

3.0A SURFACE MOUNT GLASS PASSIVATED RECTIFIER
Features

- Glass Passivated Die Construction
- Low Forward Voltage Drop and High Current Capability
- Surge Overload Rating to 100A Peak
- Ideally Suited for Automated Assembly
- **Lead Free Finish/RoHS Compliant (Note 1)**
- **Green Molding Compound (No Halogen and Antimony) (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability.**

Mechanical Data

- Case: SMB/SMC
- 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 **(e3)**
- Polarity: Cathode Band or Cathode Notch
- Weight: SMB 0.093 grams (approximate)
SMC 0.21 grams (approximate)



Top View



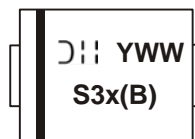
Bottom View

Ordering Information* (Note 3)

| Part Number | Qualification | Case | Packaging |
|-------------|---------------|------|------------------|
| S3xB-13-F | Commercial | SMB | 3000/Tape & Reel |
| S3x-13-F | Commercial | SMC | 3000/Tape & Reel |
| S3MBQ-13-F | Automotive | SMC | 3000/Tape & Reel |

*x = Device type, e.g. S3AB-13-F (SMB package); S3A-13-F (SMC 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


- S3x = Product Type Marking Code, ex. S3K (SMC)
- S3xB = Product Type Marking Code, ex. S3KB (SMB)
- ⌋⌋⌋ = Manufacturers' code marking
- YWW = Date code marking
- Y = Last digit of year (ex: 2 for 2002)
- WW = Week code (01 to 53)

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 | S3 A/AB | S3 B/BB | S3 D/DB | S3 G/GB | S3 J/JB | S3 K/KB | S3 M/MB | Unit |
|--|--------------|------------|------------|------------|------------|------------|------------|------------|------|
| Peak Repetitive Reverse Voltage | V_{RRM} | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Working Peak Reverse Voltage | V_{RWM} | | | | | | | | |
| DC Blocking Voltage | V_R | | | | | | | | |
| RMS Reverse Voltage | $V_{R(RMS)}$ | 30 | 70 | 140 | 280 | 420 | 560 | 700 | V |
| Average Rectified Output Current @ $T_T = 75^\circ\text{C}$ | I_O | 3.0 | | | | | | | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I_{FSM} | 100 | | | | | | | A |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|--|-----------------|-------------|--------------------|
| Typical Thermal Resistance Junction to Terminal (Note 4) | $R_{\theta JT}$ | 10 | $^\circ\text{C/W}$ |
| 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 | Value | Unit |
|--|----------|-------|---------------|
| Forward Voltage @ $I_F = 3.0\text{A}$ | V_{FM} | 1.15 | V |
| Peak Reverse Current @ $T_A = 25^\circ\text{C}$ | I_{RM} | 10 | μA |
| at Rated DC Blocking Voltage @ $T_A = 125^\circ\text{C}$ | | 250 | |
| Typical Total Capacitance (Note 5) | C_T | 40 | pF |

Notes: 4. Thermal resistance: Junction to Terminal, unit mounted on PC board with 5.0 mm² (0.013 mm thick) copper pad as heat sink.
5. Measured at 1.0 MHz and applied reverse voltage of 4.0V DC.

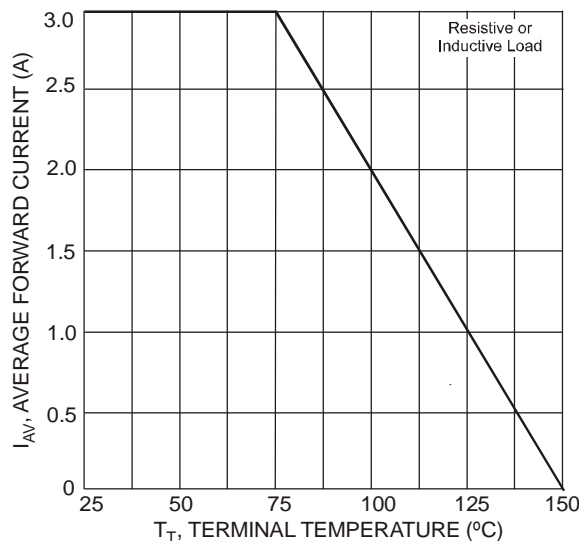


Fig. 1 Forward Current Derating Curve

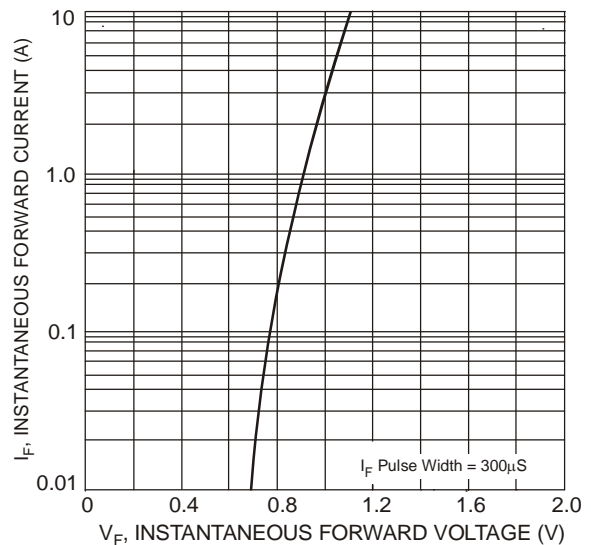


Fig. 2 Typical Forward Characteristics

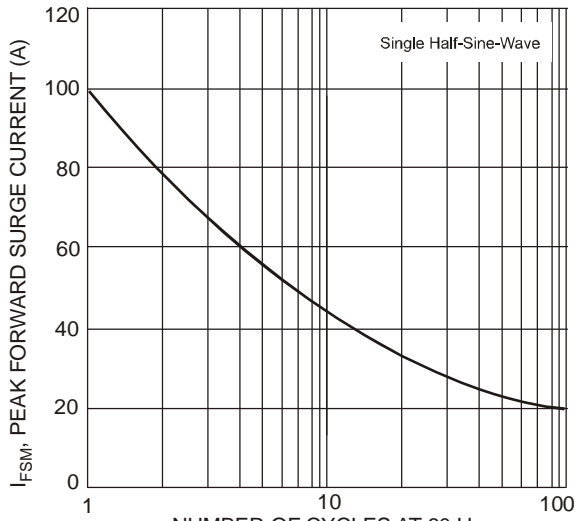


Fig. 3 Forward Surge Current Derating Curve

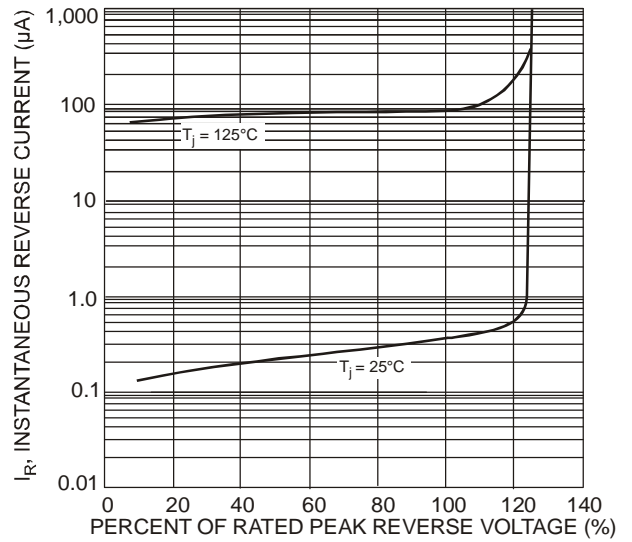
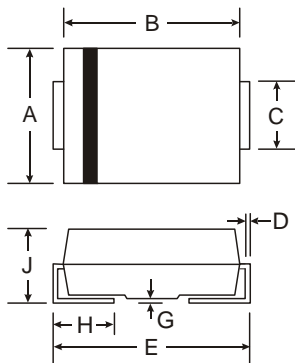


Fig. 4 Typical Reverse Characteristics

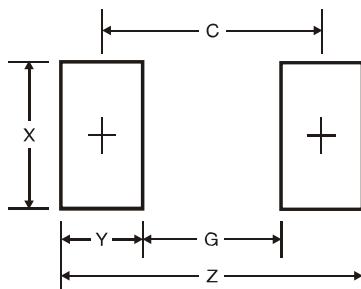
Package Outline Dimensions



| 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 | 2.50 |
| All Dimensions in mm | | |

| SMC | | |
|----------------------|------|------|
| Dim | Min | Max |
| A | 5.59 | 6.22 |
| B | 6.60 | 7.11 |
| C | 2.75 | 3.18 |
| D | 0.15 | 0.31 |
| E | 7.75 | 8.13 |
| G | 0.10 | 0.20 |
| H | 0.76 | 1.52 |
| J | 2.00 | 2.50 |
| All Dimensions in mm | | |

Suggested Pad Layout



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

| SMC Dimensions | Value (in mm) |
|----------------|---------------|
| Z | 9.3 |
| G | 4.4 |
| X | 3.3 |
| Y | 2.5 |
| C | 6.8 |

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