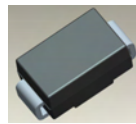


## Features

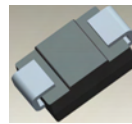
- Glass Passivated Die Construction
- Fast Recovery Time For High Efficiency
- Surge Overload Rating to 30A Peak
- Ideally Suited for Automated Assembly
- **Lead Free Finish/RoHS Compliant (Note 1)**
- **Green Molding Compound (No Halogen and Antimony) (Note 2)**

## Mechanical Data

- Case: SMA/SMB
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Lead Free Plating (Matte Tin Finish). Solderable per MIL-STD-202, Method 208 (e3)
- Polarity: Cathode Band or Cathode Notch
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: SMA - 0.064 grams (approximate)  
SMB - 0.093 grams (approximate)



Top View



Bottom View

## Maximum Ratings @ $T_A = 25^\circ\text{C}$ 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	$V_{RRM}$								
Working Peak Reverse Voltage	$V_{RWM}$	50	100	200	400	600	800	1000	V
DC Blocking Voltage (Note 5)	$V_R$								
RMS Reverse Voltage	$V_{R(RMS)}$	35	70	140	280	420	560	700	V
Average Rectified Output Current @ $T_T = 120^\circ\text{C}$	$I_O$	1.0							A
Non-Repetitive Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load	$I_{FSM}$	30							A

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Terminal (Note 3)	$R_{\theta JT}$	20	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to +150	$^\circ\text{C}$

## Electrical Characteristics @ $T_A = 25^\circ\text{C}$ 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 @ $I_F = 1.0\text{A}$	$V_{FM}$	1.3							V
Peak Reverse Current @ $T_A = 25^\circ\text{C}$	$I_{RM}$	5.0							$\mu\text{A}$
at Rated DC Blocking Voltage (Note 6)		200							
Reverse Recovery Time (Note 5)	$t_{rr}$	150			250	500		ns	
Typical Total Capacitance (Note 4)	$C_T$	15							pF

- Notes:
1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied. Please visit our website at [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html).
  2. Product manufactured with Data Code 0924 (week 24, 2009) and newer are built with Green Molding Compound.
  3. Valid provided that terminals are kept at ambient temperature.
  4. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.
  5. Reverse recovery test conditions:  $I_F = 0.5\text{A}$ ,  $I_R = 1.0\text{A}$ ,  $t_{rr} = 0.25\mu\text{s}$ . See figure 5.
  6. Short duration pulse test used to minimize self-heating effect.

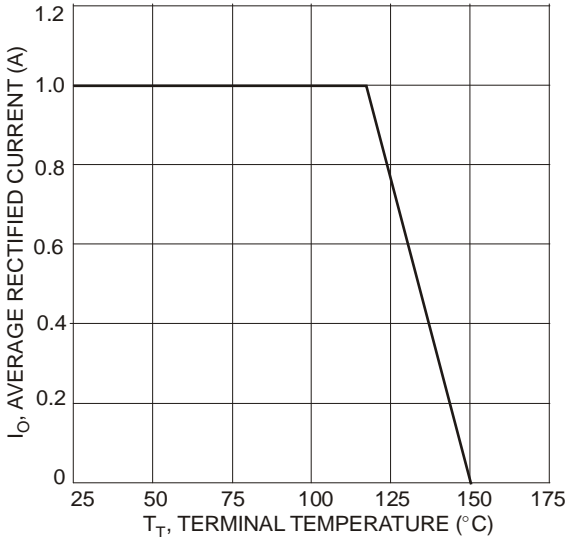


Fig. 1 Forward Current Derating Curve

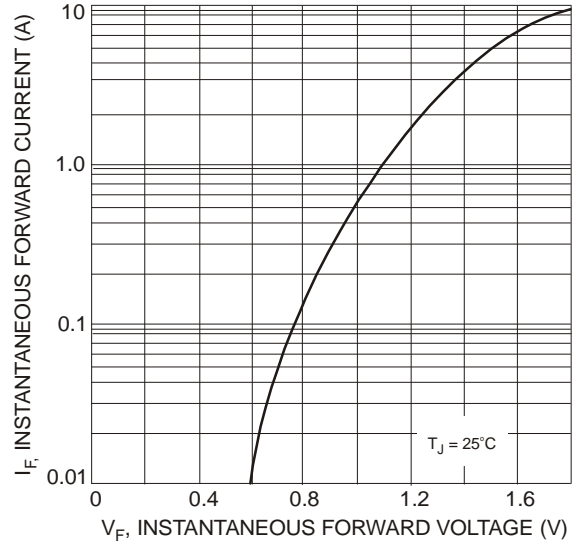


Fig. 2 Typical Forward Characteristics

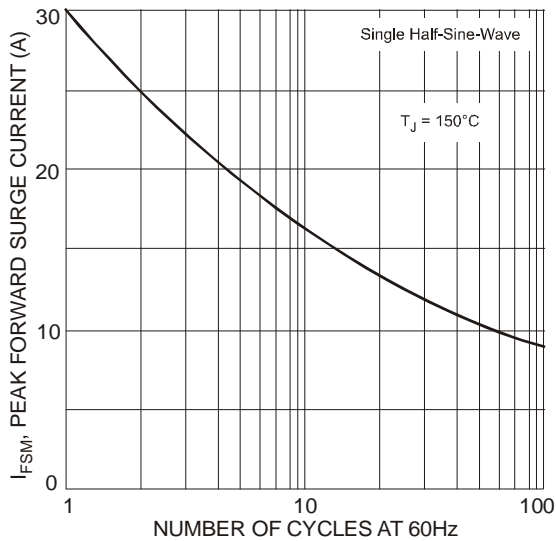


Fig. 3 Forward Surge Current Derating Curve

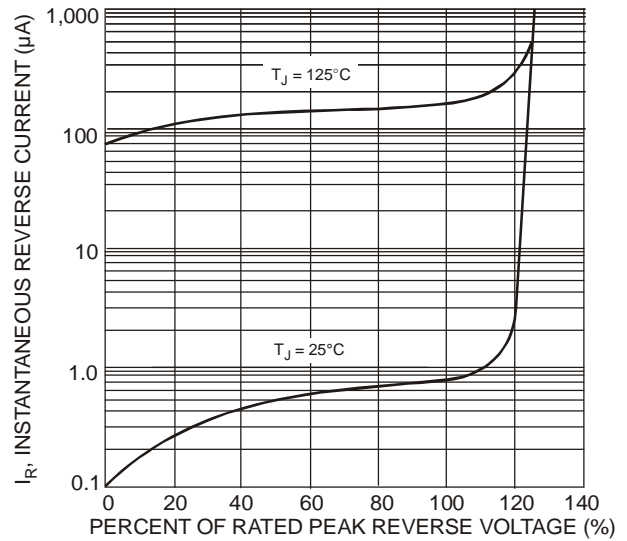
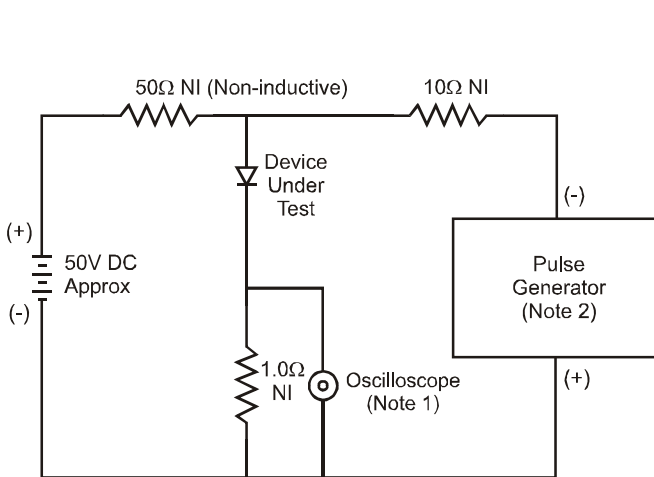
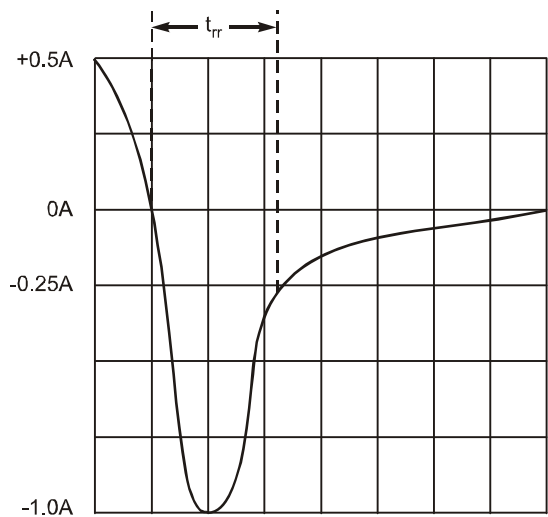


Fig. 4 Typical Reverse Characteristics



Notes:

1. Rise Time = 7.0ns max. Input Impedance = 1.0MΩ, 22pF.
2. Rise Time = 10ns max. Input Impedance = 50Ω.



Set time base for 50/100 ns/cm

Fig. 5 Reverse Recovery Time Characteristic and Test Circuit

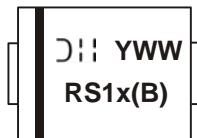
### Ordering Information (Note 7)

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

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

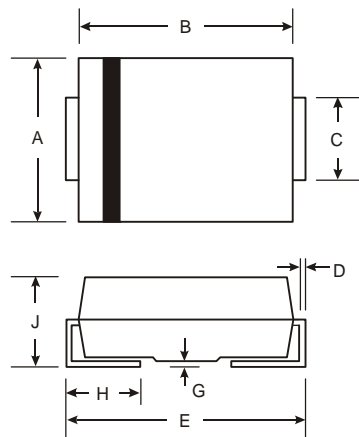
Notes: 7. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

### Marking Information



RS1x = Product Type Marking Code, ex: RS1G (SMA package)  
 RS1xB = Product Type Marking Code, ex: RS1GB (SMB package)  
 ⌋⌋⌋ = Manufacturer's Code Marking  
 YWW = Date Code Marking  
 Y = Last Digit of Year (ex: 6 for 2006)  
 WW = Week code 01 to 52

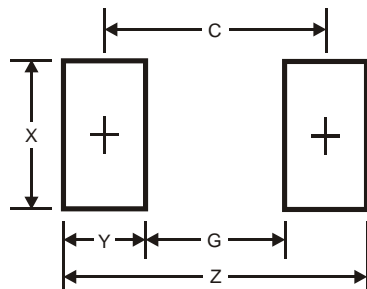
### Package Outline Dimensions



SMA		
Dim	Min	Max
A	2.29	2.92
B	4.00	4.60
C	1.27	1.63
D	0.15	0.31
E	4.80	5.59
G	0.05	0.20
H	0.76	1.52
J	2.01	2.30
All Dimensions in mm		

SMB		
Dim	Min	Max
A	3.30	3.94
B	4.06	4.57
C	1.96	2.21
D	0.15	0.31
E	5.00	5.59
G	0.05	0.20
H	0.76	1.52
J	2.00	2.62
All Dimensions in mm		

### Suggested Pad Layout



SMA Dimensions	Value (in mm)
Z	6.5
G	1.5
X	1.7
Y	2.5
C	4.0

SMB Dimensions	Value (in mm)
Z	6.7
G	1.8
X	2.3
Y	2.5
C	4.3

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