MBR1040FCTW1 THRU MBR10200FCTW1

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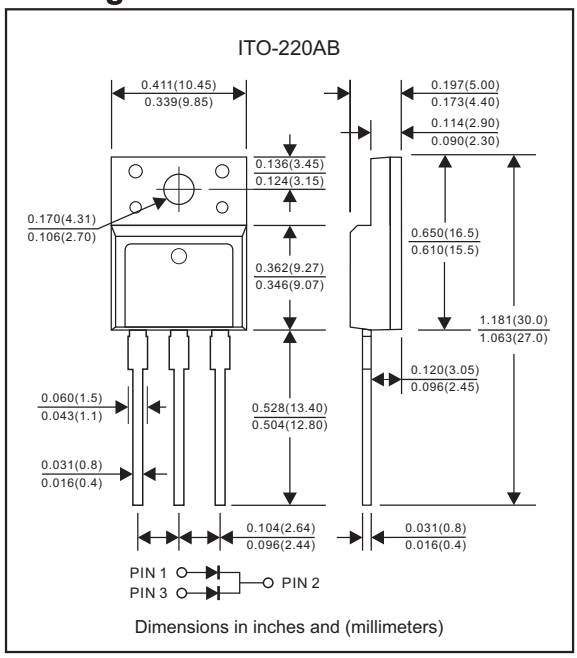
MBR1040FCTW1 THRU MBR10200FCTW1

10A High Barrier Power Schottky Rectifiers 40V-200V

Features

- 150°C operating junction temperature.
- Low power loss, high efficiency.
- High current capability
- High surge capability.
- Guardring for overvoltage protection.
- Low stored charge majority carrier conduction
- Silicon epitaxial planar chip, metal silicon junction.
- Lead-free parts meet environmental standards of MIL-STD-19500 /228
- Suffix "-H" indicates Halogen-free parts, ex. MBR1040FCTW1-H.

Package outline



Dimensions in inches and (millimeters)

Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : JEDEC ITO-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 : Approximated 1.70 gram

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

PARAMETER	SYMBOLS	MBR 1040FCTW1	MBR 1045FCTW1	MBR 1060FCTW1	MBR 10100FCTW1	MBR 10150FCTW1	MBR 10200FCTW1	UNIT
Repetitive peak reverse voltage	V_{RRM}	40	45	60	100	150	200	V
RMS voltage	V_{RMS}	28	31.5	42	70	105	140	V
DC blocking voltage	V_{DC}	40	45	60	100	150	200	V
Average forward rectified current per device current at Tc = 110°C per diode	I_O	10 5						A
Peak forward surge current 8.3ms single half sine-wave(JEDEC method)	I_{FSM}	125						A
Operating junction temperature range	T_J	-55 to +150						°C
Storage temperature range	T_{STG}	-55 to +150						°C

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

PARAMETER	SYMBOLS	MBR 1040FCTW1	MBR 1045FCTW1	MBR 1060FCTW1	MBR 10100FCTW1	MBR 10150FCTW1	MBR 10200FCTW1	UNIT
Forward voltage per leg at I_F=5A	V_F	0.55		0.70	0.85	0.95		V
DC reverse current at T_A =25°C at rated DC blocking voltage at T_A=125°C	I_R	0.5 50			0.05 10			mA

Thermal Characteristics

PARAMETER	SYMBOLS	MBR 1040FCTW1	MBR 1045FCTW1	MBR 1060FCTW1	MBR 10100FCTW1	MBR 10150FCTW1	MBR 10200FCTW1	UNIT
Typical thermal resistance junction to case per leg	$R_{\theta JC}$	3.5						°C/W

Rating and characteristic curves (MBR1040FCTW1 THRU MBR10200FCTW1)

FIG.1-DERATING CURVE OUTPUT RECTIFIED CURRENT

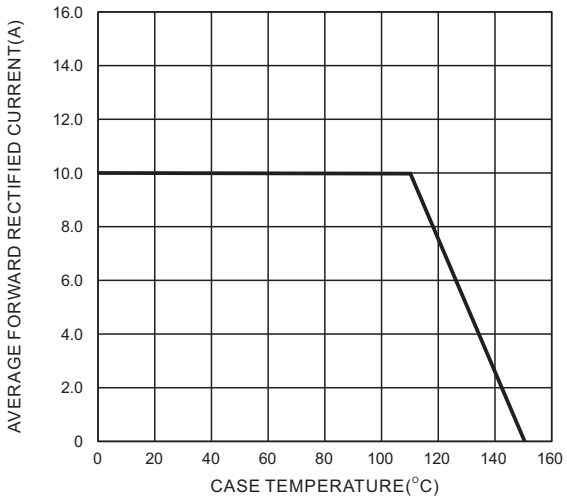


FIG.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

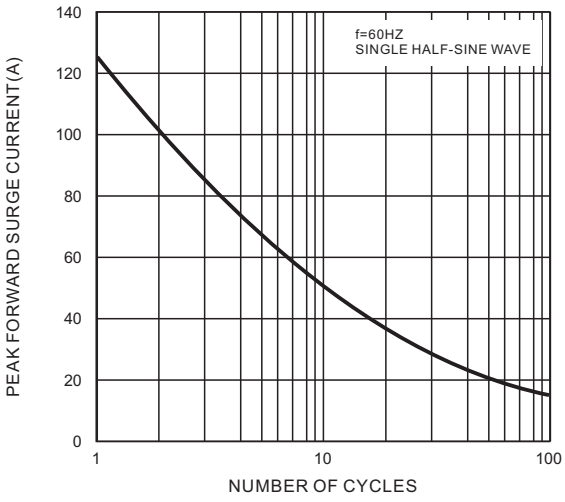


FIG.3-TYPICAL REVERSE LEAKAGE CHARACTERISTICS

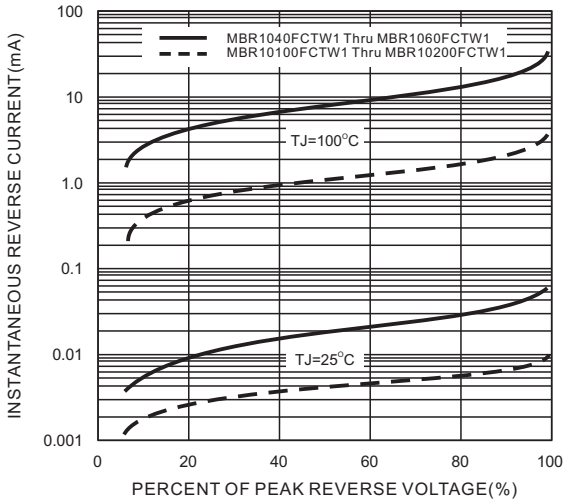
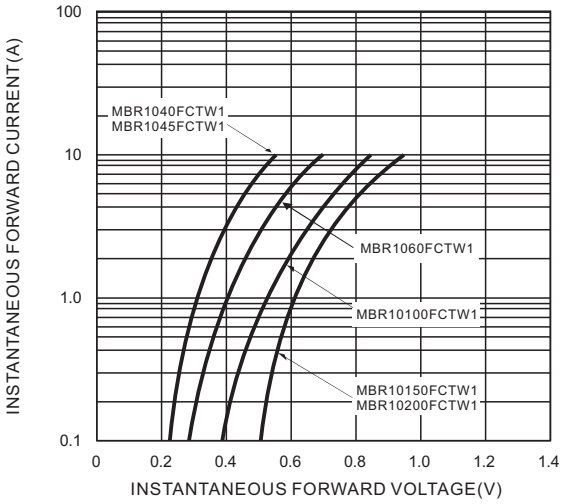


FIG.4-TYPICAL FORWARD VOLTAGE CHARACTERISTICS



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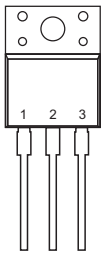
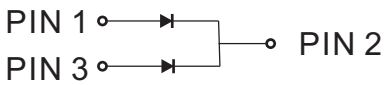
Pinning information

Pin	Simplified outline	Symbol
Pin1 anode Pin2 cathode Pin3 anode		

Marking

Type number	Marking code
MBR1040FCTW1	MBR1040FCT
MBR1045FCTW1	MBR1045FCT
MBR1060FCTW1	MBR1060FCT
MBR10100FCTW1	MBR10100FCT
MBR10150FCTW1	MBR10150FCT
MBR10200FCTW1	MBR10200FCT

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*319*6.4	1000	545*150*45	575*245*170	5,000	15.0

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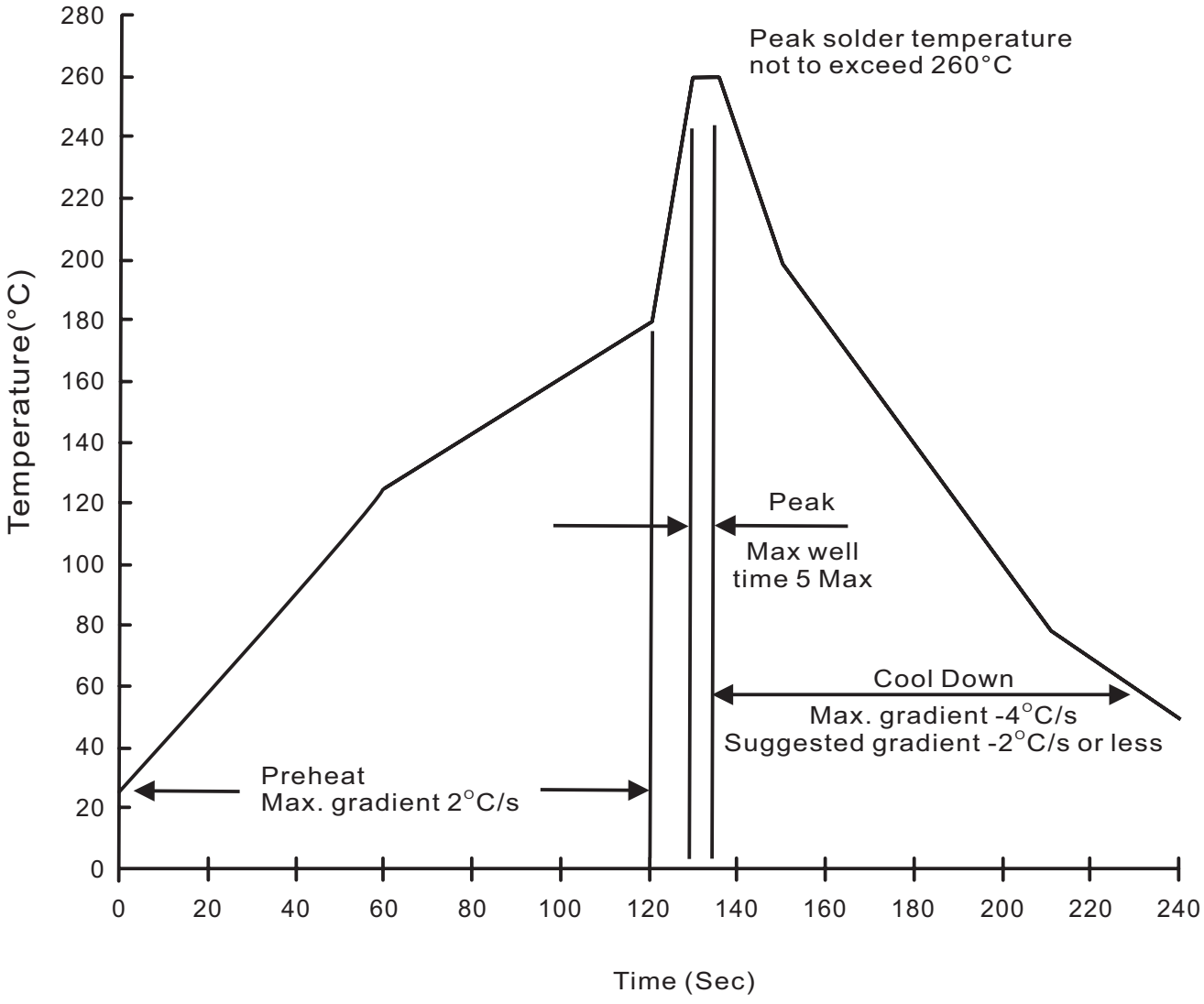
Suggested thermal profiles for soldering processes

1.Lead free temperature profile wave-soldering



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High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at 260±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