Product Summary

MBR1040CT – MBR1045CT (Per Leg)

V_{RRM} (V)	I_O (A)	$V_{F\ (MAX)}$ (V) @ +25°C	$I_{R\ (MAX)}$ (mA) @ +25°C
40 , 45	5	0.65	0.1

MBR1060CT-I (Per Leg)

V_{RRM} (V)	I_O (A)	$V_{F\ (MAX)}$ (V) @ +25°C	$I_{R\ (MAX)}$ (mA) @ +25°C
60	5	0.75	0.1

Description and Applications

This Schottky Barrier Rectifier is designed to meet the general requirements of commercial applications. It is ideally suited for use as:

- Polarity Protection Diode
- Re-Circulating Diode
- Switching Diode

Features and Benefits

- Guard Ring Die Construction for Transient Protection
- High Surge Current Capability
- Low Forward Voltage Drop
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

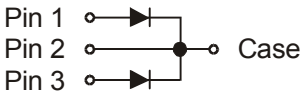
Mechanical Data

- Case: TO-220AB
- Case Material: Molded Plastic, "Green" Molding Compound; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 e3
- Polarity: As Marked on Body
- Weight: TO-220AB – 1.95 grams (Approximate)

TO220AB

Top View

Bottom View



Device Schematic

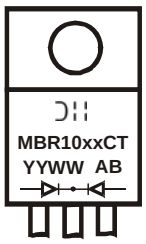
Ordering Information (Note 4)

Device	Packaging	Shipping
MBR1040CT	TO220AB	50/Tube
MBR1045CT	TO220AB	50/Tube
MBR1060CT-I	TO220AB	50/Tube

Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information

TO220AB



MBR10xxCT = Product Type Marking Code
AB = Foundry and Assembly Code
YYWW = Date Code Marking
YY = Last Two Digits of Year (ex: 13 = 2013)
WW = Week (01 - 53)

Maximum Ratings (Per Leg) (@T_A = +25°C, unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

Characteristic	Symbol	MBR1040CT	MBR1045CT	MBR1060CT-I	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	40	45	60	V
RMS Reverse Voltage	$V_{R(RMS)}$	28	31.5	42	V
Average Rectified Output Current (Note 5) (Per Leg) (Total)	I_O	5 10			A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	100			A

Thermal Characteristics (Per Leg)

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Case (Note 5)	$R_{\theta JC}$	3	K/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Electrical Characteristics (Per Leg) (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	MBR1040CT	MBR1045CT	MBR1060CT-I	Unit
Forward Voltage Drop Maximum @ I_F = 5.0A, T_C = +125°C @ I_F = 5.0A, T_C = +25°C	V_{FM}		0.55 0.65	0.65 0.75	V
Peak Reverse Current Maximum @ T_C = +25°C at Rated DC Blocking Voltage (Note 6) @ T_C = +125°C	I_{RM}	0.1 15			mA
Typical Total Capacitance (Note 7)	C_T	150			pF

Notes: 5. Device mounted on PCB with minimum recommended pad layout and additional heat sink (45mm x 20mm x 12mm) attached, with minimum recommended pad layout per http://www.diodes.com.
6. Short duration pulse test used to minimize self-heating effect.
7. Measured at 1.0 MHz and applied reverse voltage of 4.0V DC and per element.

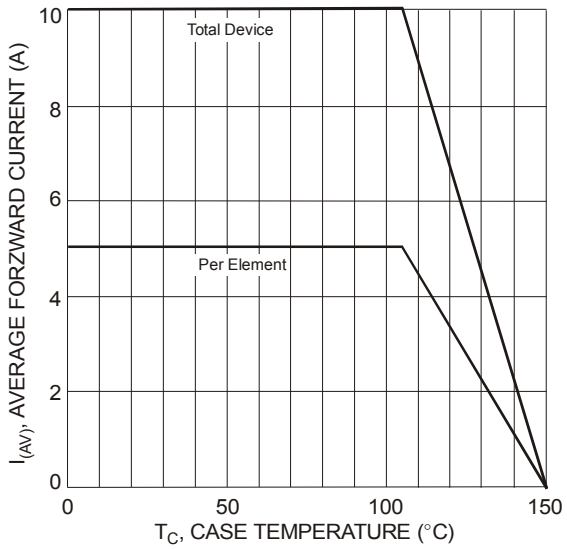


Figure 1 Forward Current Derating Curve

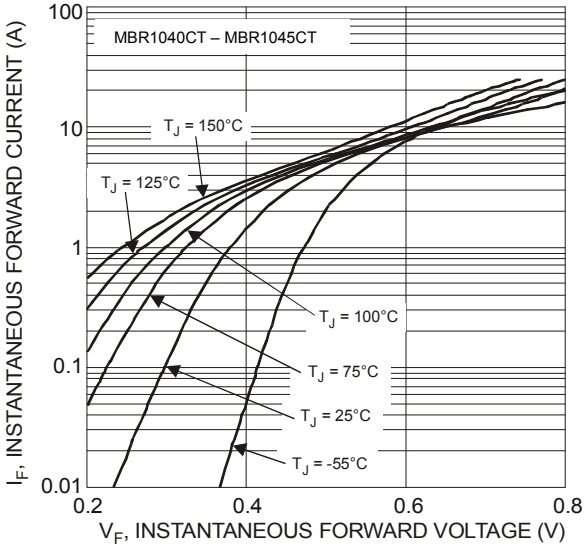


Figure 2 Typical Forward Characteristics, per Element

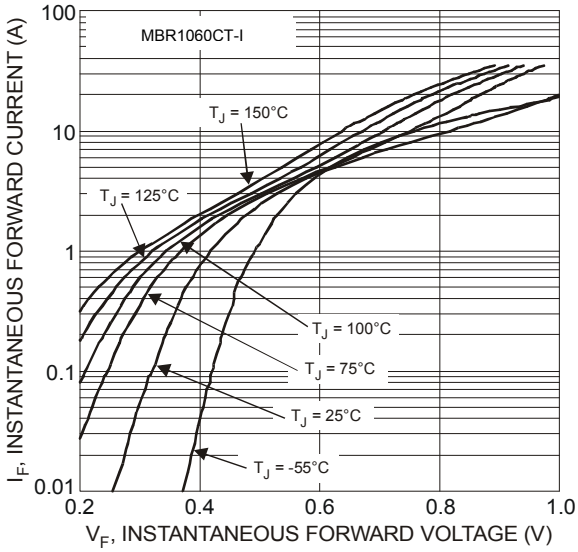


Figure 3 Typical Forward Characteristics, per Element

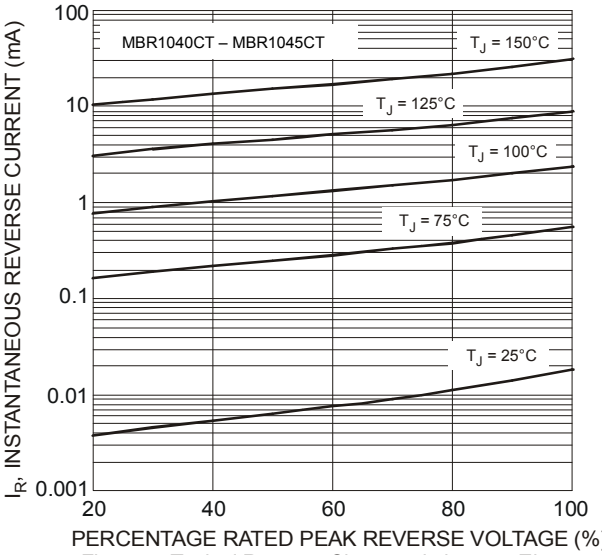


Figure 4 Typical Reverse Characteristics, per Element

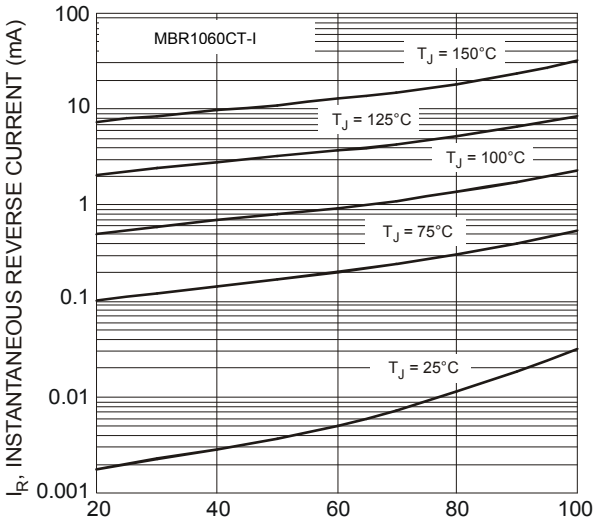


Figure 5 Typical Reverse Characteristics, per Element

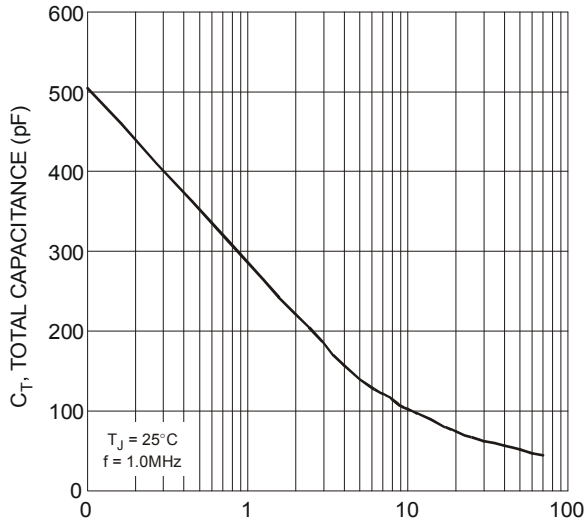
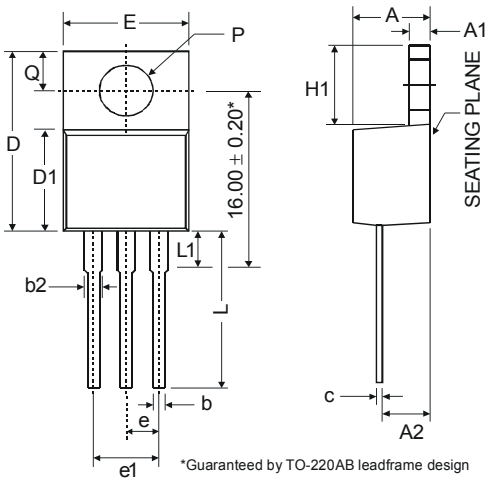


Figure 6 Typical Capacitance, per Element

Package Outline Dimensions

Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



TO220AB			
Dim	**Min**	**Typ**	**Max**
A	3.56	-	4.82
A1	0.51	-	1.39
A2	2.04	-	2.92
b	0.39	0.81	1.01
b2	1.15	1.24	1.77
c	0.356	-	0.61
D	14.22	-	16.51
D1	8.39	-	9.01
e	2.54		
e1	5.08		
E	9.66	-	10.66
H1	5.85	-	6.85
L	12.70	-	14.73
L1	-	-	6.35
P	3.54	-	4.08
Q	2.54	-	3.42
All Dimensions in mm			

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