

MBR1640CTW THRU MBR16200CTW

List

List.....	1
Package outline.....	2
Features.....	2
Mechanical data.....	2
Maximum ratings	2
Rating and characteristic curves.....	3
Pinning information.....	4
Marking.....	4
Tube packing.....	4
Suggested thermal profiles for soldering processes.....	5
High reliability test capabilities.....	6

MBR1640CTW THRU MBR16200CTW

16A High Barrier Power Schottky Rectifiers : 40V-200V

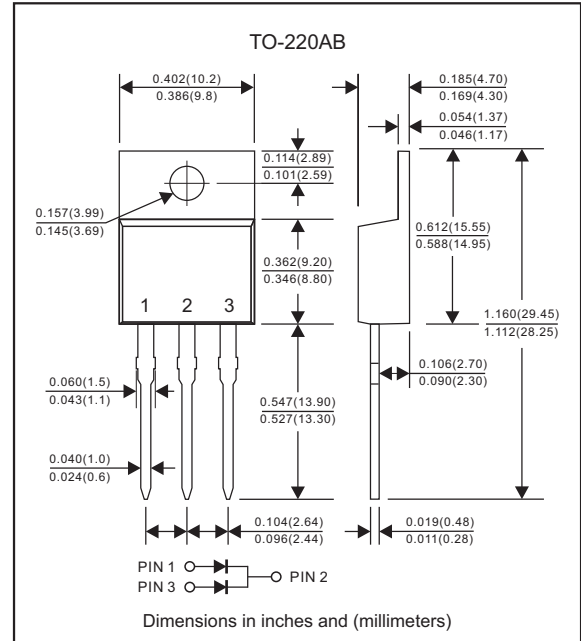
Features

- 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. MBR1640CTW-H.

Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : JEDEC TO-220AB molded plastic body over passivated chip
- Lead : Axial leads, solderable per MIL-STD-202, Method 208 guaranteed
- Polarity: As marked
- Mounting Position : Any
- Weight : TO-220AB Approximated 1.85 gram

Package outline



Maximum ratings (AT $T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOLS	MBR 1640CTW	MBR 1645CTW	MBR 1660CTW	MBR 16100CTW	MBR 16150CTW	MBR 16200CTW	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 per diode	I_O	16 8						A
Peak forward surge current 8.3ms single half sine-wave(JEDEC method)	I_{FSM}	100						A
Operating junction temperature range	T_J	-55 to +150			-55 to +175			$^\circ\text{C}$
Storage temperature range	T_{STG}	-55 to +150			-55 to +175			$^\circ\text{C}$

Maximum Electrical Characteristics (AT $T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOLS	MBR 1640CTW	MBR 1645CTW	MBR 1660CTW	MBR 16100CTW	MBR 16150CTW	MBR 16200CTW	UNIT
Forward voltage per leg at $I_F=8A$	V_F	0.65		0.75	0.85	0.95		V
DC reverse current at $T_J=25^{\circ}C$ at rated DC blocking voltage at $T_J=125^{\circ}C$	I_R	0.10			0.01			mA
		20						

Thermal Characteristics

PARAMETER	SYMBOLS	MBR 1640CTW	MBR 1645CTW	MBR 1660CTW	MBR 16100CTW	MBR 16150CTW	MBR 16200CTW	UNIT
Typical thermal resistance junction to case per leg	$R_{\theta JC}$	2.2						$^\circ\text{C/W}$

Rating and characteristic curves (MBR1640CTW THRU MBR16200CTW)

FIG.1-DERATING CURVE OUTPUT RECTIFIED CURRENT

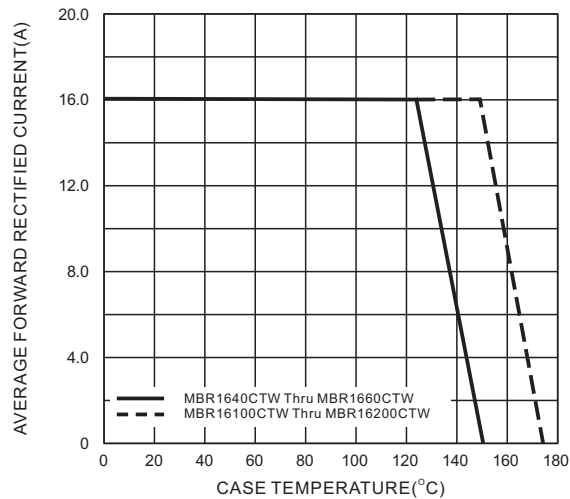


FIG.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

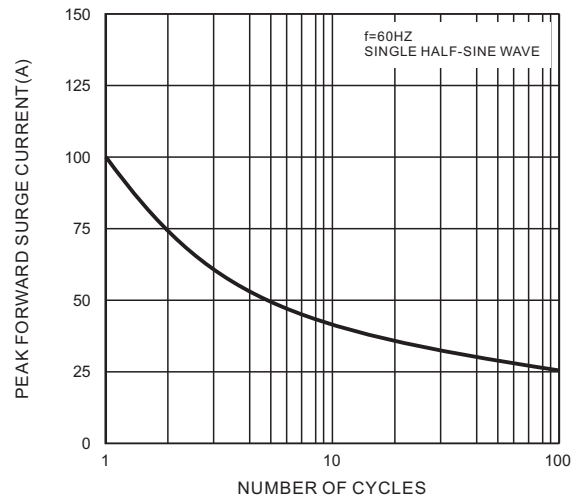


FIG.3-TYPICAL REVERSE LEAKAGE CHARACTERISTICS

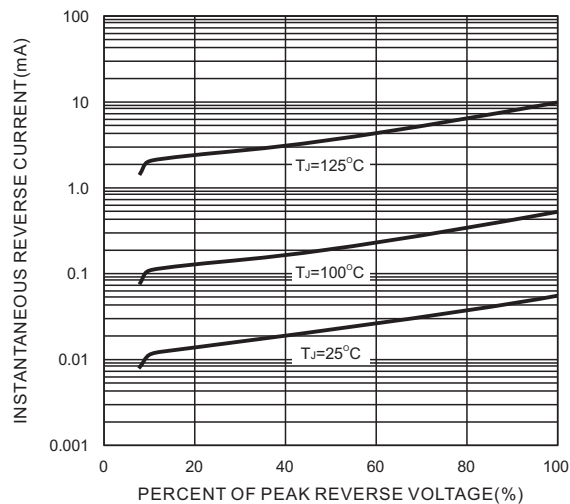
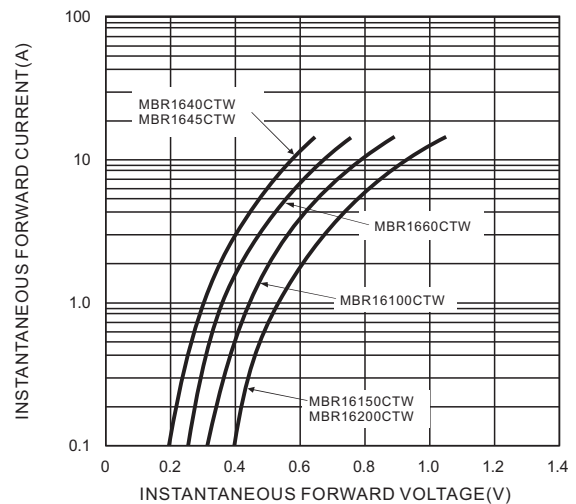
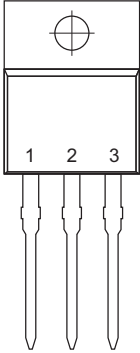
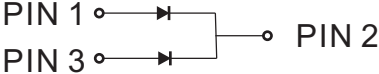


FIG.4-TYPICAL FORWARD VOLTAGE CHARACTERISTICS



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Pinning information

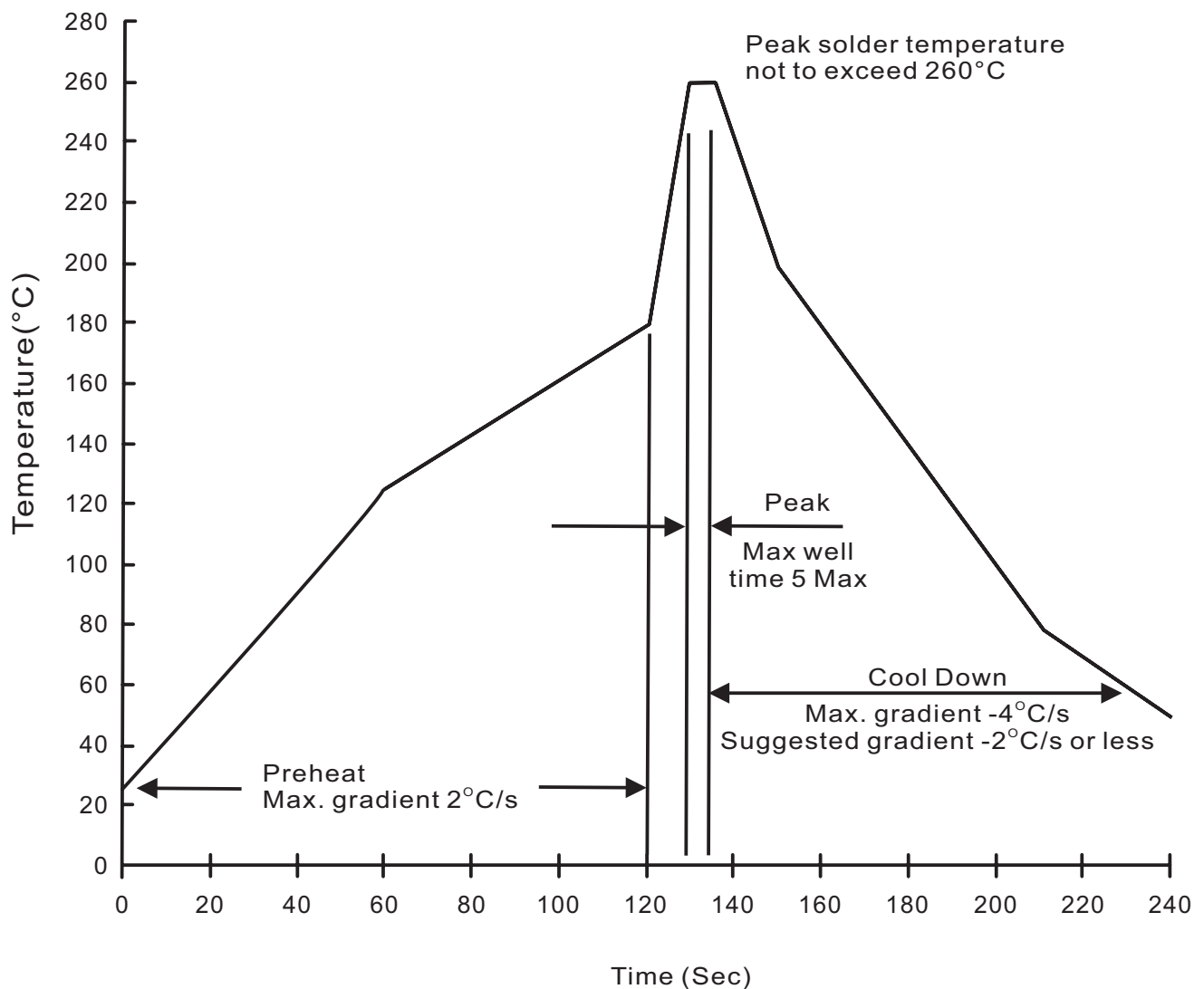
Pin	Simplified outline	Symbol
Pin1 anode Pin2 cathode Pin3 anode		

Marking

Type number	Marking code
MBR1640CTW	MBR1640CTW
MBR1645CTW	MBR1645CTW
MBR1660CTW	MBR1660CTW
MBR16100CTW	MBR16100CTW
MBR16150CTW	MBR16150CTW
MBR16200CTW	MBR16200CTW

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

MBR1640CTW THRU MBR16200CTW**Suggested thermal profiles for soldering processes****1. Lead free temperature profile wave-soldering**

MBR1640CTW THRU MBR16200CTW**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