

SF8A05FC THRU SF8A60FC

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SF8A05FC THRU SF8A60FC

8A Super Fast Recovery Rectifiers
Reverse Voltage 50V-600V

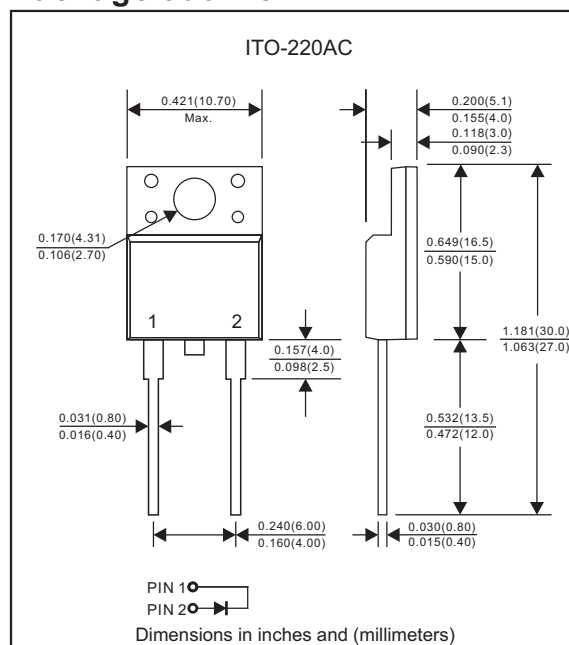
Features

- High surge current capability.
- Super fast recovery time for switching mode application.
- Low power loss.
- Glass passivated chip junctions.
- Lead-free parts meet environmental standards of MIL-STD-19500/228
- Suffix "-H" indicates Halogen-free parts, ex. SF8A05FC-H.

Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : JEDEC ITO-220AC molded plastic body over passivated chip
- Lead : Axial leads, solderable per MIL-STD-202, Method 208 guaranteed
- Polarity: As marked
- Mounting Position : Any
- Weight : Approximated 1.70 gram

Package outline



Maximum ratings (AT $T_A=25^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	SYMBOLS	SF8A05FC	SF8A10FC	SF8A20FC	SF8A40FC	SF8A60FC	UNIT
Repetitive peak reverse voltage	V_{RRM}	50	100	200	400	600	V
RMS voltage	V_{RMS}	35	70	140	280	420	V
DC blocking voltage	V_{DC}	50	100	200	400	600	V
Average forward rectified current	I_o	8					A
Peak forward surge current 8.3ms single half sine-wave(JEDEC method)	I_{FSM}	150					A
Operating junction temperature range	T_J	-55 to +150					$^{\circ}\text{C}$
Storage temperature range	T_{STG}	-55 to +150					$^{\circ}\text{C}$

Electrical Characteristics (AT $T_A=25^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	SYMBOLS	SF8A05FC	SF8A10FC	SF8A20FC	SF8A40FC	SF8A60FC	UNIT
Maximum forward voltage per leg at $I_F=8\text{A}$	V_F	1.0			1.3	1.7	V
Maximum DC reverse current at $T_A=25^{\circ}\text{C}$ at rated DC blocking voltage per leg at $T_A=125^{\circ}\text{C}$	I_R	10			500		μA
Maximum reverse recovery time per leg (Note 1)	t_{rr}	35					ns

Thermal Characteristics

PARAMETER	SYMBOLS	SF8A05FC	SF8A10FC	SF8A20FC	SF8A40FC	SF8A60FC	UNIT
Typical thermal resistance junction to case per leg	$R_{\theta JC}$	3.5					$^{\circ}\text{C}/\text{W}$

Note 1: Reverse recovery time test condition, $I_F=0.5\text{A}$, $I_R=1.0\text{A}$, $I_{RR}=0.25\text{A}$

Rating and characteristic curves (SF8A05FC THRU SF8A60FC)

FIG.1-DERATING CURVE OUTPUT RECTIFIED CURRENT

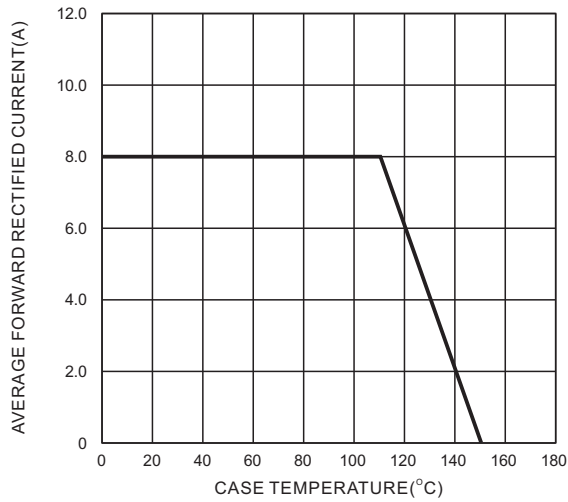


FIG.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

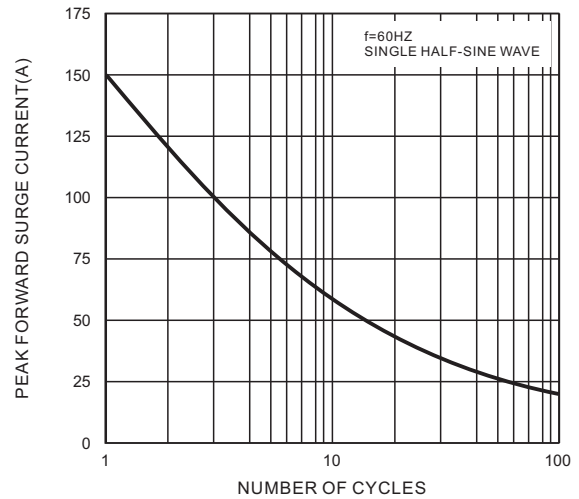


FIG.3-TYPICAL REVERSE LEAKAGE CHARACTERISTICS

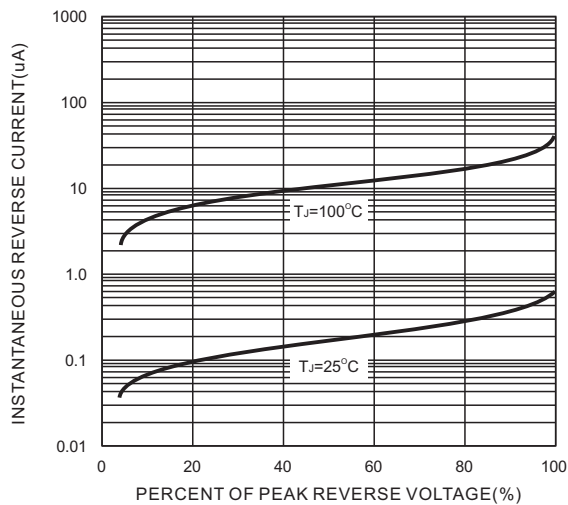


FIG.4-TYPICAL FORWARD VOLTAGE CHARACTERISTICS

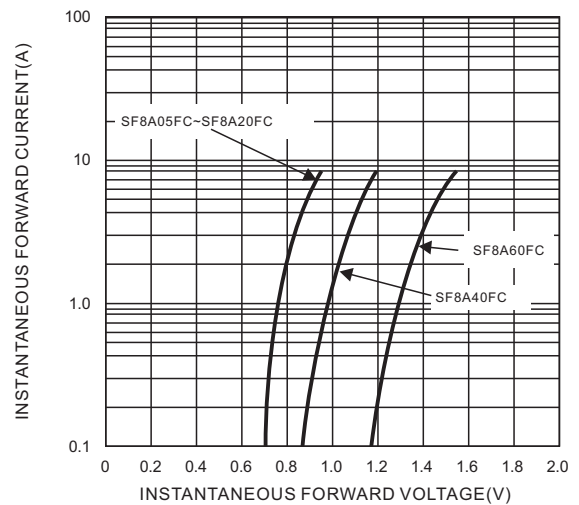
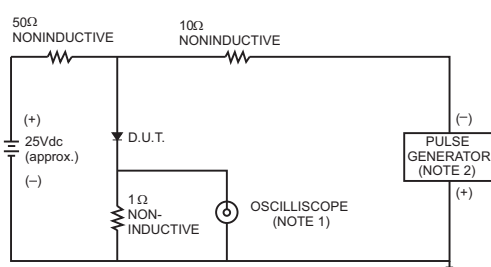
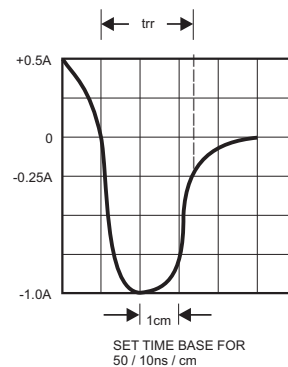


FIG.5- TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTICS



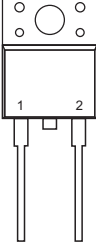
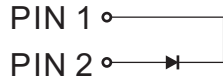
NOTES:

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



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Pinning information

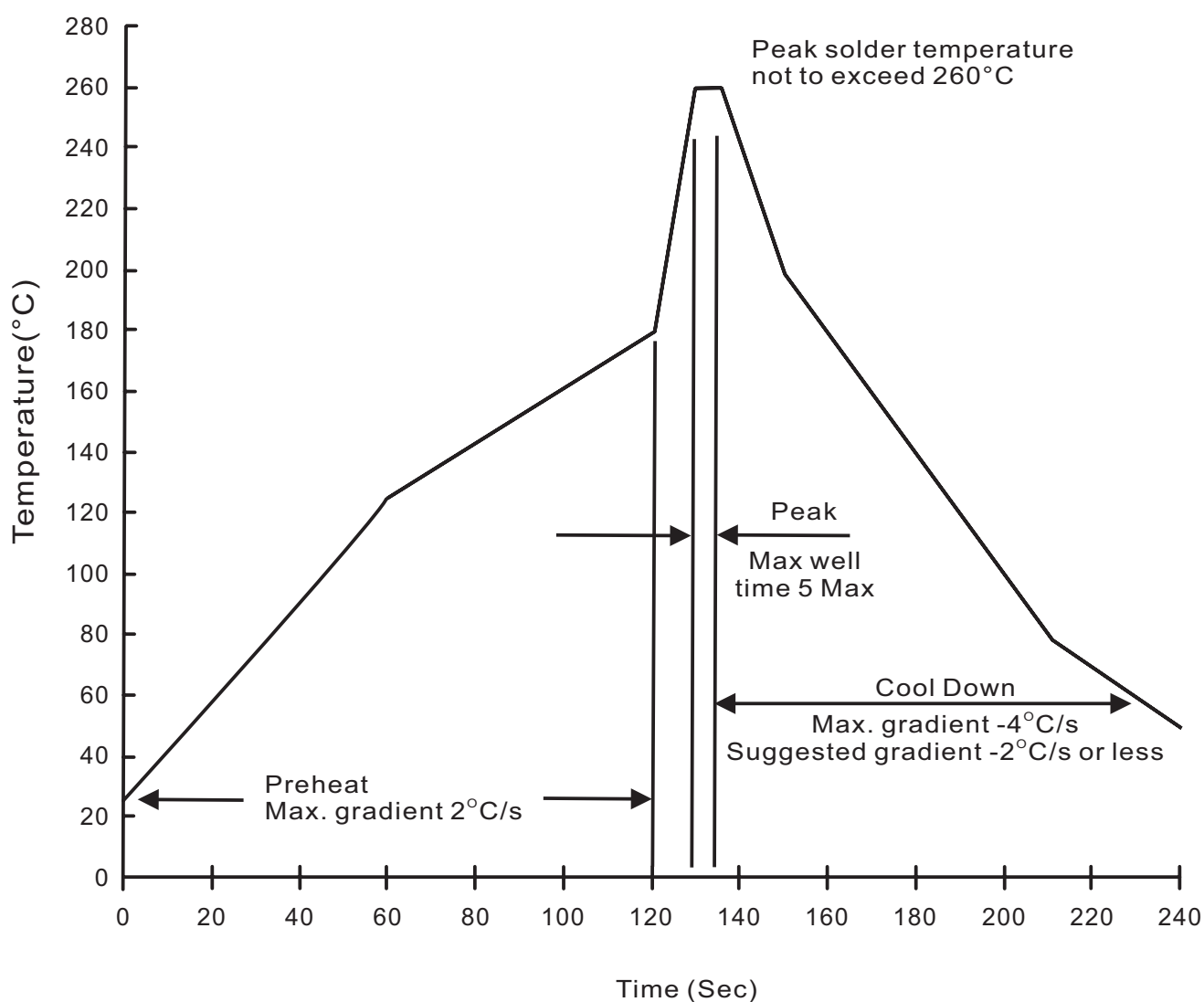
Pin	Simplified outline	Symbol
Pin1 Cathode Pin2 Anode		

Marking

Type number	Marking code
SF8A05FC	SF8A05FC, SF805F
SF8A10FC	SF8A10FC, SF810F
SF8A20FC	SF8A20FC, SF820F
SF8A40FC	SF8A40FC, SF840F
SF8A60FC	SF8A60FC, SF860F

Tube packing

PACKAGE	TUBE (pcs)	TUBE SIZE (m/m)	BOX (pcs)	INNER BOX (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
ITO-220AC	50	525*319*6.4	1000	545*150*45	575*245*170	5,000	15.0

SF8A05FC THRU SF8A60FC**Suggested thermal profiles for soldering processes****1. Lead free temperature profile wave-soldering**

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High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at $260 \pm 5^\circ\text{C}$ for $10 \pm 2\text{sec.}$ immerse body into solder $1/16'' \pm 1/32''$	MIL-STD-750D METHOD-2031
2. Solderability	at $245 \pm 5^\circ\text{C}$ for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	$V_R = 80\%$ rate at $T_J = 150^\circ\text{C}$ for 168 hrs.	MIL-STD-750D METHOD-1038
4. Forward Operation Life	Rated average rectifier current at $T_A = 25^\circ\text{C}$ for 500hrs.	MIL-STD-750D METHOD-1027
5. Intermittent Operation Life	$T_A = 25^\circ\text{C}$, $I_F = I_O$ On state: power on for 5 min. off state: power off for 5 min. on and off for 500 cycles.	MIL-STD-750D METHOD-1036
6. Pressure Cooker	$15P_{SIG}$ at $T_A = 121^\circ\text{C}$ for 4 hrs.	JESD22-A102
7. Temperature Cycling	-55°C to $+125^\circ\text{C}$ dwelled for 30 min. and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
8. Forward Surge	8.3ms single half sine-wave , one surge.	MIL-STD-750D METHOD-4066-2
9. Humidity	at $T_A = 85^\circ\text{C}$, RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
10. High Temperature Storage Life	at 150°C for 1000 hrs.	MIL-STD-750D METHOD-1031