MBR1040 THRU MBR10200

List

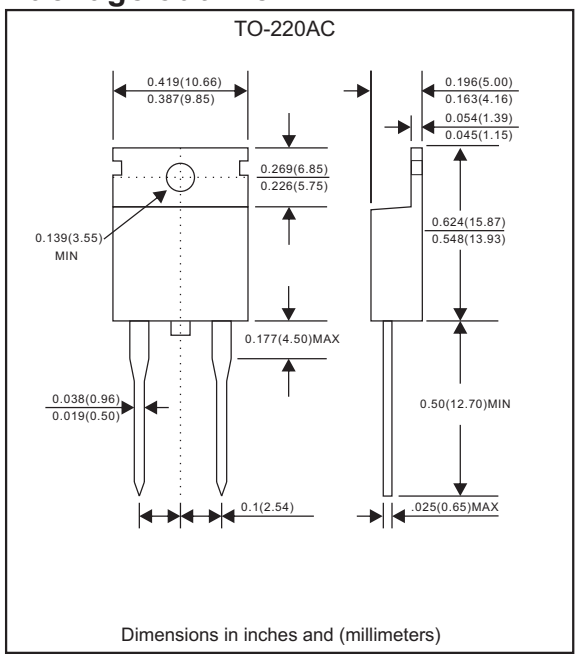
MBR1040 THRU MBR10200

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

Features

- 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. MBR1040-H.

Package outline



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 guranteed
- Polarity: As marked
- Mounting Position : Any
- Weight : Approximated 2.05 gram

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

PARAMETER	SYMBOLS	MBR 1040	MBR 1045	MBR 1050	MBR 1060	MBR 1080	MBR 10100	MBR 10150	MBR 10200	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	40	45	50	60	80	100	150	200	V
Maximum RMS voltage	V_{RMS}	28	31.5	35	42	56	70	105	140	V
Maximum DC blocking voltage	V_{DC}	40	45	50	60	80	100	150	200	V
Maximum average forward rectified current Per device	I_O	10								A
Peak forward surge current 8.3ms single half sine-wave(JEDEC method)	I_{FSM}	150								A
Operating junction temperature range	T_J	-55 to +150						-55 to +175		°C
Storage temperature range	T_{STG}	-65 to +175								°C

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

PARAMETER	SYMBOLS	MBR 1040	MBR 1045	MBR 1050	MBR 1060	MBR 1080	MBR 10100	MBR 10150	MBR 10200	UNIT
Maximum forward voltage at I_F=10A at I_F=20A	V_F	0.65 0.84		0.75 0.85		0.85 0.95		0.92 1.00		V
Maximum DC reverse current at T_J =25°C at rated DC blocking voltage at T_J =125°C	I_R	0.05 10				0.01 10				mA mA

Thermal characteristics

PARAMETER	SYMBOLS	MBR 1040	MBR 1045	MBR 1050	MBR 1060	MBR 1080	MBR 10100	MBR 10150	MBR 10200	UNIT
Typical thermal resistance junction to case	$R_{\theta JC}$	2.0								°C/W

Rating and characteristic curves (MBR1040 THRU MBR10200)

FIG. 1 - FORWARD DERATING CURVE

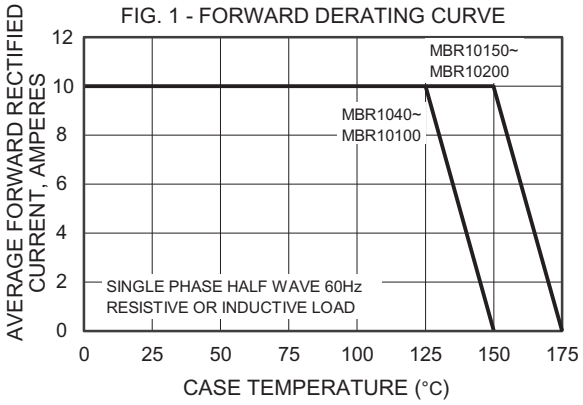


FIG. 2 - MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

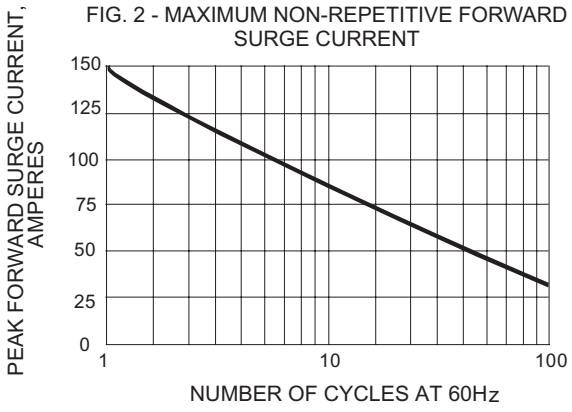


FIG. 3 - TYPICAL REVERSE CHARACTERISTICS

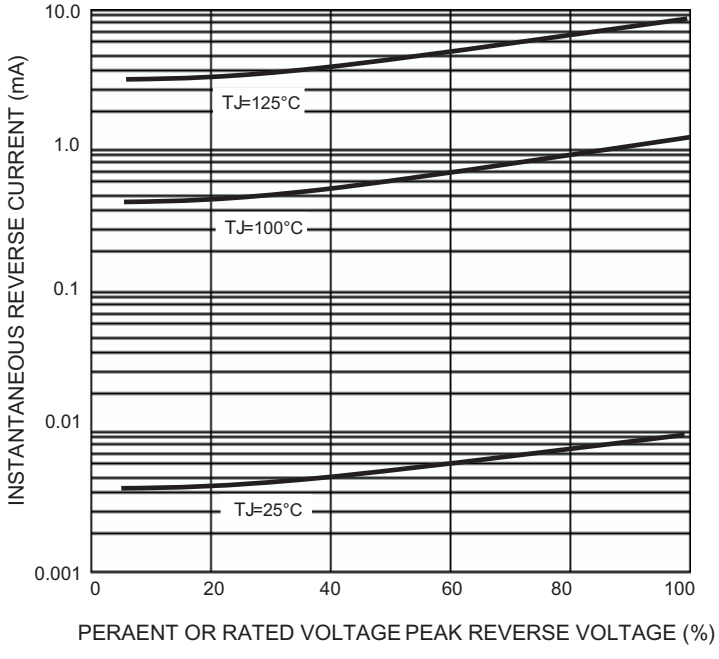
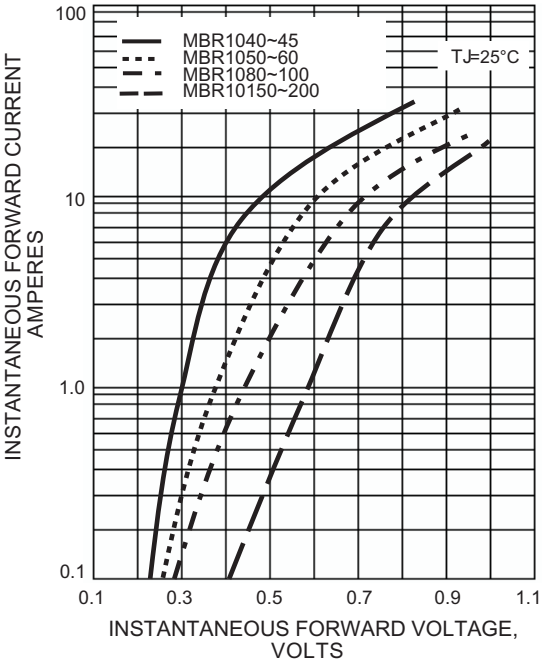


FIG. 4 - TYPICAL FORWARD CHARACTERISTIC PER LEG



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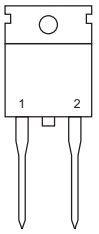
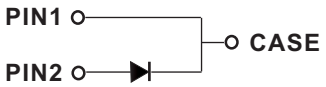
Pinning information

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

Marking

Type number	Marking code
MBR1040	MBR1040
MBR1045	MBR1045
MBR1050	MBR1050
MBR1060	MBR1060
MBR1080	MBR1080
MBR10100	MBR10100
MBR10150	MBR10150
MBR10200	MBR10200

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

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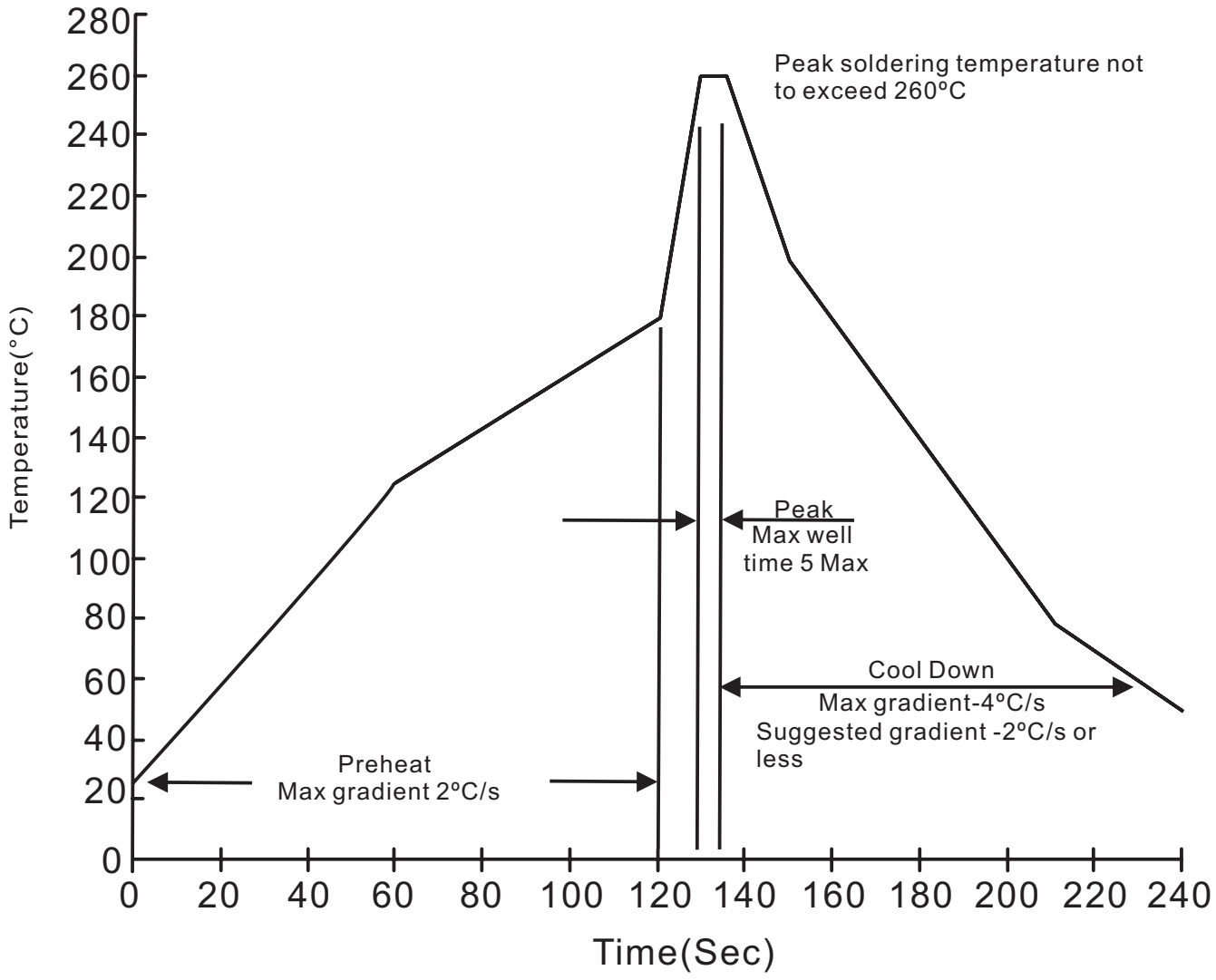
Suggested thermal profiles for soldering processes

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