

K24 THRU K220
Schottky Barrier Rectifiers



Voltage:	40~200 Volts	Current:	2 Amperes	Package:	SOD-123FL
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Features

- NH'S Plane Schottky Barrier Chip Technology
- Low Forward Voltage Drop For High Efficiency
- Low Power Loss For High Reliability
- High Frequency Switching Speed

Mechanical Data

- **Case:** Molded With UL-94 ClassV-0 Recognized, RoHS-Compliant
- **Polarity:** Look At The Diagram And Polarity On The Right
- **Terminals:** Tin Plated Leads,Solderable Per J-STD-002 And JESD22-B102

Typical Applications

- Switch Mode Power Supplies (SMPS)
- Fast Chargers
- LED Driver And Monitor Lighting
- Automotive Electronics And Charging Posts

Diagram:



Polarity:



Single Phase,Half Wave,60Hz,Resistive Or Inductive Load.For Capacitive Load,Derate Current By 20%

Maximum Ratings (Ta=25°C Unless Otherwise Specified)

Parameter	Test Conditions	Symbol	K 24	K 245	K 26	K 28	K 210	K 215	K 220	Unit
Maximum Repetitive Peak Reverse Voltage		V_{RRM}	40	45	60	80	100	150	200	V
Maximum RMS Voltag		V_{RMS}	28	32	42	56	70	105	140	V
Maximum DC Blocking Voltage		V_{DC}	40	45	60	80	100	150	200	V
Maximum Average Forward Rectified Current		$I_{F(AV)}$	2							A
Peak Forward Surge Current	8.3ms Single Half Sine-wave Superimposed On Rate Load	I_{FSM}	50							A
Current Squared Time	$t < 8.3ms$	I^2t	10.4							A ² sec

Electrical Characteristics (Ta=25°C Unless Otherwise Specified)

Parameter	Test Conditions	Symbol	K 24	K 245	K 26	K 28	K 210	K 215	K 220	Unit
Maximum Instantaneous Forward Voltage	$I_F = 2.0 A$	V_F	0.55		0.70	0.85		0.90		V
Maximum DC Reverse Current at Rated DC Blocking Voltage	Ta=25°C , $V_R = V_{RRM}$ Ta=110°C , $V_R = V_{RRM} * 80\%$	I_{RRM}	100		80	50		10		uA
			10		8	5		3		mA
Typical Junction Capacitance	4 V,1MHz	C_J	100		90	80		50		pF

Thermal Characteristics (Ta=25°C Unless Otherwise Specified)

Parameter	Test Conditions	Symbol	K 24	K 245	K 26	K 28	K 210	K 215	K 220	Unit	
Operating Junction Temperature Range		T _J	-55~125			-55~150		-55~175		℃	
Storage Temperature Range		T _{STD}	-55~125			-55~150		-55~175			
Thermal Resistance Junction To Ambient With Steady-State	Still Air Environment With Ta=25℃	R _{θJA}	180.0								℃/W
Thermal Resistance Junction-Case With Steady-State	Device Mounted On 1 in2 FR-4 Board With 2oz. Copper	R _{θJC}	25.0								

Notes: 1.Pulse Test: 300 Us Pulse Width,1% Duty Cycle

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Typical Characteristics Curves

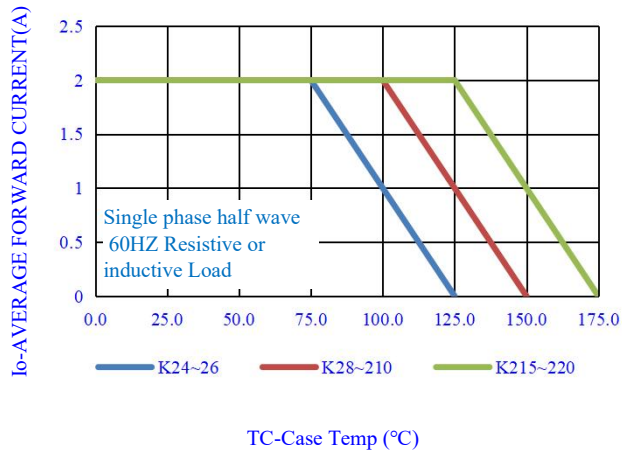


Fig.1-FORWARD CURRENT DERATING CURVE

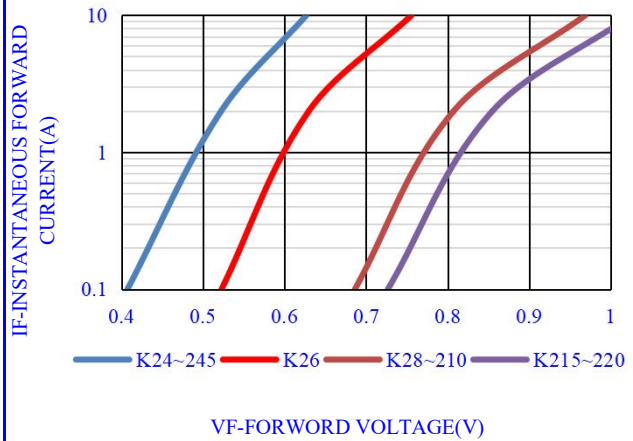


Fig.2- TYPICAL INSTANTANEOUS FORWARD

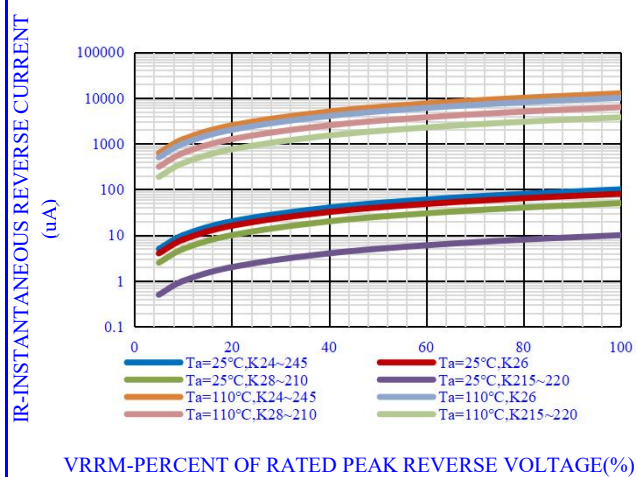


Fig.3- TYPICAL REVERSE CHARACTERISTICS

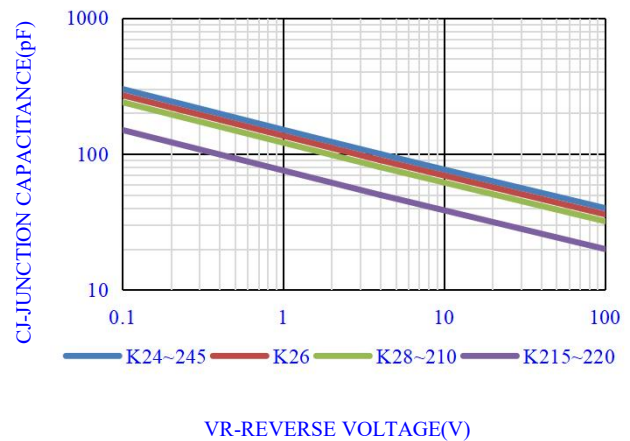


Fig.4- TYPICAL JUNCTION CAPACITANCE

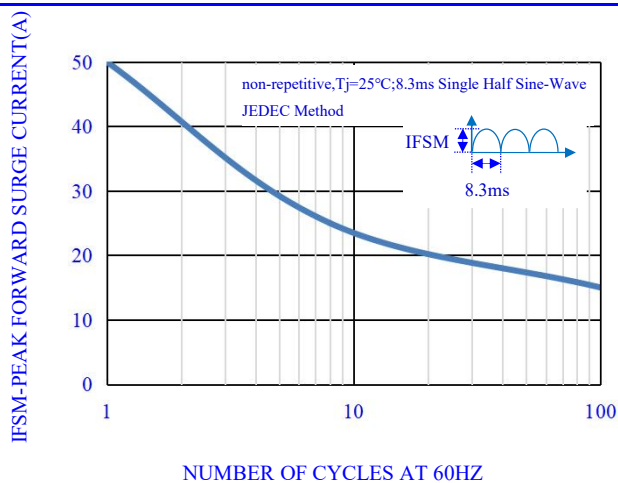


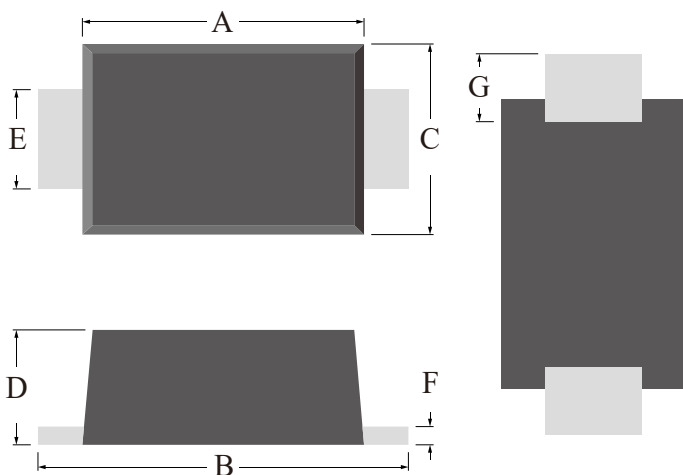
Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

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OUTLINE DRAWINGS

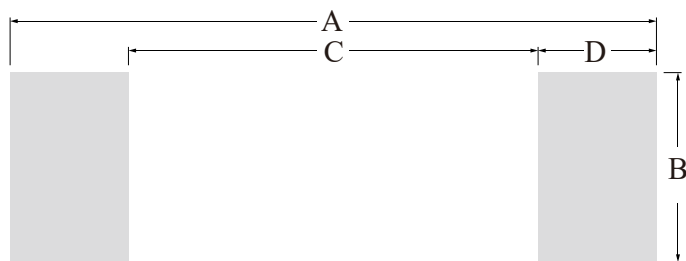
SOD-123FL



OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.65	-	2.90	0.1043	-	0.1142
B	3.50	-	3.80	0.1378	-	0.1496
C	1.70	-	1.95	0.0669	-	0.0768
D	0.90	-	1.30	0.0354	-	0.0512
E	0.80	-	1.10	0.0315	-	0.0433
F	0.10	-	0.25	0.0039	-	0.0098
G	0.45	-	0.85	0.0177	-	0.0335

RECOMMENDED LAYOUT DRAWINGS

SOD-123FL



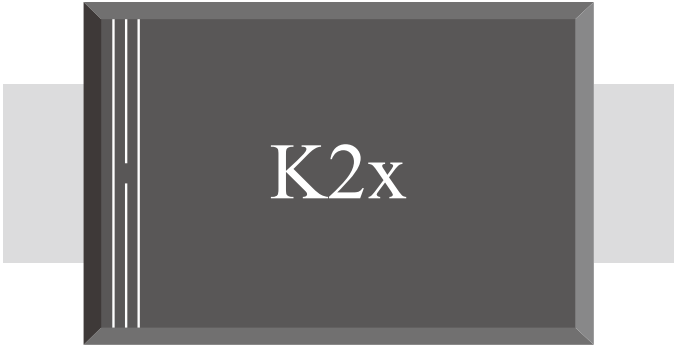
OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	4.26	-	-	0.1677	-
B	-	1.22	-	-	0.0480	-
C	-	2.70	-	-	0.1063	-
D	-	0.78	-	-	0.0307	-

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MARKING



MARKING INSTRUCTION

K2x=Model,x=4,45,6,8,10,15,20
White band denotes cathode

PACKING INFORMATION

Package Type	Package Code	Product Weight Approx(g/Pcs)	Package Method	Quantity (Pcs/Min. Pack.)	Quantity (Pcs/Inner Box)	Quantity (Pcs/Carton)
SOD-123FL	P1	0.0161	7" Reel	3000	15000	120000
SOD-123FL	P2	0.0161	7" Reel	3000	21000	252000

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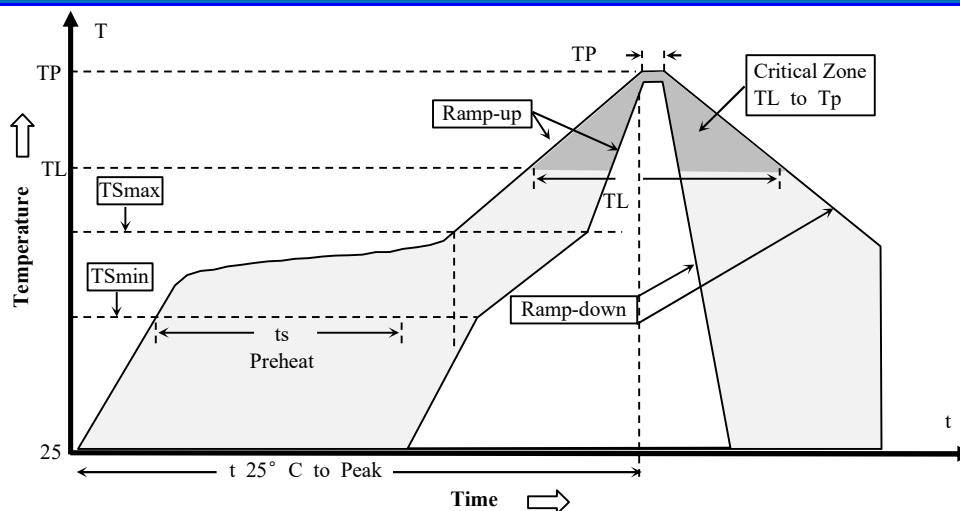
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Recommended wave soldering condition

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 (T _{smax} to T _p)	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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