



# SUPER FAST RECTIFIER

## SF31 THRU SF38

VOLTAGE RANGE  
CURRENT

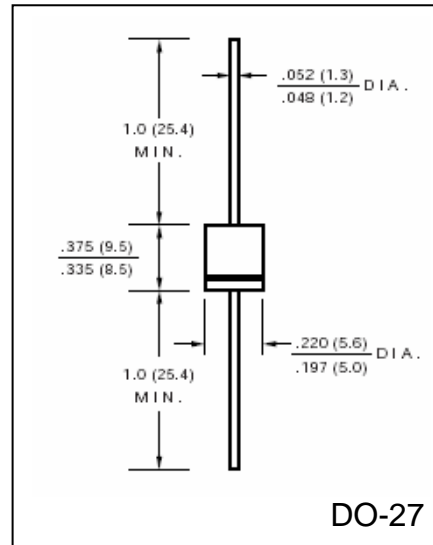
50 to 600 Volts  
3.0 Ampere

### FEATURES

- Super fast switching speed
- Low power loss, high efficiency
- Low Leakage
- High Surge Capacity
- High Temperature soldering guaranteed:
- 260°C / 10 second, 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: 0.042 ounce, 1.19 gram



### 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	SF31	SF32	SF33	SF34	SF35	SF36	SF37	SF38	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	150	200	300	400	500	600	Volts
Maximum Average Forward Rectified Current, 0.375" (9.5mm) lead length at $T_A = 55^\circ\text{C}$ (note 1)	$I_{(AV)}$	3.0								Amps
Peak Forward Surge Current 8.3ms single half sine wave superimposed on rated load (JEDEC method)	$I_{FSM}$	125								Amps
Maximum Instantaneous Forward Voltage @ 3.0A	$V_F$	0.95			1.25		1.70			Volts
Maximum DC Reverse Current at Rated $T_A = 25^\circ\text{C}$	$I_R$	5.0								$\mu\text{A}$
DC Blocking Voltage per element $T_A = 125^\circ\text{C}$		300								
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 Junction Capacitance (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								$^\circ\text{C}/\text{W}$
Operating Junction Temperature	$T_J$	(-65 to +150)								$^\circ\text{C}$
Storage Temperature Rang	$T_{STG}$	(-65 to +150)								$^\circ\text{C}$

### Notes:

1. Thermal resistance from junction to ambient with 0.375" (9.5mm) lead length, PCB mounted



## RATINGS AND CHARACTERISTIC CURVES SF31 THRU SF38

FIG.1-TYPICAL FORWARD CURRENT DERATING CURVE

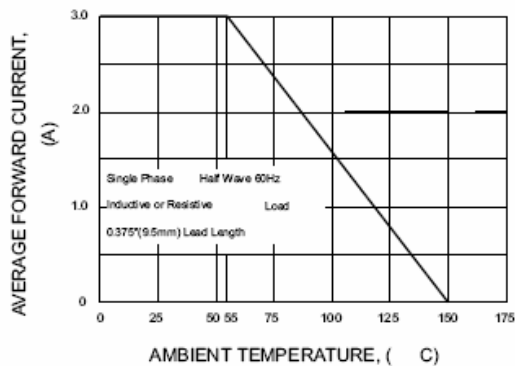


FIG.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

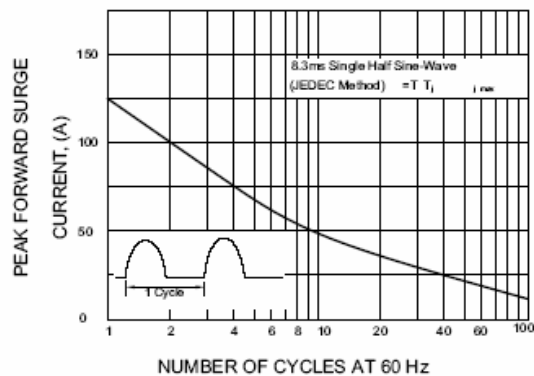


FIG.3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

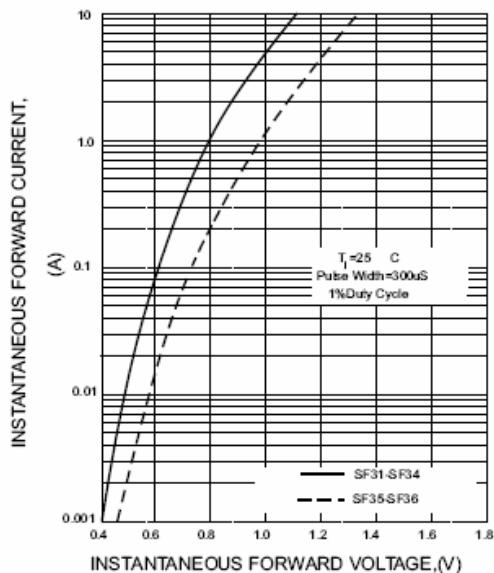


FIG.4-TYPICAL REVERSE CHARACTERISTICS

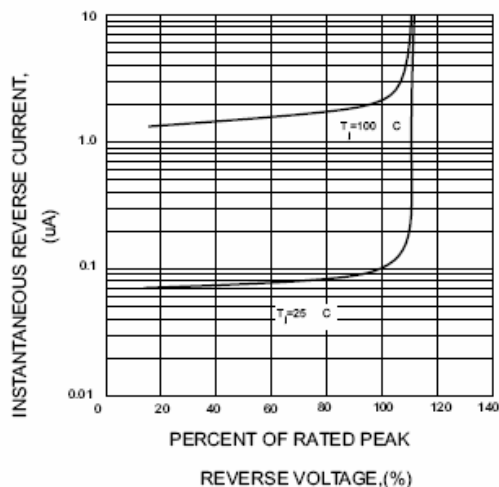


FIG.5-TYPICAL JUNCTION CAPACITANCE

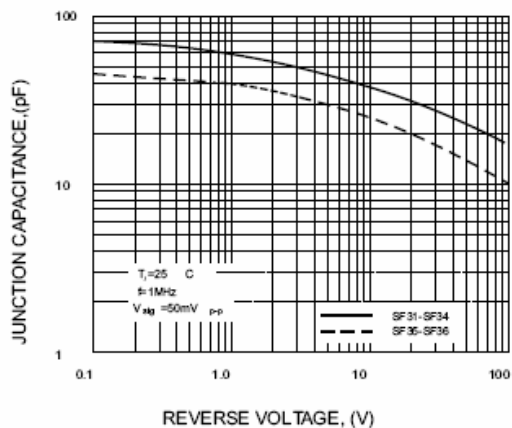


FIG.6-TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTIC

