SF1006DSU

ULTRA FAST RECOVERY RECTIFIERS

VOLTAGE:	600 Volts	CURRENT:	10.0 Ampers

FEATURES

- Glass passivated chip junction
- Ultrafast reverse recovery time
- Low leakage current for high reliability
- Low forward voltage drop for high efficiency
- High surge capability for high reliability
- High temperature soldering guaranteed:260℃ max./10 seconds at terminals

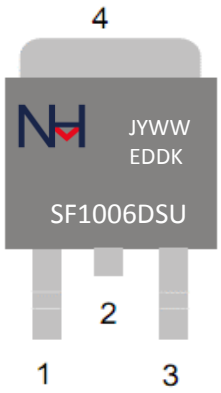
MECHANICAL DATA

- **Package:** TO-252
- **Terminals:** Plated axial leads, solderable per MIL-STD-750,method 2026
- **Polarity:** color band denotes cathode end
- **Mounting Position:** Any
- Component in accordance to RoHS 2011/65/EU
- **Weight:** App.0.325 grams（0.0113 ounce)

TYPICAL APPLICATIONS

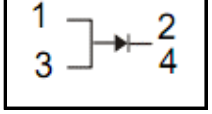
- For use in high frequency inverters ,LED Driver etc applications

TO-252 Marking and Polarity



Polarity mark

DS



Remark:

①. NH=niuhang trademark

②. J=Product line code,According to actual changes

YWW=Data code,According to actual changes

EDDK=Inter control code,According to actual changes

③. SF1006DSU=Modle

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

Parameter	Symbol	SF1006DSU	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	600	V
Maximum RMS voltage	V_{RMS}	420	V
Maximum DC blocking voltage	V_{DC}	600	V
Maximum average forward rectified current(see fig.1)	$IF_{(AV)}$	10.0	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method at rated TL)	I_{FSM}	100	A
Current Squared Time Per Diode(t<8.3ms)	I^2t	41.50	A^2sec

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

Parameter	Test Conditions	Symbol	SF1006DSU			Unit
			Min.	Typ.	Max.	
Maximum instantaneous forward voltage (Note 1)	Ta=25℃ IF= 10.0 A	V_F	--	1.3	1.7	V
Maximum instantaneous reversecurrent at rated DC blockingvoltage (Note 1)	Ta=25℃ @ V_{RRM}	I_{RRM}	--	0.1	2	uA
	Ta=125℃ @ 80%*V_{RRM}		--	50	500	
Maximum reverse recovery time	I_F=0.5A, I_R=1.0A, I_{RR}=0.25A	T_{RR}	--	50	70	ns
Typical junction capacitance	4V,1MHz	C_J	--	150	--	pF

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

Parameter	Symbol	SF1006DSU			Unit
Operating junction and storage temperature range	T_J	-55	to	150	℃
Storage temperature range	T_{STG}	-55	to	150	
Typical thermal resistance (Note 2)	$R_{\theta JA}$	50			℃/W
	$R_{\theta JL}$	6			

Note:

1. Pulse width < 300 uS, Duty cycle < 2%
2. P.C.B mounted with 10cm*10cm*1mm copper pad areas.

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RATINGANDCHARACTERISTICCURVES

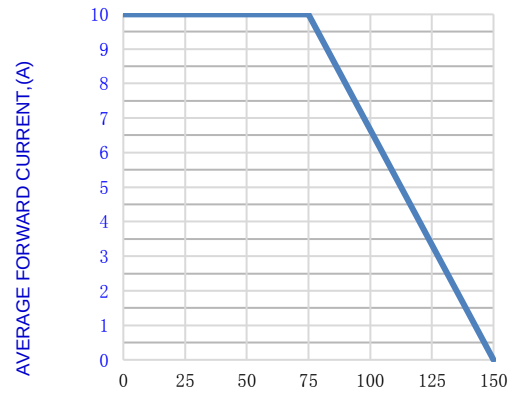

Fig.1-FORWARD CURRENT DERATING CURVE

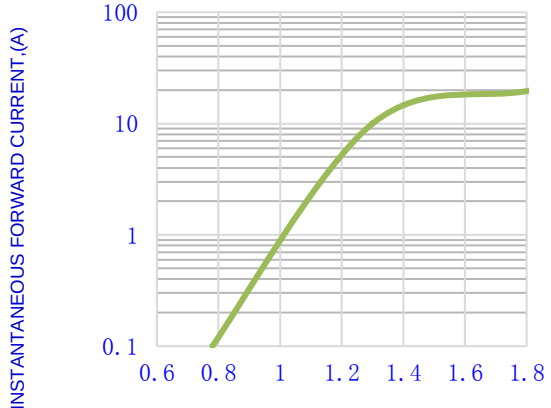

Fig.2- TYPICAL INSTANTANEOUS FORWARD

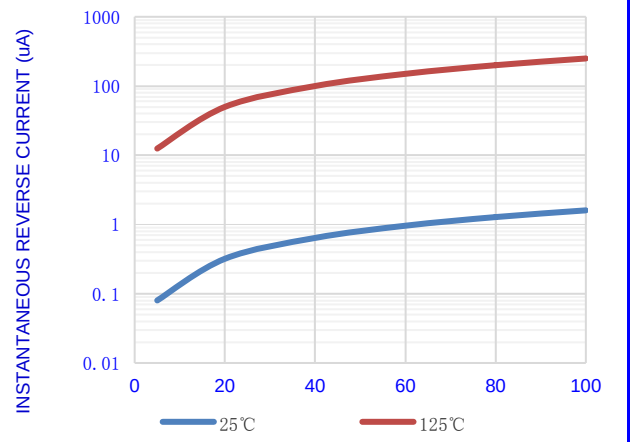

Fig.3- TYPICAL REVERSE CHARACTERISTICS

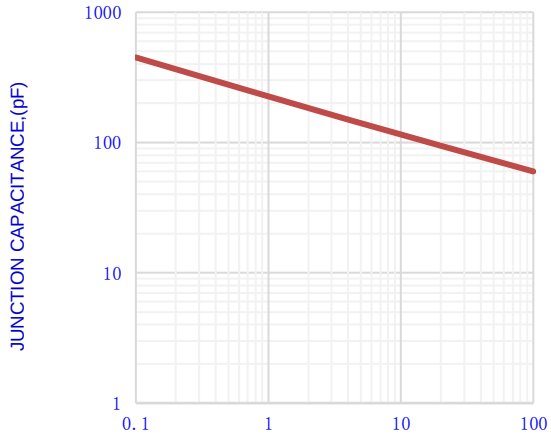

Fig.4-TYPICAL JUNCTION CAPACITANCE

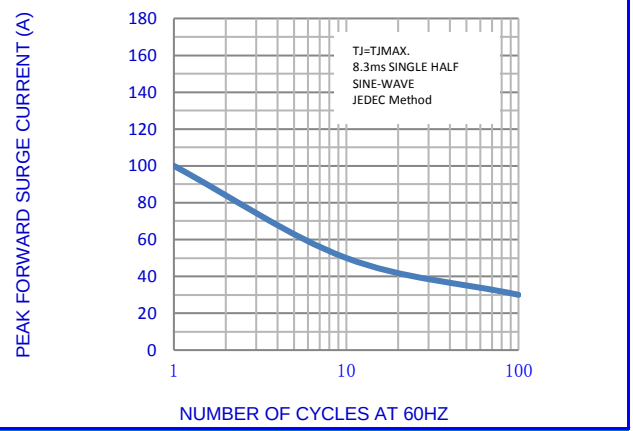

Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

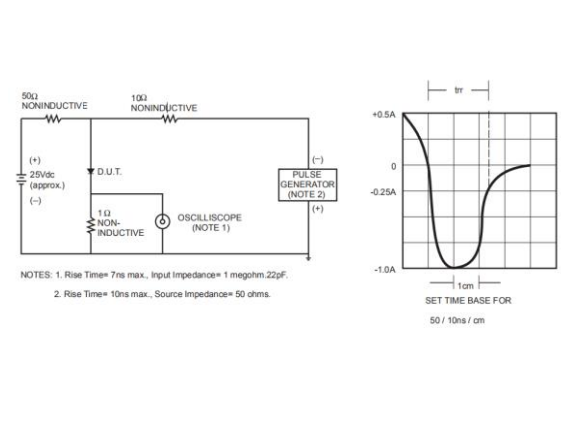

Fig.6-REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT

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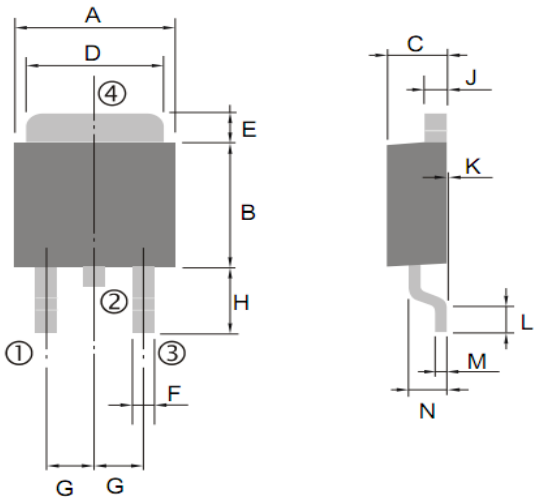
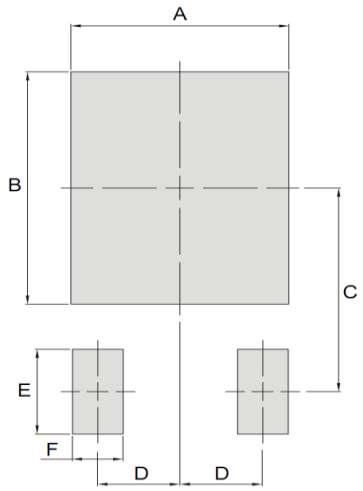
OUTLINE DRAWINGS — TO-252



OUTLINE DIMENSIONS						
DIM.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	6.400	-	6.800	0.252	-	0.268
B	5.200	-	6.200	0.205	-	0.244
C	2.100	-	2.500	0.083	-	0.098
D	4.800	-	5.500	0.189	-	0.217
E	1.000	-	1.600	0.039	-	0.063
F	0.500	-	1.000	0.020	-	0.039
G	2.100		2.500	0.083		0.098
H	2.800	-	3.500	0.110	-	0.138
J	0.400	-	0.600	0.016	-	0.024
K	-	0.080	-		0.003	-
L	0.900	-	1.400	0.035		0.055
M	-	0.500	-		0.020	-
N	1.300	-	1.800	0.051	-	0.071

RECOMMEDNED LAYOUT DRAWINGS — TO-252



RECOMMENDED LAYOUT DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	6.09	-	-	0.24	-
B	-	7.57	-	-	0.298	-
C	-	6.64	-	-	0.261	-
D	-	2.3	-	-	0.091	-
E	-	2.76	-	-	0.109	-
F	-	1.42	-	-	0.056	-

PACKING INFORMATION — TO-252

Package Method	Reel Size (mm)	Quantity (pcs/reel)	Inner Box Size L×W×H(mm)	Quantity (pcs/Inner Box)	Outer Carton Size L×W×H(mm)	Quantity (pcs/carton)
Tape Reel	Φ330	2500	340×340×50	5000	360×360×260	25000

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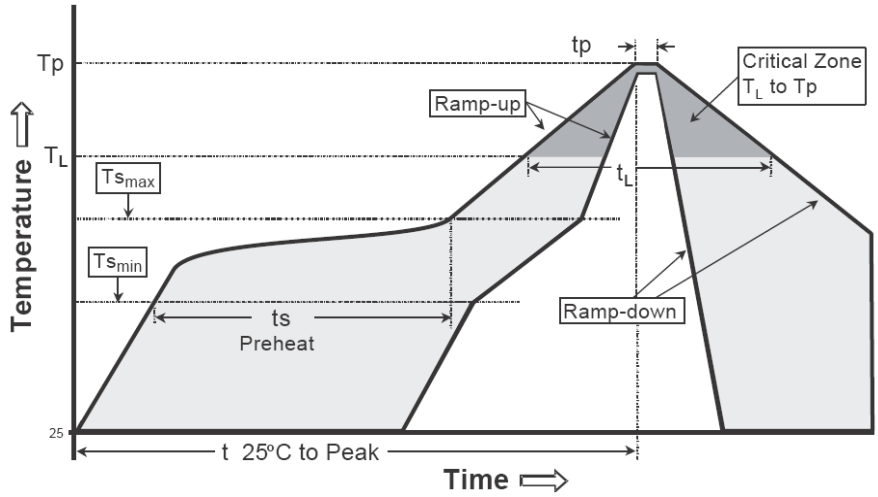
Recommended wave soldering condition

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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