SF21 THRU SF28

SUPER FAST RECOVERY RECTIFIERS

VOLTAGE 50~600 Volts **CURRENT** 2.0 Ampers

FEATURES

Plastic package has Underwriters Laboratory Flammability Classification 94V-0
Metal silicon junction ,majority carrier conductionconduction
Guard ring for overvoltage protection
Low power loss ,high efficiency
High current capability ,ultra low forward voltage drop
High surge capability
High temperature soldering guaranteed:260℃/10 seconds at terminals
Component in accordance to RoHS 2011/65/EU

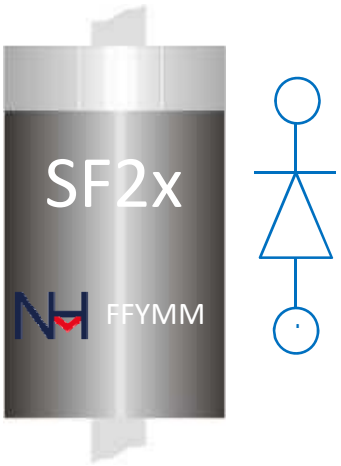
MECHANICAL DATA

Case: JEDEC DO-15 molded plastic body
Terminals: Plated axial leads, solderable per MIL-STD-750,method 2026
Polarity: color band denotes cathode end
Mounting Position: Any
Weight: App. 0.306 grams（0.0108 ounce)

TYPICAL APPLICATIONS

For use in low voltage ,high frequency inverters ,DC/DC converters,
free wheeling ,and polarity protection applications

DO-15 **Marking and Polarity**



Remark:

① SF2x=Modle,x=1,2,3,4,5,6,7,8
② NH=niuhang trademark
③ FFDDK=Inernal control code,According to actual changes
④ White band denotes cathode

Maximum Ratings and Electrical Characteristcs(Ratings at 25℃ ambient temperature unless otherwise specified)

Parameter	Symbol	SF 21	SF 22	SF 23	SF 24	SF 25	SF 26	SF 27	SF 28	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)	$IF_{(AV)}$	2.0								A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method at rated TL)	I_{FSM}	50								A

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

Parameter		Symbol	SF 21	SF 22	SF 23	SF 24	SF 25	SF 26	SF 27	SF 28	Unit
Maximum instantaneous forward voltage (Note 1)	@ 2.0 A	V_F	0.95				1.30		1.70		V
Maximum instantaneous reversecurrent at rated DC blockingvoltage (Note 1)	Ta=25℃	I_{RRM}	5								uA
	Ta=125℃		200								
Typical junction capacitance (Note 2)		C_J	32				18		13		pF
Operating junction and Storage temperature range		T_J	-55				to		150		℃
Storage temperature range		T_{STG}	-55				to		150		

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

Parameter	Symbol	SF 21	SF 22	SF 23	SF 24	SF 25	SF 26	SF 27	SF 28	Unit
Typical thermal resistance (Note 3)	$R_{\theta JA}$	50								℃/W
	$R_{\theta JL}$	16								

Note：
1. Pulse width < 300 uS, Duty cycle < 2%
2. Measured at 1MHz and applied reverse voltage of 4.0V D.C.
3. 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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RATINGANDCHARACTERISTICCURVES

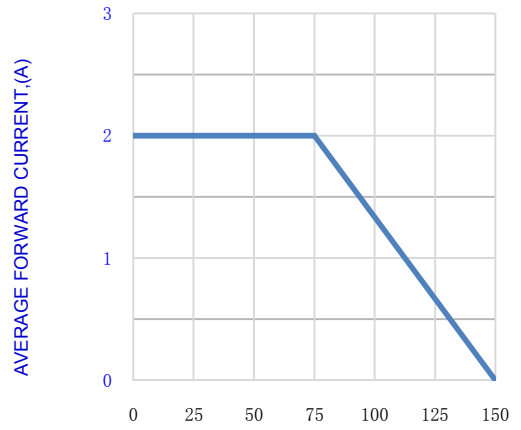

Fig.1-FORWARD CURRENT DERATING CURVE

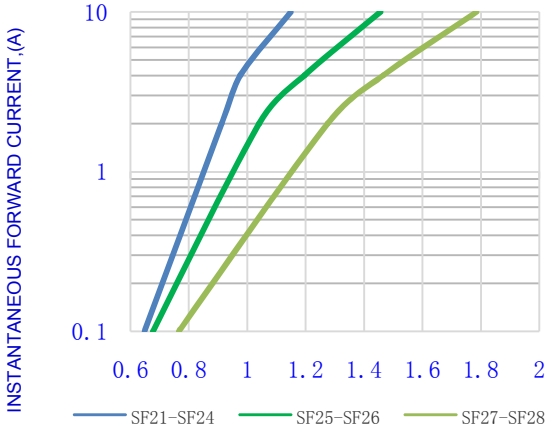

Fig.2- TYPICAL INSTANTANEOUS FORWARD

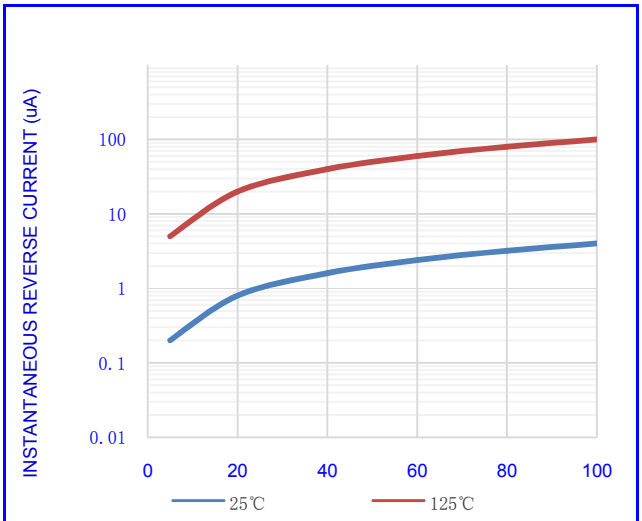

Fig.3- TYPICAL REVERSE CHARACTERISTICS

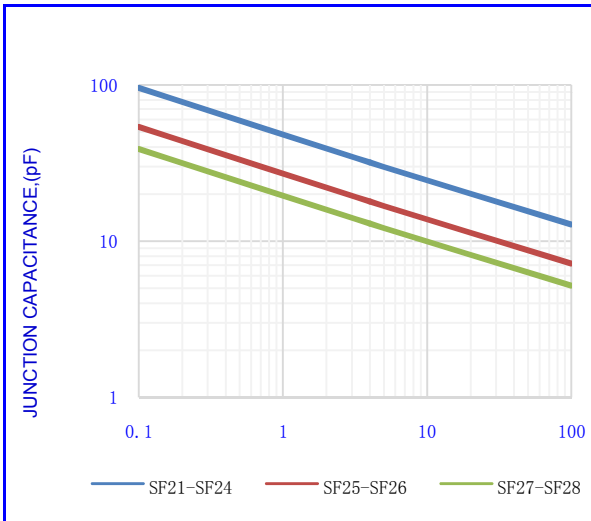

Fig.4-TYPICAL JUNCTION CAPACITANCE

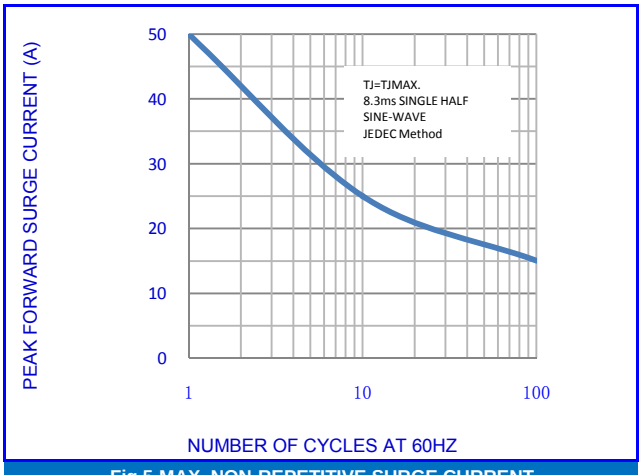

Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

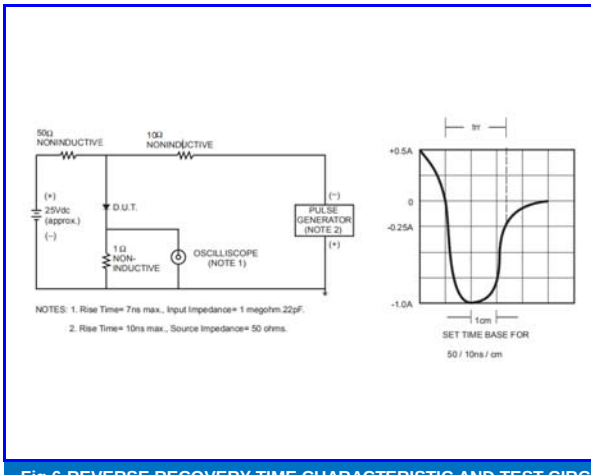

Fig.6-REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT

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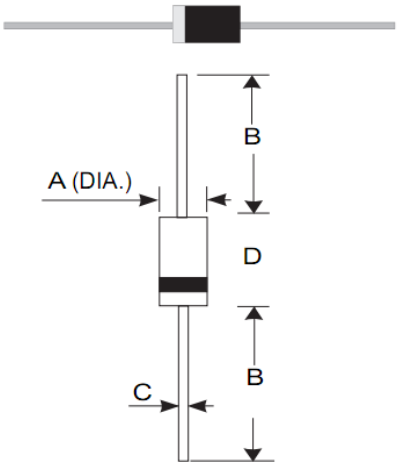
OUTLINE DRAWINGS



OUTLINE DIMENSIONS						
DIM	MILLIMETERS			INCHES		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.60	-	3.60	0.10	_	0.14
B	24.50	-	-	0.96	_	-
C	0.65	-	0.90	0.03	_	0.04
D	5.80	-	7.60	0.23	_	0.30

DO-15

Packing Information

Package	Pack	Box Size L×W×H(mm)	Quantity (pcs/box)	Carton Size L×W×H(mm)	Quantity (box/carton)
DO-15	B/P	250*75*140	3000	420*280*310	10

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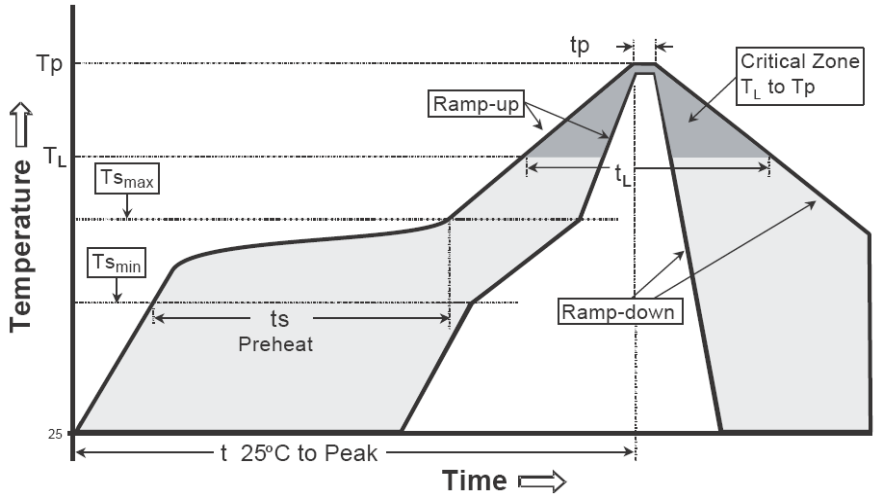
Recommended wave soldering condition

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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