

# FE8A60

## List

List..... 1

Package outline..... 2

Features..... 2

Mechanical data..... 2

Maximum ratings .....2

Rating and characteristic curves..... 3

Pinning information.....4

Marking..... 4

Tube packing.....4

Suggested thermal profiles for soldering processes..... 5

High reliability test capabilities.....6

# FE8A60

## 8.0A Efficiency Fast Rectifiers-600V

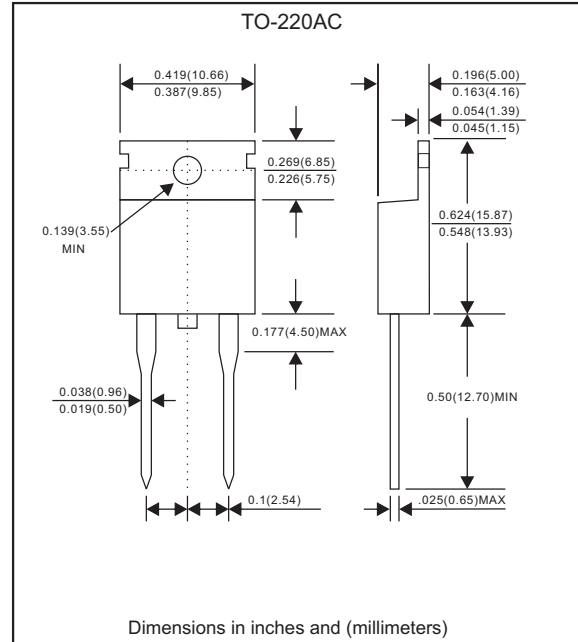
### Features

- Reverse recovery time less than 20ns
- High current capability.
- Low reverse leakage current.
- High surge capability.
- Low forward drop down voltage.
- High reliability.
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen free parts, ex. FE8A60-H.

### Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : JEDEC TO-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 2.05grams

### Package outline



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

Parameter	symbol	FE8A60	Unit
Maximum repetitive peak reverse voltage	$V_{RRM}$	600	V
Maximum RMS voltage	$V_{RMS}$	420	V
Maximum DC blocking voltage	$V_{DC}$	600	V
Forward rectified current	$I_o$	8.0	A
Peak forward surge current 8.3ms single half sine-wave	$I_{FSM}$	100	A
Typical Diode junction capacitance f=1MHz and applied 4V DC reverse voltage	$C_J$	50	pF
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	symbol	FE8A60	Unit
Maximum instantaneous forward voltage @ $I_F=8.0A$	$V_F$	2.0	V
Maximum DC reverse current $T_J=25^{\circ}\text{C}$ at Rated DC blocking voltage $T_J=125^{\circ}\text{C}$	$I_R$	5 200	$\mu\text{A}$
Maximum Reverse recovery time test condition: $I_F=0.5A$ , $I_R=1.0A$ , $I_{RR}=0.25A$	$t_{rr}$	20	ns

# Rating and characteristic curves (FE8A60)

FIG.1-TYPICAL FORWARD CURRENT DERATING CURVE

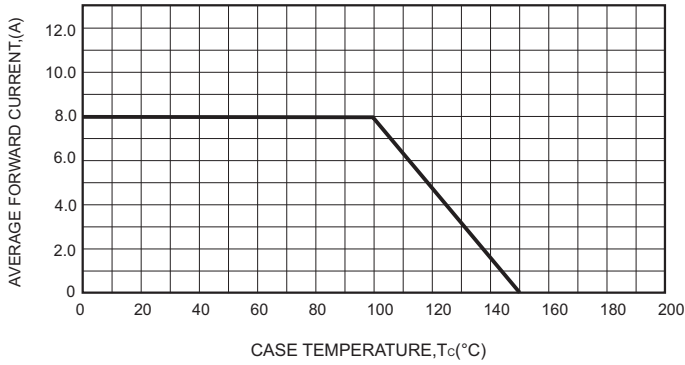


FIG.2-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

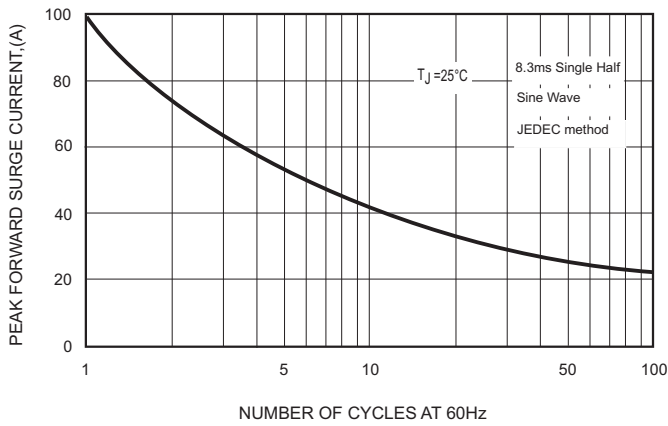


FIG.3-TYPICAL FORWARD CHARACTERISTICS

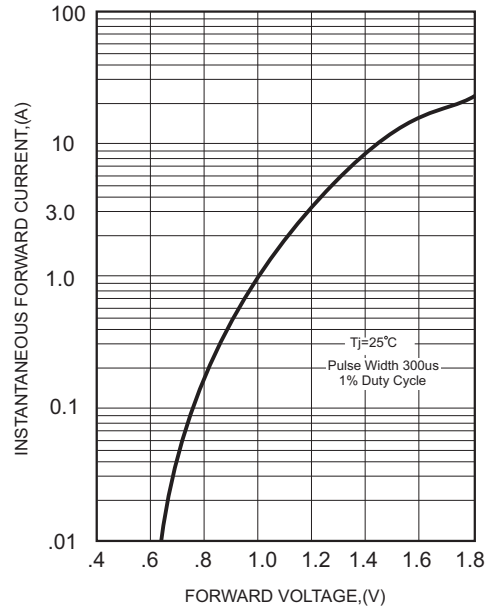


FIG.4 - TYPICAL REVERSE CHARACTERISTICS

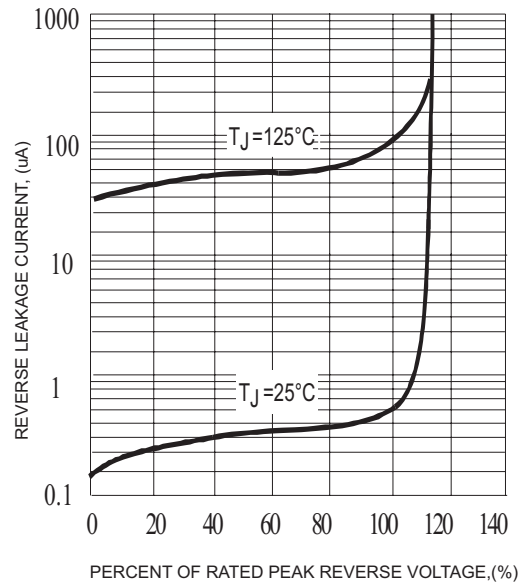
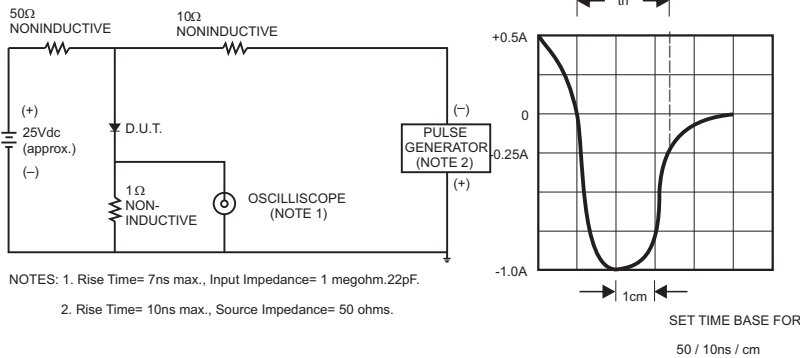


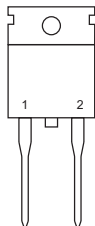

FIG.5- TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTICS



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

# FE8A60

## Pinning information

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

## Marking

Type number	Marking code
FE8A60	FE8A60

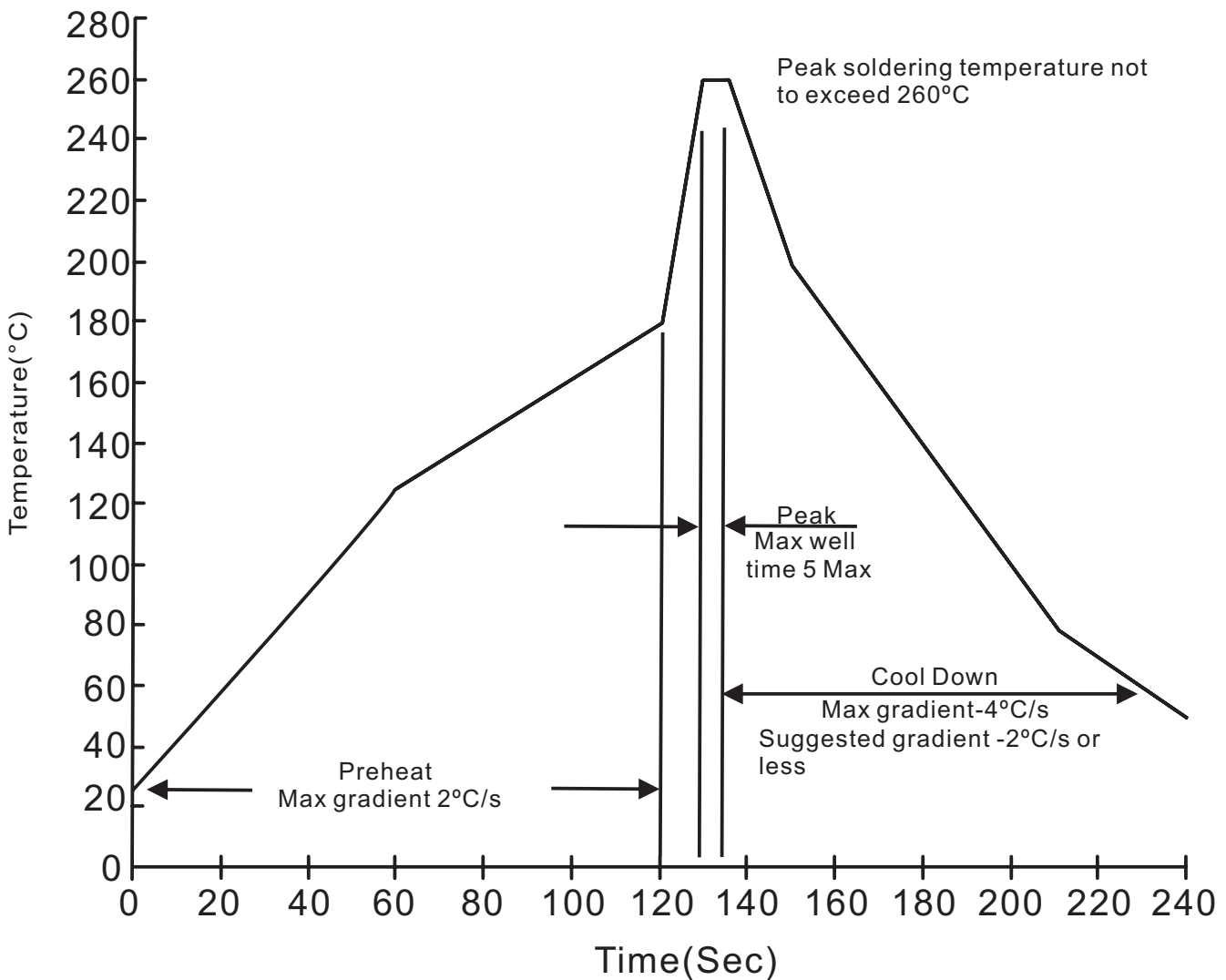
## Tube packing

PACKAGE	TUBE (pcs)	TUBE SIZE (m/m)	BOX (pcs)	INNER BOX (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
TO-220AC	50	525*32*7.5	1000	555*150*40	580*230*175	5,000	15.0

# FE8A60

## Suggested thermal profiles for soldering processes

### 1. Lead free temperature profile wave-soldering



**FE8A60****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	$-55^{\circ}\text{C}$ 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 $175^{\circ}\text{C}$ for 1000 hrs.	MIL-STD-750D METHOD-1031