

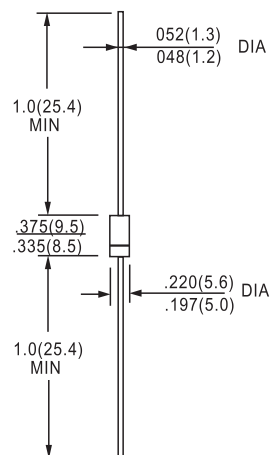
#### FEATURES

- Super fast switching speed
- Glass passivated chip junction
- Low power loss, high efficiency
- Low leakage
- High Surge Capacity
- High temperature soldering guaranteed  
260 °C / 10 seconds, 0.375" (9.5mm) lead length

#### Mechanical Data

- Case: Transfer molded plastic
- Epoxy: UL94V-0 rate flame retardant
- Polarity: Color band denotes cathode end
- Lead: Plated axial lead, solderable per MIL-STD-202E method 208C
- Mounting position: Any
- Weight: 0.042ounce, 1.19 gram

DO-27



Dimensions in inches and (millimeters)

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified

Single Phase, half wave, 60Hz, resistive or inductive load

For capacitive load derate current by 20%

|  | SYMBOLS         | SF51          | SF52 | SF53 | SF54 | SF55 | SF56 | SF57 | SF58 | UNIT    |
|--|-----------------|---------------|------|------|------|------|------|------|------|---------|
| Maximum Repetitive Peak Reverse Voltage  | $V_{RRM}$       | 50            | 100  | 150  | 200  | 300  | 400  | 500  | 600  | Volts   |
| Maximum RMS Voltage  | $V_{RMS}$       | 35            | 70   | 105  | 140  | 210  | 280  | 350  | 420  | Volts   |
| Maximum DC Blocking Voltage  | $V_{DC}$        | 50            | 100  | 100  | 200  | 300  | 400  | 500  | 600  | Volts   |
| Maximum Average Forward Rectified Current<br>0.375 (9.5mm) lead length at $T_A=55$                     | $I_{(AV)}$      | 5.0           |      |      |      |      |      |      |      | Amps    |
| Peak Forward Surge Current<br>8.3mS single half sine wave superimposed on<br>rated load (JEDEC method) | $I_{FSM}$       | 125           |      |      |      |      |      |      |      | Amps    |
| Maximum Instantaneous Forward Voltage at 5.0A  | $V_F$           | 0.95          |      |      | 1.25 |      | 1.7  |      |      | Volts   |
| Maximum DC Reverse Current<br>at rated DC blocking Voltage at  | $I_R$           | $T_A = 25$    |      |      |      |      |      |      |      | $\mu A$ |
|  |                 | 5.0           |      |      |      |      |      |      |      |         |
|  |                 | $T_A = 125$   |      |      |      |      |      |      |      |         |
|  |                 | 50            |      |      |      |      |      |      |      |         |
| Maximum Reverse Recovery Time<br>Test conditions $I_F=0.5A$ , $I_R=1.0A$ , $I_{RR}=0.25A$              | $t_{rr}$        | 35            |      |      |      |      |      |      |      | nS      |
| Typical Junction Capacitance<br>(Measured at 1.0MHz and applied reverse voltage of 4.0V)               | $C_J$           | 50            |      |      |      | 30   |      |      |      | pF      |
| Typical Thermal Resistance (NOTE 1)  | $R_{\theta JA}$ | 30            |      |      |      |      |      |      |      | /W      |
| Operating Junction Temperature Range   | $T_J$           | (-55 to +150) |      |      |      |      |      |      |      |         |
| Storage Temperature Range  | $T_{STG}$       | (-55 to +150) |      |      |      |      |      |      |      |         |

#### Notes:

1. Thermal Resistance from Junction to Ambient with 0.375" (9.5mm) lead length, PCB mounted.

## RATING AND CHARACTERISTIC CURVES SF51 THRU SF58

FIG.1-TYPICAL FORWARD CURRENT DERATING CURVE

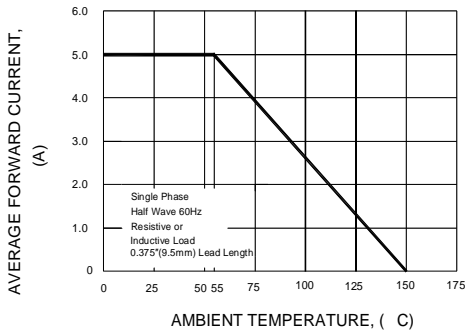


FIG.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

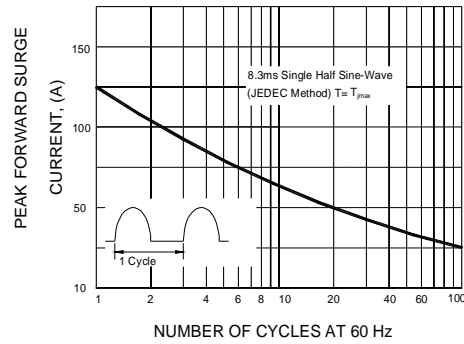


FIG.3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

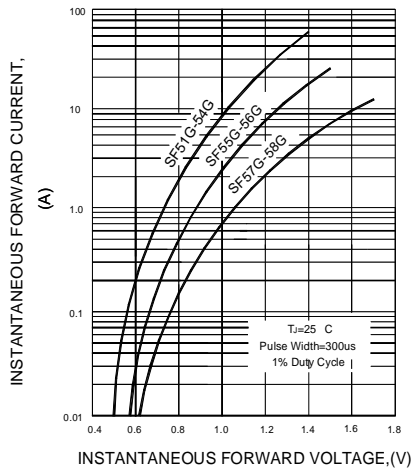


FIG.4-TYPICAL REVERSE CHARACTERISTICS

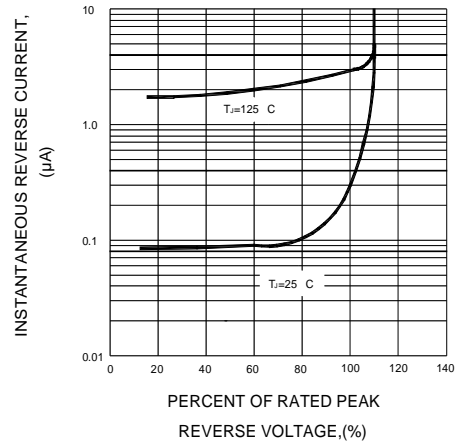


FIG.5-TYPICAL JUNCTION CAPACITANCE

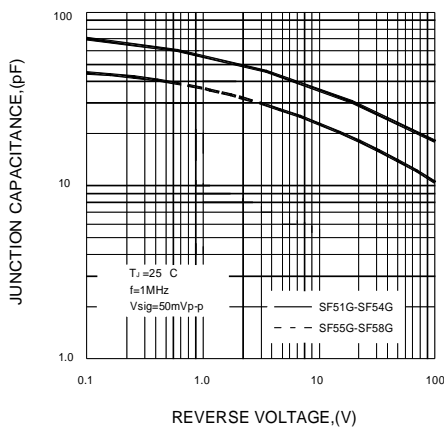


FIG.6-TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTIC

