

MBR1540W Thru MBR15200W

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MBR1540W Thru MBR15200W

15A Power Schottky Barrier Rectifiers : 40V-200V

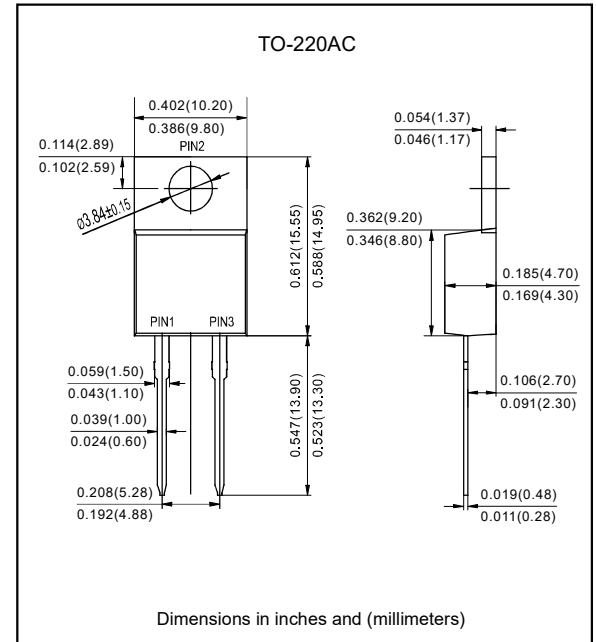
Features

- High efficiency operation.
- Low power loss.
- Low stored charge majority carrier conduction.
- High forward surge current capability.
- Lead free in compliance with EU RoHS 2011/65/EU directive.
- Green molding compound as per IEC61249.
- Suffix "-H" indicates Halogen-free parts, ex. MBR1540W-H.

Mechanical data

- Circuit figure : Single positive.
- Leads : Solder able per MIL-STD -202, Method 208.
- Polarity : As marked.
- Mounting torque : 5 in-lbs maximum.
- Terminals : Puretin plated.
- Weight : TO-220AC Approximated 1.85 gram.

Package outline



Maximum ratings and electrical characteristics

Ratings at 25°C ambient temperature unless otherwise specified. Single phase half-wave 60Hz, resistive or inductive load, for capacitive load current derate by 20%.

Parameter	Symbol	MBR 1540W	MBR 1545W	MBR 1560W	MBR 15100W	MBR 15150W	MBR 15200W	Unit
Maximum repetitive peak reverse voltage	V _{RRM}	40	45	60	100	150	200	V
Maximum RMS voltage	V _{RMS}	28	32	42	70	105	140	V
Maximum DC blocking voltage	V _{DC}	40	45	60	100	150	200	V
Maximum average forward rectified per device	I _(AV)	15						A
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	I _{FSM}	180						A
Maximum forward voltage per leg at I _F =15.0A	V _F	0.65		0.75	0.85	0.92		V
Maximum DC reverse current (T _A =25°C)	I _R	0.1			0.01			mA
At rated DC blocking voltage (T _A =125°C)		15			5			
Typical thermal resistance	R _{θJC}	2.0						°C/W
Operating junction temperature range	T _J	+150				+175		°C
Storage temperature range	T _{STG}	-55 to +175						°C

Notes : 1. Thermal resistance from junction to case.

Rating and characteristic curves (MBR1540W Thru MBR15200W)

FIG. 1 - TYPICAL FORWARD CURRENT DERATING CURVE

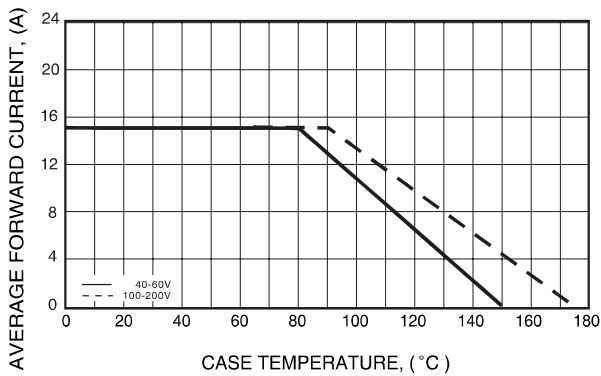


FIG. 2 - MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

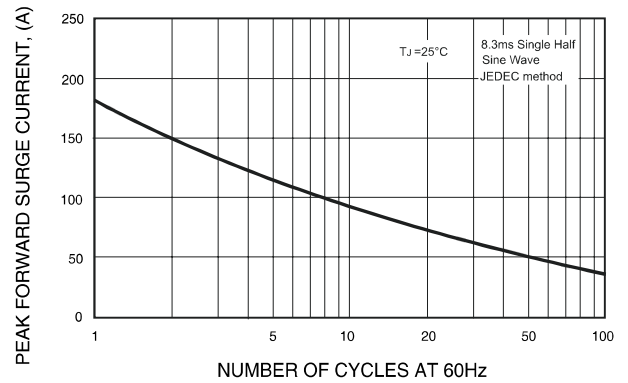


FIG. 3 - TYPICAL REVERSE CHARACTERISTICS

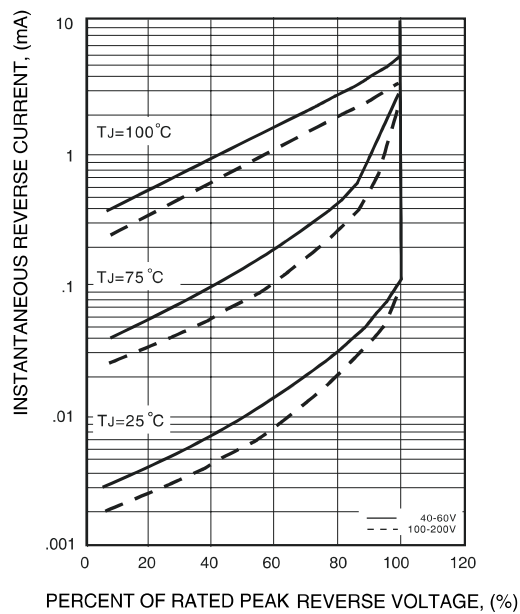
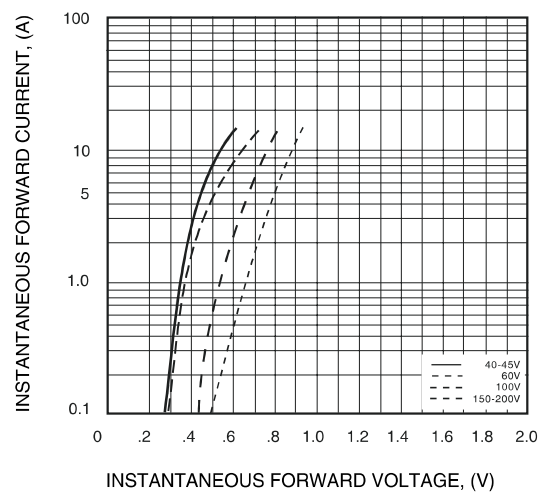


FIG. 4 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS



MBR1540W Thru MBR15200W**Pinning information**

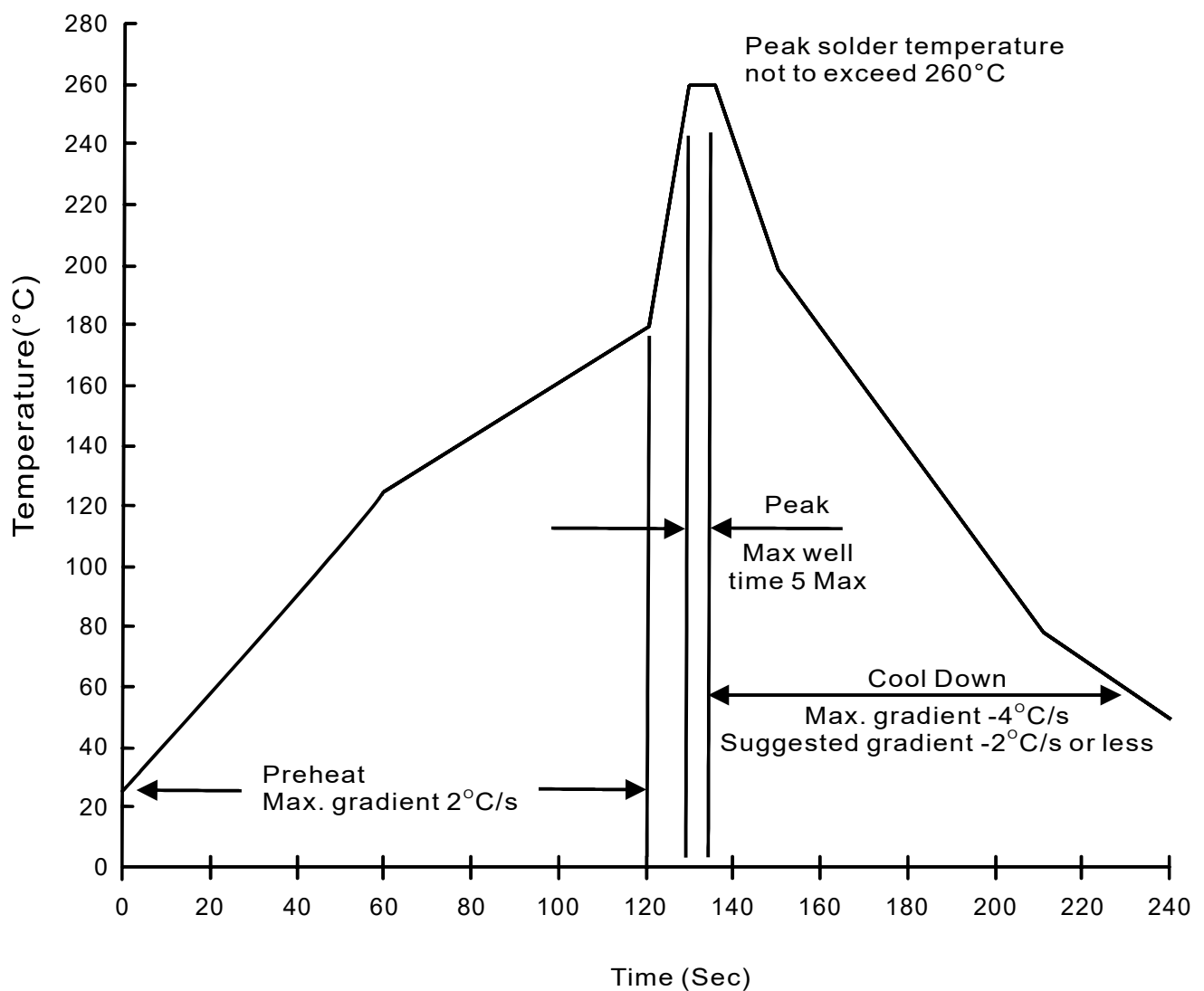
Pin	Simplified outline	Symbol
Pin1 Cathode Pin2 Cathode Pin3 Anode		

Marking

Type number	Marking code
MBR1540W	MBR1540
MBR1545W	MBR1545
MBR1560W	MBR1560
MBR15100W	MBR15100
MBR15150W	MBR15150
MBR15200W	MBR15200

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

MBR1540W Thru MBR15200W**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