

SK14

SCHOTTKY BARRIER RECTIFIERS



VOLTAGE: 40 Volts	CURRENT: 1.0 Amperes	SMAW	Marking and Polarity
FEATURES - For surface mounted applications - Low reverse leakage - Built-in strain relief, ideal for automated placement - High forward surge current capability			
MECHANICAL DATA Terminals: Plated Leads Solderable per MIL-STD-202, Method 208 Mounting Position: Any Lead Free: Lead Free Finish, RoHS Compliant Weight: 0.0023 ounce, 0.0679 grams		Remark: - NH=niuhang trademark - FF=Product line, According to actual changes; YWW=Periodic code, According to actual changes; - SK14=Module - White band denotes cathode	
TYPICAL APPLICATIONS For use in high frequency inverters ,AC/DC converters, DC/DC converters, LED driver etc. applications			

Maximum Ratings (Ratings at 25°C ambient temperature unless otherwise specified.)

Parameter	Symbol	SK14	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	40	V
Maximum RMS voltage	V_{RMS}	28	V
Maximum DC blocking voltage	V_{DC}	40	V
Maximum average forward rectified current(see fig.1)	$I_{F(AV)}$	1.0	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load(JEDEC method at rated TL)(see fig.5)	I_{FSM}	30	A
Current Squared Time Per Diode($t < 8.3ms$)	I^2t	3.74	A ² sec

Electrical Characteristics (Ratings at 25°C ambient temperature unless otherwise specified.)

Parameter	Test Conditions		Symbol	SK14			Unit
				Min.	Typ.	Max.	
Maximum instantaneous forward voltage(see fig.2) (Note 1)	$T_A=25^\circ C$	$I_F= 1.0 A$	V_F	--	0.48	0.55	V
	$T_A=125^\circ C$	$I_F= 3.0 A$		--	0.43	0.50	
Maximum instantaneous reverse current at rated DC blocking voltage (see fig.3)(Note 1)	$T_A=25^\circ C$	$V_R= V_{RRM}$	I_R	--	20	100	uA
	$T_A=125^\circ C$	$V_R= 80\%V_{RRM}$		--	--	5	
Typical junction capacitance(see fig.4)	4V, 1MHz		C_J	--	110	--	pF

Thermal Characteristics (Ratings at 25°C ambient temperature unless otherwise specified)

Parameter	Symbol	SK14	Unit
Operating junction	T_J	-55 to 125	°C
Storage temperature range	T_{STG}	-55 to 125	
Typical thermal resistance (Note 2)	$R_{\theta JA}$	88	°C/W
	$R_{\theta JC}$	25	

Note: 1. Pulse width < 300 uS, Duty cycle < 2%
2. Mounted on P.C.B. with 0.2" x 0.2" (5.08 mm x 5.08 mm) copper pad areas

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RATING AND CHARACTERISTIC CURVES

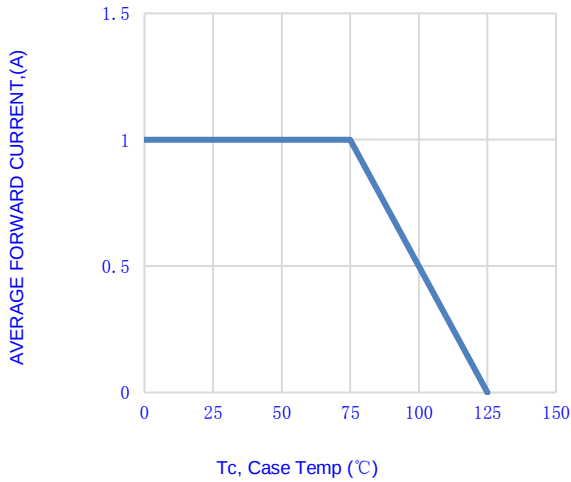


Fig.1- FORWARD CURRENT DERATING CURVE

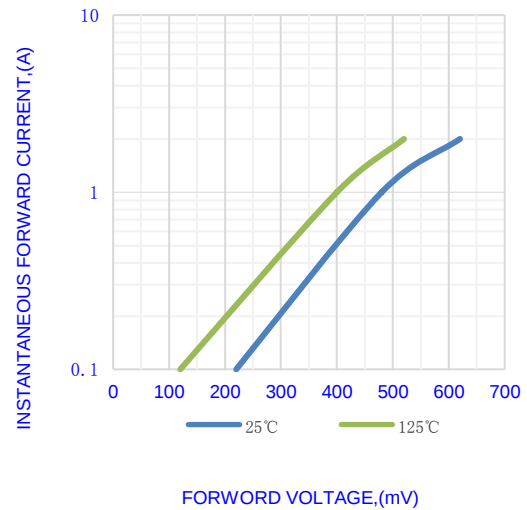


Fig.2-TYPICAL INSTANTANEOUS FORWARD

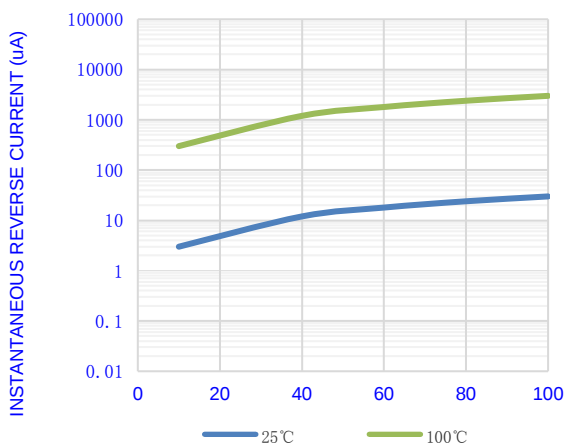


Fig.3-TYPICAL REVERSE CHARACTERISTICS

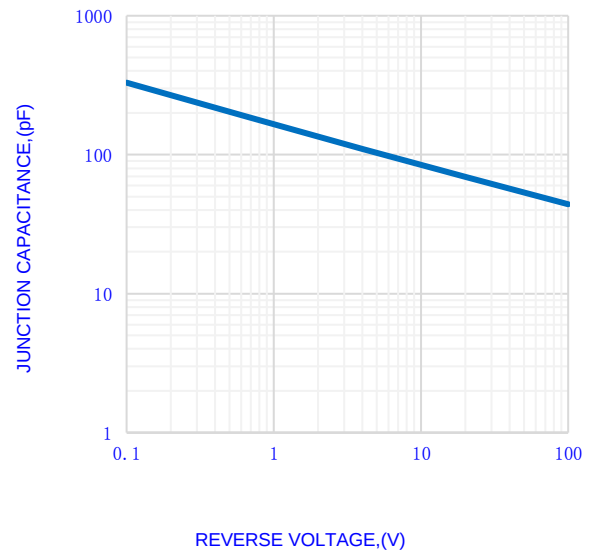


Fig.4- TYPICAL JUNCTION CAPACITANCE

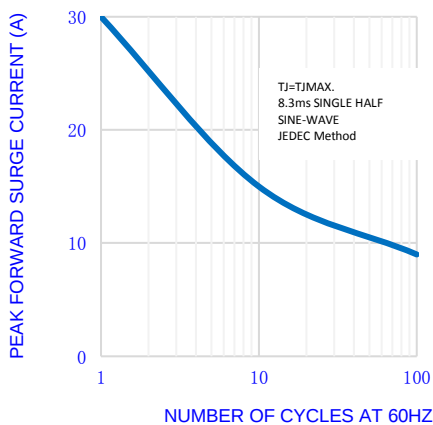


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

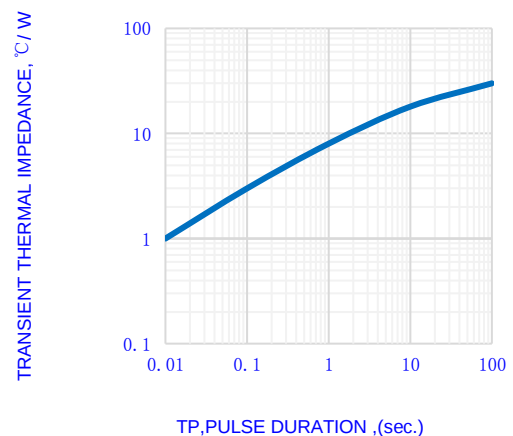


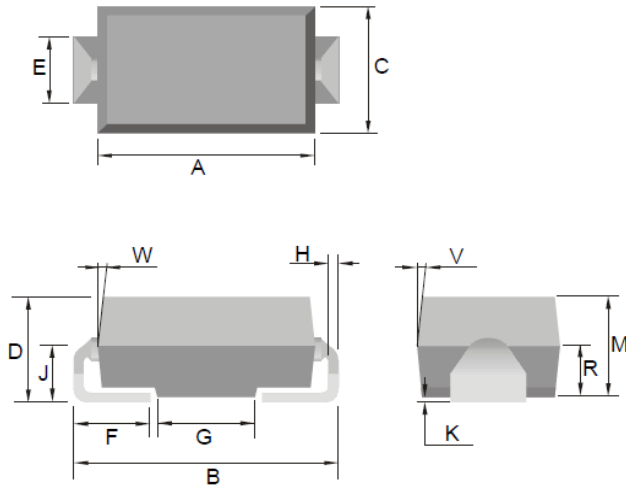
FIG.6-TYPICAL TRANSIENT THERMAL IMPEDANCE

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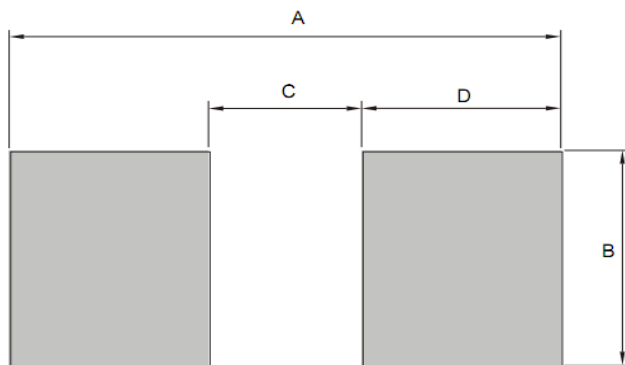
OUTLINE DRAWINGS



SMAW

OUTLINE DIMENSIONS						
Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.000	-	4.600	0.157	-	0.181
B	4.000	-	5.280	0.157	-	0.208
C	2.500	-	2.900	0.098	-	0.114
D	2.000	-	2.440	0.079	-	0.096
E	1.200	-	1.600	0.047	-	0.063
F	0.760	-	1.520	0.030	-	0.060
G	-	1.800	-	-	-	-
H	0.180	-	0.220	0.007	-	0.009
K	-	0.15	-	-	0.006	-
M	2.1	-	2.3	0.083	-	0.091
R	-	1.1	-	-	0.043	-
V	-	0.5 °	-	-	0.5 °	-

RECOMMENDED LAYOUT DRAWINGS



SMAW

RECOMMENDED MOUNTING PAD DIMENSIONS						
Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	5.800	-	-	0.228	-
B	-	2.060	-	-	0.081	-
C	-	1.660	-	-	0.065	-
D	-	2.070	-	-	0.082	-

PACKING INFORMATION

SMAW

Package Method	Reel Size (mm)	Quantity (pcs/reel)	Inner Box Size L×W×H(mm)	Quantity (pcs/Inner Box)	Carton Size L×W×H(mm)	Quantity (pcs/carton)
Tape Reel	Φ330	5000	340×340×45	10000	360×360×360	80000

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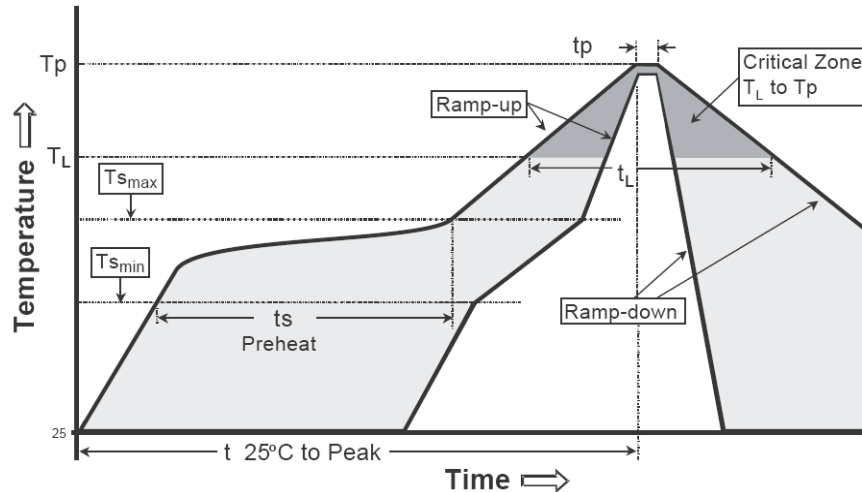
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Recommended wave soldering condition

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 (Tsmmax to Tp)	3°C/second max.	3°C/second max.
Preheat -Temperature Min(TS min) -Temperature Max(TS max) -Time(ts min to ts max)	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
Time maintained above: -Temperature (TL) - Time (tL)	183°C 60-150 seconds	217°C 60-150 seconds
Peak Temperature(TP)	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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