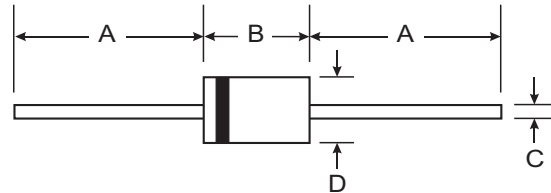


### Features

Glass Passivated Die Construction  
 Super-Fast Switching for High Efficiency  
 Surge Overload Rating to 60A Peak  
 Low Reverse Leakage Current  
**Lead Free Finish, RoHS Compliant (Note 4)**



### Mechanical Data

Case: DO-15  
 Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0  
 Moisture Sensitivity: Level 1 per J-STD-020C  
 Terminals: Finish – Tin. Solderable per MIL-STD-202, Method 208 **(E3)**  
 Polarity: Cathode Band  
 Marking: Type Number  
 Ordering Information: See Page 3  
 Weight: 0.35 grams (approximate)

| DO-15                |       |       |
|----------------------|-------|-------|
| Dim                  | Min   | Max   |
| A                    | 25.40 |       |
| B                    | 5.50  | 7.62  |
| C                    | 0.686 | 0.889 |
| D                    | 2.60  | 3.6   |
| All Dimensions in mm |       |       |

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

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

| Characteristic                                                                                                 | Symbol                                                 | SF20 AG     | SF20 BG | SF20 CG | SF20 DG | SF20 FG | SF20 GG | SF20 HG | SF20 JG | Unit |
|----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|-------------|---------|---------|---------|---------|---------|---------|---------|------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage (Note 5)                | V <sub>RRM</sub><br>V <sub>RWM</sub><br>V <sub>R</sub> | 50          | 100     | 150     | 200     | 300     | 400     | 500     | 600     | V    |
| RMS Reverse Voltage                                                                                            | V <sub>R(RMS)</sub>                                    | 35          | 70      | 105     | 140     | 210     | 280     | 350     | 420     | V    |
| Average Rectified Output Current @ T <sub>A</sub> = 75 C (Note 1)                                              | I <sub>O</sub>                                         | 2.0         |         |         |         |         |         |         |         | A    |
| Non-Repetitive Peak Forward Surge Current<br>8.3ms Single half sine-wave Superimposed on Rated Load            | I <sub>FSM</sub>                                       | 60          |         |         |         |         |         |         |         | A    |
| Forward Voltage @ I <sub>F</sub> = 2.0A                                                                        | V <sub>FM</sub>                                        | 0.95        |         |         |         | 1.3     |         | 1.5     |         | V    |
| Peak Reverse Current @ T <sub>A</sub> = 25 C<br>at Rated DC Blocking Voltage (Note 5) @ T <sub>A</sub> = 100 C | I <sub>RM</sub>                                        | 10<br>100   |         |         |         |         |         |         |         | A    |
| Reverse Recovery Time (Note 2)                                                                                 | t <sub>rr</sub>                                        | 35          |         |         |         | 40      |         | 50      |         | ns   |
| Typical Total Capacitance (Note 3)                                                                             | C <sub>T</sub>                                         | 75          |         |         |         |         |         | 50      |         | pF   |
| Typical Thermal Resistance Junction to Ambient                                                                 | R <sub>JA</sub>                                        | 40          |         |         |         |         |         |         |         | °C/W |
| Operating and Storage Temperature Range                                                                        | T <sub>j</sub> , T <sub>STG</sub>                      | -65 to +150 |         |         |         |         |         |         |         | C    |

- Notes:
- Valid provided that leads are kept at ambient temperature at a distance of 9.5mm from the case.
  - Measured with I<sub>F</sub> = 0.5A, I<sub>R</sub> = 1.0A, I<sub>rr</sub> = 0.25A. See Figure 5.
  - Measured at 1.0MHz and applied reverse voltage of 4.0V DC.
  - RoHS revision 13.2.2003. Glass and high temperature solder exemptions applied, see *EU Directive Annex Notes 5 and 7*.
  - Short duration pulse test used to minimize self-heating effect.

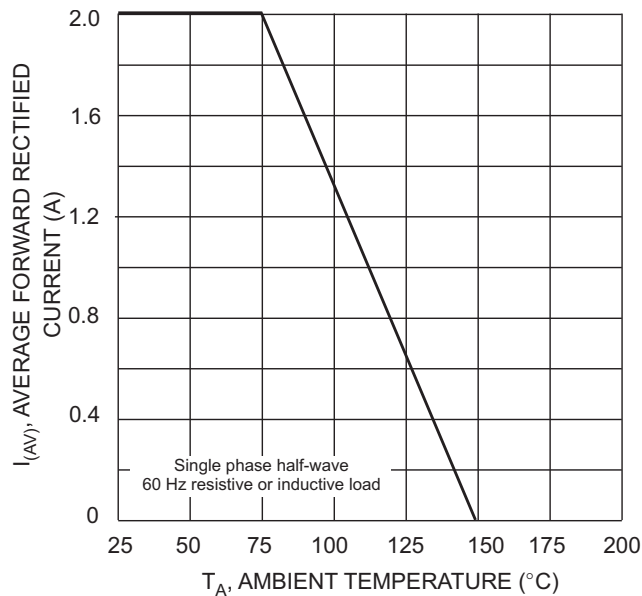


Fig. 1 Forward Current Derating Curve

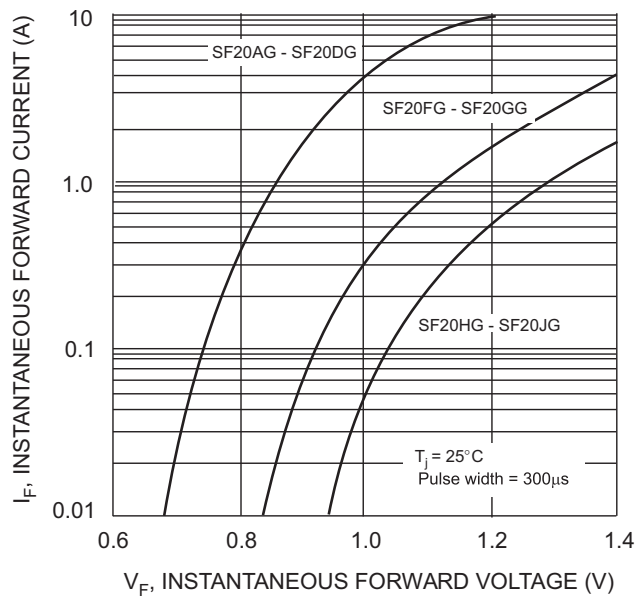


Fig. 2 Typical Forward Characteristics

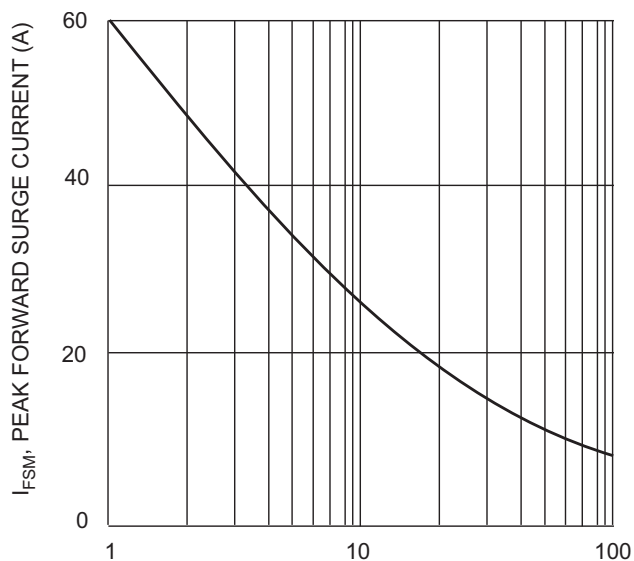


Fig. 3 Peak Forward Surge Current

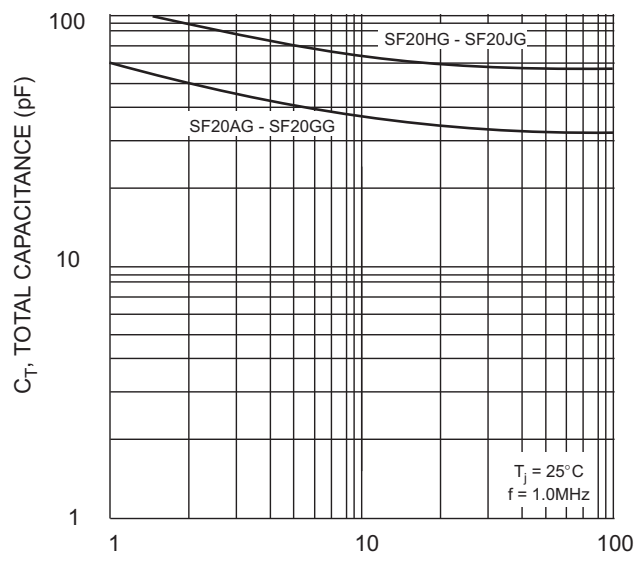
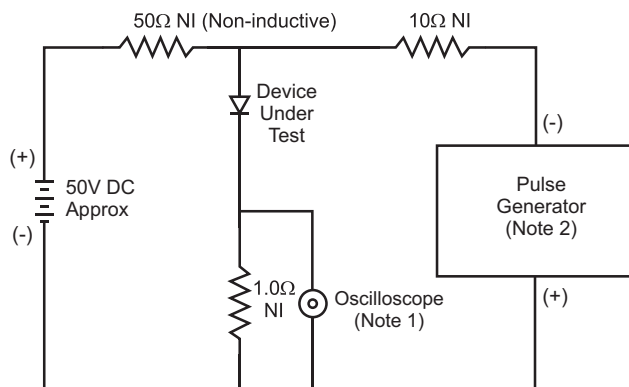
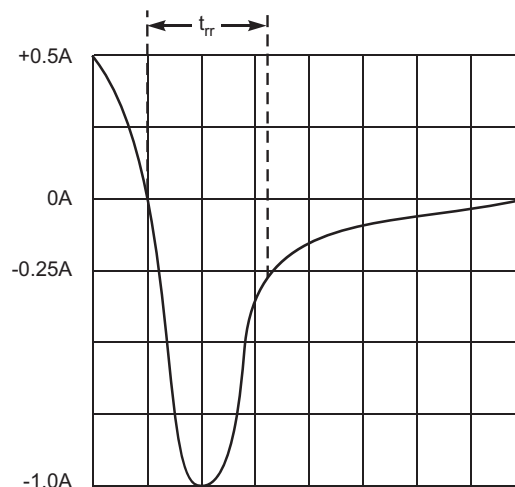


Fig. 4 Typical Total Capacitance



- 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

**Ordering Information** (Note 6)

| Device   | Packaging | Shipping                |
|----------|-----------|-------------------------|
| SF20AG-T | DO-15     | 4K/Tape & Reel, 13-inch |
| SF20BG-T | DO-15     | 4K/Tape & Reel, 13-inch |
| SF20CG-T | DO-15     | 4K/Tape & Reel, 13-inch |
| SF20DG-T | DO-15     | 4K/Tape & Reel, 13-inch |
| SF20FG-T | DO-15     | 4K/Tape & Reel, 13-inch |
| SF20GG-T | DO-15     | 4K/Tape & Reel, 13-inch |
| SF20HG-T | DO-15     | 4K/Tape & Reel, 13-inch |
| SF20JG-T | DO-15     | 4K/Tape & Reel, 13-inch |

Notes: 6. For packaging details, visit our website at <http://www.diodes.com/datasheets/ap02008.pdf>.

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