

SFF1006DSU

ULTRA FAST RECOVERY RECTIFIERS



VOLTAGE: 600 Volts

CURRENT: 10.0 Amper

TO-252

Marking and Polarity

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°C 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

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. SFF1006DSU=Modle

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

Parameter	Symbol	SFF1006DSU	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)	$I_{F(AV)}$	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 ² sec

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

Parameter	Test Conditions	Symbol	SFF1006DSU			Unit
			Min.	Typ.	Max.	
Maximum instantaneous forward voltage (Note 1)	Ta=25°C IF= 10.0 A	V_F	--	1.4	1.7	V
Maximum instantaneous reversecurrent at rated DC blockingvoltage (Note 1)	Ta=25°C @ V_{RRM}	I_{RRM}	--	0.1	2	uA
	Ta=125°C @ 80%* V_{RRM}		--	50	500	
Maximum reverse recovery time	$I_F=0.5A, I_R=1.0A, I_{RR}=0.25A$	T_{RR}	--	35	50	ns
Typical junction capacitance	4V, 1MHz	C_J	--	50	--	pF

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

Parameter	Symbol	SFF1006DSU			Unit
Operating junction and storage temperature range	T_J	-55	to	150	°C
Storage temperature range	T_{STG}	-55	to	150	
Typical thermal resistance (Note 2)	$R_{\theta JA}$	50			°C/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.

SFF1006DSU

ULTRA FAST RECOVERY RECTIFIERS



RATING AND CHARACTERISTIC CURVES

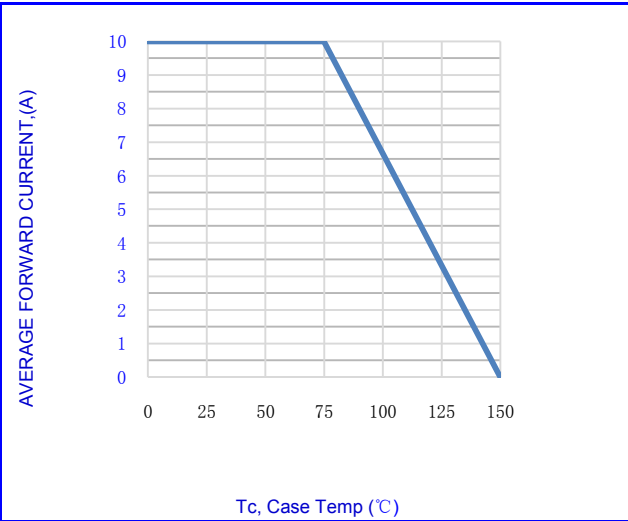


Fig.1-FORWARD CURRENT DERATING CURVE

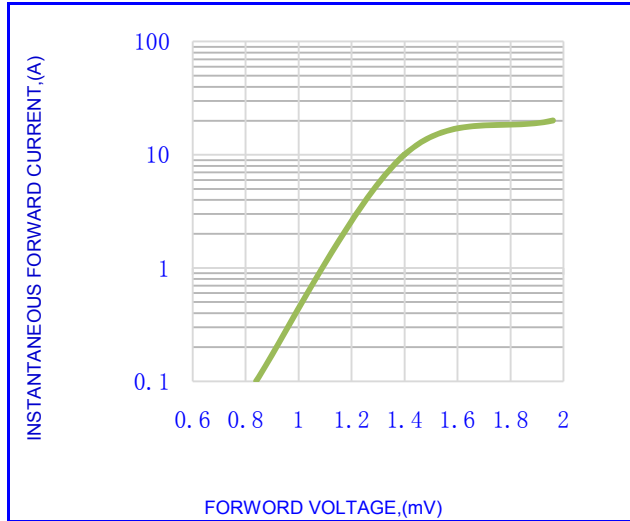


Fig.2- TYPICAL INSTANTANEOUS FORWARD

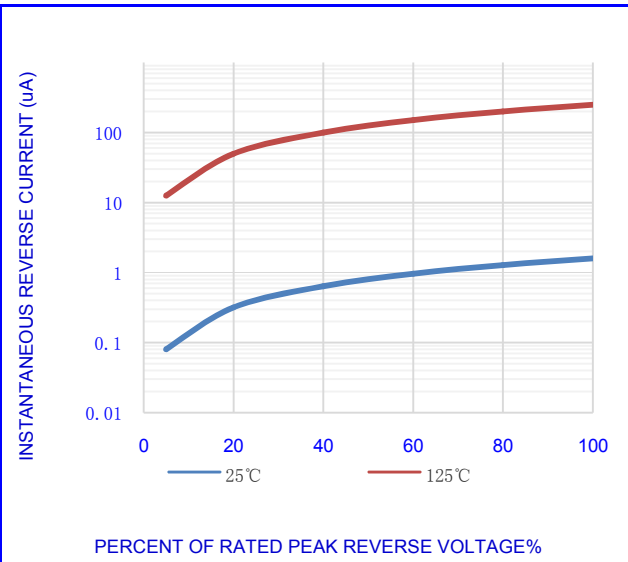


Fig.3- TYPICAL REVERSE CHARACTERISTICS

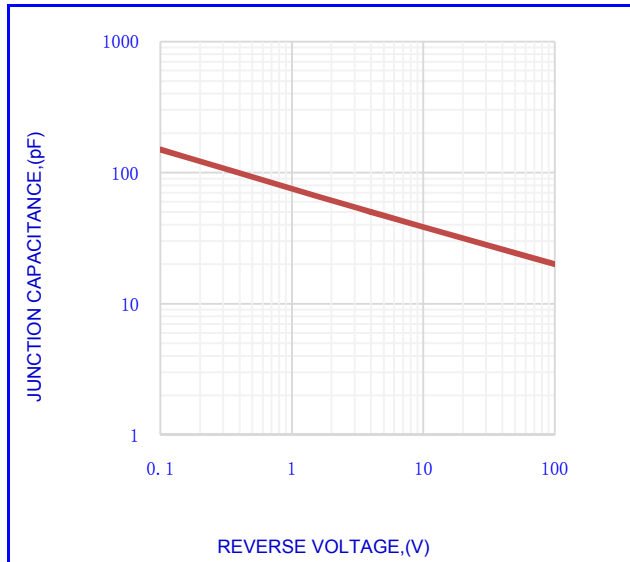


Fig.4-TYPICAL JUNCTION CAPACITANCE

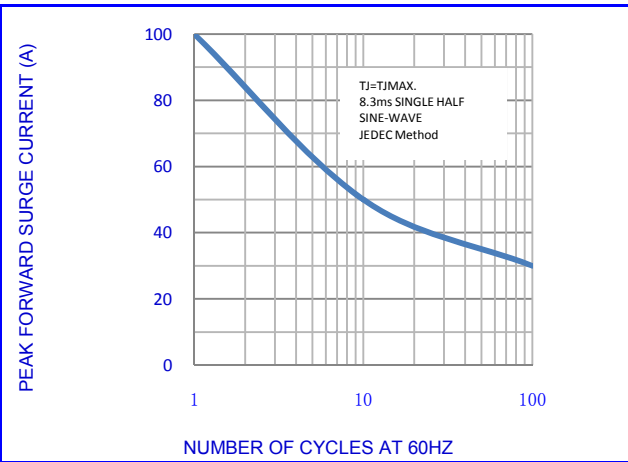


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

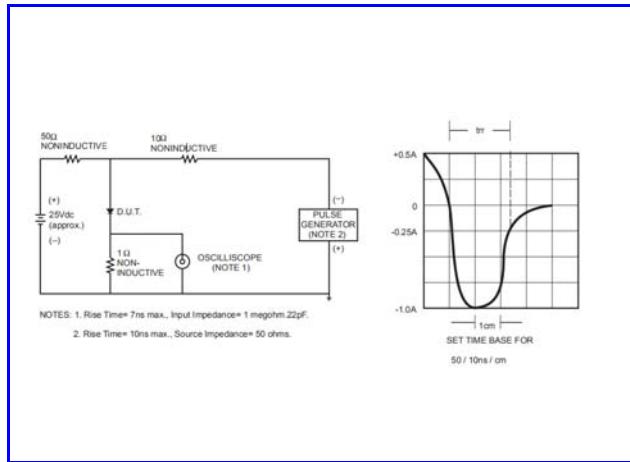


Fig.6-REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT

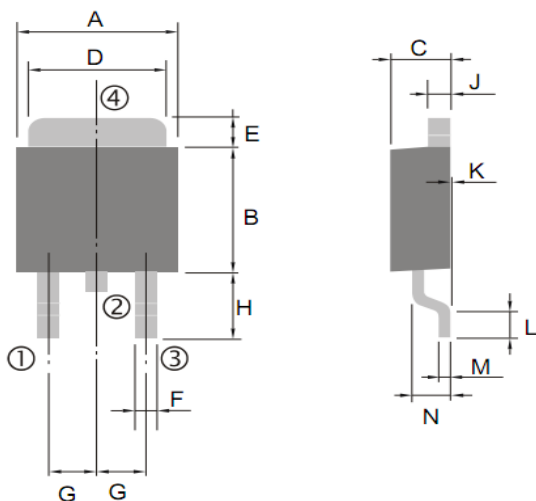
SFF1006DSU

ULTRA FAST RECOVERY RECTIFIERS



OUTLINE DRAWINGS

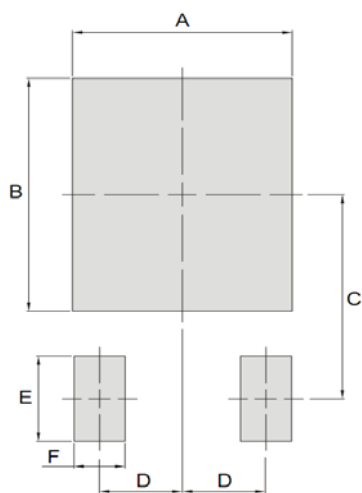
TO-252



OUTLINE DIMENSIONS						
DIM.	Millimeters			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

RECOMMENDED LAYOUT DRAWINGS

TO-252



RECOMMENDED LAYOUT DIMENSIONS						
Dim.	Millimeters			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

SFF1006DSU

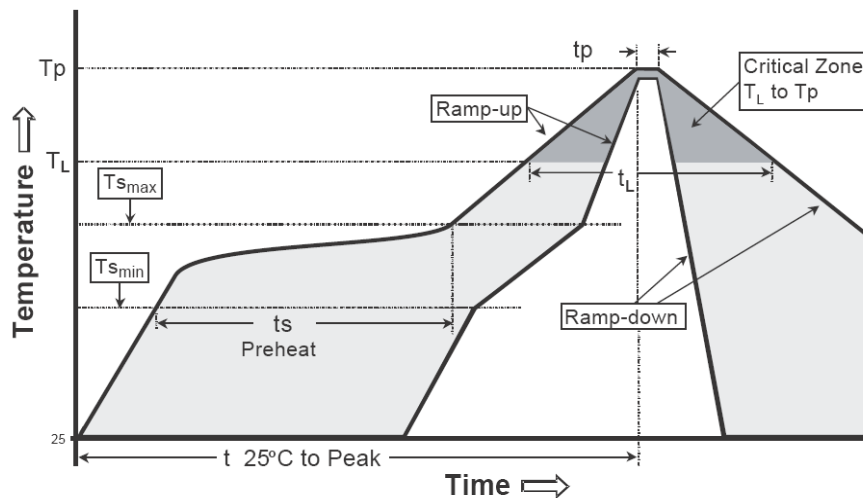
ULTRA FAST RECOVERY RECTIFIERS



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 (T _{smax} to T _p)	3°C/second max.	3°C/second max.
Preheat -Temperature Min(T _S min) -Temperature Max(T _S max) -Time(t _s min to t _s max)	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
Time maintained above: -Temperature (T _L) - Time (t _L)	183°C 60-150 seconds	217°C 60-150 seconds
Peak Temperature(T _P)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(t _p)	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.

SFF1006DSU

ULTRA FAST RECOVERY RECTIFIERS



Disclaimer

- Reproducing and modifying information of the document is prohibited without permission from niuhang Electronics co., LTD
- Niuhan Electronics co., LTD. reserves the rights to make changes of the content herein the document anytime without notification.
- Niuhan Electronics co., LTD. disclaims any and all liability arising out of the application or use of any product including damages incidentally and consequentially occurred.
- Niuhan Electronics co., LTD. does not assume any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.
- Applications shown on the herein document are examples of standard use and operation. Customers are responsible in comprehending the suitable use in particular applications. Niuhan Electronics co., LTD. makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.
- The products shown herein are not designed and authorized for equipments requiring high level of reliability or relating to human life and for any applications concerning life-saving or life-sustaining, such as medical instruments, transportation equipment, aerospace machinery et cetera. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Niuhan Electronics co., LTD. for any damages resulting from such improper use or sale.
- When the appearance of the product and chip size does not change, in order to product the customer quality, change the internal structure and the production process Niuhan can not notify