

MBR1640CT THRU MBR16200CT

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MBR1640CT THRU MBR16200CT

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

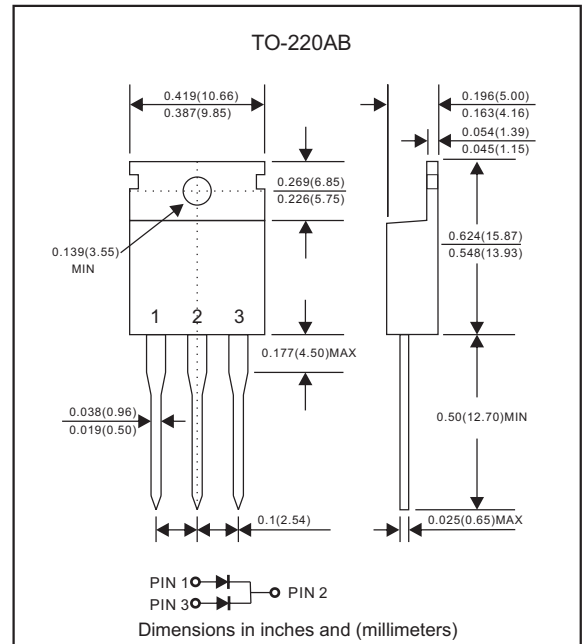
Features

- 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. MBR1640CT-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 : Approximated 2.10 gram

Package outline



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

PARAMETER	SYMBOLS	MBR 1640CT	MBR 1645CT	MBR 1650CT	MBR 1660CT	MBR 1680CT	MBR 16100CT	MBR 16150CT	MBR 16200CT	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	16								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		$^\circ\text{C}$
Storage temperature range	T_{STG}	-65 to +175								$^\circ\text{C}$

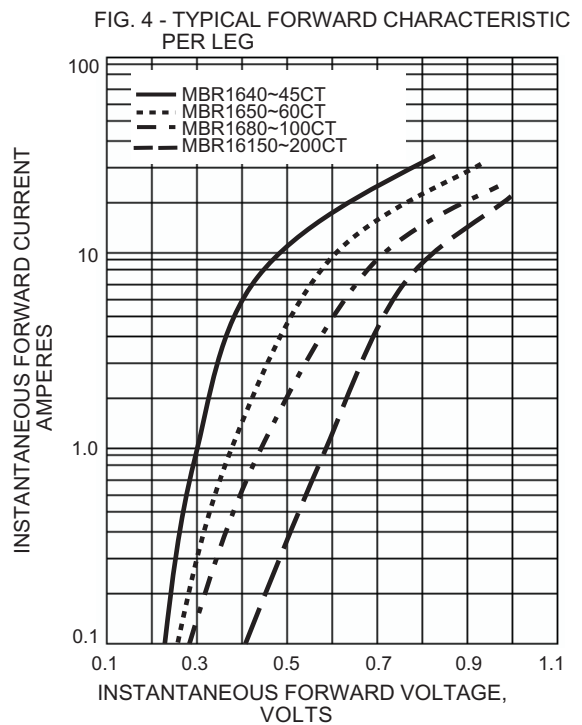
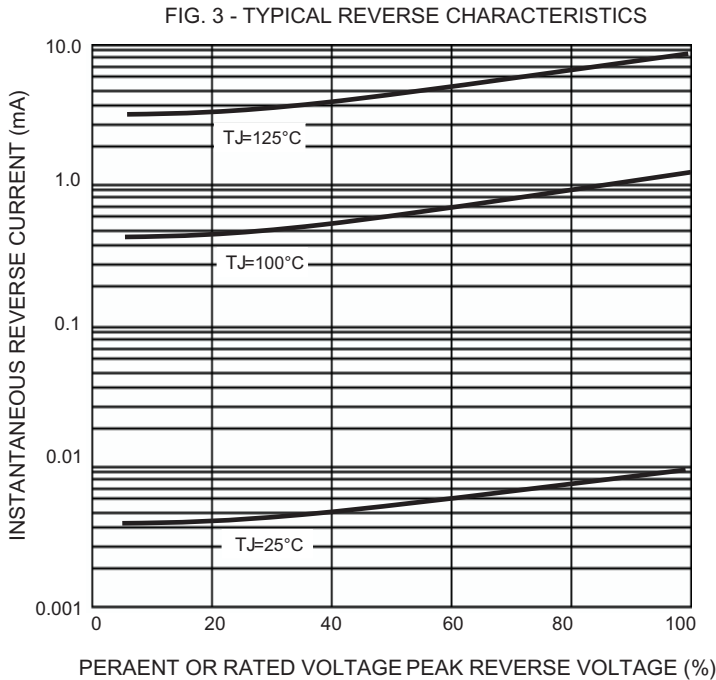
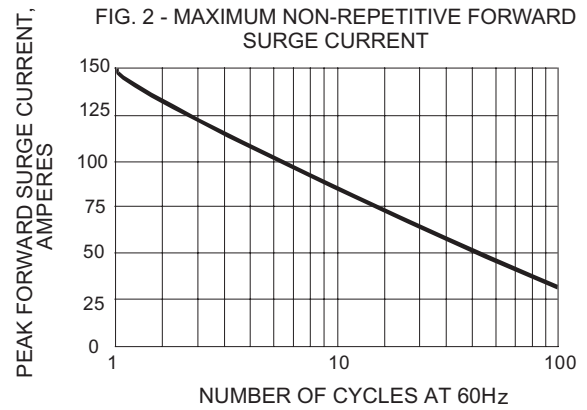
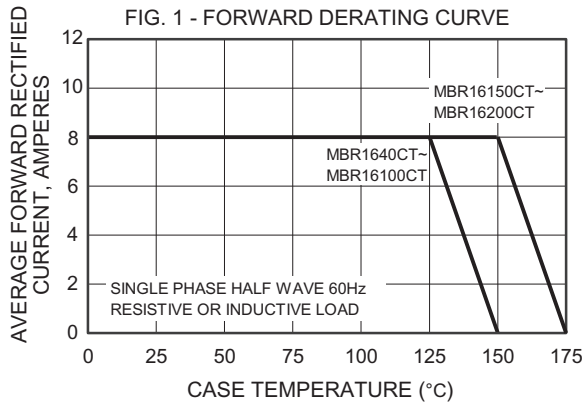
Electrical characteristics (AT $T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOLS	MBR 1640CT	MBR 1645CT	MBR 1650CT	MBR 1660CT	MBR 1680CT	MBR 16100CT	MBR 16150CT	MBR 16200CT	UNIT
Maximum forward voltage per leg at $I_F=8\text{A}$ at $I_F=16\text{A}$	V_F	0.65 0.84		0.75 0.85		0.85 0.95		0.92 1.00		V V
Maximum DC reverse current at $T_J=25^\circ\text{C}$ at rated DC blocking voltage at $T_J=125^\circ\text{C}$	I_R	0.05 10				0.01 10				mA mA

Thermal characteristics

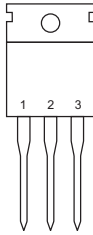
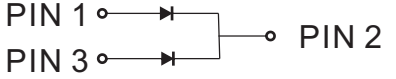
PARAMETER	SYMBOLS	MBR 1640CT	MBR 1645CT	MBR 1650CT	MBR 1660CT	MBR 1680CT	MBR 16100CT	MBR 16150CT	MBR 16200CT	UNIT
Typical thermal resistance junction to case per leg	$R_{\theta JC}$	3.0								$^\circ\text{C}/\text{W}$

Rating and characteristic curves (MBR1640CT THRU MBR16200CT)



MBR1640CT THRU MBR16200CT

Pinning information

Pin	Simplified outline	Symbol
Pin1 anode Pin2 cathode Pin3 anode		

Marking

Type number	Marking code
MBR1640CT	MBR1640CT
MBR1645CT	MBR1645CT
MBR1650CT	MBR1650CT
MBR1660CT	MBR1660CT
MBR1680CT	MBR1680CT
MBR16100CT	MBR16100CT
MBR16150CT	MBR16150CT
MBR16200CT	MBR16200CT

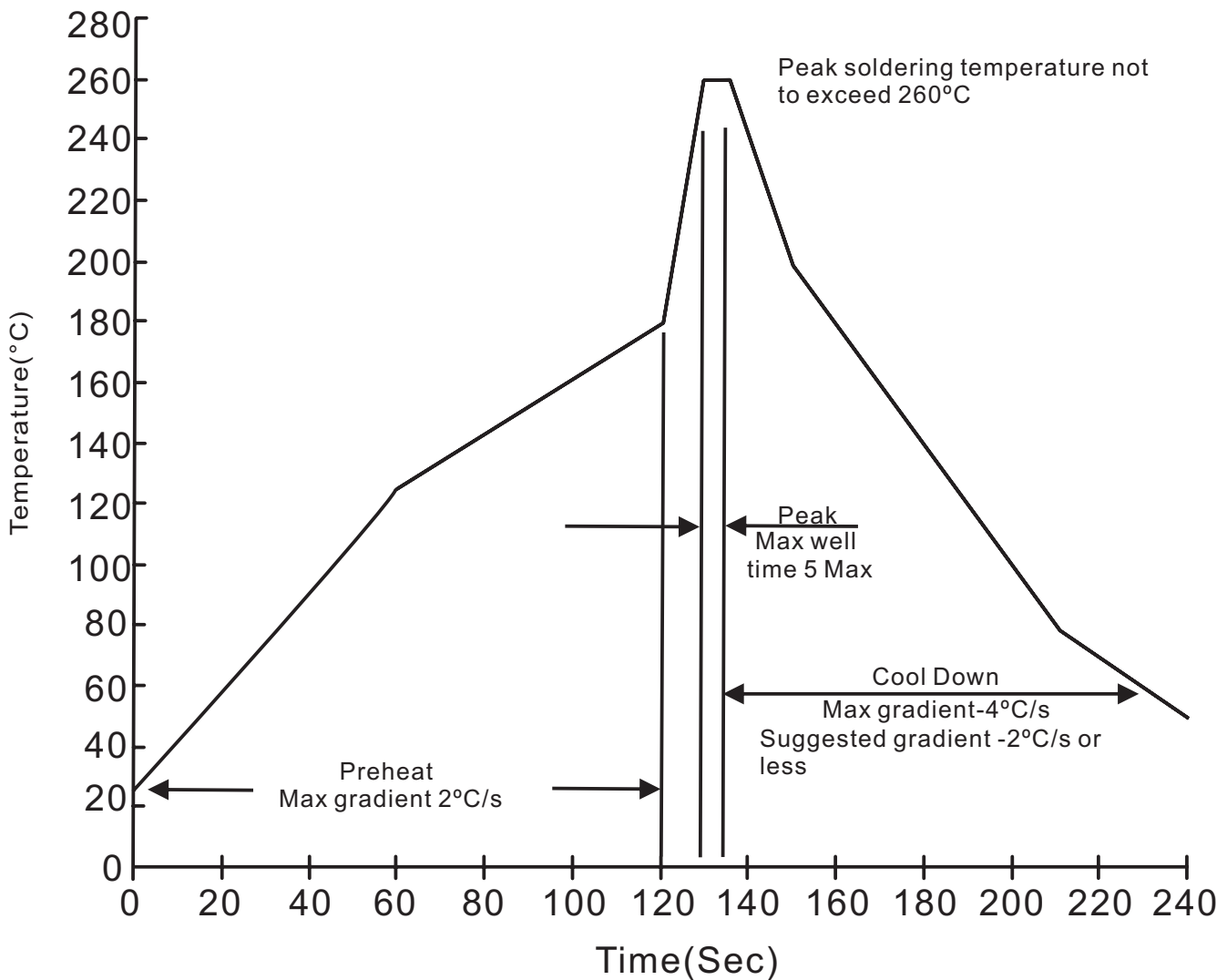
Tube packing

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*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



MBR1640CT THRU MBR16200CT**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