SP10L45

LOW VF SCHOTTKY RECTIFIERS

VOLTAGE	45 Volts	CURRENT	10.0 Ampers	TO-277	Marking and Polarity

FEATURES

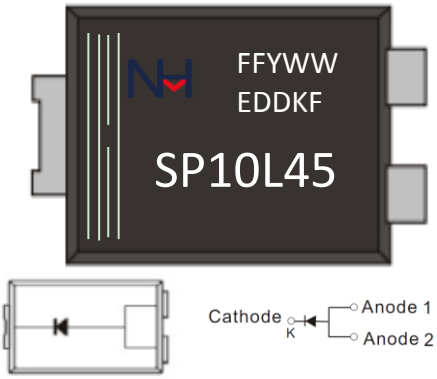
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Softest, fast switching capability
- Super Low Forward Voltage Drop
- High temperature soldering guaranteed:260 C/10 seconds at terminals
- Lead Free Finish, RoHS Compliant

MECHANICAL DATA

- **Case:** JEDEC TO-277 molded plastic body
- **Terminals:** Plated axial leads, solderable per MIL-STD-750,method 2026
- **Mounting Position:** Any
- **Weight:**App. 1.15 grams（0.041 ounce)

TYPICAL APPLICATIONS

- Device optimized for low forward voltage drop to maximize efficiency in Power Supply applications



Remark:

①. SP10L45=Modle

②. NH=niuhang trademark

③. FF=Product line,According to actual changes;
YWW=Periodic code,According to actual changes;
EDDKF=Inernal code,According to actual changes

④. White band denotes cathode

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

Parameter	Symbol	SP10L45	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	45	V
Maximum RMS voltage	V_{RMS}	32	V
Maximum DC blocking voltage	V_{DC}	45	V
Maximum average forward rectified current(see fig.1)	$IF_{(AV)}$	10	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}	250	A

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

Parameter	Test Conditions		Symbol	SP10L45			Unit
				Min.	Typ.	Max.	
Maximum instantaneous forward voltage(see fig.2) (Note 1)	T_A=25℃	IF= 10.0 A	V_F	--	0.46	0.49	V
	T_A=125℃			--	0.38	0.41	
Maximum instantaneous reversecurrent at rated DC blockingvoltage (see fig.3)(Note 1)	T_A=25℃	VR= 45 V	I_R	--	70	150	uA
	T_A=125℃			--	--	20	mA
Typical junction capacitance(see fig.4)	4V,1MHz		C_J	--	400	--	pF

Thermal Characteristcs (Ratings at 25℃ ambient temperature unless otherwise specified)

Parameter	Symbol	SP10L45	Unit
Operating junction	T_J	-55 to 150	℃
Storage temperature range	T_{STG}	-55 to 150	
Typical thermal resistance (Note 2)	$R_{\theta JA}$	30	℃/W
	$R_{\theta JL}$	8	

Note:

1. Pulse width < 300 uS, Duty cycle < 2%
2. Polymide PCB, 2 oz Copper. Cathode pad dimensions 18.8x14.4mm , Anode pad dimensions- (5.6x14.4mm)

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RATINGANDCHARACTERISTICCURVES

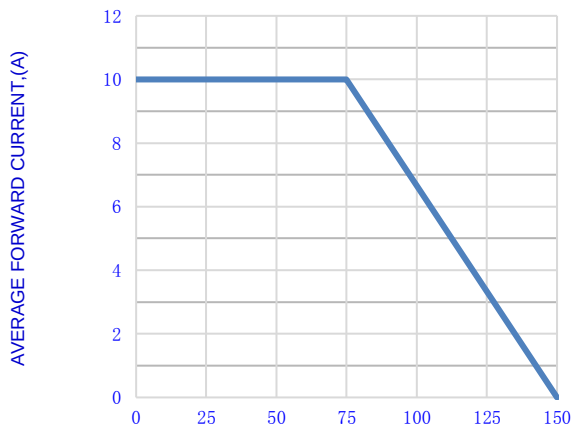

Fig.1- FORWARD CURRENT DERATING CURVE

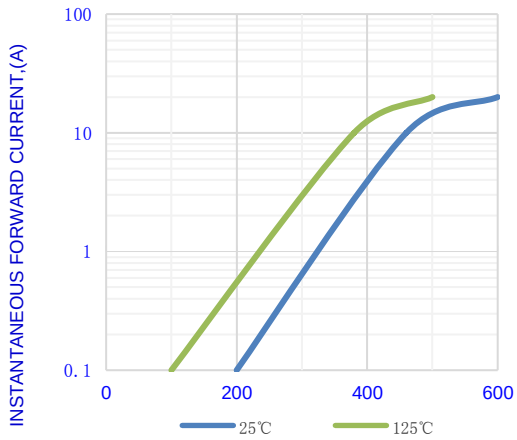

Fig.2-TYPICAL INSTANTANEOUS FORWARD

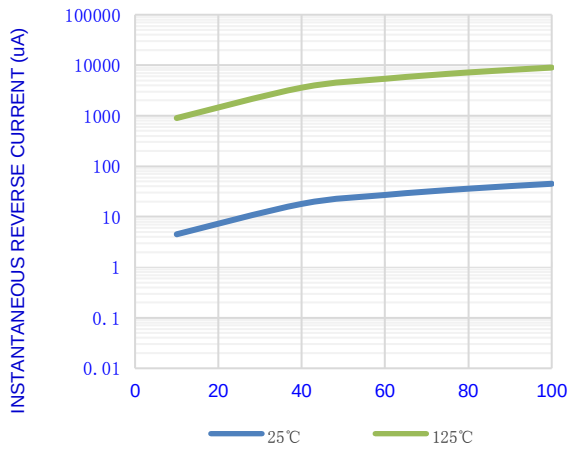

Fig.3-TYPICAL REVERSE CHARACTERISTICS

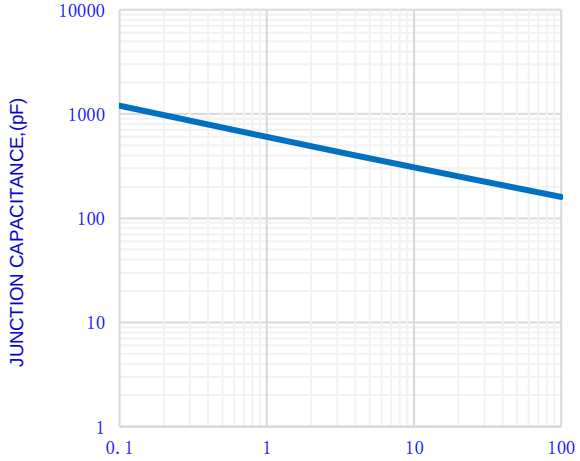

Fig.4- TYPICAL JUNCTION CAPACITANCE

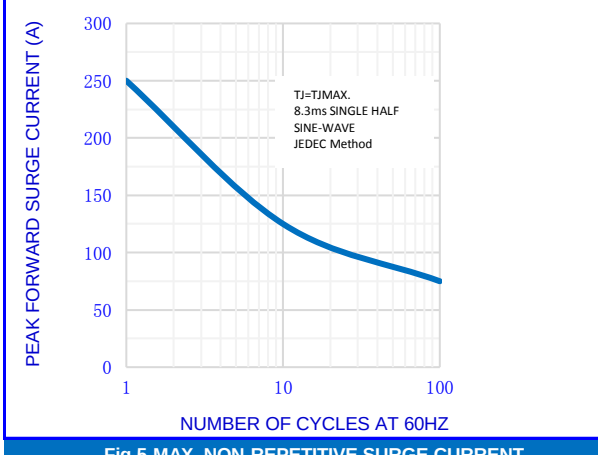

Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

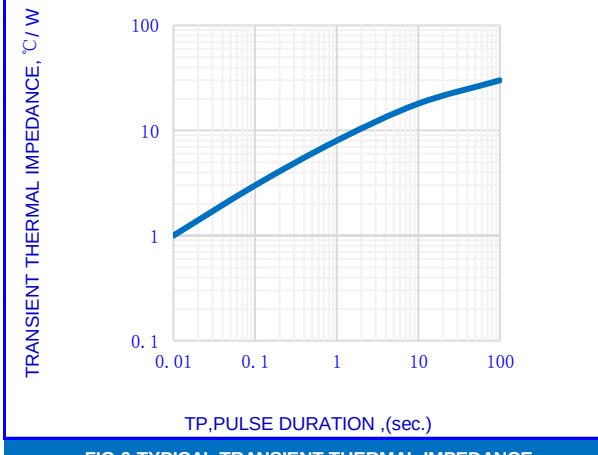

FIG.6-TYPICAL TRANSIENT THERMAL IMPEDANCE

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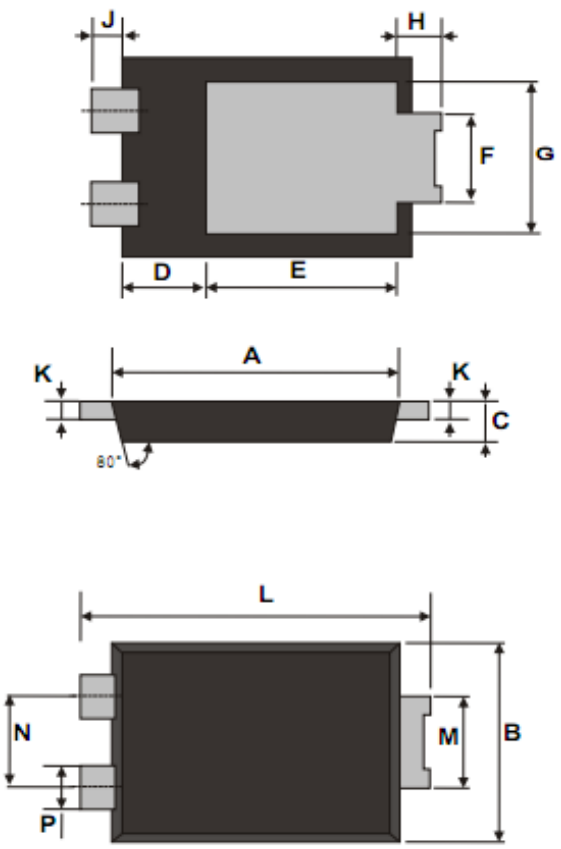
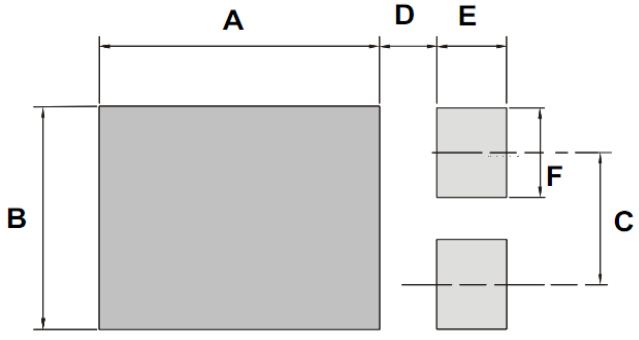
OUTLINE DRAWINGS — TO-277



OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	5.280	-	5.480	0.208	-	0.216
B	3.900	-	4.100	0.154	-	0.161
C	0.095	-	1.250	0.004	-	0.049
D	1.150	-	1.350	0.045	-	0.053
E	3.400	-	3.700	0.134	-	0.146
F	1.750	-	1.950	0.069	-	0.077
G	2.850	-	3.150	0.112	-	0.124
H	0.800	-	0.900	0.031	-	0.035
J	0.510	-	0.610	0.020	-	0.024
K	0.170	-	0.280	0.007	-	0.011
L	6.350	-	6.650	0.250	-	0.262
M	1.750	-	1.950	0.069	-	0.077
N	1.740	-	1.940	0.069	-	0.076
P	0.850	-	0.950	0.033	-	0.037

MOUNTING PAD LAYOUT — TO-277



OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	6.340	-	-	0.24961	-
B	-	2.720	-	-	0.10709	-
C	-	1.760	-	-	0.06929	-
D	-	2.290	-	-	0.09016	-

Packing Information

Package	Pack	Box Size L×W×H(mm)	Quantity (pcs/box)	Carton Size L×W×H(mm)	Quantity (box/carton)
TO-277	T/R	350×350×40	5000	360×360×310	6

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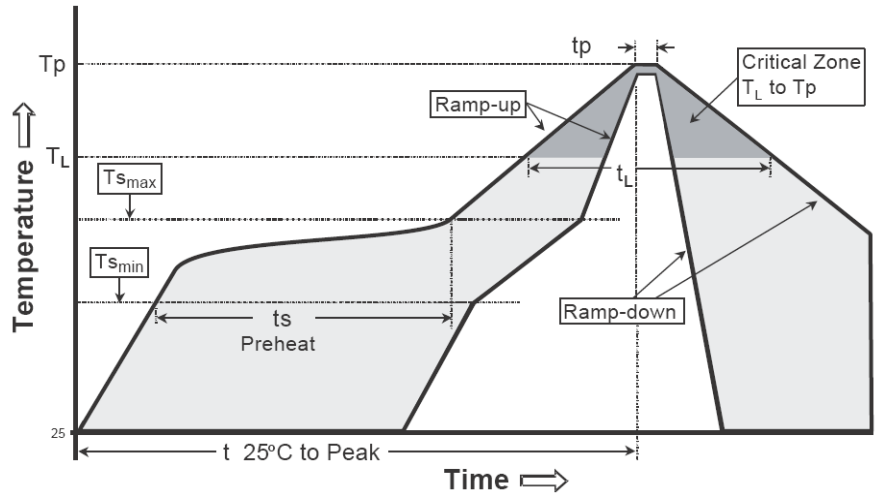
Recommended wave soldering condition

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) −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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