

Spec. No. : C175E3 Issued Date : 2015.05.13

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10Amp. MOS BARRIER RECTIFIER

SKM1045UCTE3

IF(AV)	2 x 5A
Vrrm	45V
VF(TYP.)	0.43V
Tj	150°C

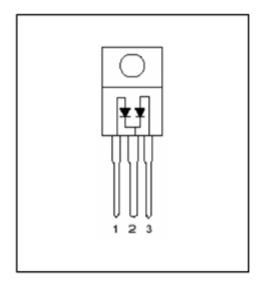
Features

- 150°C operating junction temperature
- Softest, fast switching capability
- Reduced ultra-low forward voltage drop (VF); better efficiency and cooler operation.
- Lead-Free Finish; RoHS Compliant
- Halogen and Antimony Free. "Green" Device
- MCD technology provides a superior avalanche capability than schottky diodes

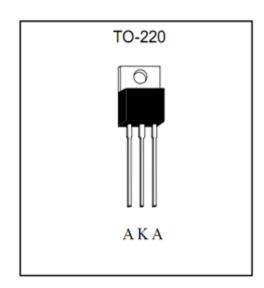
Mechanical Data

- Case: JEDEC TO-220AB molded plastic
- Weight: 2.2 grams approximately
- Terminals: Pure tin plated, lead-free, solderable per MIL-STD-750 method 2026
- Epoxy: UL 94V-0 rate flame retardant
- Polarity: As marked.

Equivalent Circuit



Outline





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Maximum Ratings and Electrical Characteristics

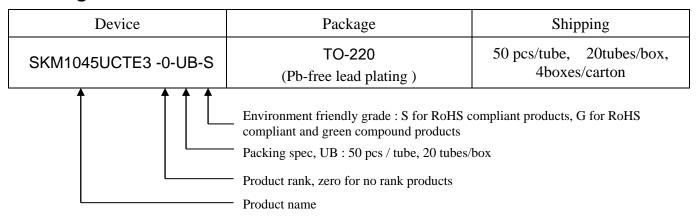
(Rating at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.)

Parameter			Symbol	Min.	Тур.	Max.	Units
Maximum DC blocking voltage		V _{DC}			45	V	
Maximum Recurrent peak reverse voltage		Vrrm			45	V	
Maximum RMS voltage			V _{RMS}			32	V
Maximum instantaneous forward voltage	ge at	Tc=25°C	V_{F}		0.43	0.47	V
IF=5A per diode		Tc=125°C	V F		0.38		
Daviana aumant man diada	$V_{R}=4$	45 V, Tc=25°C	IR		60	300	μΑ
Reverse current per diode	$V_R=4$	45 V, Tc=125°C	IR		10	20	mA
Maximum Average forward rectified current per device		IF(AV)			10	A	
Maximum Average forward rectified current per diode		IF(AV)			5	Α	
Non-repetitive peak forward surge current @							
8.3ms single half sine wave superimposed on			Ifsm			120	A
rated load (JEDEC method) per diode							
Peak Repetitive Reverse Surge Current (2uS-1Khz)			Irrm			2	Α
Isolation voltage		VAC	1500			V	
Maximum Rate of Voltage Change (at Rated VR)		dv/dt			10000	V/uS	
Storage temperature range		Tstg	-55		150	$^{\circ}\mathbb{C}$	
Operating junction temperature range		TJ	-55		150	$^{\circ}$ C	

Thermal Data

Parameter	Symbol	Value	Unit
Typical Thermal Resistance, Junction-to-case	Rth,j-c	2	°C/W
Typical Thermal Resistance, Junction-to-ambient	Rth,j-a	60	°C/W

Ordering Information

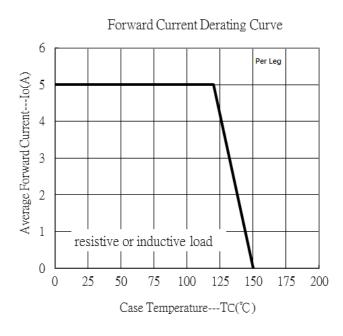


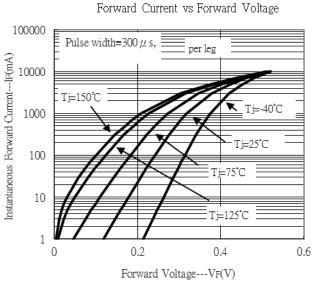


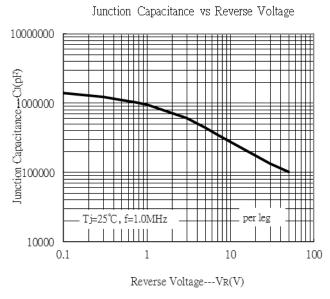
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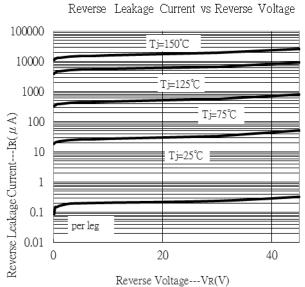
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Typical Characteristics











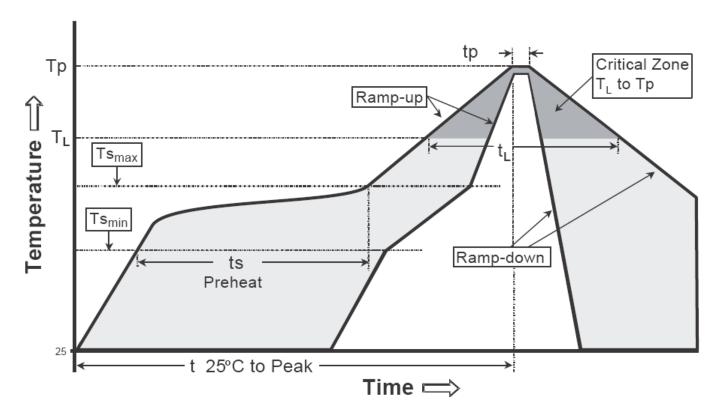
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Recommended wave soldering condition

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly		
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.		
Preheat				
-Temperature Min(Ts min)	100°C	150°C		
-Temperature Max(Ts max)	150°C	200°C		
-Time(ts min to ts max)	60-120 seconds	60-180 seconds		
Time maintained above:				
-Temperature (T∟)	183°C	217°C		
- Time (t∟)	60-150 seconds	60-150 seconds		
Peak Temperature(T _P)	240 +0/-5 °C	260 +0/-5 °C		
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds		
Ramp down rate	6°C/second max.	6°C/second max.		
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.		

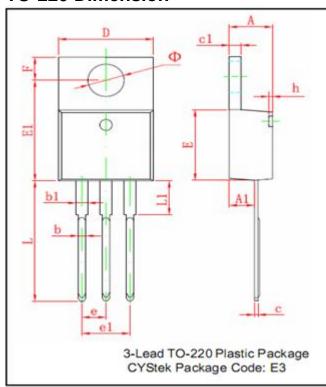
Note: All temperatures refer to topside of the package, measured on the package body surface.

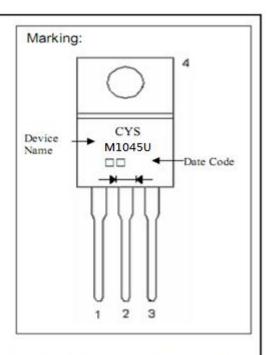


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TO-220 Dimension





Style: Pin 1.Anode 2.Cathode 3.Anode

*: Typical

: Typical									
DIM	Millimeters		Inches		DIM	Millim	eters	Inc	nes
DIIVI	Min.	Max.	Min.	Max.	ווווט	Min.	Max.	Min.	Max.
Α	4.470	4.670	0.176	0.184	E1	12.060	12.460	0.475	0.491
A1	2.520	2.820	0.099	0.111	е	2.540*		0.100*	
b	0.710	0.910	0.028	0.036	e1	4.980	5.180	0.196	0.204
b1	1.170	1.370	0.046	0.054	F	2.590	2.890	0.102	0.114
С	0.310	0.530	0.012	0.021	h	0.000	0.300	0.000	0.012
c1	1.170	1.370	0.046	0.054	L	13.400	13.800	0.528	0.543
D	10.010	10.310	0.394	0.406	L1	3.560	3.960	0.140	0.156
E	8.500	8.900	0.335	0.350	Φ	3.735	3.935	0.147	0.155

Notes: 1.Controlling dimension: millimeters.

2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material. 3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material:

- Lead: Pure tin plated.
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0.

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