



### RS1A/B - RS1M/B

#### 1.0A SURFACE MOUNT FAST RECOVERY RECTIFIER

#### **Features**

- Glass Passivated Die Construction
- Fast Recovery Time For High Efficiency
- Surge Overload Rating to 30A Peak
- Ideally Suited for Automated Assembly
- Lead Free Finish/RoHS Compliant (Note 1)
- Green Molding Compound (No Halogen and Antimony) (Note 2)

### **Mechanical Data**

- Case: SMA/SMB
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Lead Free Plating (Matte Tin Finish). Solderable per MIL-STD-202, Method 208 63
- Polarity: Cathode Band or Cathode Notch
- Weight: SMA 0.064 grams (approximate)

SMB - 0.093 grams (approximate)





Top View

Bottom View

### **Ordering Information** (Note 3)

Part Number	Case	Packaging
RS1x-13-F	SMA	5000/Tape & Reel
RS1xB-13-F	SMB	3000/Tape & Reel

<sup>\*</sup> x = Device type, e.g. RS1D-13-F (SMA package); RS1JB-13-F (SMB package).

Notes:

- 1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see EU Directive 2002/95/EC Annex Notes.
- 2. Product manufactured with Data Code 0924 (week 24, 2009) and newer are built with Green Molding Compound.
- 3. For packaging details, go to our website at http://www.diodes.com.

# Marking Information



RS1x = Product Type Marking Code, ex: RS1G (SMA package)
RS1xB = Product Type Marking Code, ex: RS1GB (SMB package)
J!!= Manufacturer's Code Marking
YWW = Date Code Marking
Y = Last Digit of Year (ex: 6 for 2006)
WW = Week code (01 to 53)



## Maximum Ratings @TA = 25°C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.

For capacitance load, derate current by 20%.

Characteristic	Symbol	RS1 A/AB	RS1 B/BB	RS1 D/DB	RS1 G/GB	RS1 J/JB	RS1 K/KB	RS1 M/MB	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage (Note 4)	$egin{array}{c} V_{RRM} \ V_{R} \end{array}$	50	100	200	400	600	800	1000	V
RMS Reverse Voltage	V <sub>R(RMS)</sub>	35	70	140	280	420	560	700	V
Average Rectified Output Current @ T <sub>T</sub> = 120°C	lo				1.0				Α
Non-Repetitive Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load					30				Α

### **Thermal Characteristics**

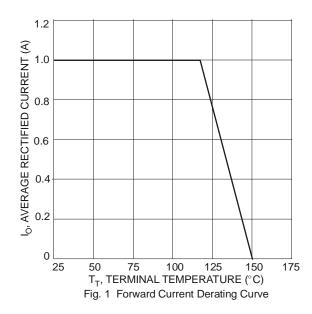
Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Terminal (Note 5)	$R_{ heta JT}$	20	°C/W
Operating and Storage Temperature Range	$T_{J_i}T_{STG}$	-65 to +150	°C

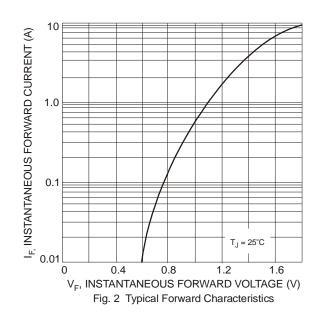
## **Electrical Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic		Symbol	RS1 A/AB	RS1 B/BB	RS1 D/DB	RS1 G/GB	RS1 J/JB	RS1 K/KB	RS1 M/MB	Unit
Forward Voltage Drop	$@I_F = 1.0A$	$V_{FM}$				1.3				V
Peak Reverse Current at Rated DC Blocking Voltage (Note 4)	@ T <sub>A</sub> = 25°C @ T <sub>A</sub> = 125°C	I <sub>RM</sub>				5.0 200				μA
Reverse Recovery Time (Note 6)		t <sub>rr</sub>		15	50		250	50	00	ns
Typical Total Capacitance (Note 7)		C <sub>T</sub>				15				pF

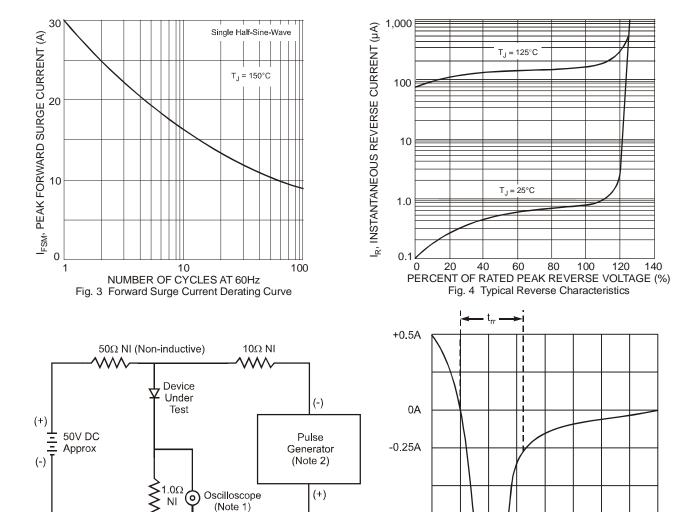
Notes:

- 4. Short duration pulse test used to minimize self-heating effect.
- 5. Valid provided that terminals are kept at ambient temperature.
- 6. Reverse recovery test conditions:  $I_F$  = 0.5A,  $I_R$  = 1.0A,  $I_{rr}$  = 0.25A. See figure 5. 7. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.









Notes:

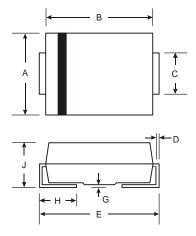
- 1. Rise Time = 7.0ns max. Input Impedance =  $1.0M\Omega$ , 22pF.
- 2. Rise Time = 10ns max. Input Impedance =  $50\Omega$ .

Set time base for 50/100 ns/cm

Fig. 5 Reverse Recovery Time Characteristic and Test Circuit

-1.0A

## **Package Outline Dimensions**

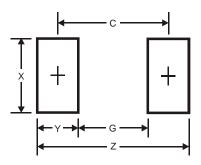


	SMA				
Dim	Min	Max			
Α	2.29	2.92			
В	4.00	4.60			
С	1.27	1.63			
D	0.15	0.31			
Е	4.80	5.59			
G	0.05	0.20			
Н	0.76	1.52			
J	2.01	2.30			
All Dim	All Dimensions in mm				

	SMB				
Dim	Min	Max			
Α	3.30	3.94			
В	4.06	4.57			
С	1.96	2.21			
D	0.15	0.31			
Е	5.00	5.59			
G	0.05	0.20			
Н	<b>H</b> 0.76 1.52				
J	2.00	2.50			
All Dimensions in mm					



## **Suggested Pad Layout**



SMA Dimensions	Value (in mm)
Z	6.5
G	1.5
Х	1.7
Υ	2.5
С	4.0

SMB Dimensions	Value (in mm)
Z	6.7
G	1.8
Х	2.3
Υ	2.5
С	4.3

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