MBR6040WT Thru MBR60200WT

List

MBR6040WT Thru MBR60200WT

60Amp Power Schottky Barrier Rectifiers 40V-200V

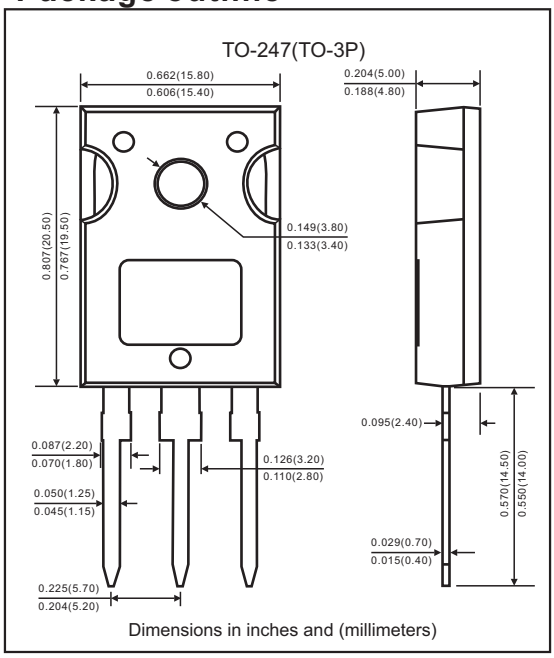
Features

- The plastic package carries underwriters laboratory flame ability classification 94V-0.
- Construction utilizes void-free molded plastic technique.
- Low reverse leakage.
- High forward surge current capability.
- High temperature soldering guaranteed 250℃/10s at terminals.
- Lead-free parts meet environmental standards of MIL-STD-19500 /228
- Suffix "-H" indicates Halogen-free parts, ex. MBR6040WT-H.

Mechanical data

- Case : JEDEC TO-247(TO-3P) molded plastic body over passivated chip.
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026.
- Polarity : Polarity symbol marking on body.
- Mounting Position : Any
- Weight : TO-247(TO-3P) Approximated 5.61 gram

Package outline



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

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

Parameter	Symbols	MBR 6040WT	MBR 6045WT	MBR 6060WT	MBR 60100WT	MBR 60150WT	MBR 60200WT	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	40	45	60	100	150	200	V
Maximum RMS voltage	V_{RMS}	28	31.5	42	70	105	140	V
Maximum DC blocking voltage	V_{DC}	40	45	60	100	150	200	V
Maximum average forward rectified per device	$I_{(AV)}$	60						A
Current at T_C =110℃ per device		30						
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	400						A
Maximum instantaneous forward voltage per diode at 30A	V_F	0.63		0.75	0.85	0.95		V
Maximum DC reverse current (T_A=25℃)	I_R	0.5			0.05			mA
At rated DC blocking voltage (T_A=125℃)		50			10			
Typical thermal resistance	$R_{\theta JC}$	2.8						℃/W
Operating junction temperature range	T_J	+150						℃
Storage temperature range	T_{STG}	-55 to +150						℃

Rating and characteristic curves (MBR6040WT Thru MBR60200WT)

Fig.1 FORWARD CURRENT DERATING CURVE

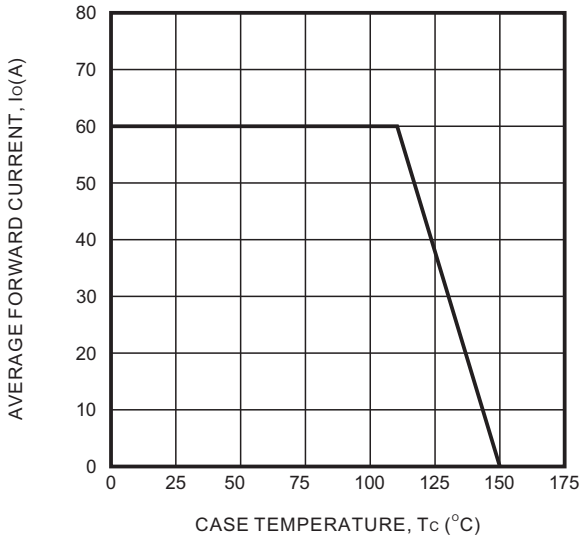


Fig.2 TYPICAL FORWARD CHARACTERISTICS

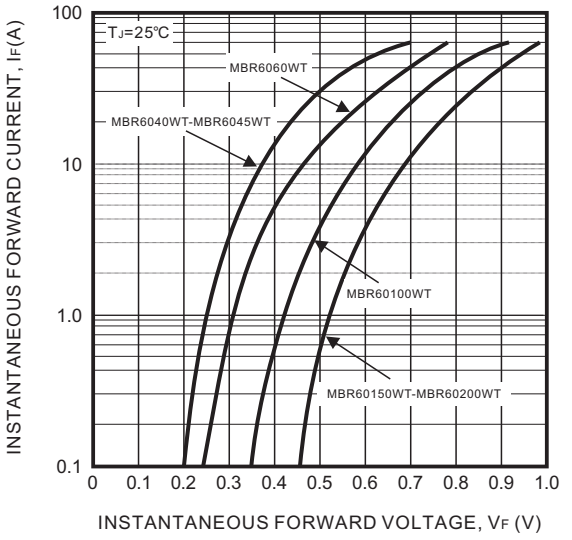


Fig.3 MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

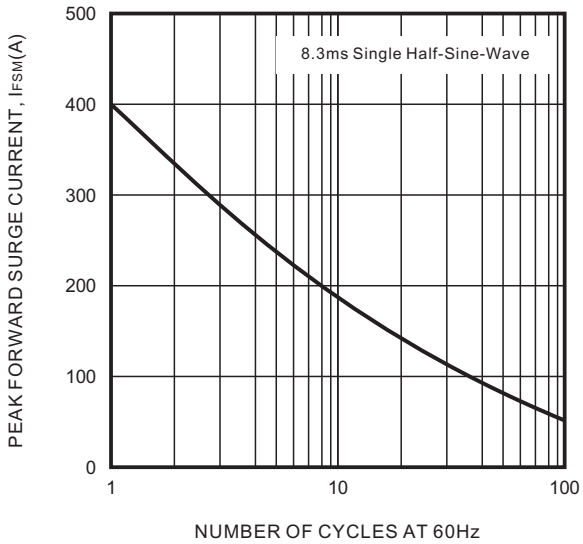
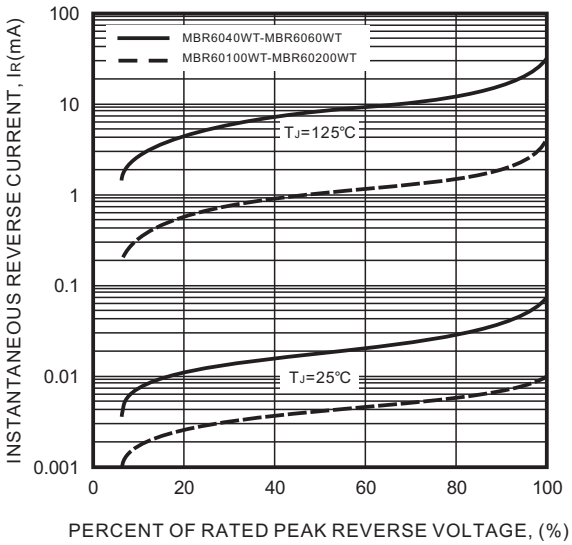


Fig.4 TYPICAL REVERSE CHARACTERISTICS



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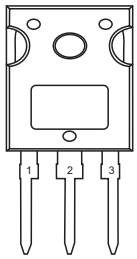
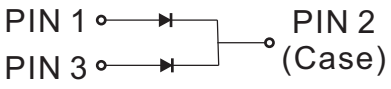
Pinning information

Pin	Simplified outline	Symbol
Pin1 Anode Pin2 Cathode Pin3 Anode		

Marking

Type number	Marking code
MBR6040WT	MBR6040PT
MBR6045WT	MBR6045PT
MBR6060WT	MBR6060PT
MBR60100WT	MBR60100PT
MBR60150WT	MBR60150PT
MBR60200WT	MBR60200PT

Tube packing

Package	Tube (mm)	Q'Ty/Tube (Kpcs)	Box Size (mm)	QTY/Box (Kpcs)	Carton Size (mm)	Q'TY/Carton (Kpcs)
TO-247(TO-3P)	510 x 45.5 x 7.8	0.03	545x150 x4.5	0.45	570 x 260 x150	2.25

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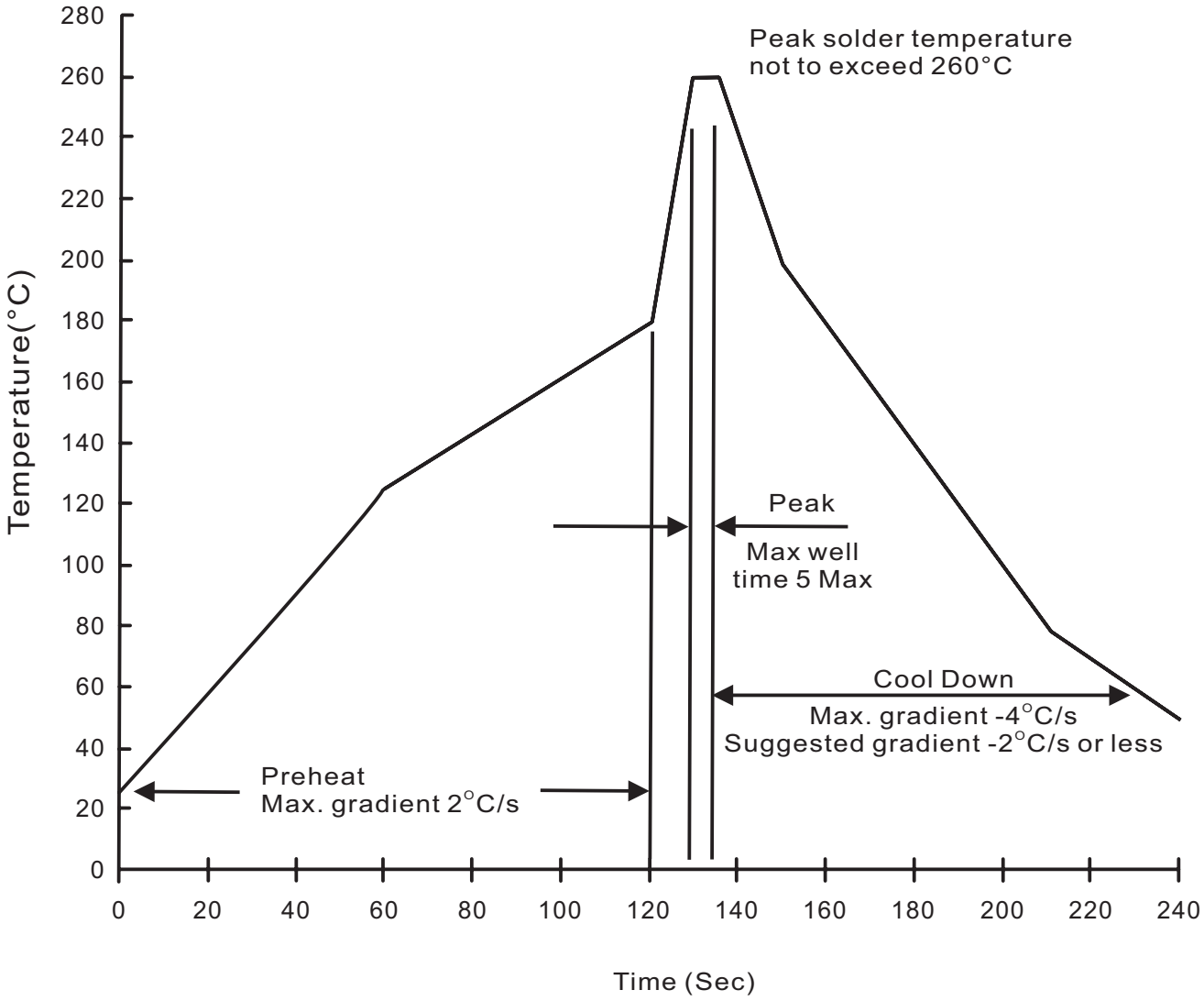
Suggested thermal profiles for soldering processes

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