junction-ambient			62.5	°C /W



Electronic Characteristics (T_C=25°C unless otherwise noted)

Symbol	Characteristics	Test condition	Min	Typ	Max	Unit
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Off Characteristics

BV _{DSS}	Drain-source Breakdown Voltage	V _{GS} =0V, I _D =250μA	650			V
ΔBV _{DSS} /ΔT _j	Breakdown Voltage Temperature Coefficient ③	I _D =250μA (Referenced to 25°C)		0.7		V/°C
I _{DSS}	Drain-source Leakage Current	V _{DS} =650V, V _{GS} =0V			1	μA
		V _{DS} =520V, T _j =125°C			10	μA
IGSSF	Gate-body Leakage Current	V _{GS} =+20V			10	μA
IGSSR		V _{GS} =-20V			-10	μA

On Characteristics

V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250μA	2.0		4.0	V
R _{DS(on)}	Static Drain-source On Resistance	V _{GS} =10V, I _D =5.0A			0.85	Ω
g _{FS}	Forward Transconductance	V _{DS} =40V, I _D =5.0A		8.0		S

Dynamic and Switching Characteristics

C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =25V, f=1.0MHz		1758		pF
C _{oss}	Output Capacitance			153		pF
C _{rss}	Reverse Transfer Capacitance			15		pF
t _{d(on)}	Turn-On Delay Time	V _{DD} = 325V, I _D = 10 A, R _G = 25 Ω ③			56	ns
t _r	Turn-On Rise Time				150	ns
t _{d(off)}	Turn-Off Delay Time				300	ns
t _f	Turn-Off Fall Time				166	ns
Q _g	Total Gate Charge	V _{DS} = 520 V, I _D = 10 A, V _{GS} = 10 V ③		45		nC
Q _{gs}	Gate-Source Charge			6.8		nC
Q _{gd}	Gate-Drain Charge			18.5		nC

Drain-Source Diode Characteristics and Maximum Ratings

I _S	Maximum Continuous Drain-source Diode Forward Current				10	A
I _{SM}	Maximum Pulsed Drain-Source Diode Forward Current				40	A
V _{SD}	Drain-source Forward Voltage	T _j =25°C, I _S =10A, V _{GS} =0V			1.5	V

Notes :

① Repetitive Rating: Pulse width limited by maximum junction temperature

② EAS Test condition

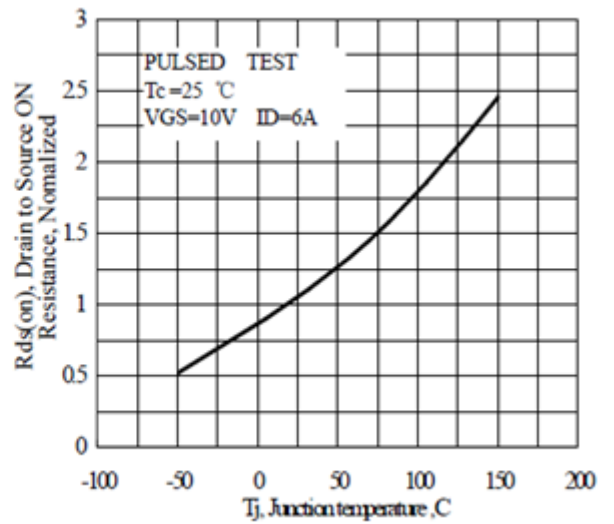
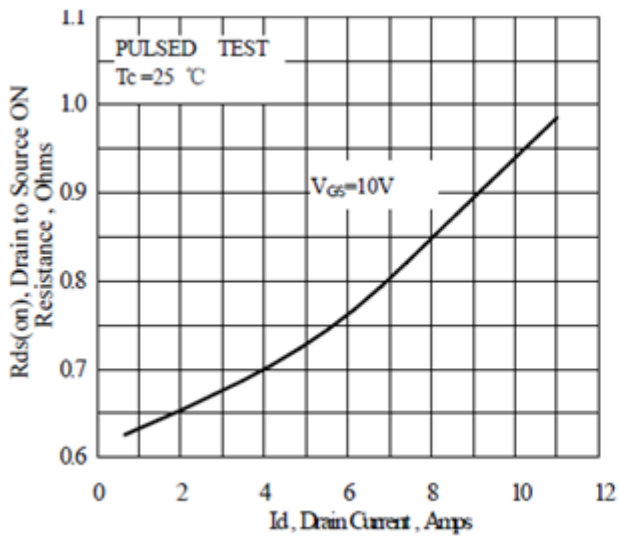
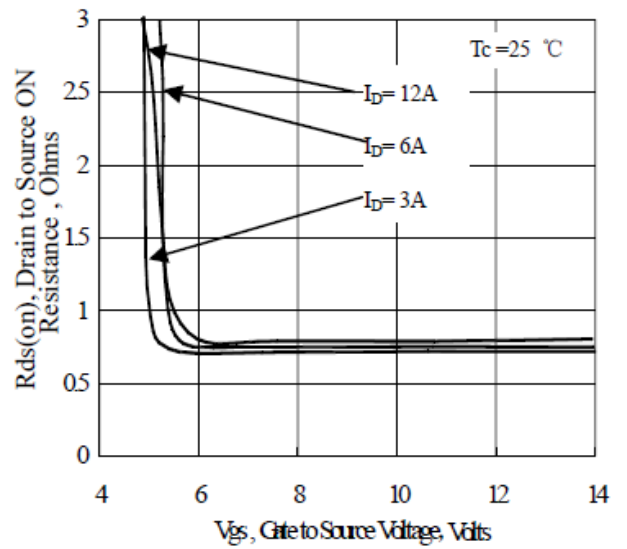
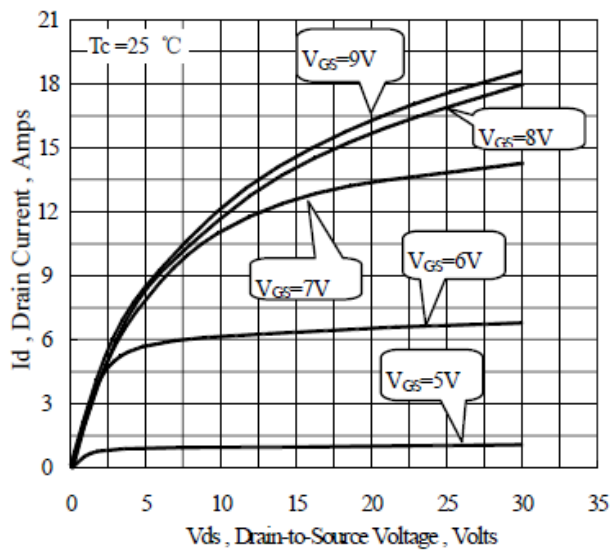
L = 12mH, I_{AS} = 10A, V_{DD} = 50V, R_G = 25 Ω, Starting T_J = 25°C

③ Pulse Test : Pulse width ≤ 300 μs, Duty cycle ≤ 2%



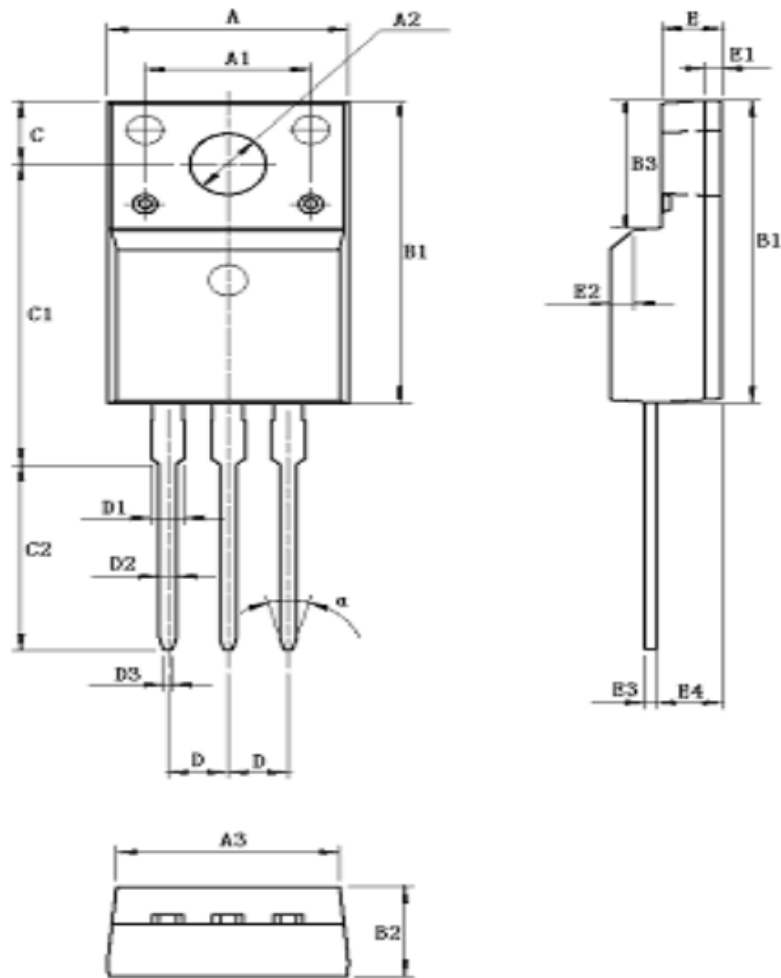
www.microdiode.com

Typical Characteristics



www.microdiode.com

TO-220F Package Dimensions



Symbol	Min	Max	Symbol	Min	Max
A	9.96	10.36	D	Typ.2.54	
A1	7		D1	1.25	1.35
A2.	3.08	3.28	D2	0.7	0.9
A3	9.25	9.65	D3	0.28	0.48
B1	15.7	16.1	E	2.34	2.74
B2	4.5	4.9	E1	0.7	
B3	4.6	5	E2	1.0x45°	
C	3.2	3.4	E3	0.36	0.65
C1	15.6	16	E4	2.55	2.95
C2	9.55	9.95	α(度)	30°	

