

U1A THRU U1M

SURFACE MOUNT ULTRAFAST RECTIFIERS



VOLTAGE: 50~1000 Volts	CURRENT: 1.0 Amperes	SOD-123FL	Marking and Polarity
FEATURES			
<ul style="list-style-type: none"> ■ The plastic package carries Underwriters Laboratory Flammability Classification 94V-0 ■ Idea for printed circuit board ■ Glass passivated Junction chip ■ Low reverse leakage ■ High forward surge current capability ■ High temperature soldering guaranteed 250°C/10 seconds at terminals 			
MECHANICAL DATA		<p>Remark:</p> <p>(1).NH=niuhang trademark;</p> <p>(2).FF=Production line,According to actual changes;</p> <p>YMM=Period code,According to actual changes;</p> <p>(3).Ux=Modle;X=A,B,D,G,J,K,M</p> <p>(4).White edge=Polarity mark</p>	
<ul style="list-style-type: none"> ■ Case: Molded Plastic ■ Epoxy: UL 94V-0 rate flame retardant ■ Polarity : Polarity symbol marking on body ■ Mounting position: Any ■ Weight: App. 0.0161 grams (0.0006 ounce) 			
TYPICAL APPLICATIONS			
<ul style="list-style-type: none"> ■ For use in low voltage ,high frequency inverters ,DC/DC converters,LED driver, free wheeling ,and polarity protection applications 			

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

Parameter	Symbol	U1A	U1B	U1D	U1G	U1J	U1K	U1M	Unit
	Mark	UA	UB	UD	UG	UJ	UK	UM	
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)	I_{FSM}	30							A
Maximum instantaneous forward voltage at 1.0 A (Note 1)	V_F	1		1.4		1.7			V
Maximum instantaneous reversecurrent at rated DC blockingvoltage (Note 2)	I_{RRM}	5							uA
$T_A=25^{\circ}C$		100							
Maximum Reverse Recovery Time (Note 3)	T_{RR}	50				75			nS
Typical junction capacitance (Note 4)	C_J	15							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	U1A THRU U1M	Unit
Typical thermal resistance (Note 5)	$R_{\theta JA}$	180	°C/W
	$R_{\theta JL}$	20	

- Note: 1.Pulse test: 300 μ s pulse width,1% duty cycle
- 2.Pulse test: pulse width \leq 40ms
3. Reverse Recovery Time test condition: $I_F=0.5A$, $I_R=1.0A$, $IRR=0.25A$
- 4.Measured at 1MHz and applied reverse voltage of 4.0V D.C.
- 5.Thermal resistance from junction to lead vertical P.C.B. mounted , 0.375"(9.5mm)lead length

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RATING AND CHARACTERISTIC CURVES

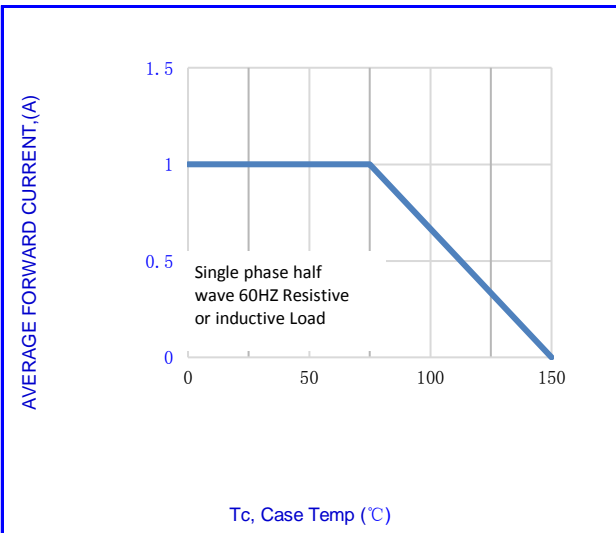


Fig.1-FORWARD CURRENT DERATING CURVE

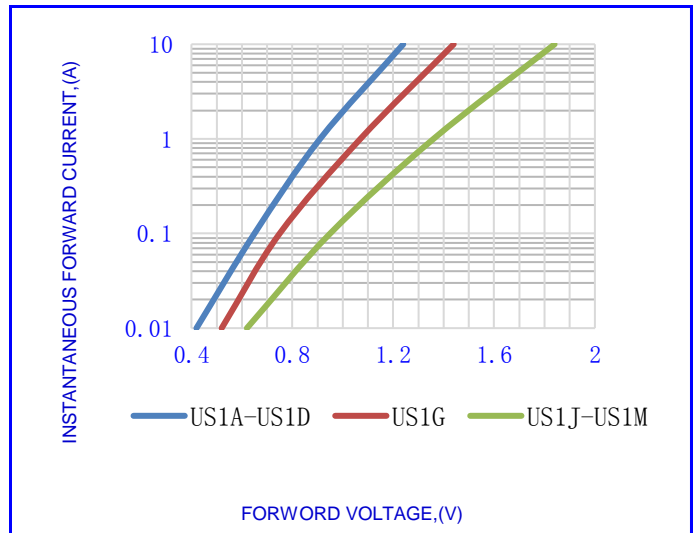


Fig.2- TYPICAL INSTANTANEOUS FORWARD

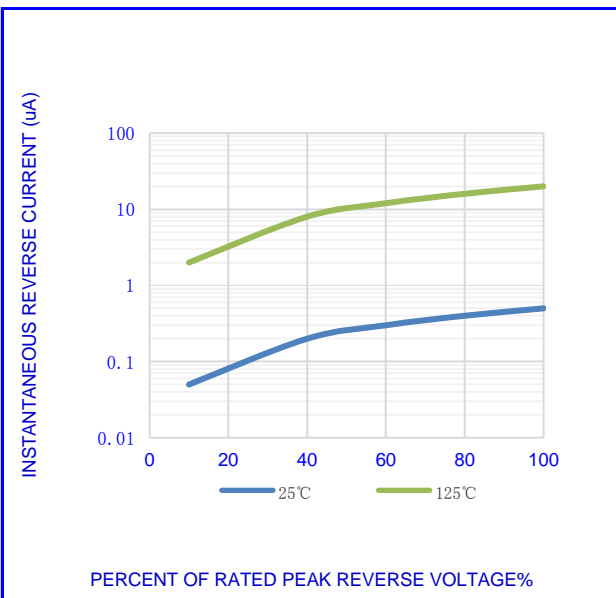


Fig.3- TYPICAL REVERSE CHARACTERISTICS

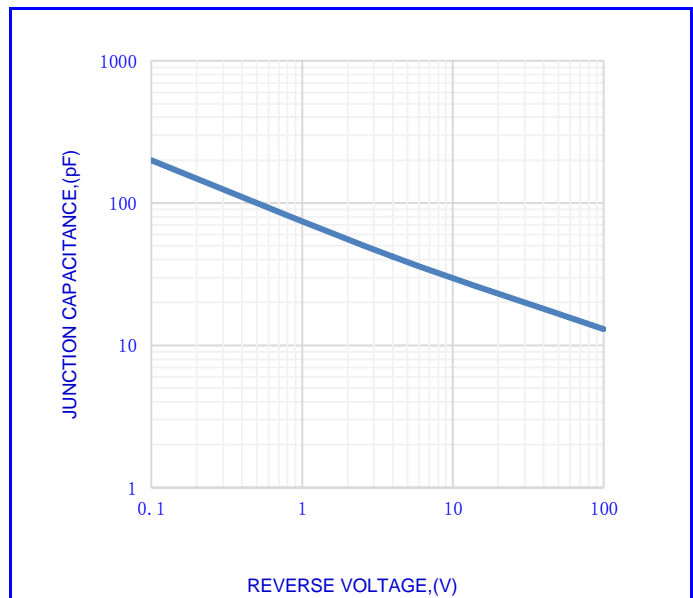


Fig.4- TYPICAL JUNCTION CAPACITANCE

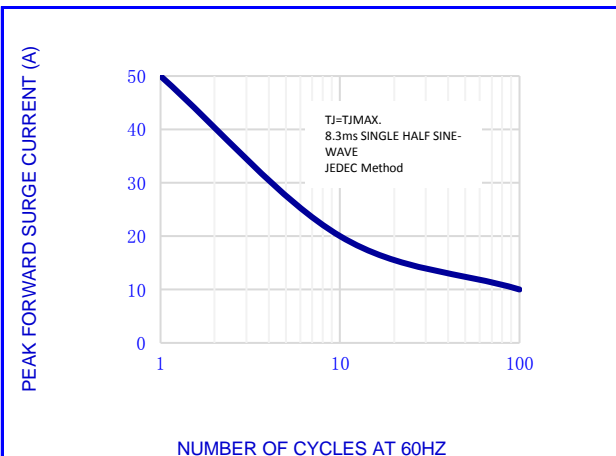
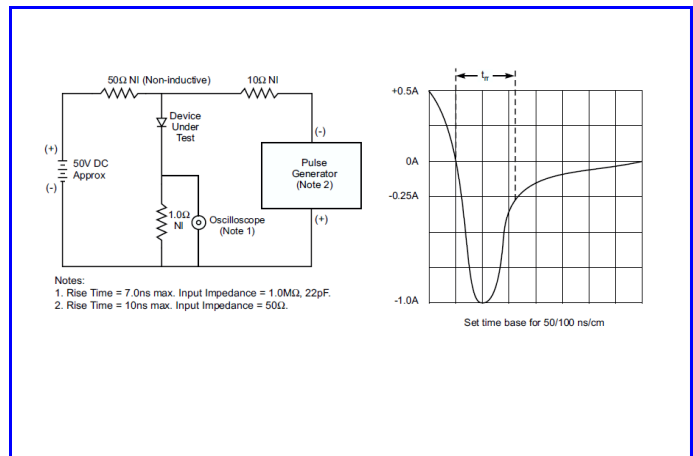


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT



Notes:
1: Rise Time = 7.0ns max. Input Impedance = 1.0MΩ, 22pF.
2: Rise Time = 10ns max. Input Impedance = 50Ω.

Fig.6-REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT

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PACKING INFORMATION				SOD-123FL		
Package Method	Reel Size (mm)	Quantity (pcs/reel)	Inner Box Size	Quantity (pcs/Inner Box)	Carton Size LxWxH(mm)	Quantity (pcs/carton)
Tape Reel	Φ180	3000	185×185×90	21000	400×400×300	252000

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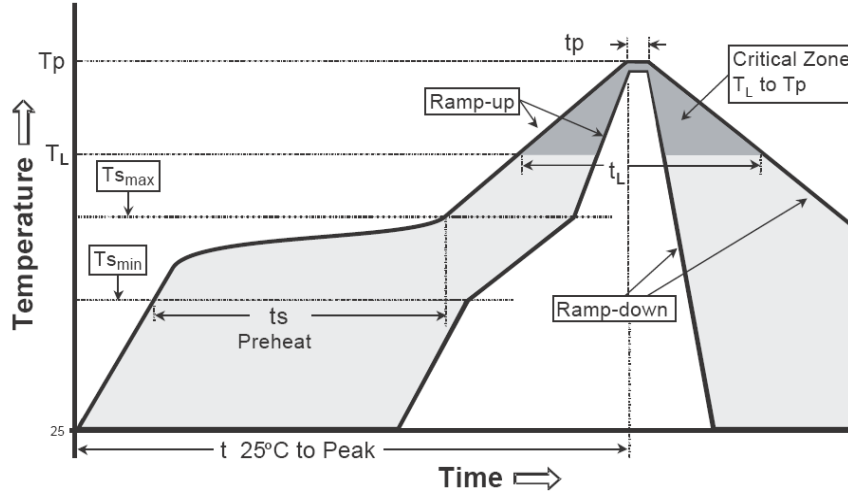
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Recommended wave soldering condition

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 (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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