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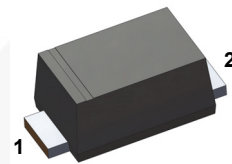
October 2015

# RS1AFA - RS1MFA

## 0.8 A, 50 V - 1000 V Surface Mount Fast Recovery Rectifiers

### Features

- Glass Passivated Chip Junction
  - Fast Switching for High Efficiency
  - 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



**SOD-123FA**  
COLOR BAND DENOTES CATHODE



### Ordering Information

Part Number	Top Mark	Package	Packing Method
RS1AFA	RAL	SOD-123FA	Tape and Reel
RS1BFA	RBL	SOD-123FA	Tape and Reel
RS1DFA	RDL	SOD-123FA	Tape and Reel
RS1GFA	RGL	SOD-123FA	Tape and Reel
RS1JFA	RJL	SOD-123FA	Tape and Reel
RS1KFA	RKL	SOD-123FA	Tape and Reel
RS1MFA	RML	SOD-123FA	Tape and Reel

RS1AFA - RS1MFA — 0.8 A, 50 V - 1000 V Surface Mount Fast Recovery Rectifiers

## 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
		RS1 AFA	RS1 BFA	RS1 DFA	RS1 GFA	RS1 JFA	RS1 KFA	RS1 MFA	
$V_{RRM}$	Repetitive Peak Reverse Voltage	50	100	200	400	600	800	1000	V
$V_{RMS}$	RMS Reverse Voltage	35	70	140	280	420	560	700	V
$V_R$	DC Blocking Voltage	50	100	200	400	600	800	1000	V
$I_{F(AV)}$	Average Forward Rectified Current	0.8							A
$I_{FSM}$	Peak Forward Surge Current: 8.3 ms Single Half Sine-Wave Superimposed on Rated Load	30							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	32	$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	Typical Thermal Resistance, Junction-to-Ambient	105	$^\circ\text{C}/\text{W}$

**Note:**

1. Device mounted on 5 mm x 5 mm Cu pad PCB.

## 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>(2)</sup>	$I_F = 0.8\text{ A}$			1.3	V
$I_R$	Reverse Current at Rated $V_R$	$T_J = 25^\circ\text{C}$			5	$\mu\text{A}$
		$T_J = 125^\circ\text{C}$			50	
$C_J$	Junction Capacitance	$V_R = 4\text{ V}, f = 1\text{ MHz}$		10		pF
$T_{rr}$	Reverse Recovery Time	$I_F = 0.5\text{ A},$ $I_R = 1\text{ A},$ $I_{rr} = 0.25\text{ A}$	RS1AFA RS1BFA RS1DFA		150	ns
			RS1GFA RS1JFA		250	
			RS1KFA RS1MFA		500	

**Note:**

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

## Typical Performance Characteristics

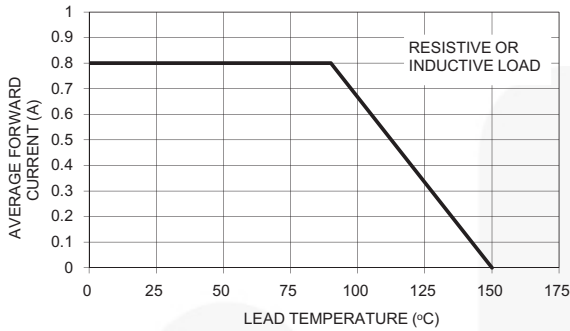


Figure 1. Forward Current Derating Curve

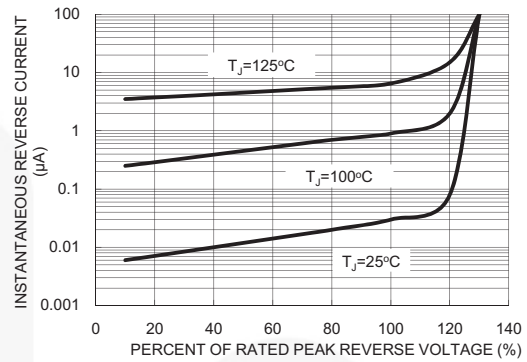


Figure 2. Typical Reverse Characteristics

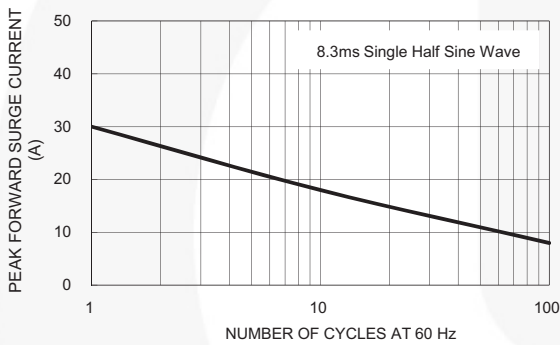


Figure 3. Maximum Non-Repetitive Forward Surge Current

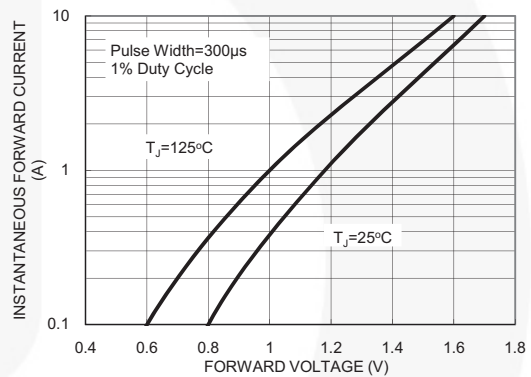


Figure 4. Typical Instantaneous Forward Characteristics

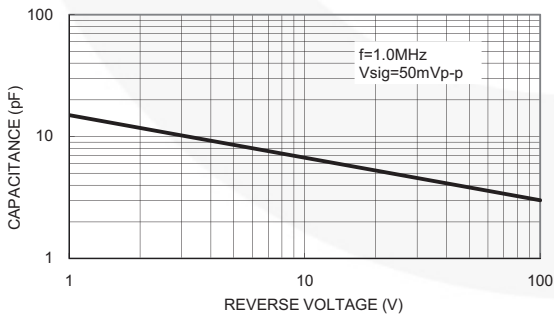


Figure 5. Typical Junction Capacitance

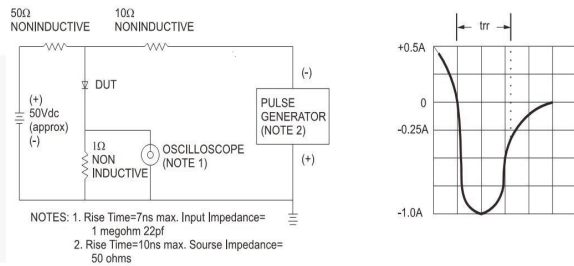
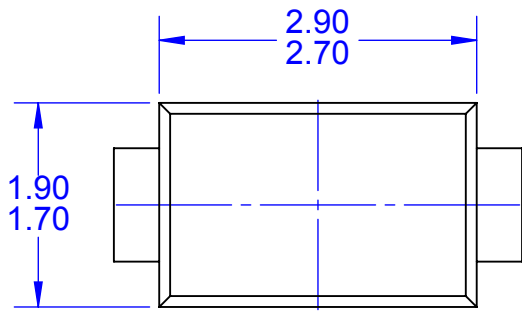
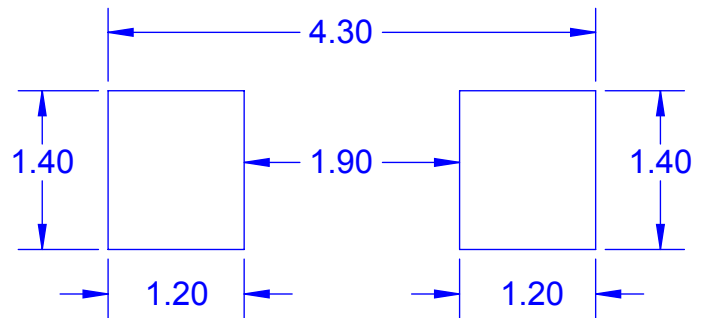


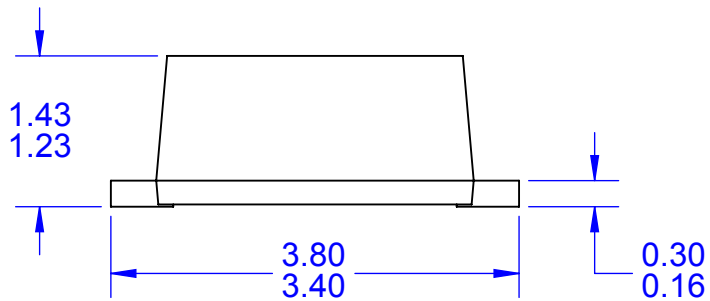
Figure 6. Reverse Recovery Time Characteristic and Test Circuit Diagram



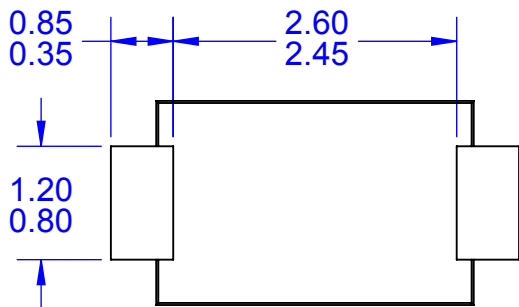
TOP VIEW



LAND PATTERN RECOMMENDATION



FRONT VIEW



BOTTOM VIEW

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