

K14 THRU K120  
SCHOTTKY RECTIFIERS



**VOLTAGE:** 40~200 Volts

**CURRENT:** 1.0 Amperes

SOD-123FL

Marking and Polarity

**FEATURES**

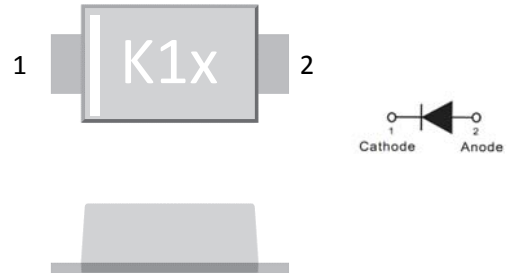
- Low Forward Voltage Drop for high efficiency
- Low leakage current for high reliability
- High forward surge capability for high reliability

**MECHANICAL DATA**

- **Terminals:** Plated Leads Solderable per MIL-STD-202, Method 208
- **Mounting Position:** Any
- **Lead Free:** Lead Free Finish, RoHS Compliant
- **Weight:** App. 0.07 grams (0.002 ounce)

**TYPICAL APPLICATIONS**

- For use in high frequency inverters ,  
DC/DC converters, LED driver etc. applications



**Remark:**

- ①. NH=niuhang trademark
- ②. FF=Product line, According to actual changes;  
YWW=Periodic code, According to actual changes;
- ③. K1x=Modle, xxx=4,5,6,8,10,15,20
- ④. White band denotes cathode

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

Parameter	Symbol	K14	K15	K16	K18	K110	K115	K120	A
Maximum repetitive peak reverse voltage	$V_{RRM}$	40	50	60	80	100	150	200	V
Maximum RMS voltage	$V_{RMS}$	28	35	42	56	70	105	140	V
Maximum DC blocking voltage	$V_{DC}$	40	50	60	80	100	150	200	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
Current Squared Time Per Diode (t<8.3ms)	$I^2t$	3.74							A <sup>2</sup> sec

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

Parameter	Test Conditions		Symbol	K14	K15	K16	K18	K110	K115	K120	Unit
Maximum Forward Voltage (Note 1)	Ta=25°C	IF= 1.0 A	$V_F$	0.55	0.70		0.85		0.95		V
Maximum instantaneous reverse current at rated DC blocking voltage (Note 1)	Ta=25°C	VR= $V_{RRM}$	$I_{RRM}$	0.5					0.2		mA
	Ta=125°C	VR= 80%* $V_{RRM}$		10					2		
Typical junction capacitance	4V, 1MHz		$C_J$	110	90					pF	

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

Parameter	Symbol	K14	K15	K16	K18	K110	K115	K120	Unit		
Operating junction and Storage temperature range	$T_J$	-65 to 125			-65 to 150					°C	
Storage temperature range	$T_{STG}$	-65 to 150									
Typical thermal resistance (Note 2)	$R_{\theta JA}$	88									°C/W
	$R_{\theta JC}$	25									

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

2. Mounted on P.C.B. with 0.2" x 0.2" (5.08 mm x 5.08 mm) copper pad areas

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RATING AND CHARACTERISTIC CURVES

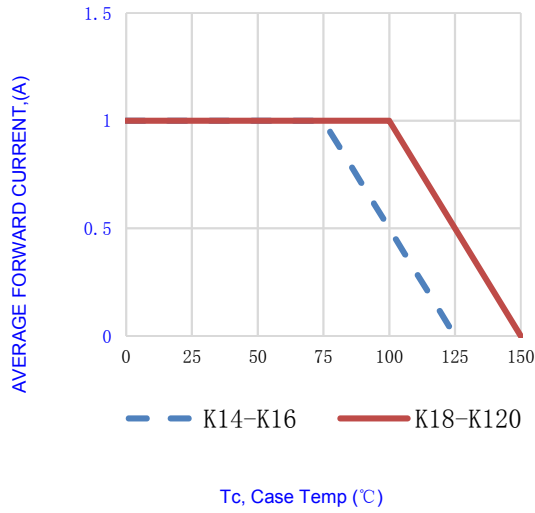


Fig.1-FORWARD CURRENT DERATING CURVE

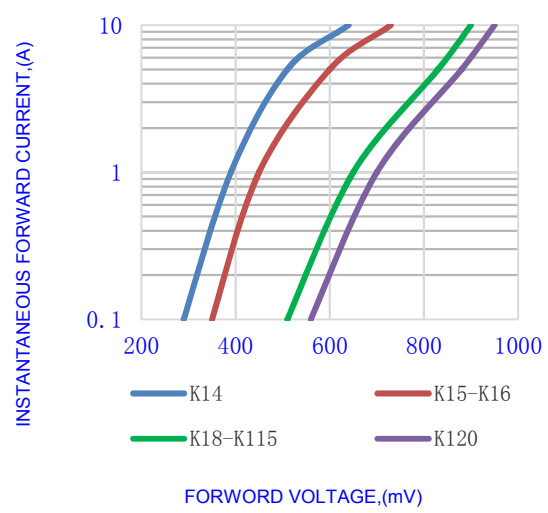


Fig.2-TYPICAL INSTANTANEOUS FORWARD

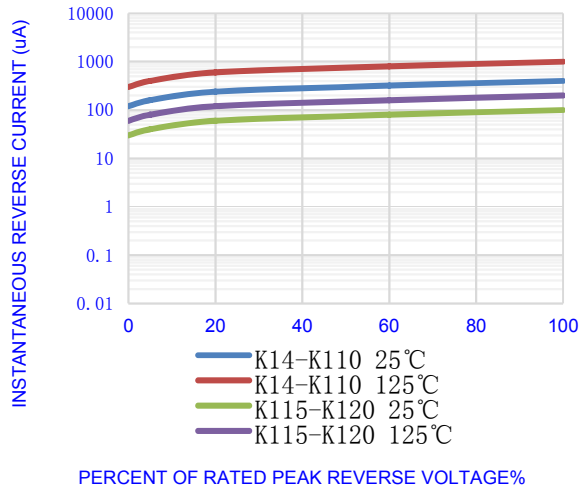


Fig.3-TYPICAL REVERSE CHARACTERISTICS

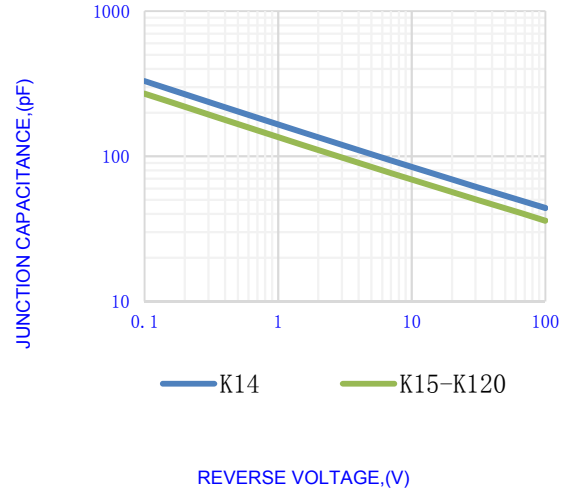


Fig.4-TYPICAL JUNCTION CAPACITANCE

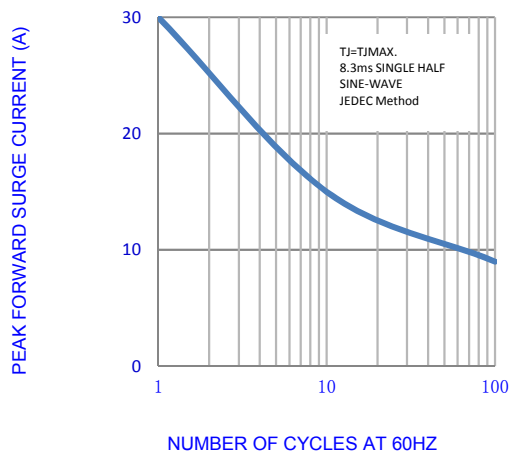


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

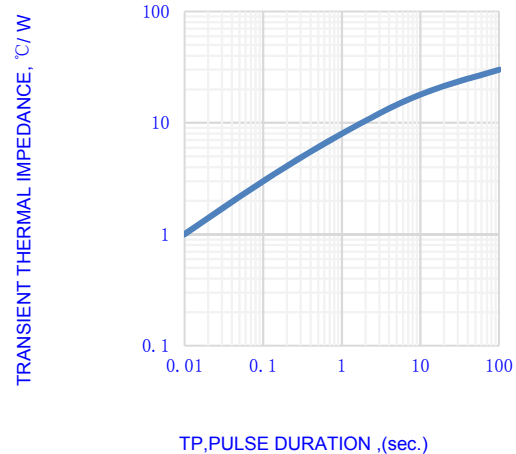


Fig.6-TYPICAL TRANSIENT THERMAL IMPEDANCE

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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	18000	400×400×300	216000																																																																					

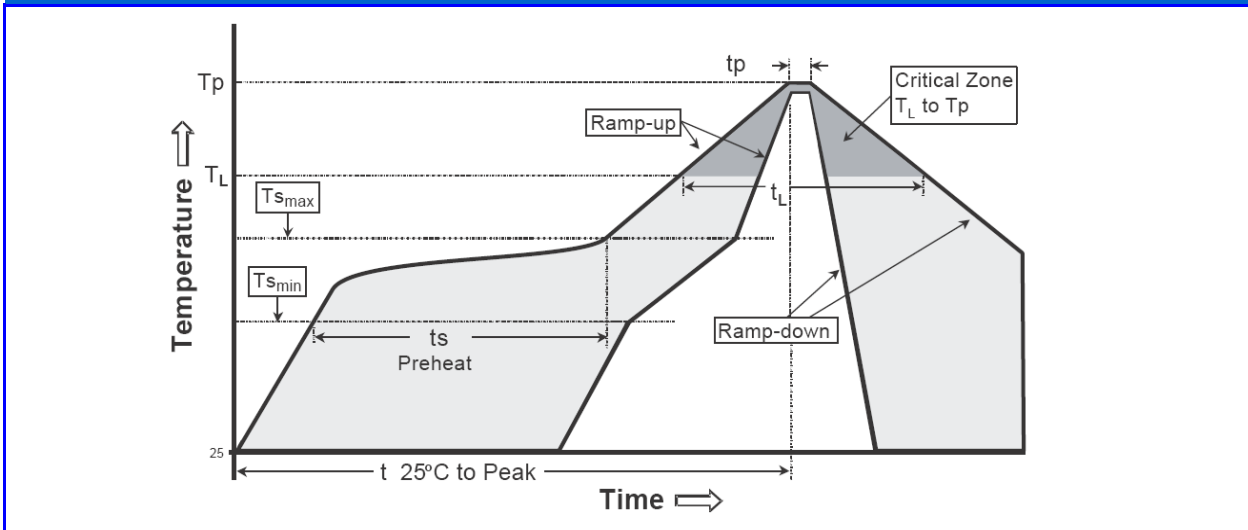
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**Recommended wave soldering condition**

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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