



## SUPER FAST RECOVERY RECTIFIER

SF51 THRU SF58

VOLTAGE RANGE  
CURRENT

50 to 600 Volts  
5.0Ampere

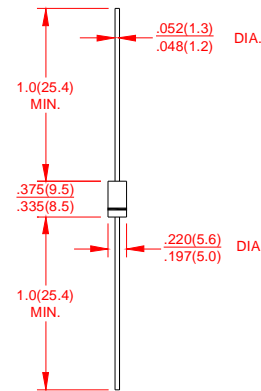
DO-27

### FEATURES

- Low coat construction
- Fast switching for high efficiency.
- Low reverse leakage
- High forward surge current capability
- High temperature soldering guaranteed:  
260°C/10 secods/.375"(9.5mm)lead length at 5 lbs(2.3kg) tension

### MECHANICAL DATA

- Case: Transfer molded plastic
- Epoxy: UL94V-O 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, 1.19grams



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	SF 51	SF 52	SF 53	SF 54	SF 55	SF 56	SF 57	SF 58	UNITS
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	150	200	300	400	500	600	Volts
Maximum Average Forward Rectified Current 0.375"(9.5mm) lead length at $T_A=55^\circ\text{C}$	$I_{(AV)}$	5.0								Amp
Peak Forward Surge Current 8.3mS single half sine wave superimposed on rated load (JEDEC method)	$I_{FSM}$	125								Amps
Maximum Instantaneous Forward Voltage @ 5.0A	$V_F$	0.95			1.25		1.7			Volts
Maximum DC Reverse Current at Rated DC Blocking Voltage	$I_R$	$T_A = 25^\circ\text{C}$								$\mu\text{A}$
		$T_A = 125^\circ\text{C}$								
Maximum Reverse Recovery Time Test conditions $I_F=0.5\text{A}, I_R=1.0\text{A}, I_{RR}=0.25\text{A}$	$t_{rr}$	35								ns
Typical Thermal Capavitance (Measured at 1.0MHz and applied rever voltage of 4.0V)	$C_J$	50				30				PF
Typical Thermal Resistance(NOTE 1)	$R_{\theta JA}$	30								$^\circ\text{C}/\text{W}$
Operating Junction Temperature Range	$T_J$	(-55 to +150)								$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	(-55 to +150)								$^\circ\text{C}$

#### Notes:

1. Thermal resistance from junction to ambient with .375"(9.5mm)lead length, PCB. mounted. .



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## RATING AND CHARACTERISTIC CURVES SF51 THRU SF58

FIG.1-TYPICAL FORWARD CURRENT DERATING CURVE

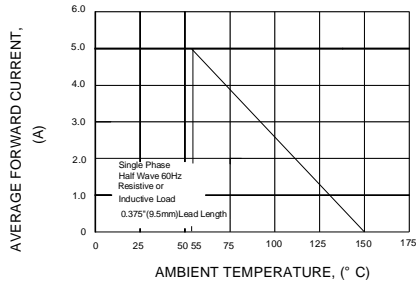


FIG.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

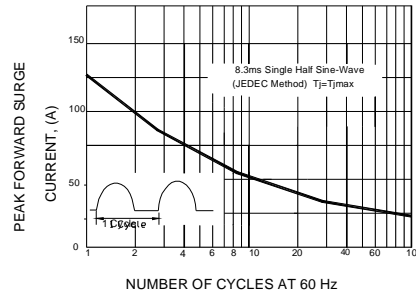


FIG.3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

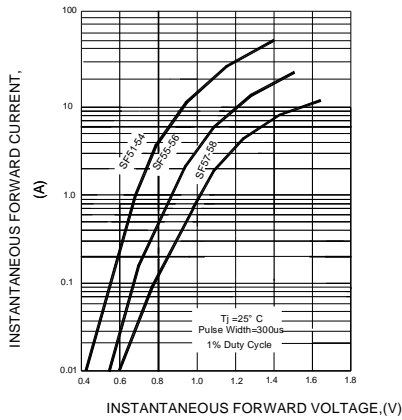


FIG.4-TYPICAL REVERSE CHARACTERISTICS

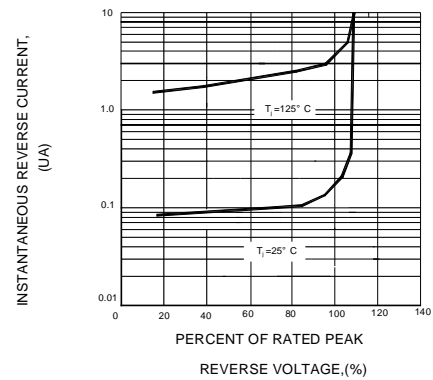


FIG.5-TYPICAL JUNCTION CAPACITANCE

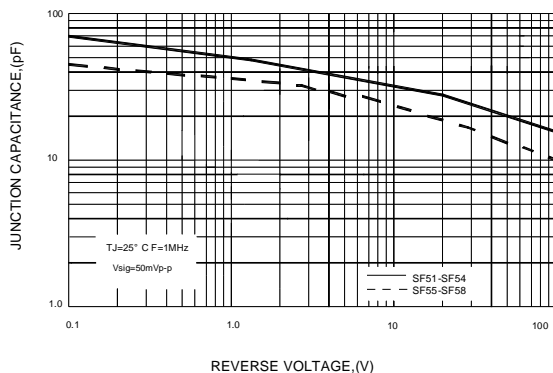
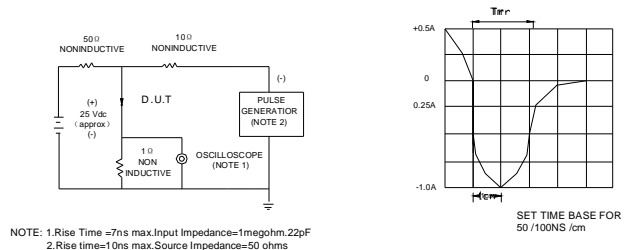


FIG.6-TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTIC



NOTE: 1. Rise Time = 7ns max. Input Impedance = 1megohm. 22pF  
2. Rise time = 10ns max. Source Impedance = 50 ohms