

1N4001 THRU 1N4007

GENERAL PURPOSE RECTIFIERS



VOLTAGE: 50~1000 Volts

CURRENT: 1.0 Amperes

DO-41

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 axial leads, solderable per MIL-STD-750,method 2026
- **Mounting Position:** Any
- **Lead Free:** Lead Free Finish, RoHS Compliant
- **Weight:**App. 0.208 grams

TYPICAL APPLICATIONS

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



Remark:

- ①. NH=niuhang trademark
- ②. 1N400x=Mode,x=1,2,3,4,5,6,7
- ③. FF=Production line,According to actual changes

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

Parameter	Symbol	1N 4001	1N 4002	1N 4003	1N 4004	1N 4005	1N 4006	1N 4007	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	Symbol	1N 4001	1N 4002	1N 4003	1N 4004	1N 4005	1N 4006	1N 4007	Unit
Maximum instantaneous forward voltage (see fig.2) (Note 1)	V_F	1.0							V
Maximum instantaneous reverse current at rated DC blocking voltage (see fig.3)(Note 1)	I_R	5							uA
Typical junction capacitance(see fig.4)	C_J	15							pF

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

Parameter	Symbol	1N 4001	1N 4002	1N 4003	1N 4004	1N 4005	1N 4006	1N 4007	Unit
Operating junction	T_J	-65 to 150							°C
Storage temperature range	T_{STG}	-65 to 150							
Typical thermal resistance (Note 2)	$R_{\theta JA}$	50							°C/W
	$R_{\theta JC}$	18							

Note: 1.Pulse width < 300 uS, Duty cycle < 2%
2.P. C. B mounted with 0.1"*0.1"(2.54 x 2.54 mm) copper Pad Areas

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RATING AND CHARACTERISTIC CURVES

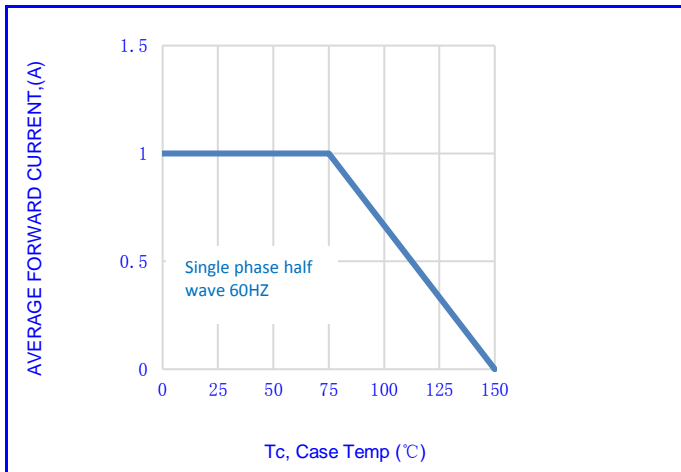


Fig.1- FORWARD CURRENT DERATING CURVE

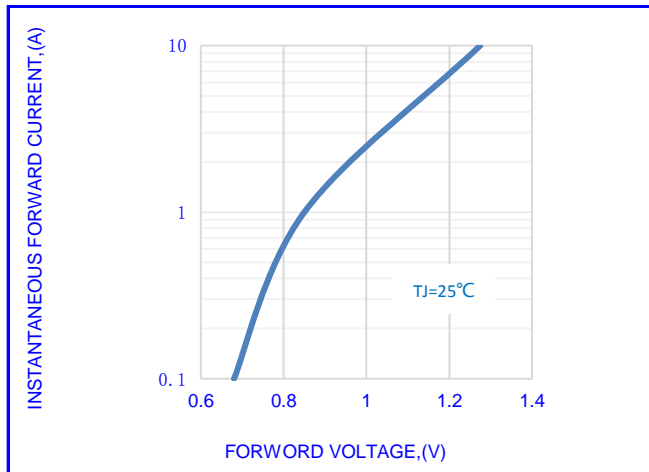


Fig.2-TYPICAL INSTANTANEOUS FORWARD

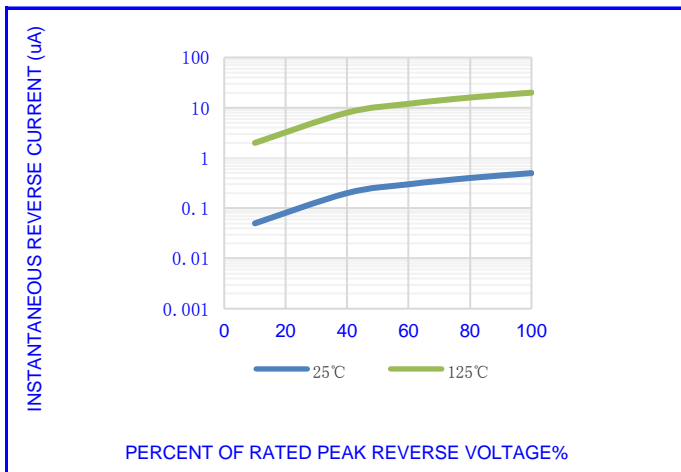


Fig.3-TYPICAL REVERSE CHARACTERISTICS

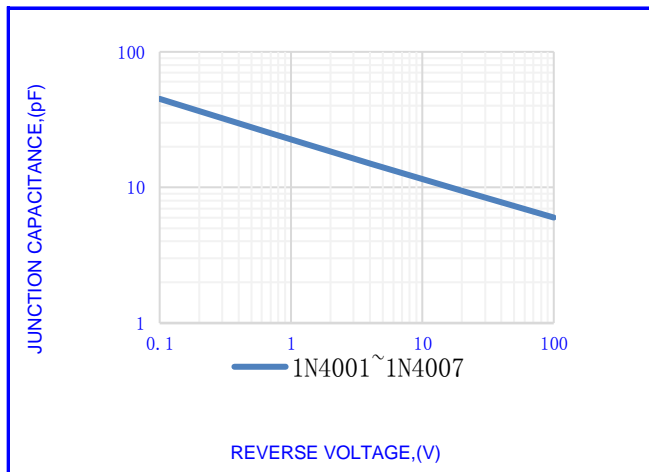


Fig.4- TYPICAL JUNCTION CAPACITANCE

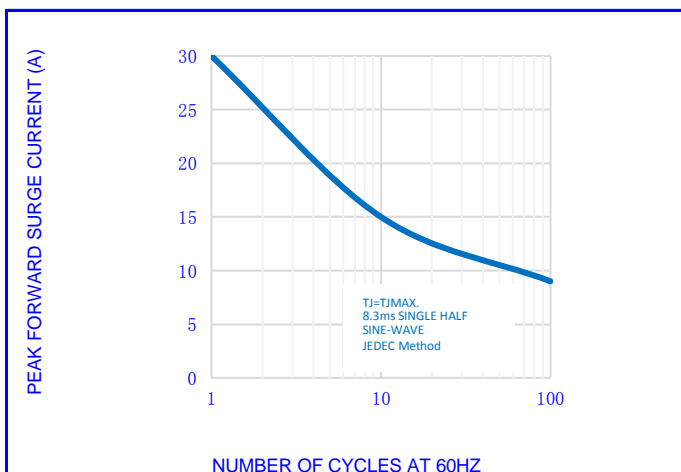


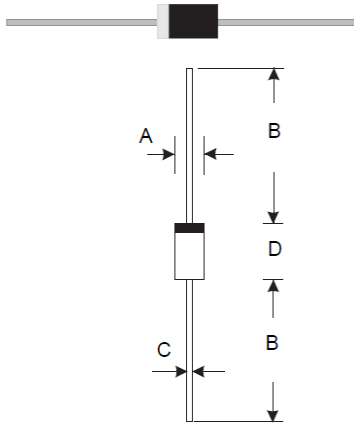
Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

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OUTLINE DRAWINGS

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OUTLINE DIMENSIONS

Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.0	-	2.8	0.079	-	0.110
B	25.1	-	-	0.988	-	-
C	0.6	-	0.9	0.024	-	0.035
D	4.2	-	5.2	0.165	-	0.205

Packing Information

Package	Pack	Box Size LxWxH(mm)	Quantity (pcs/box)	Carton Size LxWxH(mm)	Quantity (pcs/carton)
DO-41	B/G	264*74*135	5000	420*280*310	50000

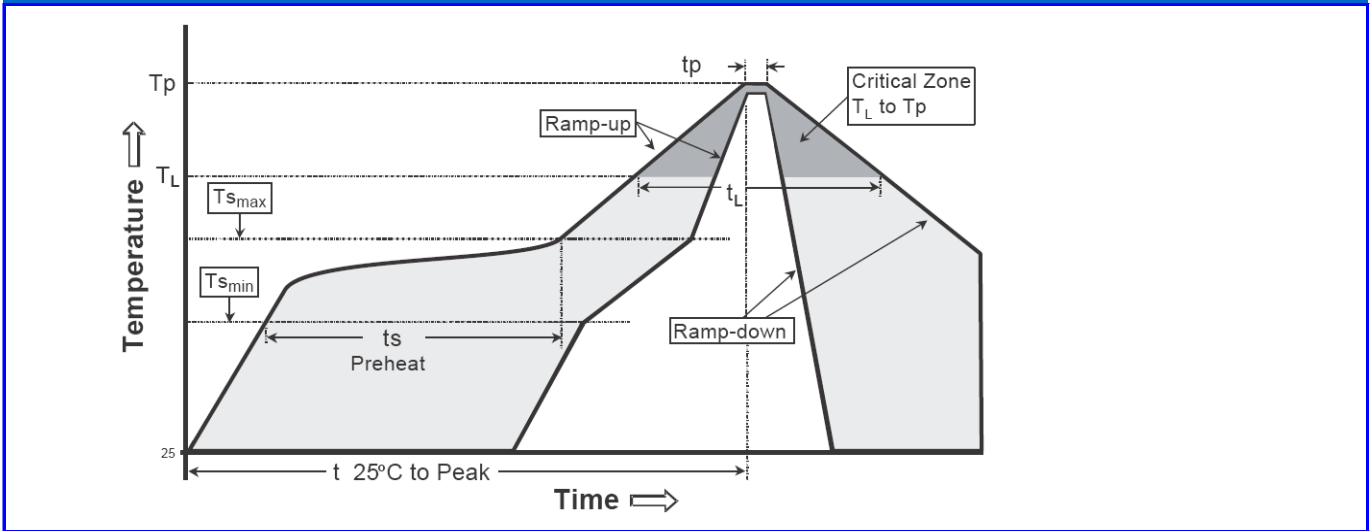
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Recommended wave soldering condition

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 (Tsmmax 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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