

SF11 THRU SF18

SUPER FAST RECOVERY RECTIFIERS



VOLTAGE 50~600 Volts

CURRENT 1.0 Amperes

DO-41 Marking and Polarity

FEATURES

- Low leakage current
- Ultrafast reverse recovery time
- High forward surge capability
- Low power loss ,high efficiency
- High temperature soldering guaranteed:260°C/10 seconds at terminals

MECHANICAL DATA

- Package:** DO-41
- Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant
- Mounting Position:** Any
- Weight:** 0.012 ounce, 0.33 grams

TYPICAL APPLICATIONS

- For use in high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer and telecommunication.

Remark:

- SF1x=Modle,x=1,2,3,4,5,6,7,8
- NH=niuhang trademark
- FF=Production line,According to actual changes;
- White band denotes cathode

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

Parameter	Symbol	SF 11	SF 12	SF 13	SF 14	SF 15	SF 16	SF 17	SF 18	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	150	200	300	400	500	600	V
Maximum RMS voltage	V_{RMS}	35	70	105	140	210	280	350	420	V
Maximum DC blocking voltage	V_{DC}	50	100	150	200	300	400	500	600	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)	I_{FSM}	30								A

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

Parameter	Symbol	SF 11	SF 12	SF 13	SF 14	SF 15	SF 16	SF 17	SF 18	Unit
Maximum instantaneous forward voltage (Note 1) @ 1.0 A	V_F	0.95			1.30			1.70		V
Maximum instantaneous reversecurrent at rated DC blockingvoltage (Note 1) Ta=25°C	I_{RRM}	5								uA
Ta=125°C		50								
Typical junction capacitance (Note 2)	C_J	35								pF
Operating junction and Storage temperature range	T_J	-55			to			150		°C
Storage temperature range	T_{STG}	-55			to			150		

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

Parameter	Symbol	SF 11	SF 12	SF 13	SF 14	SF 15	SF 16	SF 17	SF 18	Unit
Typical thermal resistance (Note 3)	$R_{\theta JA}$	25								°C/W
	$R_{\theta JL}$	8								

- Note:
- Pulse width < 300 uS, Duty cycle < 2%
 - Measured at 1MHz and applied reverse voltage of 4.0V D.C.
 - Thermal resistance from junction to lead vertical P.C.B. mounted , 0.375"(9.5mm)lead length,Polymide PCB, 2 oz Copper. Cathode pad dimensions 18.8x14.4mm , Anode pad dimensions- (5.6x14.4mm)

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RATING AND CHARACTERISTIC CURVES

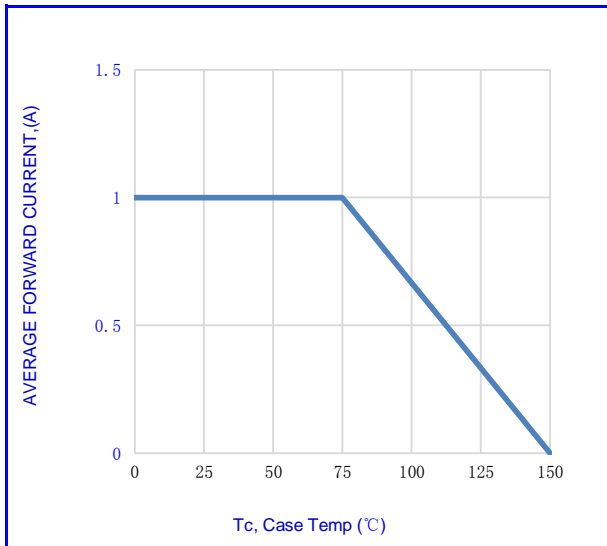


Fig.1-FORWARD CURRENT DERATING CURVE

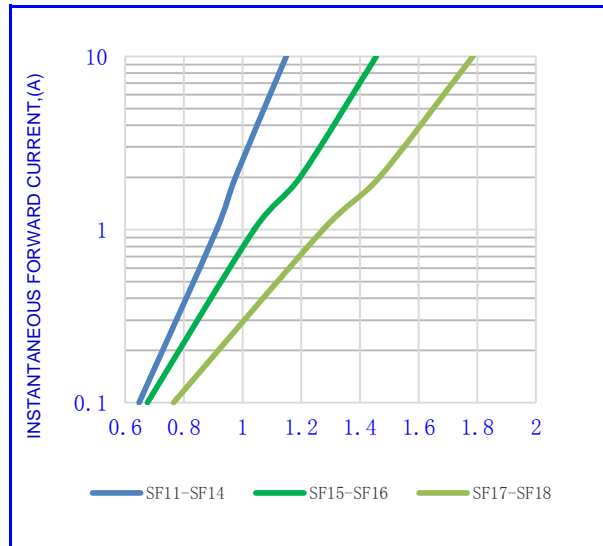


Fig.2- TYPICAL INSTANTANEOUS FORWARD

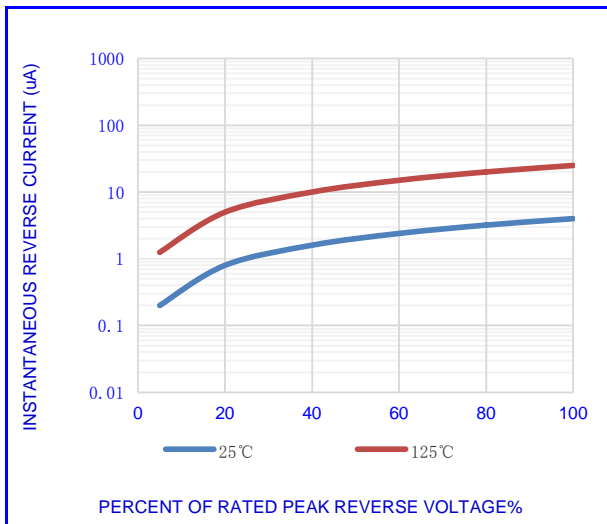


Fig.3- TYPICAL REVERSE CHARACTERISTICS

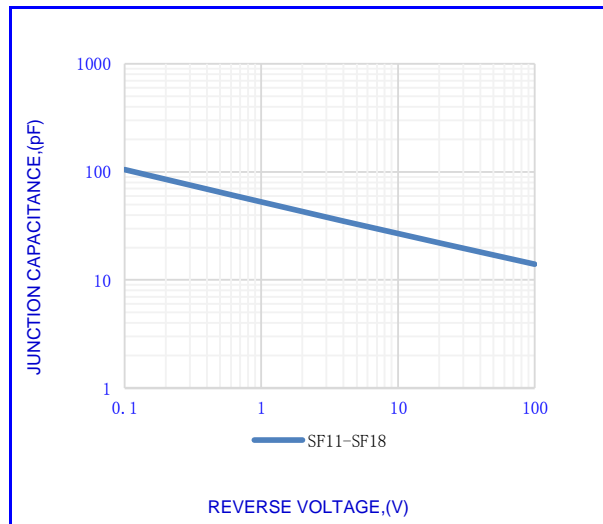


Fig.4-TYPICAL JUNCTION CAPACITANCE

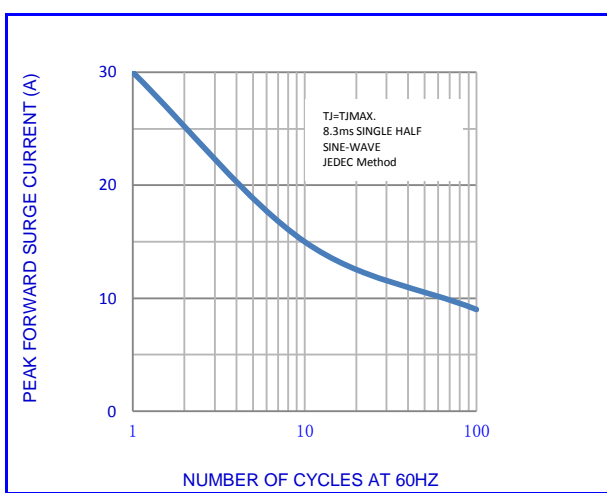


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

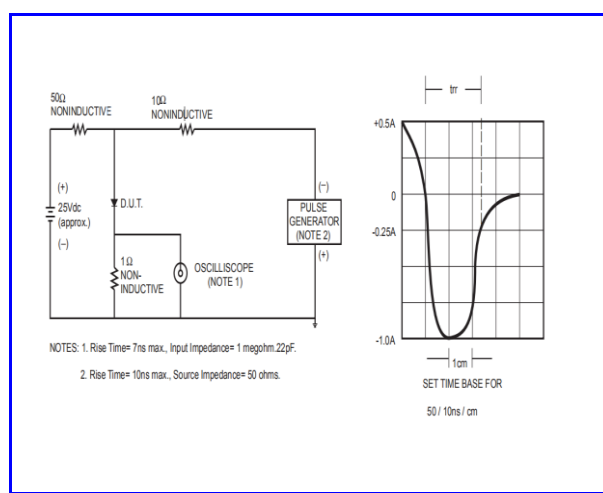


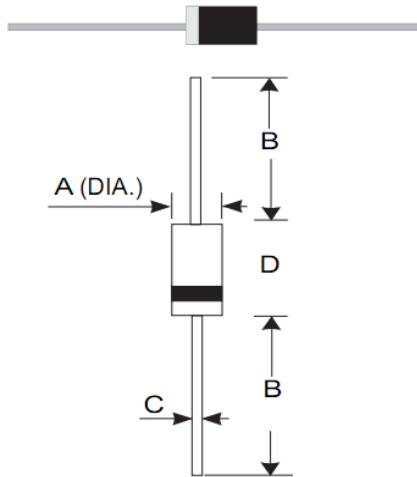
Fig.6-REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT

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OUTLINE DRAWINGS

DO-41



OUTLINE DIMENSIONS

DIM	MILLIMETERS			INCHES		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.0	-	2.8	0.079	-	0.110
B	25.1	-	-	0.988	-	-
C	0.6	-	0.9	0.024	-	0.035
D	4.2	-	5.2	0.165	-	0.205

Packing Information

Package	Pack	Box Size LxWxH(mm)	Quantity (pcs/box)	Carton Size LxWxH(mm)	Quantity (pcs/carton)
DO-41	B/G	250*75*140	5000	420*280*310	50000

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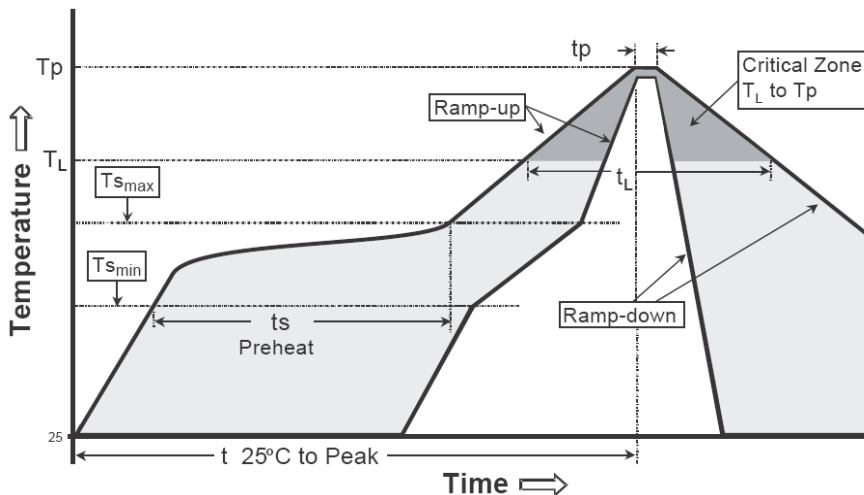
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Recommended wave soldering condition

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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