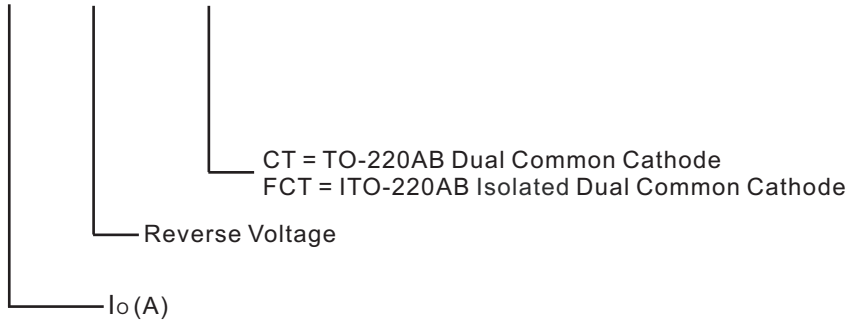
MBR30300CT / MBR30300FCT

List

Part Nomenclature

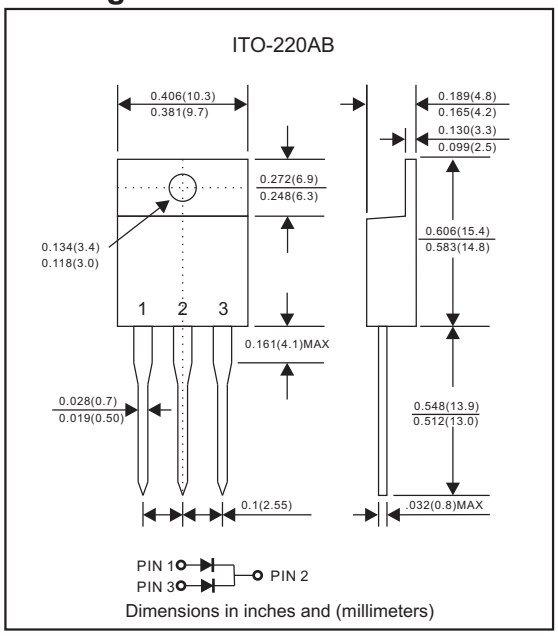
MBR30 300 XXX



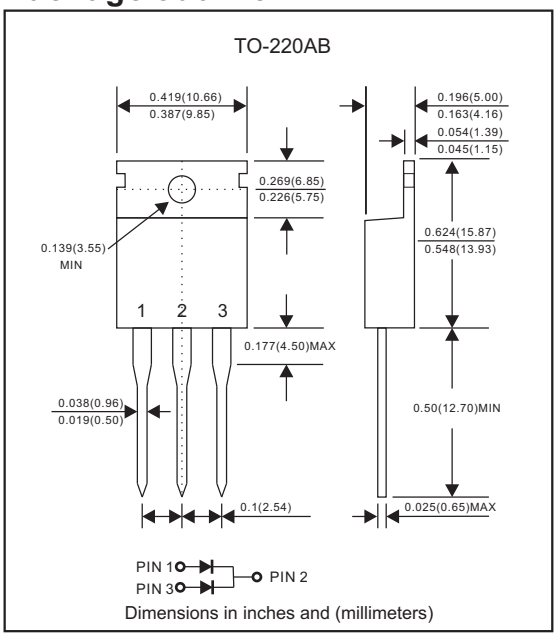
MBR30300CT / MBR30300FCT

30A High Barrier Power Schottky Rectifiers - 300V

Package outline



Package outline



Features

- 150°C operating junction temperature.
- Offer 15A half wave and 30A full wave rectification.
- Low power loss, high efficiency.
- High current capability
- High surge capability.
- Guardring for overvoltage protection.
- Low stored charge majority carrier conduction
- Lead-free parts meet RoHS requirments.
- Suffix "-H" indicates Halogen-free part, ex.MBR30300CT-H.

Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : JEDEC ITO-220AB or TO-220AB molded plastic body over passivated chip
- Lead : Axial leads, solderable per MIL-STD-202, Method 208 guranteed
- Polarity: As marked
- Mounting Position : Any
- Weight : ITO-220AB Approximated 1.70 gram
- Weight : TO-220AB Approximated 2.10 gram

Maximum ratings (AT T_A=25°C unless otherwise noted)

PARAMETER	Symbol	MBR30300CT	MBR30300FCT	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	300		Volts
Maximum RMS voltage	V_{RMS}	210		Volts
Maximum DC blocking voltage	V_{DC}	300		Volts
Maximum average forward rectified current See Fig.1	I_O	30		A
Peak forward surge current 8.3ms single half sine-wave	I_{FSM}	200		A
Operating junction temperature range	T_J	-65 to +150		°C
Storage temperature range	T_{STG}	-65 to +175		°C

Electrical characteristics (AT T_A=25°C unless otherwise noted)

PARAMETER	Symbol	MBR30300CT	MBR30300FCT	Unit
Maximum forward voltage per leg at I_F= 15A T_J=25°C	V_F	1.05		Volts
T_J=125°C		0.85		
Typical forward voltage per leg at I_F=30A T_J=25°C		1.15		
T_J=125°C		0.93		
Maximum reverse current at rated V_{DC} per leg T_J=25 ℃	I_R	0.005		mA
T_J=125 ℃		10		

Thermal characteristics

PARAMETER	Symbol	MBR30300CT	MBR30300FCT	Unit
Typical thermal resistance junction to case per leg	$R_{\theta JC}$	2.0	4.0	°C/W

Rating and characteristic curves (MBR30300CT / MBR30300FCT)

Fig.1 - Forward Current Derating Curve

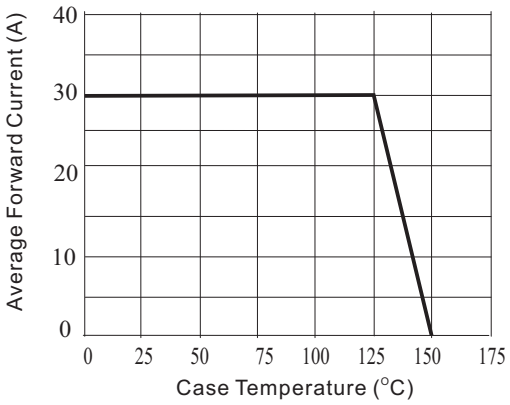


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

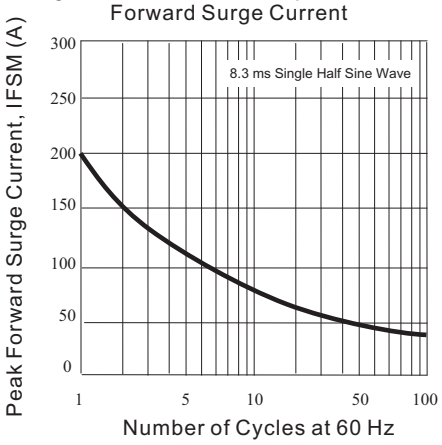


Fig. 3 - Typical Forward Characteristics

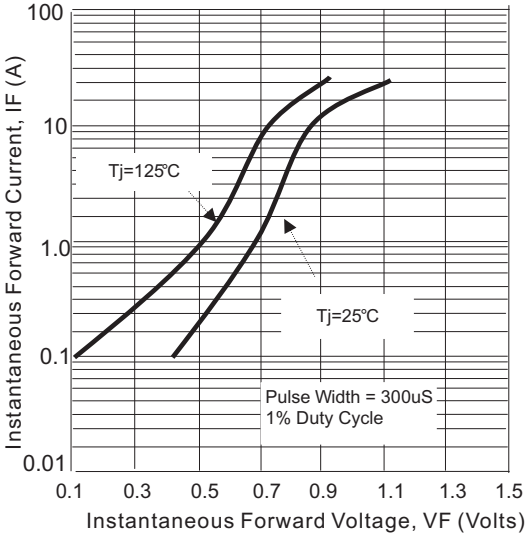
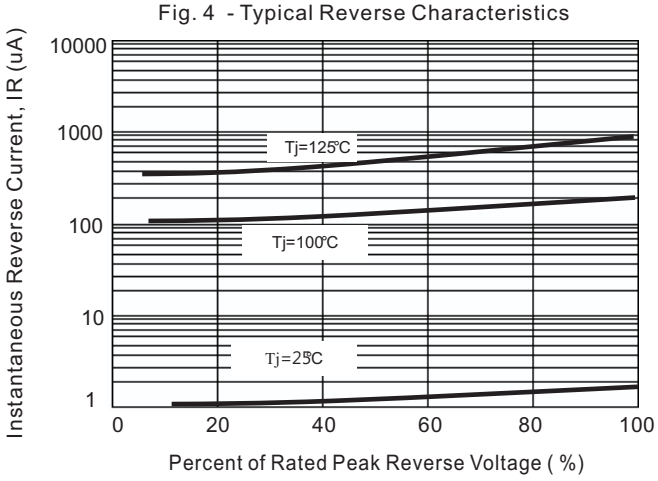


Fig. 4 - Typical Reverse Characteristics



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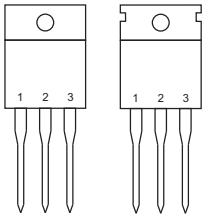
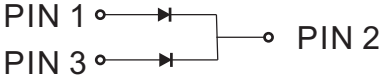
Pinning information

Pin	Simplified outline	Symbol
Pin1 anode Pin2 cathode Pin3 anode		

Marking

Type number	Marking code
MBR30300CT MBR30300FCT	MBR30300CT MBR30300FCT

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-220AB	50	525*32*7.0	1,000	555*150*40	580*230*175	5,000	15.0

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	1,000	555*150*40	580*230*175	5,000	15.0

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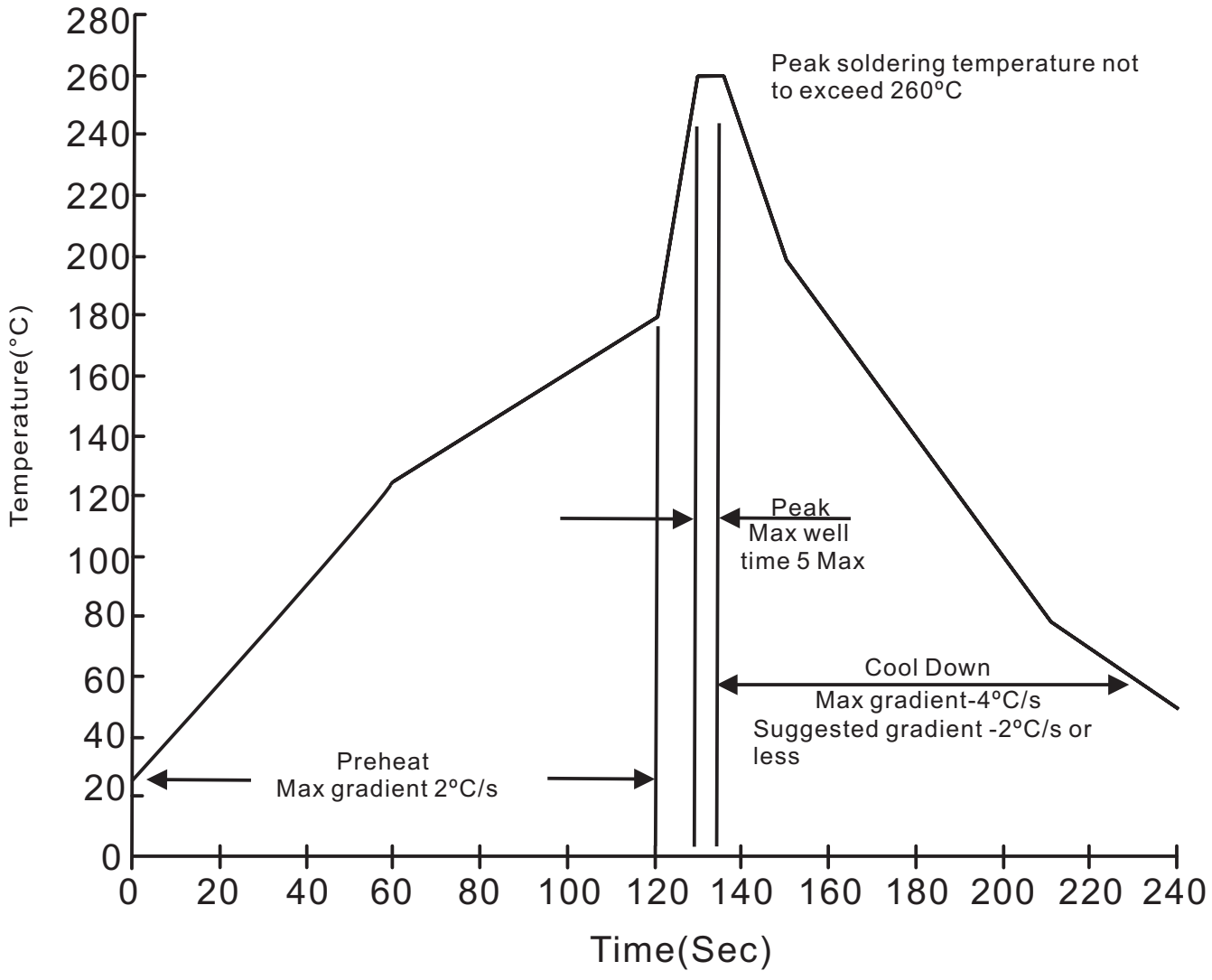
Suggested thermal profiles for soldering processes

1.Lead free temperature profile wave-soldering



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High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at 260±5°C for 10±2sec. immerse body into solder 1/16"±1/32"	MIL-STD-750D METHOD-2031
2. Solderability	at 245±5°C for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	V_R=80% rate at T_J=150°C for 168 hrs.	MIL-STD-750D METHOD-1038
4. Forward Operation Life	Rated average rectifier current at T_A=25°C for 500hrs.	MIL-STD-750D METHOD-1027
5. Intermittent Operation Life	T_A = 25°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°C for 4 hrs.	JESD22-A102
7. Temperature Cycling	-55°C to +125°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°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