

EF1005CT THRU EF1060CT

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EF1005CT THRU EF1060CT

10.0A Glass Passivated Efficient Fast Rectifiers-50-600V

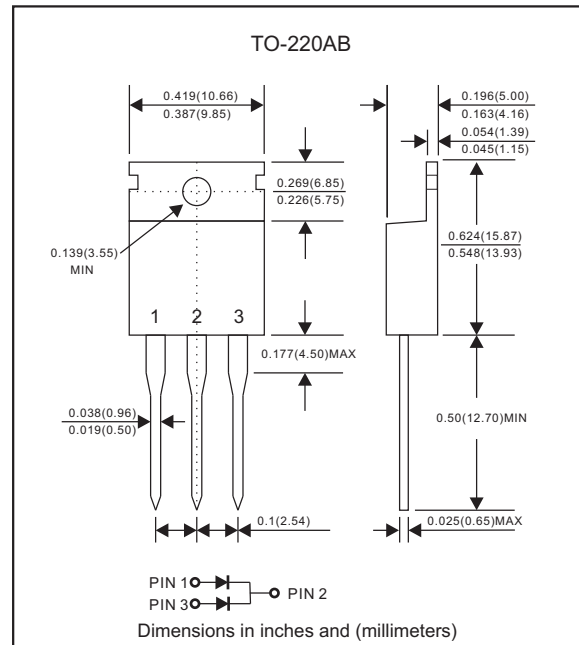
Features

- Reverse recovery time less than 25ns
- Dual rectifier construction, positive centetap, offers 5.0A half wave and 10.0A full wave rectification.
- High current capability.
- Low reverse leakage current.
- High surge capability.
- Glass passivated chip junction.
- Low forward drop down voltage.
- High reliability.
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen-free parts, ex. EF1005CT-H.

Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : JEDEC TO-220AB 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 2.10 gram

Package outline



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

PARAMETER	SYMBOLS	EF1005CT	EF1010CT	EF1020CT	EF1040CT	EF1060CT	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	200	400	600	V
Maximum RMS voltage	V_{RMS}	35	70	140	280	420	V
Maximum DC blocking voltage	V_{DC}	50	100	200	400	600	V
Maximum average forward rectified current	I_o	10.0					A
Peak forward surge current 8.3ms single half sine-wave (JEDEC method)	I_{FSM}	80					A
Typical diode junction capacitance (Note 1)	C_J	30					pF
Operating junction temperature range	T_J	-55 to +150					$^{\circ}\text{C}$
Storage temperature range	T_{STG}	-65 to +175					$^{\circ}\text{C}$

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

PARAMETER	SYMBOLS	EF1005CT	EF1010CT	EF1020CT	EF1040CT	EF1060CT	UNIT
Maximum forward voltage per leg at $I_F=5.0\text{A}$	V_F	0.98			1.30	1.75	V
Maximum DC reverse current at $T_J=25^{\circ}\text{C}$ at rated DC blocking voltage per leg at $T_J=125^{\circ}\text{C}$	I_R	5.0 250					μA μA
Maximum reverse recovery time per leg (Note 2)	t_{rr}	25					ns

Thermal characteristics

PARAMETER	SYMBOLS	EF1005CT	EF1010CT	EF1020CT	EF1040CT	EF1060CT	UNIT
Typical thermal resistance junction to case per leg	$R_{\theta JC}$	2.5					$^{\circ}\text{C/W}$

Note 1: Measure at 1 MHz and applied reverse voltage of 4.0 V D.C.

Note 2: Reverse recovery time test condition, $I_F=0.5\text{A}$, $I_R=1.0\text{A}$, $IRR=0.25\text{A}$

Rating and characteristic curves (EF1005CT THRU EF1060CT)

FIG.1-TYPICAL FORWARD CURRENT DERATING CURVE

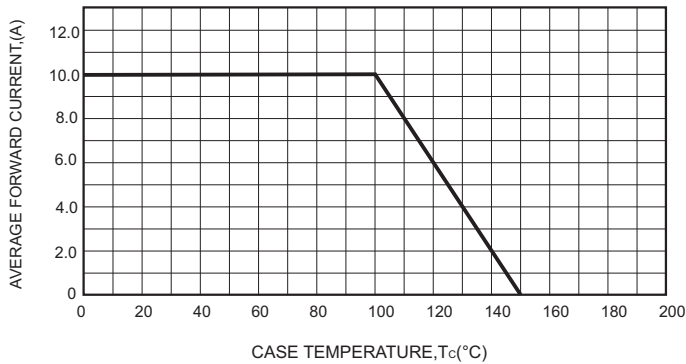


FIG.2-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

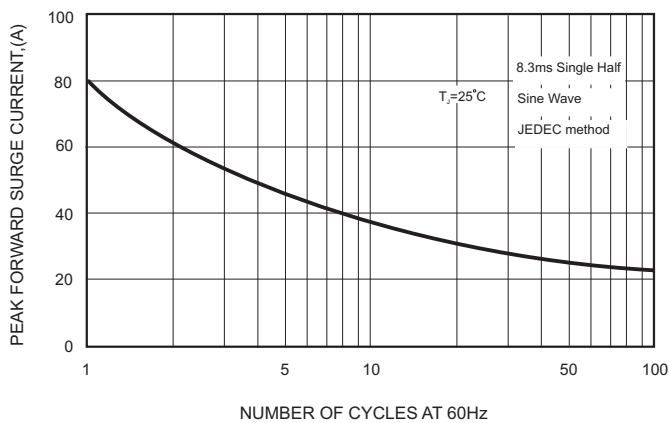
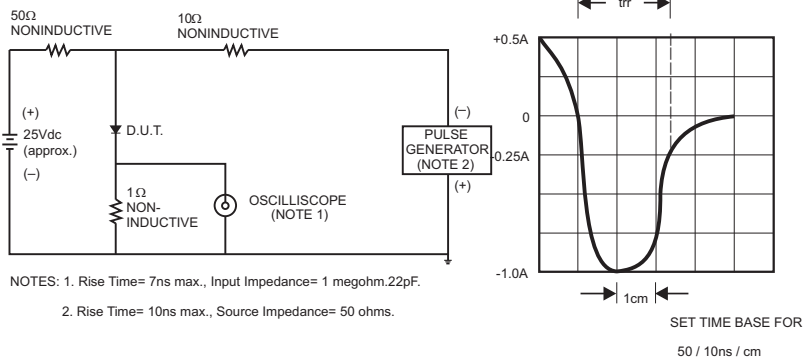


FIG.5- TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTICS



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

FIG.3-TYPICAL FORWARD CHARACTERISTICS

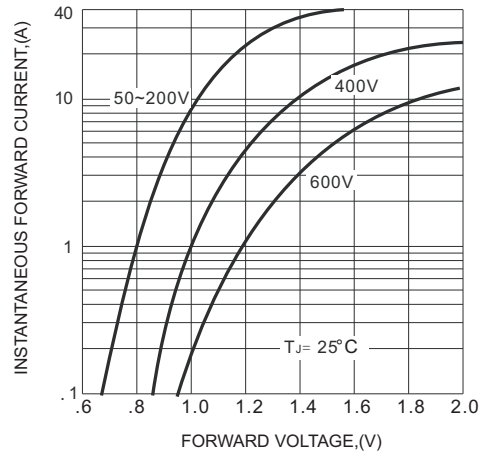
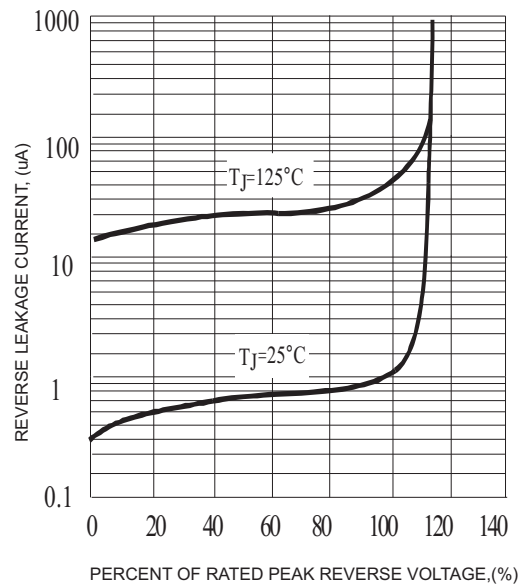
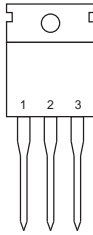
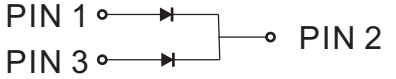


FIG.4 - TYPICAL REVERSE CHARACTERISTICS



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Pinning information

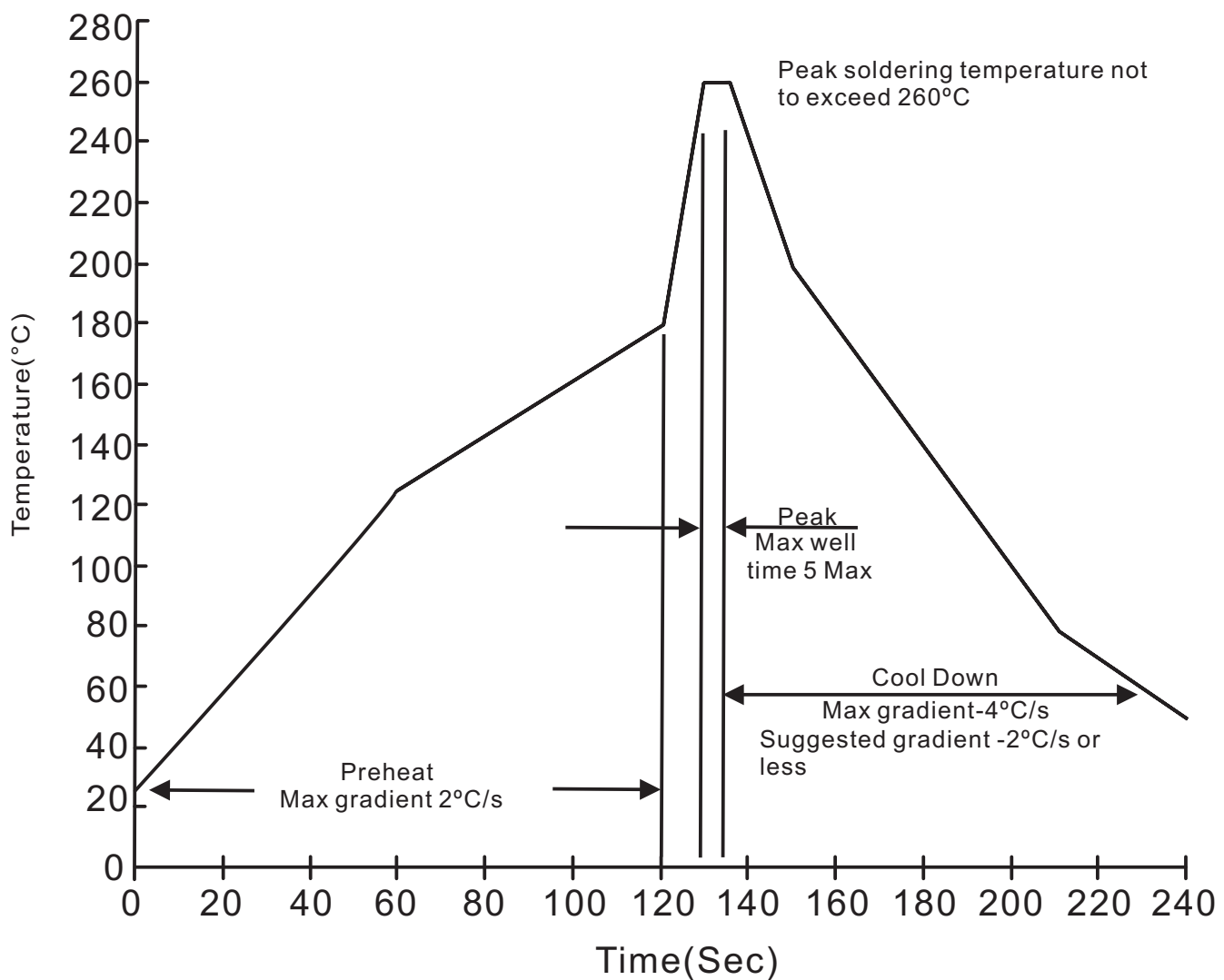
Pin	Simplified outline	Symbol
Pin1 anode Pin2 cathode Pin3 anode		

Marking

Type number	Marking code
EF1005CT	EF1005CT
EF1010CT	EF1010CT
EF1020CT	EF1020CT
EF1040CT	EF1040CT
EF1060CT	EF1060CT

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-220AB	50	525*32*7.5	1000	555*150*40	580*230*175	5,000	15.0

EF1005CT THRU EF1060CT**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 175°C for 1000 hrs.	MIL-STD-750D METHOD-1031