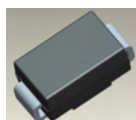


## Features

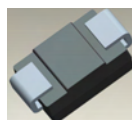
- Glass Passivated Die Construction
- Super-Fast Recovery Time For High Efficiency
- Surge Overload Rating to 50A Peak
- Ideally Suited for Automated Assembly
- **Lead Free Finish/RoHS Compliant (Note 1)**
- **Green Molding Compound (No Halogen and Antimony) (Note 2)**

## Mechanical Data

- Case: 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
- Polarity: Cathode Band or Cathode Notch
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 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       | Value | Unit |
|--|--------------|-------|------|
| Peak Repetitive Reverse Voltage  | $V_{RRM}$    | 400   | V    |
| Working Peak Reverse Voltage   | $V_{RWM}$    |       |      |
| DC Blocking Voltage (Note 6)   | $V_R$        |       |      |
| RMS Reverse Voltage  | $V_{R(RMS)}$ | 280   | V    |
| Average Rectified Output Current @ $T_T = 110^\circ\text{C}$                                     | $I_O$        | 2.0   | A    |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | $I_{FSM}$    | 50    | A    |

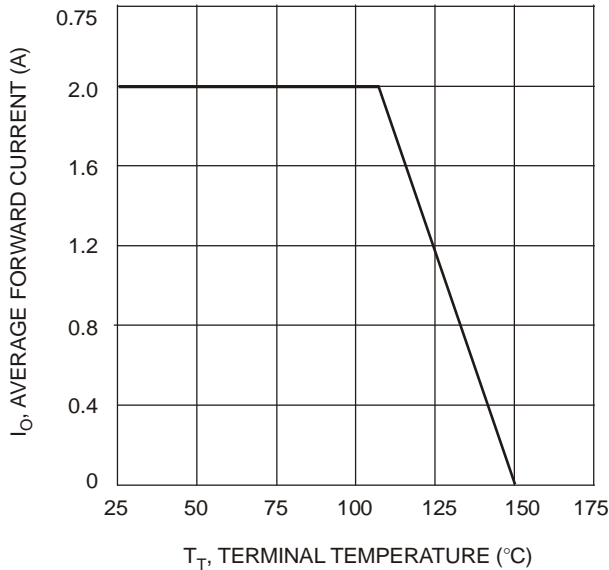
## Thermal Characteristics

| 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                   | $T_J, T_{STG}$  | -55 to +150 | $^\circ\text{C}$   |

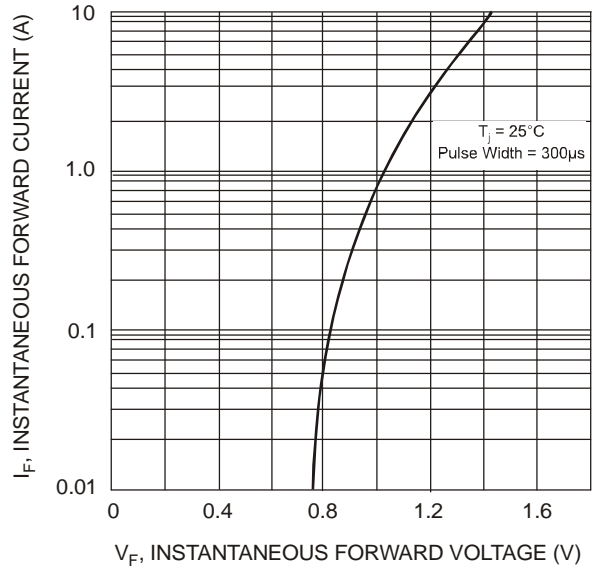
## Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic  | Symbol   | Value | Unit          |
|---|----------|-------|---------------|
| Forward Voltage @ $I_F = 2.0\text{A}$                             | $V_{FM}$ | 1.25  | V             |
| Peak Reverse Current @ $T_A = 25^\circ\text{C}$                   | $I_{RM}$ | 5.0   | $\mu\text{A}$ |
| at Rated DC Blocking Voltage (Note 6) @ $T_A = 125^\circ\text{C}$ |          | 350   |               |
| Reverse Recovery Time (Note 5)                                    | $t_{rr}$ | 35    | ns            |
| Typical Capacitance (Note 4)                                      | $C_T$    | 25    | pF            |

- 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. Unit mounted on PC board with  $5.0\text{ mm}^2$  (0.013 mm thick) copper pads as heat sink.
  4. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.
  5. Measured with  $I_F = 0.5\text{A}$ ,  $I_R = 1.0\text{A}$ ,  $I_{rr} = 0.25\text{A}$ . See Figure 5.
  6. Short duration pulse test used to minimize self-heating effect



$T_T$ , TERMINAL TEMPERATURE (°C)  
Fig. 1 Forward Current Derating Curve



$V_F$ , INSTANTANEOUS FORWARD VOLTAGE (V)  
Fig. 2 Typical Forward Characteristics

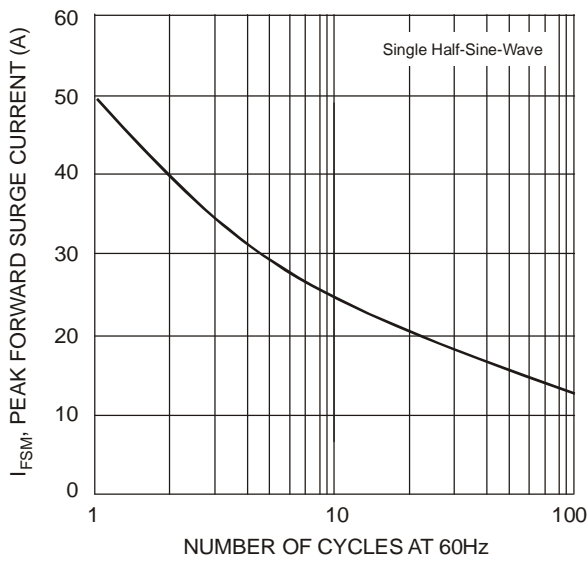


Fig. 3 Surge Current Derating Curve

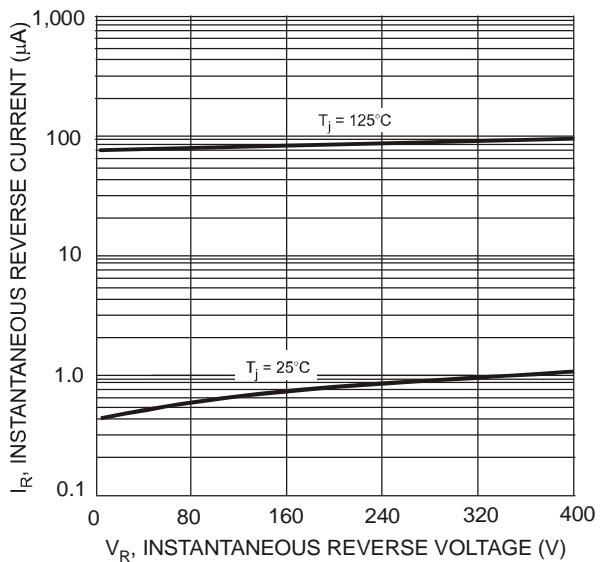
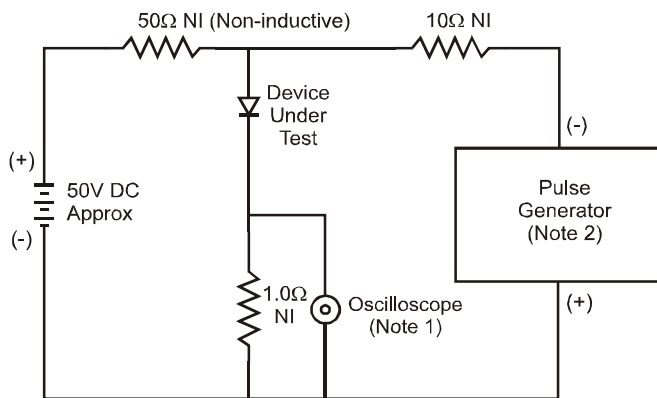
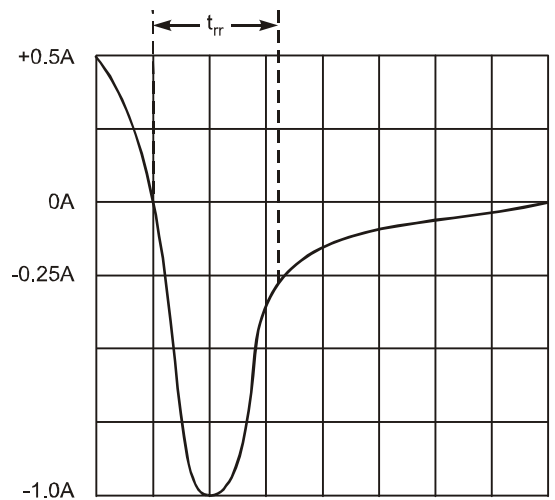


Fig. 4 Typical Reverse Characteristics



- 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

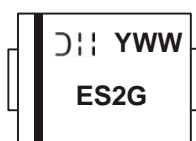
Fig. 5 Reverse Recovery Time Characteristic and Test Circuit

**Ordering Information** (Note 7)

| Part Number | Case | Packaging        |
|-------------|------|------------------|
| ES2G-13-F   | SMB  | 3000/Tape & Reel |

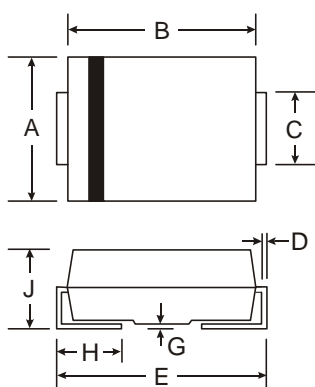
Notes: 7. For packaging details, go to our website at <http://www.diodes.com>.

**Marking Information**



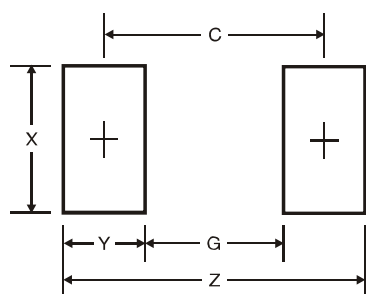
ES2G = Product type marking code  
 DII = Manufacturers' code marking  
 YWW = Date code marking  
 Y = Last digit of year (ex: 2 for 2002)  
 WW = Week code (01 to 53)

**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 |      |      |

**Suggested Pad Layout**



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

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