RS3A/B - RS3M/B

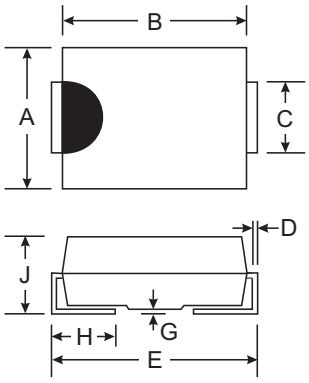
3.0A SURFACE MOUNT FAST RECOVERY RECTIFIER

Features

- Glass Passivated Die Construction
- Fast Recovery Time for High Efficiency
- Low Forward Voltage Drop and High Current Capability
- Surge Overload Rating to 100A Peak
- Ideally Suited for Automatic Assembly
- **Lead Free Finish/RoHS Compliant (Note 4)**

Mechanical Data

- Case: Molded Plastic
- Case Material: UL Flammability Classification Rating 94V-0
- Moisture sensitivity: Level 1 per J-STD-020C
- Terminals: Lead Free Plating (Matte Tin Finish). Solderable per MIL-STD-202, Method 208
- Polarity: Cathode Band or Cathode Notch
- Weight: SMB 0.093 grams (approx)
  SMC 0.21 grams (approx)
- Marking: Type Number, See Page 3
- Ordering Information: See Page 3



Dim	SMB		SMC	
	Min	Max	Min	Max
A	3.30	3.94	5.59	6.22
B	4.06	4.57	6.60	7.11
C	1.96	2.21	2.75	3.18
D	0.15	0.31	0.15	0.31
E	5.00	5.59	7.75	8.13
G	0.10	0.20	0.10	0.20
H	0.76	1.52	0.76	1.52
J	2.00	2.62	2.00	2.62
All Dimensions in mm				

AB, BB, DB, GB, JB, KB, MB Suffix Designates SMB Package
A, B, D, G, J, K, M Suffix Designates SMC Package

Maximum Ratings and Electrical Characteristics @ T_A = 25°C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

Characteristic	Symbol	RS3 A/AB	RS3 B/BB	RS3 D/DB	RS3 G/GB	RS3 J/JB	RS3 K/KB	RS3 M/MB	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	50	100	200	400	600	800	1000	V
RMS Reverse Voltage	$V_{R(RMS)}$	35	70	140	280	420	560	700	V
Average Rectified Output Current @ T_T = 75°C	I_O	3.0							A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave Superimposed on Rated Load (JEDEC Method)	I_{FSM}	100							A
Forward Voltage @ I_F = 3.0A	V_{FM}	1.3							V
Peak Reverse Current @ T_A = 25°C at Rated DC Blocking Voltage @ T_A = 125°C	I_{RM}	5.0 250							μA
Maximum Recovery Time (Note 3)	t_{rr}	150				250	500		ns
Typical Junction Capacitance (Note 2)	C_j	50							pF
Typical Thermal Resistance Junction to Terminal (Note 1)	$R_{\theta JT}$	25							K/W
Operating and Storage Temperature Range	T_j, T_{STG}	-65 to +150							°C

Notes:
1. Thermal resistance: junction to terminal, unit mounted on PC board with 5.0 mm^2 (0.013 mm thick) copper pad as heat sink.
2. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.
3. Reverse recovery test conditions: I_F = 0.5A, I_R = 1.0A, I_{rr} = 0.25A. See figure 5.
4. RoHS revision 13.2.2003. Glass and High Temperature Solder Exemptions Applied, see *EU Directive Annex Notes 5 and 7*.

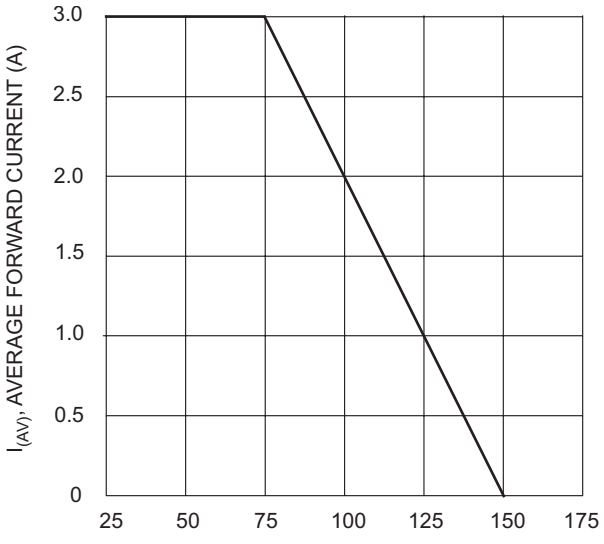


Fig. 1 Forward Current Derating Curve

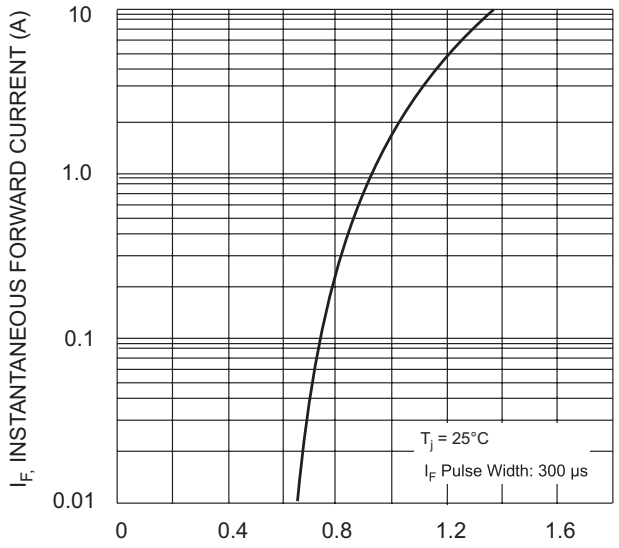


Fig. 2 Typical Forward Characteristics

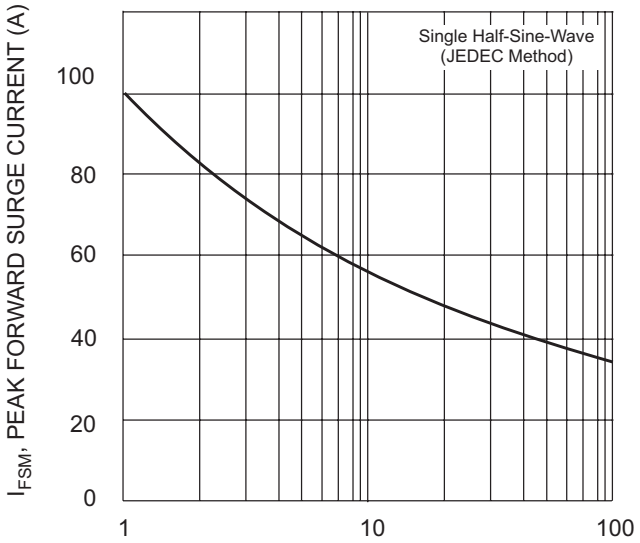


Fig. 3 Forward Surge Current Derating Curve

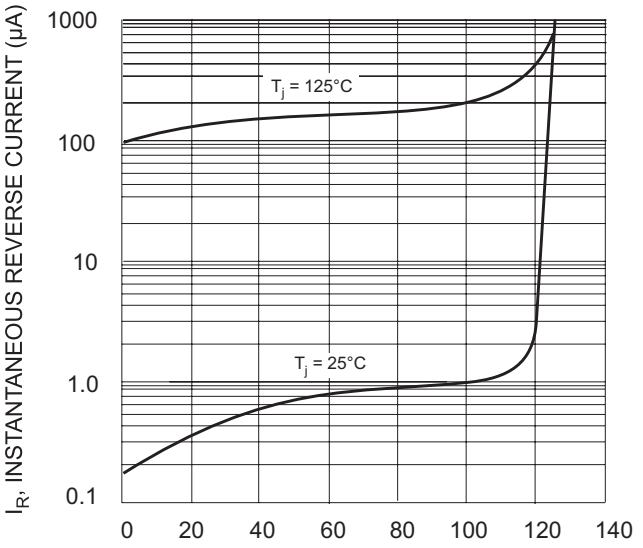
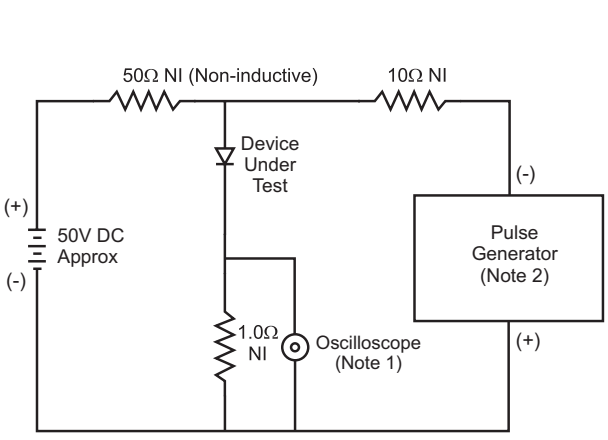


Fig. 4 Typical Reverse Characteristics



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

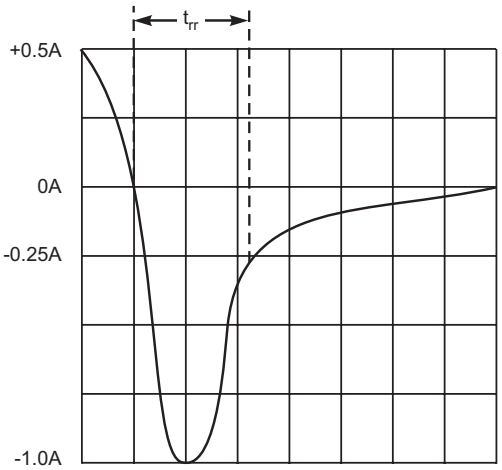


Fig. 5 Reverse Recovery Time Characteristic and Test Circuit

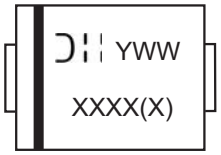
Ordering Information (Note 5)

Device*	Packaging	Shipping
RS3x-13-F RS3xB-13-F	SMC SMB	3000/Tape & Reel 3000/Tape & Reel

* x = Device type, e.g. RS3A-13-F (SMC package); RS3AB-13-F (SMB package).

Notes: 5. For Packaging Details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



XXX = Product type marking code, ex: RS3A (SMC package)
XXXX = Product type marking code, ex: RS3AB (SMB package)
= Manufacturers' code marking
YWW = Date code marking
Y = Last digit of year ex: 2 for 2002
WW = Week code 01 to 52