

MBR4040CTW THRU MBR40200CTW

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MBR4040CTW THRU MBR40200CTW

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

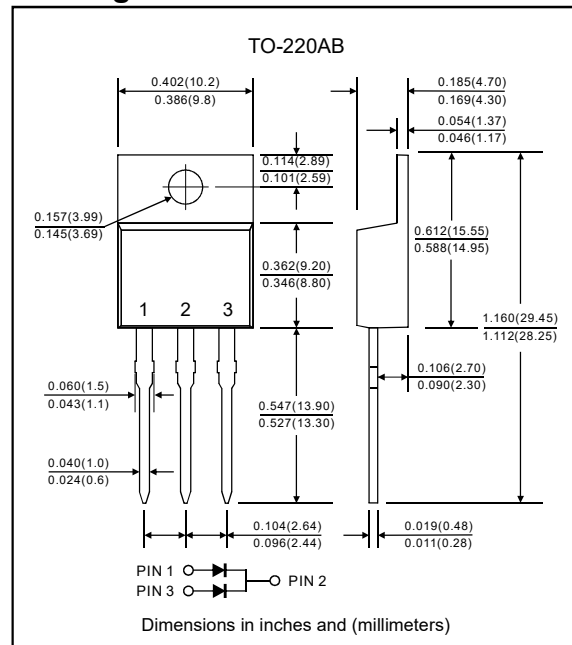
Features

- High efficiency operation.
- Low power loss.
- Low stored charge majority carrier conduction.
- High forward surge capability.
- Lead free in compliance with EU RoHS 2011/65/EU directive.
- Green molding compound as per IEC61249 Std. (Halogen free).
- Suffix "-H" indicates Halogen-free parts, ex. MBR4040CTW-H.

Mechanical data

- Circuit figure : Common cathode.
- Case : JEDEC TO-220AB molded plastic, Body over passivated chip.
- Lead : Solder able per MIL-STD-202, Method 208.
- Polarity: As marked.
- Mounting torque : 5 in-lbs maximum.
- Weight : TO-220AB Approximated 1.85 gram.

Package outline



Maximum ratings and electrical characteristics (At 25°C ambient temperature unless otherwise specified)

Parameter	Symbol	MBR 4040CTW	MBR 4045CTW	MBR 4060CTW	MBR 40100CTW	MBR 40150CTW	MBR 40200CTW	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 Forward current	I _(AV)	40 20						A
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	I _{FSM}	380						A
Maximum forward voltage per leg at I _F =20.0A	V _F	0.65		0.75	0.85	0.95		V
Maximum DC reverse current (T _A =25°C) At rated DC blocking voltage (T _A =125°C)	I _R	0.1 25			0.01 15			mA
Typical thermal resistance	R _{θJC}	2.0						
Operating junction temperature range	T _J	+150				+175		°C
Storage temperature range	T _{STG}	-55 to +175						°C

Note : 1. Thermal resistance from junction to case.

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Rating and characteristic curves

FIG. 1 - TYPICAL FORWARD CURRENT DERATING CURVE

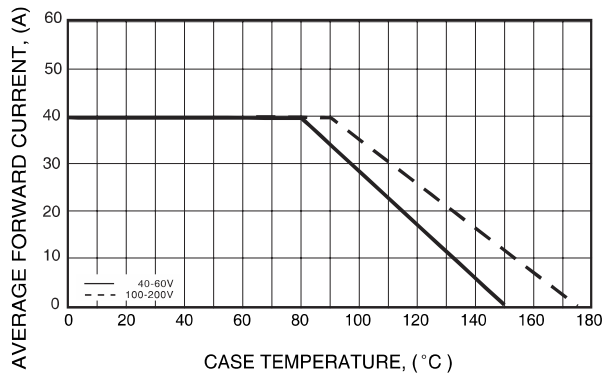


FIG. 2 - MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

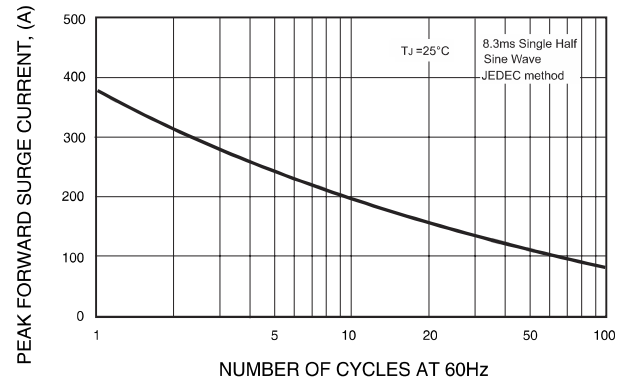


FIG. 3 - TYPICAL REVERSE CHARACTERISTICS

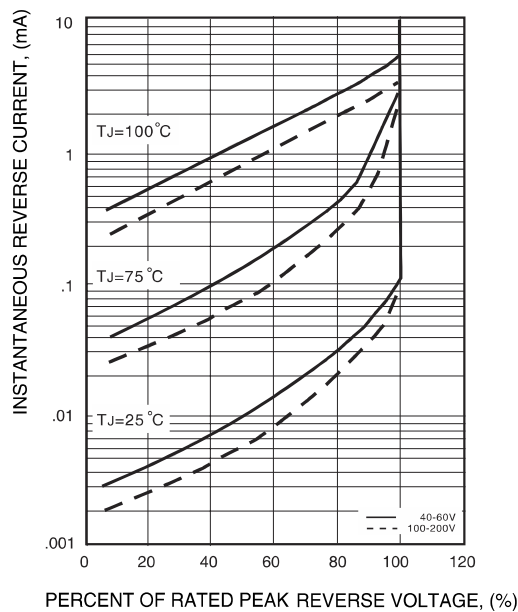
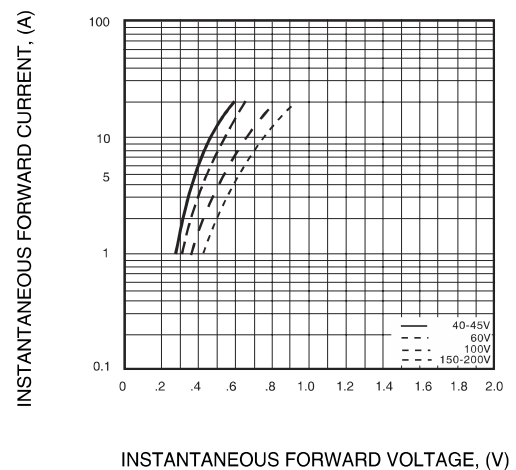
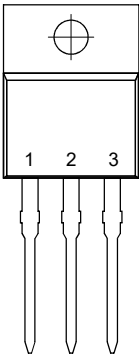
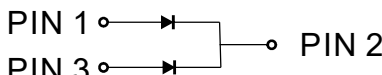


FIG. 4 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS



MBR4040CTW THRU MBR40200CTW**Pinning information**

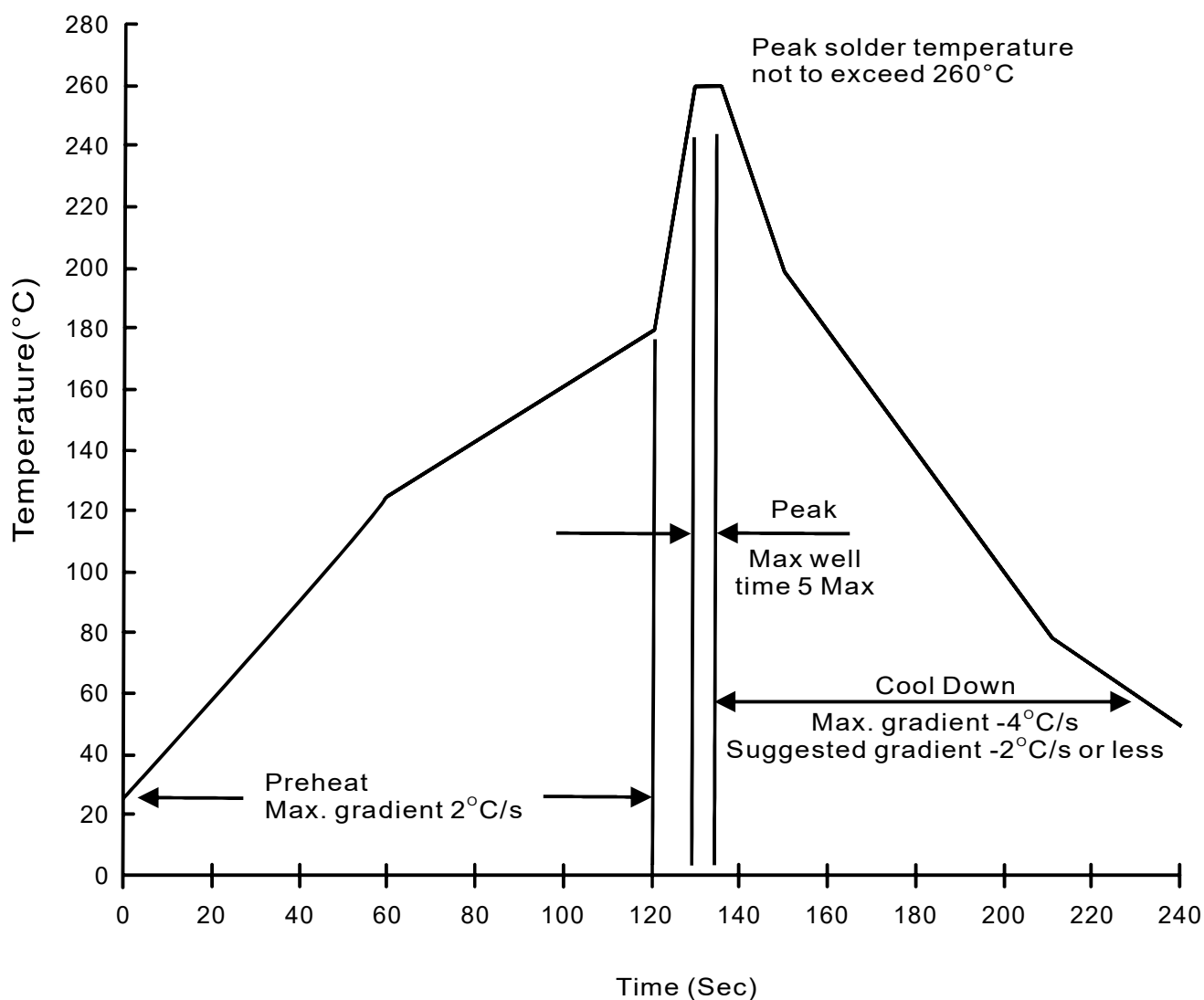
Pin	Simplified outline	Symbol
Pin1 anode Pin2 cathode Pin3 anode		

Marking

Type number	Marking code
MBR4040CTW	MBR4040CT
MBR4045CTW	MBR4045CT
MBR4060CTW	MBR4060CT
MBR40100CTW	MBR40100CT
MBR40150CTW	MBR40150CT
MBR40200CTW	MBR40200CT

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-220AB	50	525*31.9*6.4	1000	545*150*45	575*245*170	5,000	15.0

MBR4040CTW THRU MBR40200CTW**Suggested thermal profiles for soldering processes****1. Lead free temperature profile wave-soldering**

MBR4040CTW THRU MBR40200CTW**High reliability test capabilities**

Item Test	Conditions	Reference
1. Solder Resistance	at $260\pm5^{\circ}\text{C}$ for $10\pm2\text{sec.}$ immerse body into solder $1/16''\pm1/32''$	MIL-STD-750D METHOD-2031
2. Solderability	at $245\pm5^{\circ}\text{C}$ 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