

A1 THRU A7

SURFACE MOUNT GENERAL PURPOSE RECTIFIERS



VOLTAGE: 50~1000 Volts

CURRENT: 1.0 Amperes

SOD-123FL

Marking and Polarity

FEATURES

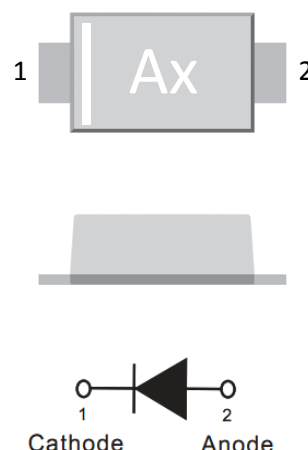
- Glass passivated chip junction
- Low Forward Voltage Drop for high efficiency
- Low leakage current for high reliability
- High forward surge capability for high reliability

MECHANICAL DATA

- **Terminals:** Plated Leads Solderable per MIL-STD-202, Method 208
- **Mounting Position:** Any
- **Lead Free:** Lead Free Finish, RoHS Compliant
- **Weight:** App. 0.0161 grams (0.0006 ounce)

TYPICAL APPLICATIONS

- For use in small signal applications



Remark:

- ①. NH=niuhang trademark
- ②. Ax=Module, x=1,2,3,4,5,6,7
- ③. White band denotes cathode

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

Parameter	Symbol	A1	A2	A3	A4	A5	A6	A7	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	200	400	600	800	1000	V
Maximum RMS voltage	V_{RMS}	35	70	140	280	420	560	700	V
Maximum DC blocking voltage	V_{DC}	50	100	200	400	600	800	1000	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)(see fig.5)	I_{FSM}	30							A
Current Squared Time Per Diode($t < 8.3ms$)	I^2t	3.74							A ² sec

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

Parameter	Test Conditions		Symbol	A1	A2	A3	A4	A5	A6	A7	Unit
Maximum instantaneous forward voltage (see fig.2) (Note 1)	$T_A = 25^\circ C$	$I_F = 1.0 A$	V_F	1.1							V
Maximum instantaneous reverse current at rated DC blocking voltage (see fig.3)(Note 1)	$T_A = 25^\circ C$ $T_A = 125^\circ C$	$V_R = V_{RRM}$ $V_R = 80\% V_{RRM}$	I_R	5 200							μA
Typical junction capacitance(see fig.4)	4V, 1MHz		C_J	10			6				pF

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

Parameter	Symbol	A1	A2	A3	A4	A5	A6	A7	Unit
Operating junction	T _J	-55 to 150							°C
Storage temperature range	T _{STG}	-55 to 150							
Typical thermal resistance (Note 2)	R _{θJA}	70							°C/W
	R _{θJC}	20							

Note: 1. Pulse width < 300 μs , Duty cycle < 2%

2. P. C. B mounted with 0.1"×0.1"(2.54 x 2.54 mm) copper Pad Areas

A1 THRU A7

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RATING AND CHARACTERISTIC CURVES

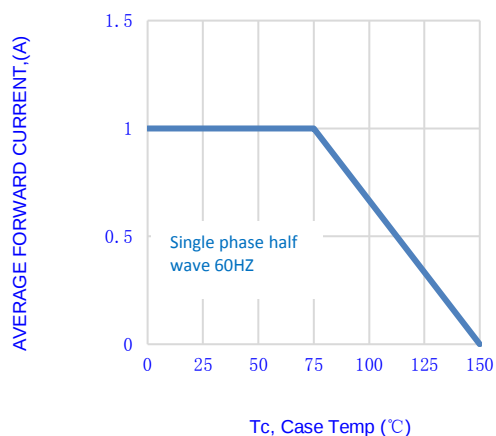


Fig.1- FORWARD CURRENT DERATING CURVE

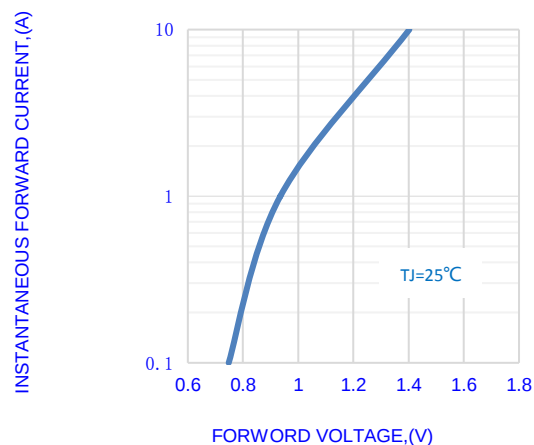


Fig.2-TYPICAL INSTANTANEOUS FORWARD

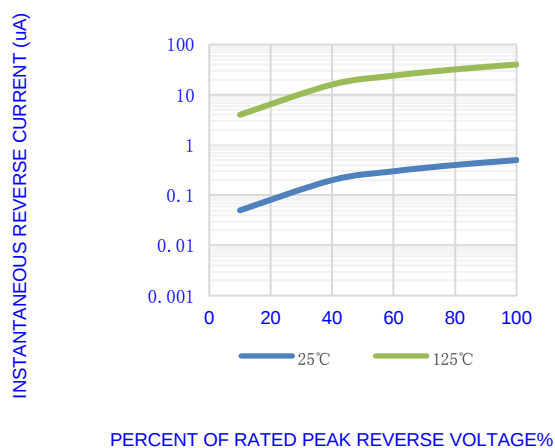


Fig.3-TYPICAL REVERSE CHARACTERISTICS

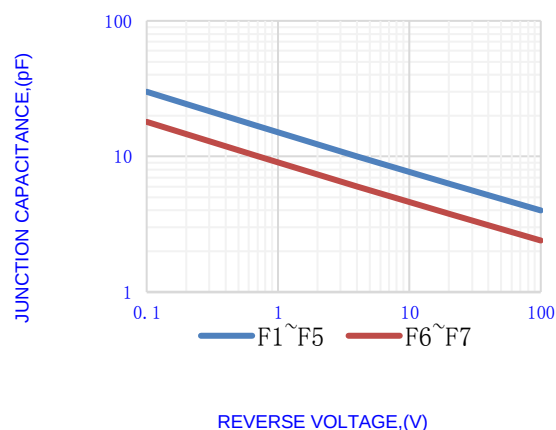


Fig.4- TYPICAL JUNCTION CAPACITANCE

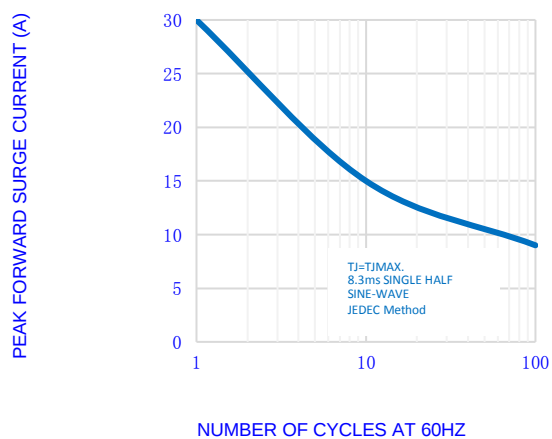


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

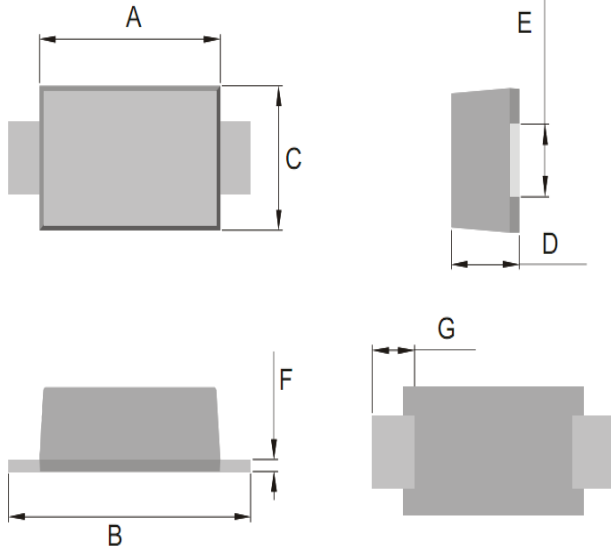
A1 THRU A7

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OUTLINE DRAWINGS

SOD-123FL

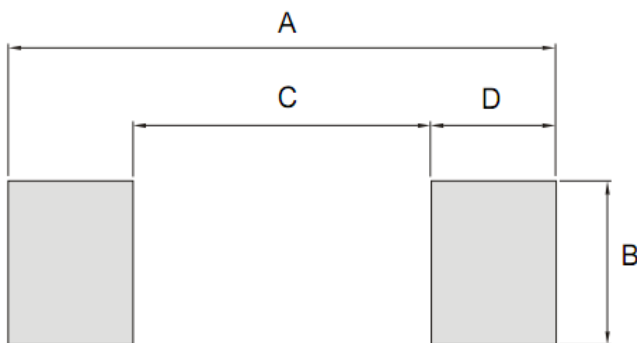


OUTLINE DIMENSIONS

Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.650	-	2.900	0.106	-	0.115
B	3.500	-	3.700	0.137	-	0.145
C	1.700	-	1.900	0.067	-	0.075
D	0.900	-	1.100	0.035	-	0.043
E	0.900	-	1.100	0.035	-	0.043
F	0.100	-	0.250	0.004	-	0.100
G	0.450	-	0.750	0.017	-	0.030

RECOMMENDED LAYOUT DRAWINGS

SOD-123FL



RECOMMENDED MOUNTING PAD DIMENSIONS

Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	4.250	-	-	0.167	-
B	-	1.220	-	-	0.048	-
C	-	2.700	-	-	0.106	-
D	-	0.780	-	-	0.031	-

PACKING INFORMATION

SOD-123FL

Package Method	Reel Size (mm)	Quantity (pcs/reel)	Inner Box Size L×W×H(mm)	Quantity (pcs/Inner Box)	Carton Size L×W×H(mm)	Quantity (pcs/carton)
Tape Reel	Φ180	3000	185×185×90	21000	400×400×300	252000

A1 THRU A7

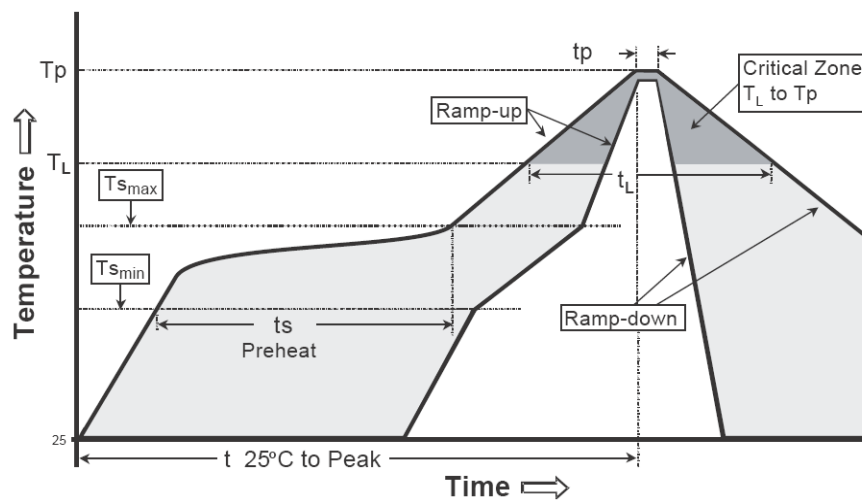
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Recommended wave soldering condition

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.

A1 THRU A7

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