

EF10A20W

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EF10A20W

10.0A FRED Rectifiers : 200V

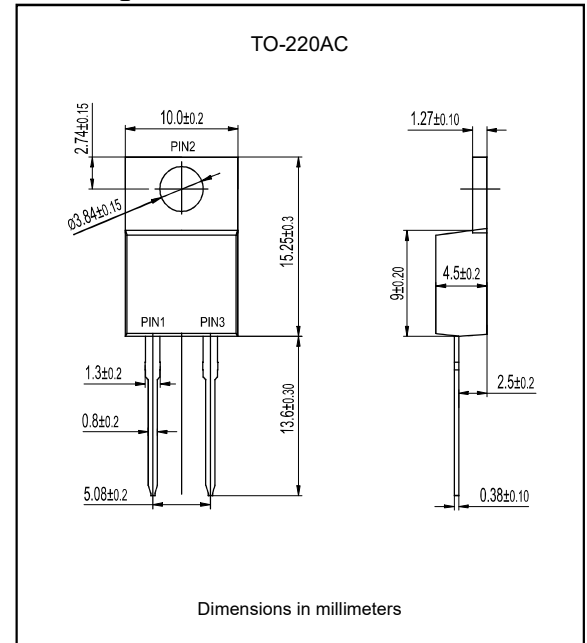
Features

- Planar structure with EPI wafer
- Ultra and soft recovery characteristic.
- Low power loss.
- Low leakage current.
- For PFC (DCM / CCM) operation.
- Lead free in compliance with EU RoHS 2011/65/EU directive.
- Suffix "-H" indicates Halogen free parts, ex. EF10A20W-H.

Mechanical data

- Circuit figure : Single positive
- Lead : Solderable per MIL-STD 202, Method 208.
- Case : JEDEC TO-220AC molded plastic body over passivated chip.
- Polarity: As marked
- Mounting torque : 5 in-lbs maximum.
- Terminals : Puretin pated.
- Weight : Approximated 1.85 gram

Package outline



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

Parameter	Symbol	Ratings	Unit
Maximum repetitive reverse voltage	V_{RRM}	200	V
Maximum RMS voltage	V_{RMS}	140	V
Maximum average forward current	I_{AV}	10	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	100	A
Typical thermal resistance per diode (Note 1)	$R_{\theta JC}$	2.0	$^{\circ}\text{C}/\text{W}$
Operating junction temperature range	T_J	-55 to +155	$^{\circ}\text{C}$
Storage temperature range	T_{STG}	-55 to +155	$^{\circ}\text{C}$

Note 1: Thermal resistance from junction to case.

Maximum Electrical Characteristics (At $T_J=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Instantaneous forward voltage	V_F	$I_F=10\text{A}$			1.05	V
		$I_F=10\text{A}$ ($T_J=125^{\circ}\text{C}$)			0.88	
Reverse current per diode	I_R	$V_R=200\text{V}$			5	μA
		$V_R=200\text{V}$ ($T_J=125^{\circ}\text{C}$)			250	
Reverse recovery time	I_{AV}	$I_F=0.5\text{A}$, $I_R=1.0\text{A}$, $I_{RR}=0.25\text{A}$			25	ns

Rating and characteristic curves (EF10A20W)

FIG. 1 - TYPICAL FORWARD CURRENT DERATING CURVE

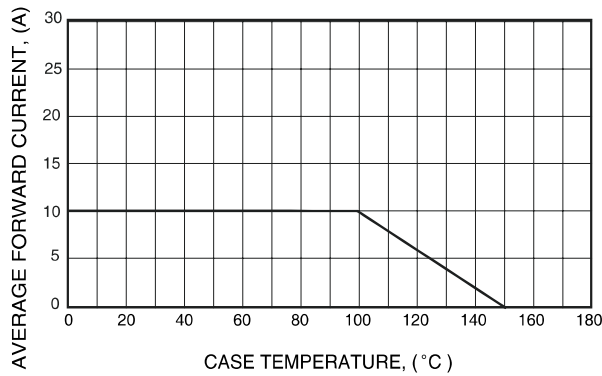


FIG. 2 - MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

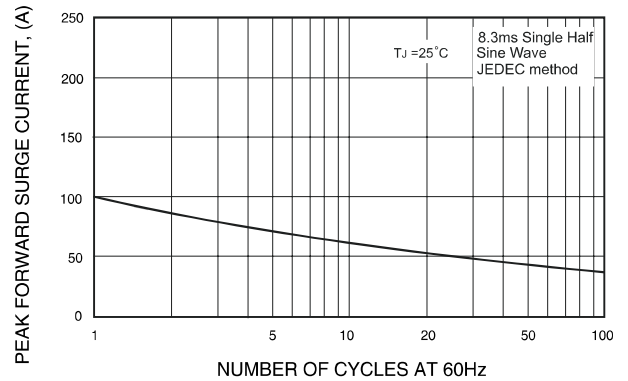


FIG. 3 - TYPICAL REVERSE CHARACTERISTICS

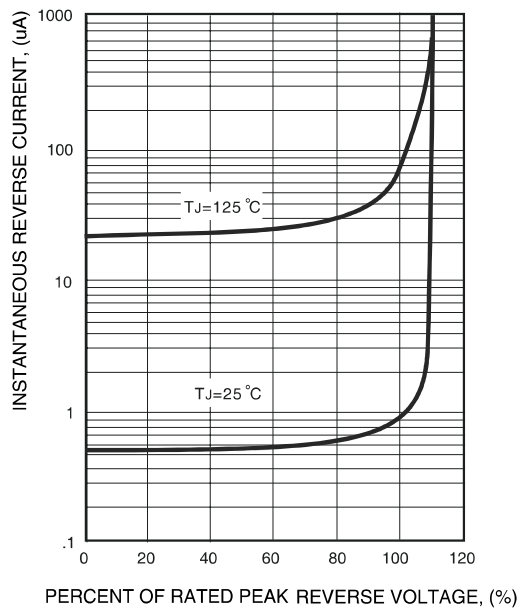
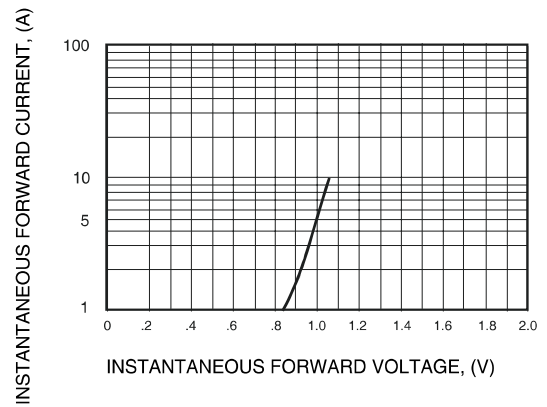
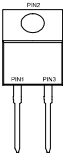
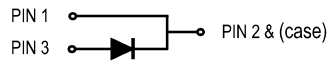


FIG. 4 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS



EF10A20W

Pinning information

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 cathode Pin3 anode		

Marking

Type number	Marking code
EF10A20W	DSE10T02

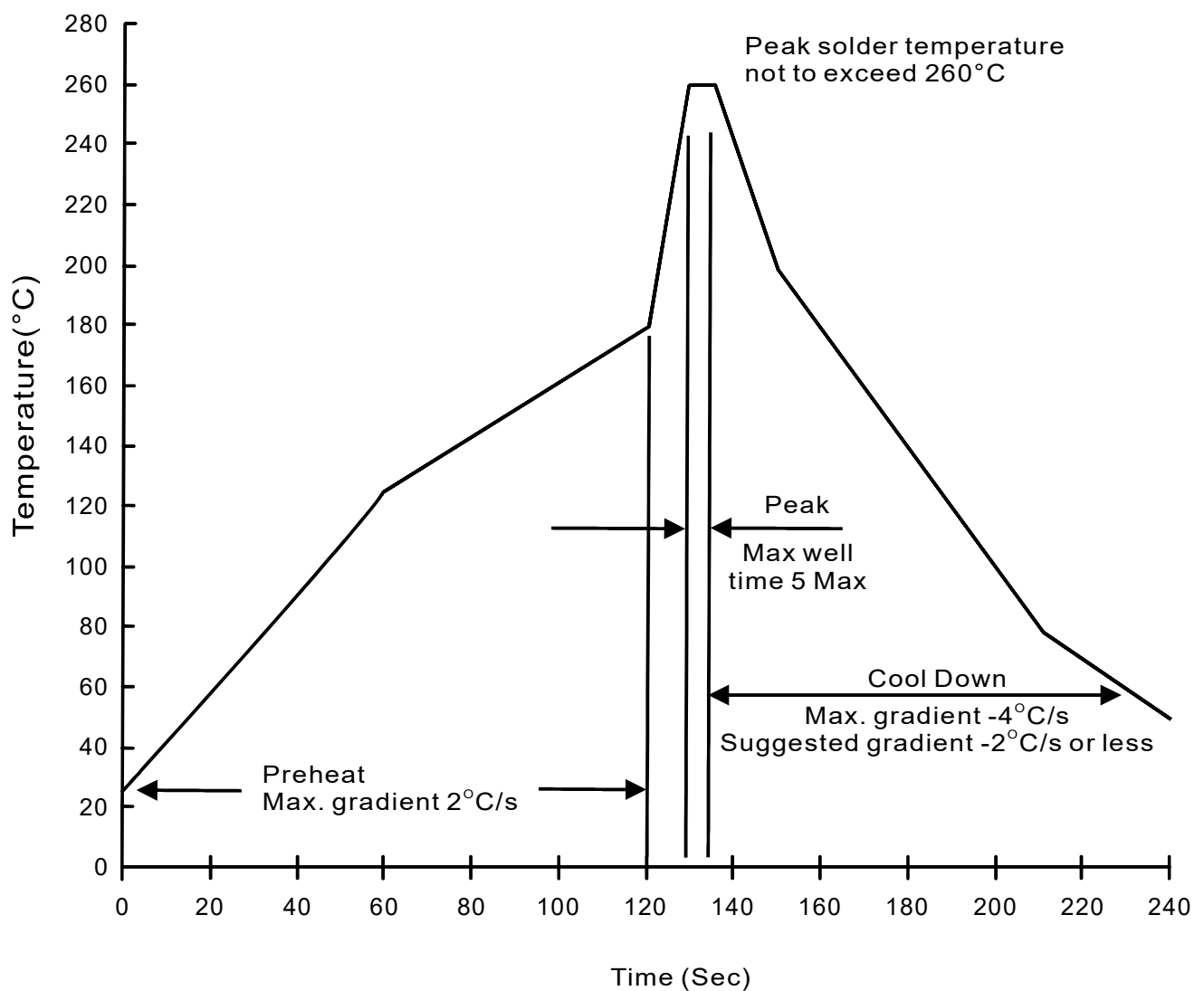
Tube packing

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*31.9*6.4	1000	545*150*45	575*245*170	5,000	15.0

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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 $260\pm5^{\circ}\text{C}$ for $10\pm2\text{sec.}$ immerse body into solder $1/16''\pm1/32''$	MIL-STD-750D METHOD-2031
2. Solderability	at $245\pm5^{\circ}\text{C}$ 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