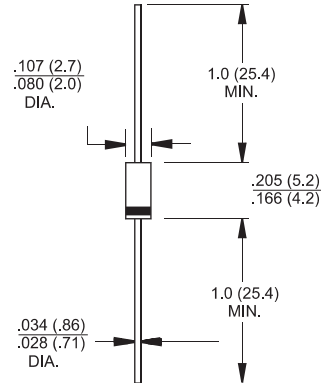




### DO-41



## Features

- ✧ High efficiency, low VF
- ✧ High current capability
- ✧ High reliability
- ✧ High surge current capability
- ✧ Low power loss.
- ✧ For use in low voltage, high frequency inverter, free wheeling, and polarity protection application

## Mechanical Data

- ✧ Cases: Molded plastic
- ✧ Epoxy: UL 94V-0 rate flame retardant
- ✧ Polarity: Color band denotes cathode
- ✧ High temperature soldering guaranteed:  $260^{\circ}\text{C}/10$  seconds/.375", (9.5mm) lead lengths at 5 lbs., (2.3kg) tension
- ✧ Weight: 0.35 gram

Dimensions in inches and (millimeters)

## Maximum Ratings and Electrical Characteristics

Rating at  $25^{\circ}\text{C}$  ambient temperature unless otherwise specified.

Single phase, half wave, 60 Hz, resistive or inductive load.

For capacitive load, derate current by 20%

| Type Number  | Symbol          | SF 11       | SF 12 | SF 13 | SF 14 | SF 15 | SF 16 | SF 17 | SF 18 | Units                          |
|--|-----------------|-------------|-------|-------|-------|-------|-------|-------|-------|--------------------------------|
| Maximum Recurrent Peak Reverse Voltage   | $V_{RRM}$       | 50          | 100   | 150   | 200   | 300   | 400   | 500   | 600   | V                              |
| Maximum RMS Voltage  | $V_{RMS}$       | 35          | 70    | 105   | 140   | 210   | 280   | 350   | 420   | V                              |
| Maximum DC Blocking Voltage  | $V_{DC}$        | 50          | 100   | 150   | 200   | 300   | 400   | 500   | 600   | V                              |
| Maximum Average Forward Rectified Current .375 (9.5mm) Lead Length @ $T_A = 55^{\circ}\text{C}$                | $I_{(AV)}$      | 1.0         |       |       |       |       |       |       |       | A                              |
| Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method)             | $I_{FSM}$       | 30          |       |       |       |       |       |       |       | A                              |
| Maximum Instantaneous Forward Voltage @ 1.0A   | $V_F$           | 0.95        |       |       | 1.3   |       | 1.7   |       |       | V                              |
| Maximum DC Reverse Current @ $T_A=25^{\circ}\text{C}$ at Rated DC Blocking Voltage @ $T_A=100^{\circ}\text{C}$ | $I_R$           | 5.0         |       |       |       | 100   |       |       |       | $\mu\text{A}$<br>$\mu\text{A}$ |
| Maximum Reverse Recovery Time (Note 1)   | $T_{rr}$        | 35          |       |       |       |       |       |       |       | nS                             |
| Typical Junction Capacitance (Note 2)  | $C_j$           | 30          |       |       | 15    |       |       |       |       | pF                             |
| Typical Thermal Resistance   | $R_{\theta JA}$ | 70          |       |       |       |       |       |       |       | $^{\circ}\text{C}/\text{W}$    |
| Operating Temperature Range  | $T_J$           | -65 to +125 |       |       |       |       |       |       |       | $^{\circ}\text{C}$             |
| Storage Temperature Range  | $T_{STG}$       | -65 to +150 |       |       |       |       |       |       |       | $^{\circ}\text{C}$             |

- Notes:
1. Reverse Recovery Test Conditions:  $I_F=0.5\text{A}$ ,  $I_R=1.0\text{A}$ ,  $I_{RR}=0.25\text{A}$
  2. Measured at 1 MHz and Applied Reverse Voltage of 4.0 V D.C.
  3. Mount on Cu-Pad Size 5mm x 5mm on PCB.

### RATINGS AND CHARACTERISTIC CURVES (SF11 THRU SF18)

FIG.1- MAXIMUM AVERAGE FORWARD CURRENT DERATING

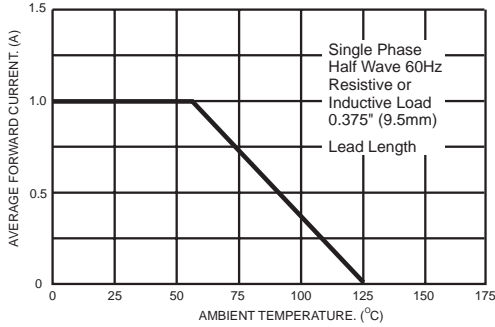


FIG.2- TYPICAL REVERSE CHARACTERISTICS

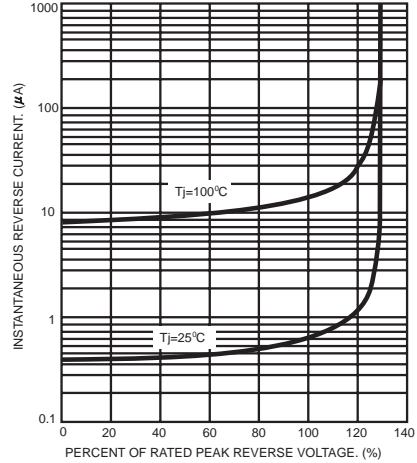


FIG.3- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

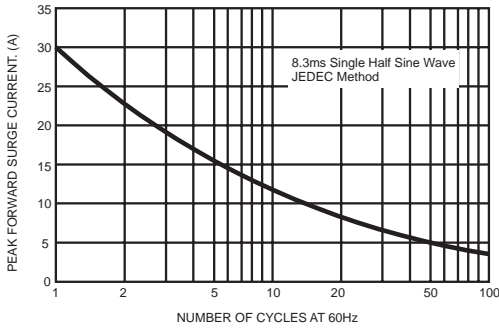


FIG.5- TYPICAL FORWARD CHARACTERISTICS

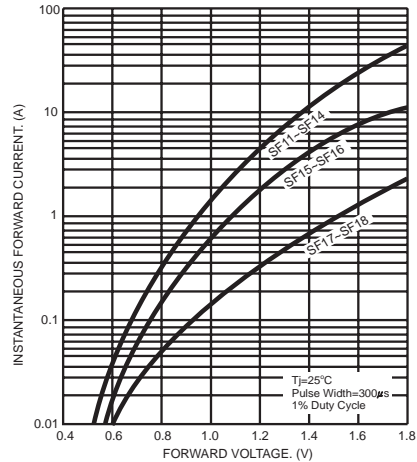


FIG.4- TYPICAL JUNCTION CAPACITANCE

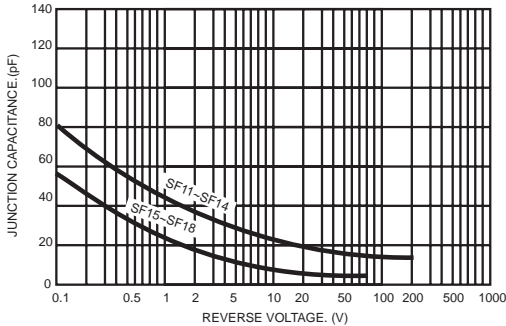
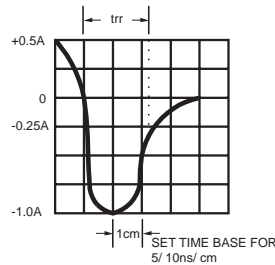
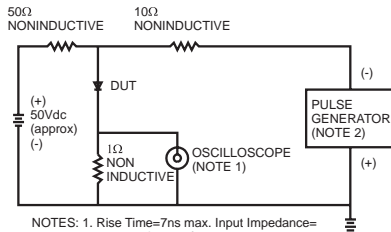


FIG.6- REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



NOTES: 1. Rise Time=7ns max. Input Impedance=1 megohm 22pf  
2. Rise Time=10ns max. Source Impedance=50 ohms

| PACKAGE | SPQ/PCS   | CARTON SPQ/PCS | CARTON SIZE/CM | CARTON GW/KG | CARTON NW/KG |
|---------|-----------|----------------|----------------|--------------|--------------|
| DO-41   | 5000/AMMO | 50000          | 42X28X31       | 14.00        | 12.00        |