



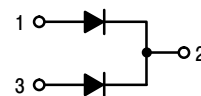
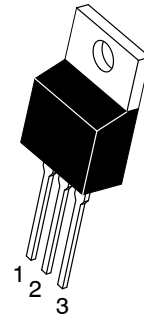
# MBR2040CTG THRU MBR20200CTG

20.0 AMPS. Schottky Barrier Rectifiers

## Features

- Metal silicon junction, majority carrier conduction
- Plastic material used carries Underwriters Laboratory Classifications 94V-0
- High surge capability
- Low power loss, high efficiency
- High current capability, low forward voltage drop
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- Guardring for overvoltage protection
- High temperature soldering guaranteed: 260°C/10 seconds, 0.25"(6.35mm) from case
- Green compound with suffix "G" on packing code & prefix "G" on datecode.

TO- 220AB



## Mechanical Data

- Cases: JEDEC TO-220AB molded plastic
- Polarity: As marked
- Terminals: Pure tin plated, lead free. solderable per MIL-STD-750, Method 2026
- Mounting position: Any
- Weight: 1.71grams
- Mounting torque: 5 in. - lbs. max

## Marking Diagram



Y = Year  
 A = Assembly Location  
 WW = Work Week  
 MBR20XX = Specific Device Code

## Maximum Ratings and Electrical Characteristics

Rating at 25 °C ambient temperature unless otherwise specified.

Single phase, half wave, 60 Hz, resistive or inductive load.

For capacitive load, derate current by 20%

Type Number	Symbol	MBR 2040 CTG	MBR 2045 CTG	MBR 2050 CTG	MBR 2060 CTG	MBR 2080 CTG	MBR 20100 CTG	MBR 20150 CTG	MBR 20200 CTG	Units
Maximum Recurrent Peak Reverse Voltage	$V_{RRM}$	40	45	50	60	80	100	150	200	V
Maximum RMS Voltage	$V_{RMS}$	28	31	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 at $T_C=135^\circ\text{C}$	$I_{F(AV)}$	20								A
Peak Repetitive Forward Current (Rated $V_R$ , Square Wave, 20KHz) at $T_C=135^\circ\text{C}$	$I_{FRM}$	20								A
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method )	$I_{FSM}$	150								A
Peak Repetitive Reverse Surge Current (Note 2)	$I_{RRM}$	1.0		0.5						A
Maximum Instantaneous Forward Voltage at $I_F=10\text{A}, T_A=25^\circ\text{C}$ $I_F=10\text{A}, T_A=125^\circ\text{C}$ $I_F=20\text{A}, T_A=25^\circ\text{C}$ $I_F=20\text{A}, T_A=125^\circ\text{C}$	$V_F$	—		0.74		0.77		0.80		V
		0.50		0.60		0.64		0.66		
		0.80		0.85		0.88		0.89		
		0.71		0.72		0.72		0.76		
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage (Note1)	$I_R$	0.02		0.01		0.0045		0.0002		mA
		10.4		10		5.0		0.4		mA
Voltage Rate of Change, (Rated $V_R$ )	$dV/dt$	10,000								V/ $\mu\text{s}$
Typical Junction Capacitance	$C_j$	400			320					pF
Typical Thermal Resistance Per Leg (Note 3)	$R_{\theta JC}$	1.0				2.0				$^\circ\text{C}/\text{W}$
Operating Junction Temperature Range	$T_J$	-65 to +175								$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-65 to +175								$^\circ\text{C}$

Notes: 1. Pulse Test: 300 $\mu\text{s}$  Pulse Width, 1% Duty Cycle  
 2. 2.0 $\mu\text{s}$  Pulse Width,  $f=1.0\text{ KHz}$   
 3. Mount on Heatsink Size of (4"x6"x0.25") Al-Plate.



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## RATINGS AND CHARACTERISTIC CURVES

FIG.1- FORWARD CURRENT DERATING CURVE

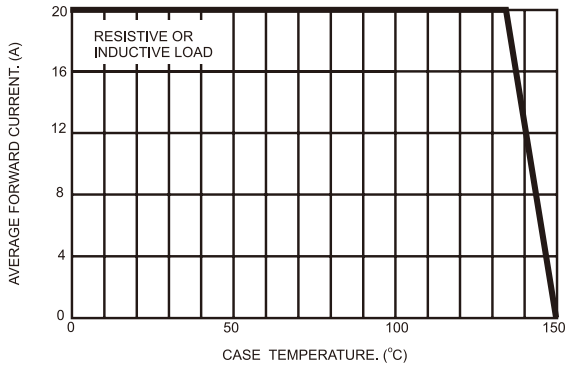


FIG.2- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT PER LEG

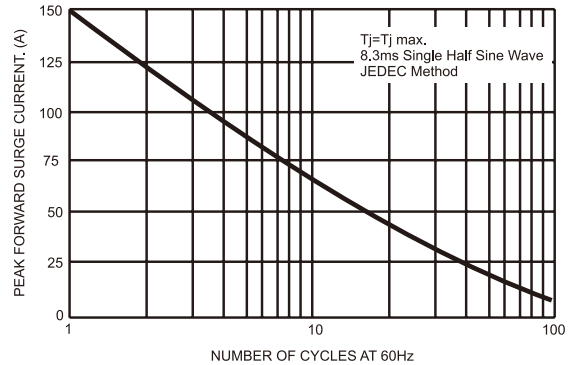


FIG.3- TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS PER LEG

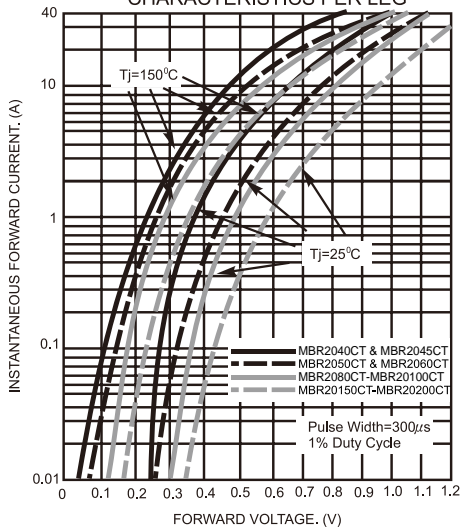


FIG.4- TYPICAL REVERSE CHARACTERISTICS PER LEG

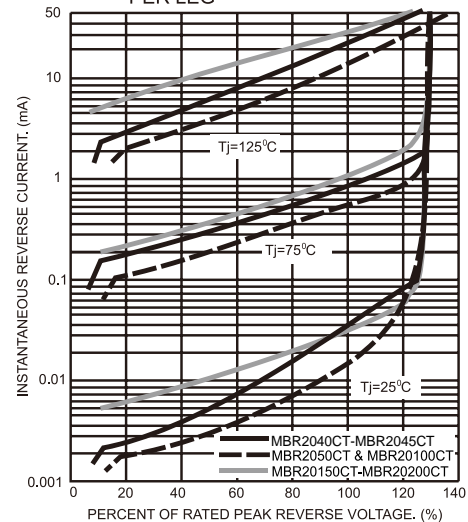


FIG.5- TYPICAL JUNCTION CAPACITANCE PER LEG

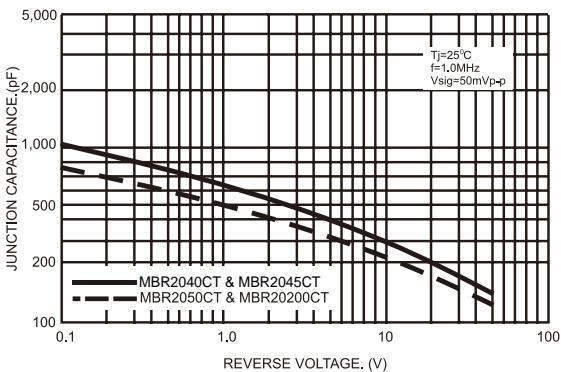
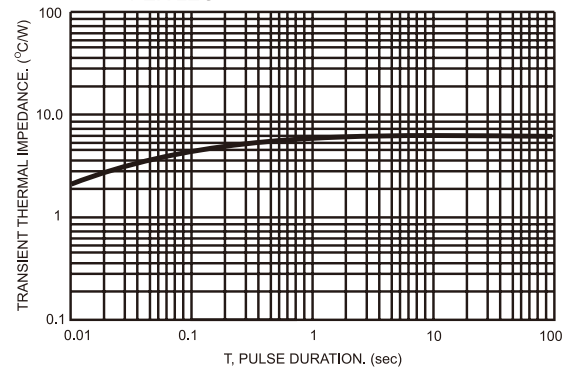
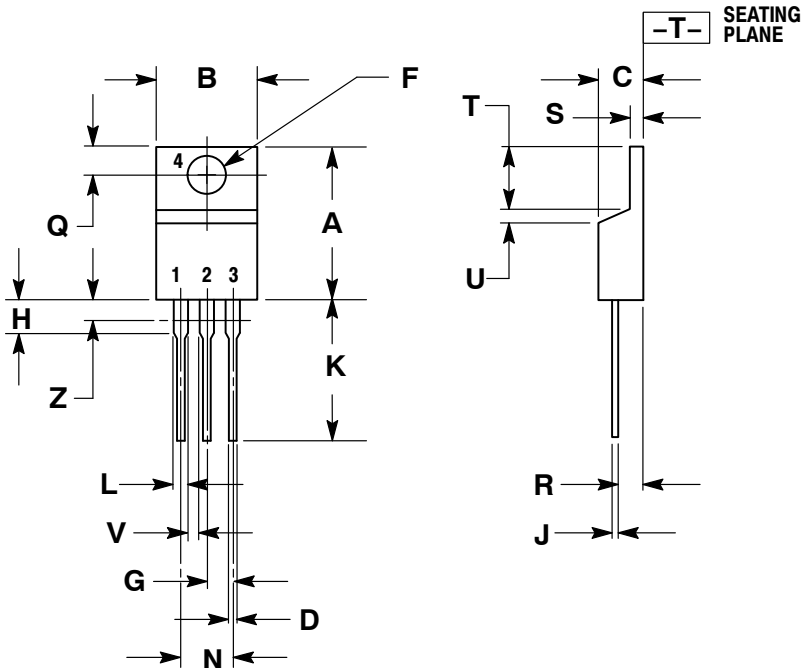


FIG.6- TYPICAL TRANSIENT THERMAL IMPEDANCE PER LEG



TO-220AB



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.570	0.620	14.48	15.75
B	0.380	0.405	9.66	10.28
C	0.160	0.190	4.07	4.82
D	0.025	0.035	0.64	0.88
F	0.142	0.161	3.61	4.09
G	0.095	0.105	2.42	2.66
H	0.110	0.155	2.80	3.93
J	0.014	0.025	0.36	0.64
K	0.500	0.562	12.70	14.27
L	0.045	0.060	1.15	1.52
N	0.190	0.210	4.83	5.33
Q	0.100	0.120	2.54	3.04
R	0.080	0.110	2.04	2.79
S	0.045	0.055	1.15	1.39
T	0.235	0.255	5.97	6.47
U	0.000	0.050	0.00	1.27
V	0.045	---	1.15	---
Z	---	0.080	---	2.04

STYLE 6:

- PIN 1. ANODE
2. CATHODE
3. ANODE
4. CATHODE