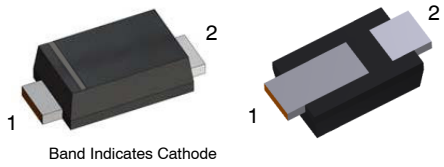
Surface Mount Rectifiers

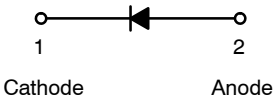
1.2 A, 600 V – 1000 V

S1JFP - S1MFP



Band Indicates Cathode

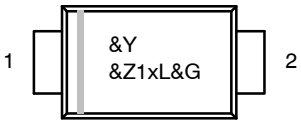
SOD-123EP
CASE 425AC



Features

- Low Power Loss, High Efficiency
- Larger Cathode Pad for Improved Power Dissipation
- Ultra Thin Profile – Package Height < 1.0 mm
- High Surge Capability
- Low Forward Voltage: 1.3 V Maximum
- UL Flammability 94V-0 Classification
- MSL 1 per J-STD-020
- Industrial Device Qualified per AEC-Q101 Standards
- These Devices are Pb-Free, Halide Free and are RoHS Compliant

MARKING DIAGRAM



&Y = Binary Calendar Year Coding
&Z = Assembly Plant Code
1xL = Specific Device Code
x = J, K, M
&G = Single Digit Week Code

MAXIMUM RATINGS

T_A = 25 °C unless otherwise noted

Symbol	Rating	Value			Unit
		S1JFP	S1KFP	S1MFP	
V_{RRM}	Repetitive Peak Reverse Voltage	600	800	1000	V
V_{RMS}	RMS Reverse Voltage	420	560	700	V
V_R	DC Blocking Voltage	600	800	1000	V
$I_{F(AV)}$	Average Forward Rectified Current	1.2			A
I_{FSM}	Peak Forward Surge Current: 8.3 ms Single Half Sine-Wave Superimposed on Rated Load	50			A
T_J	Operating Junction Temperature Range	−55 to +150			°C
T_{STG}	Storage Temperature Range	−55 to +150			°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

ORDERING INFORMATION

Device	Package	Shipping†
S1JFP	SOD-123EP	3000 / Tape & Reel
S1KFP	SOD-123EP	3000 / Tape & Reel
SMFP	SOD-123EP	3000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

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THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted (Note 1)

Symbol	Characteristic	Value	Unit
Ψ_{JL}	Typical Thermal Characteristics, Junction-to-Lead (Note 2)	12	°C/W
$R_{\theta JA}$	Typical Thermal Resistance, Junction-to-Ambient	140	°C/W

1. Per JESD51-3 recommended thermal test board. Device mounted on FR-4 PCB, board size = 76.2 mm x 114.3 mm.
2. Thermocouple soldered at cathode lead.

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_F	Instantaneous Forward Voltage (Note 3)	I_F = 1.2 A	–	–	1.3	V
I_R	Reverse Current at Rated V_R	T_J = 25 °C	–	–	5	μA
		T_J = 125 °C	–	–	150	
C_J	Junction Capacitance	V_R = 0 V, f = 1 MHz	–	18	–	pF
T_{rr}	Reverse Recovery Time	I_F = 0.5 A, I_R = 1 A, I_{rr} = 0.25 A	–	1.5	–	μs

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

3. Pulse test with PW = 300 μs, 1% duty cycle

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TYPICAL PERFORMANCE CHARACTERISTICS

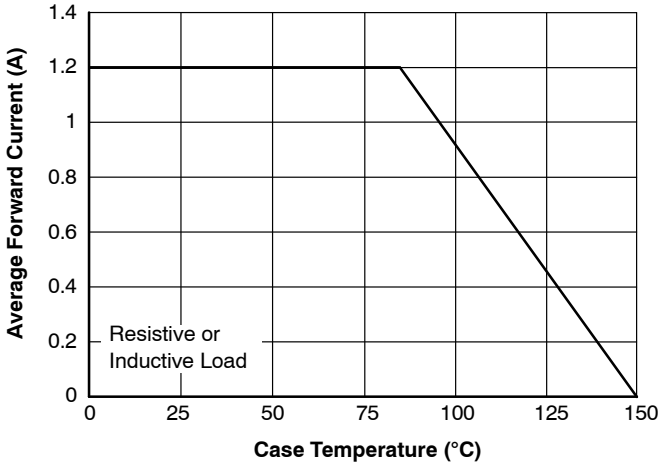

Figure 1. Maximum Forward Current Derating Curve

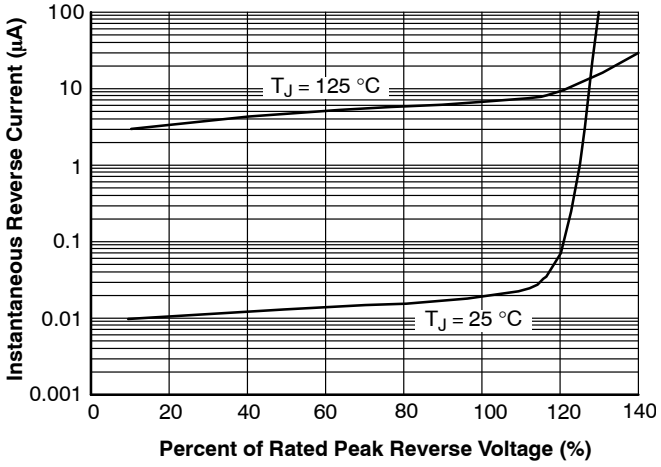

Figure 2. Typical Reverse Characteristics

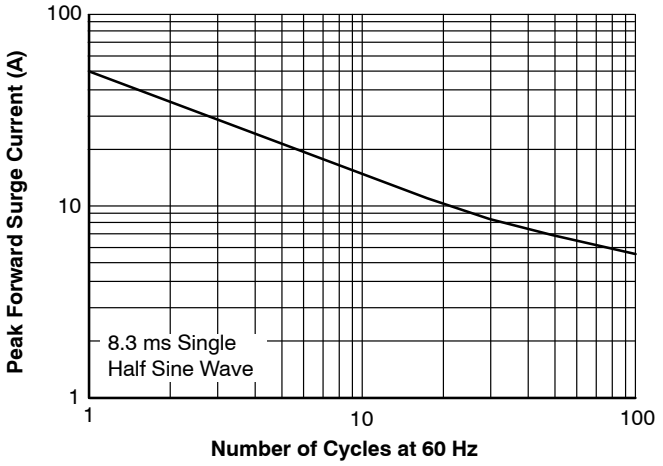

Figure 3. Maximum Non-Repetitive Forward Surge Current

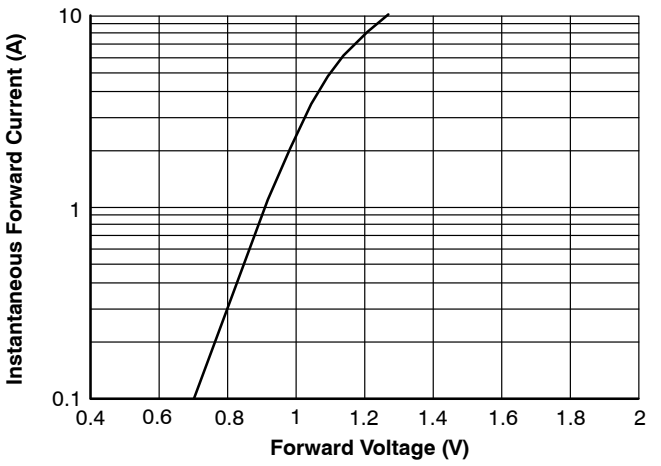

Figure 4. Typical Instantaneous Forward Characteristics

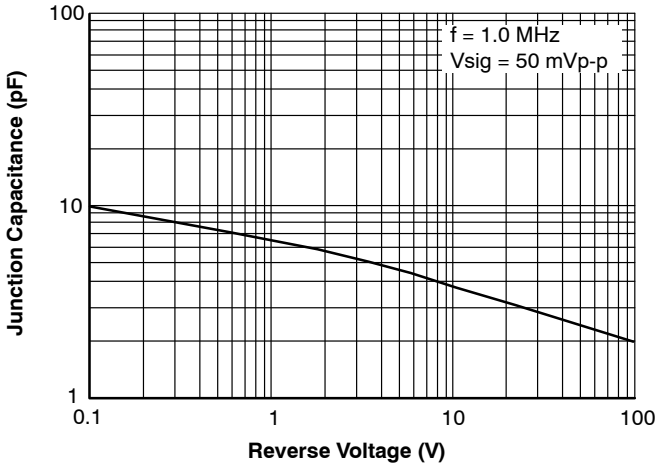

Figure 5. Typical Junction Capacitance

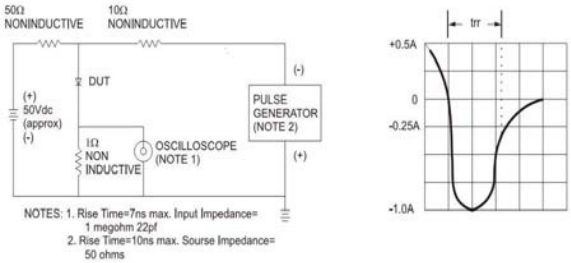

Figure 6. Reverse Recovery Time Characteristic and Test Circuit Diagram

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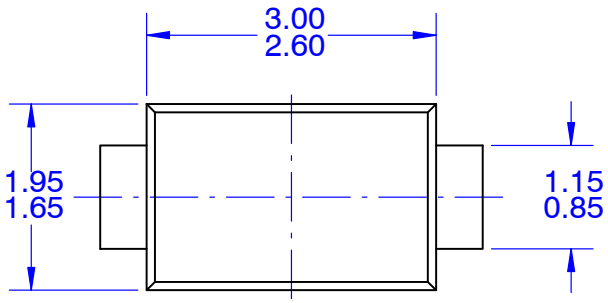
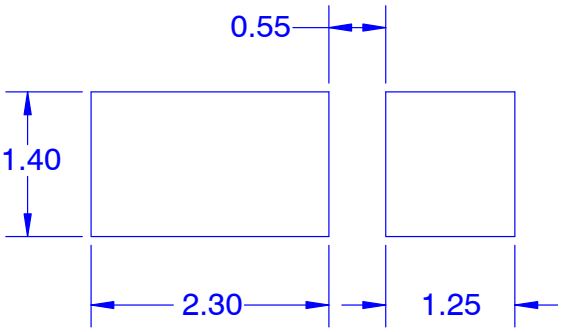
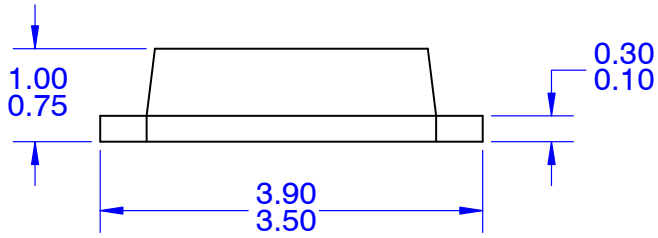
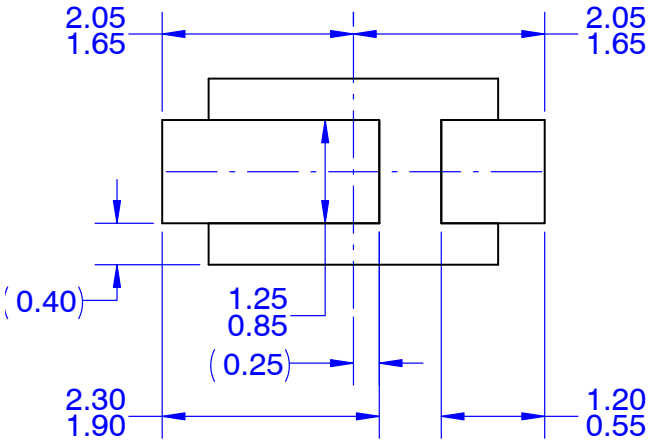




LAND PATTERN RECOMMENDATION

LONG PAD IS CATHODE





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