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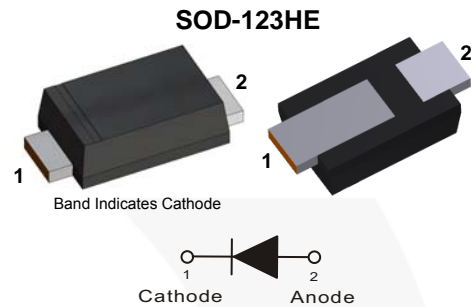


January 2016

# RS1JFP - RS1MFP Surface Mount Fast Recovery Rectifiers

## Features

- Low Power Loss, High Efficiency
  - Larger Cathode Pad for Improved Power Dissipation
  - Ultra Thin Profile - Package Height <1.0 mm
  - High Surge Capacity
  - Low Forward Voltage: 1.3 V Maximum
  - UL Flammability 94V-0 Classification
  - MSL 1 per J-STD-020
  - RoHS Compliant / Green Molding Compound
  - Industrial Device Qualified per AEC-Q101 Standards
- \* See authorized use policy



## Ordering Information

Part Number	Top Mark	Package	Packing Method
RS1JFP	JLS	SOD-123HE	Tape and Reel
RS1KFP	KLS	SOD-123HE	Tape and Reel
RS1MFP	MLS	SOD-123HE	Tape and Reel

## Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Value			Unit
		RS1JFP	RS1KFP	RS1MFP	
$V_{RRM}$	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			$^\circ\text{C}$
$T_{STG}$	Storage Temperature Range	-55 to +150			$^\circ\text{C}$

## Thermal Characteristics<sup>(1)</sup>

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Value	Unit
$\Psi_{JL}$	Typical Thermal Characteristics, Junction-to-Lead <sup>(2)</sup>	12	$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	Typical Thermal Resistance, Junction-to-Ambient	140	$^\circ\text{C}/\text{W}$

### Notes:

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

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$V_F$	Instantaneous Forward Voltage <sup>(3)</sup>	$I_F = 1.2\text{ A}$			1.3	V
$I_R$	Reverse Current at Rated $V_R$	$T_J = 25^\circ\text{C}$			5	$\mu\text{A}$
		$T_J = 125^\circ\text{C}$			150	
$C_J$	Junction Capacitance	$V_R = 0\text{ V}, f = 1\text{ MHz}$		18		pF
$T_{rr}$	Reverse Recovery Time	$I_F = 0.5\text{ A}, I_R = 1\text{ A}, I_{rr} = 0.25\text{ A}$			300	ns

### Note:

3. Pulse test with  $PW = 300\ \mu\text{s}$ , 1% duty cycle

## Typical Performance Characteristics

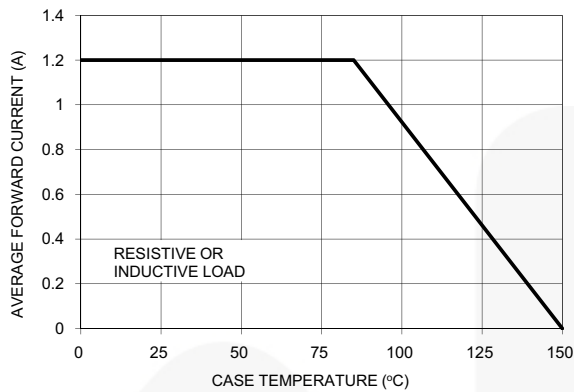


Figure 1. Maximum Forward Current Derating Voltage

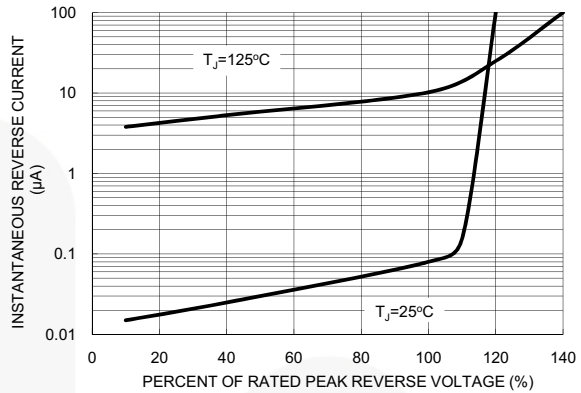


Figure 2. Typical Reverse Characteristics

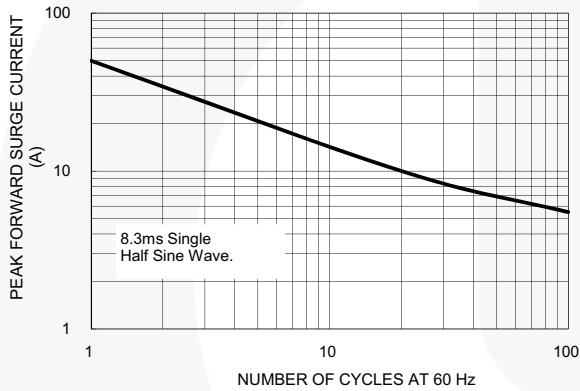


Figure 3. Maximum Non-Repetitive Forward Surge Current

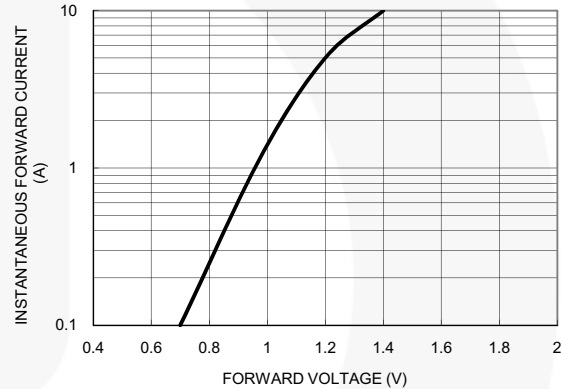


Figure 4. Typical Instantaneous Forward Characteristics

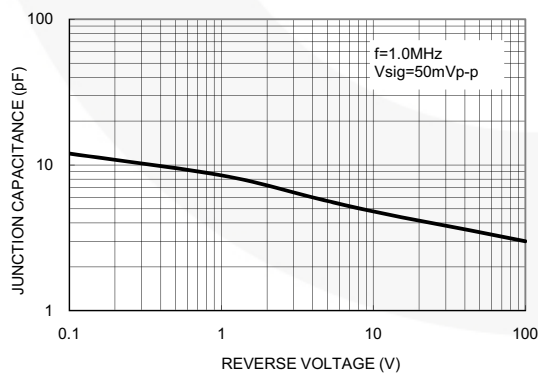


Figure 5. Typical Junction Capacitance

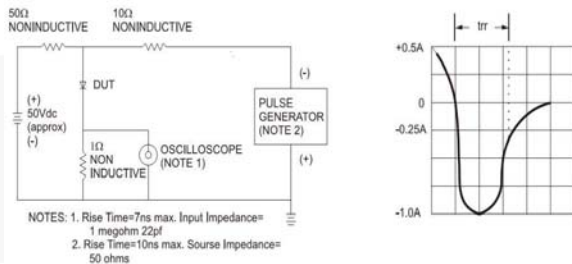
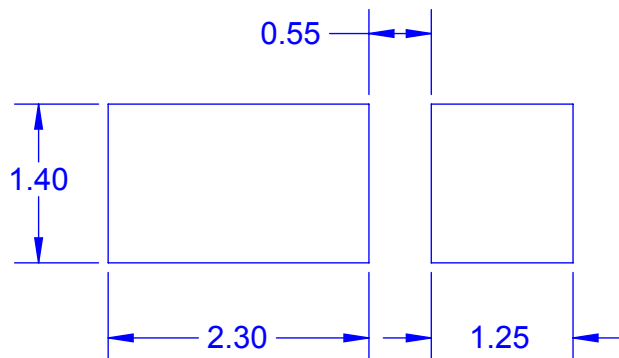
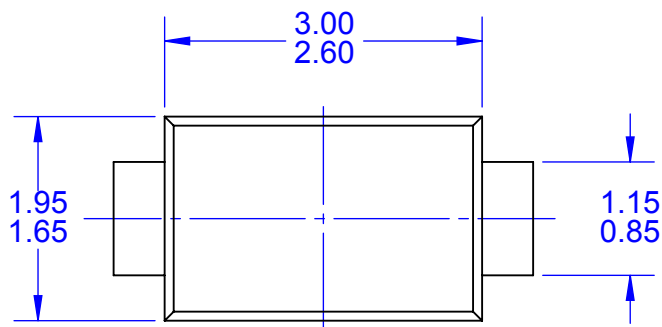
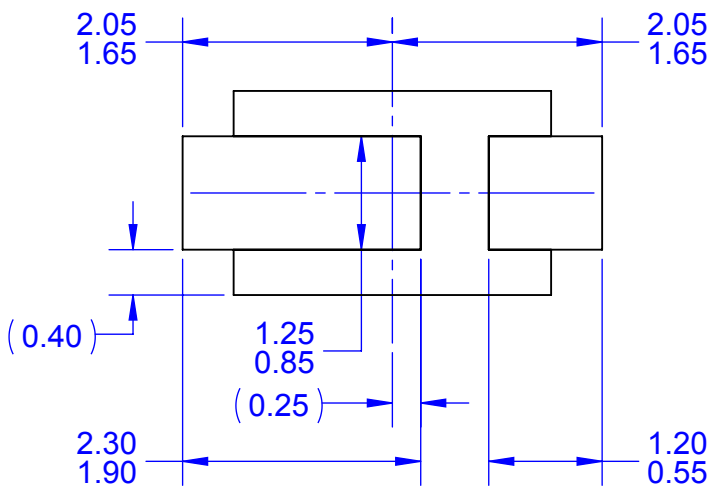
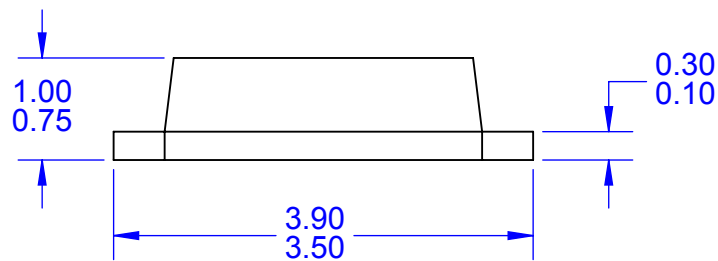


Figure 6. Reverse Recovery Time Characteristic and Test Circuit Diagram



LAND PATTERN RECOMMENDATION



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