

Product Summary

MBR2045CT / MBRF2045CT (Per Leg)

V_{RRM} (V)	I_o (A)	V_F (MAX) (V) @ +25°C	I_R (MAX) (mA) @ +25°C
45	10	0.64	0.1

MBR2060CT / MBRF2060CT (Per Leg)

V_{RRM} (V)	I_o (A)	V_F (MAX) (V) @ +25°C	I_R (MAX) (mA) @ +25°C
60	10	0.81	0.1

Description and Applications

This Schottky Barrier Rectifier has been 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, ITO-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: See Below
- Weight: TO-220AB – 1.95 grams (approximate)
ITO-220AB – 1.69 grams (approximate)



TO-220AB
Top View



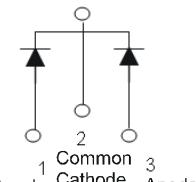
TO-220AB
Bottom View



ITO-220AB
Top View



ITO-220AB
Bottom View



Package Pin Out
Configuration

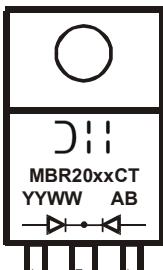
Ordering Information (Note 4)

Part Number	Case	Packaging
MBR2045CT-LJ	TO-220AB (Type C)	50 pieces/tube
MBRF2045CT-LJ	ITO-220AB (TO220F-3)	50 pieces/tube
MBR2060CT-LJ	TO-220AB (Type C)	50 pieces/tube
MBRF2060CT-LJ	ITO-220AB (TO220F-3)	50 pieces/tube

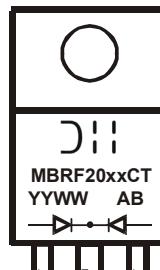
Notes:

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



MBR20xxCT = 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)



MBRF20xxCT = 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) (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

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

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V_{RRM}		
Working Peak Reverse Voltage	V_{RWM}		
DC Blocking Voltage	V_{RM}	45 60	V
MBR2045CT / MBRF2045CT			
MBR2060CT / MBRF2060CT			
Average Rectified Output Current (Per Leg) (Total)	I_o	10 20	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	180	A

Thermal Characteristics (Per Leg)

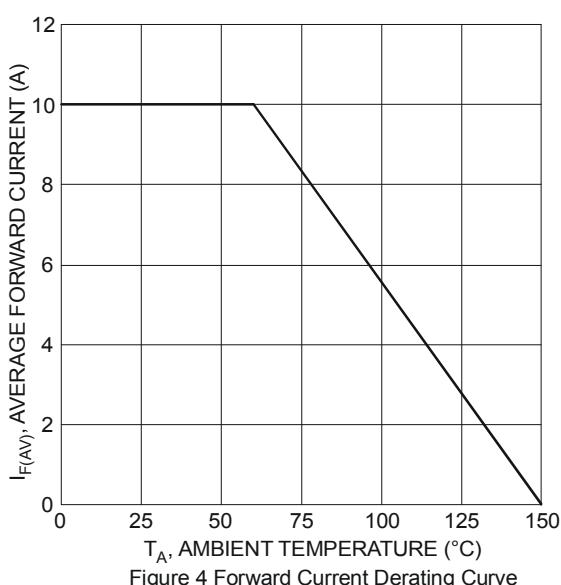
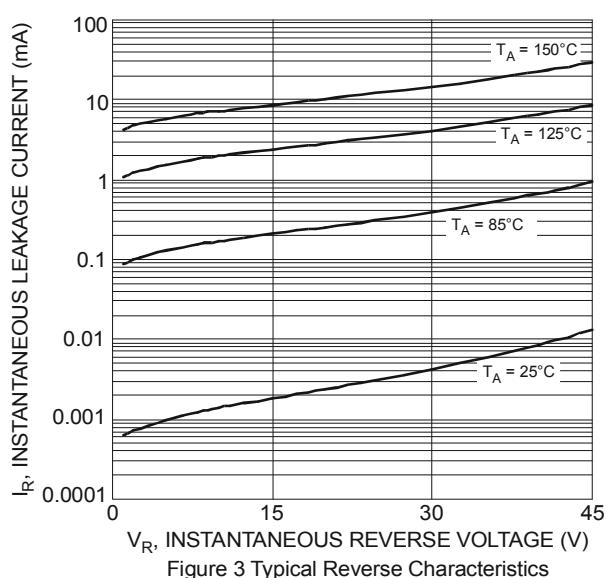
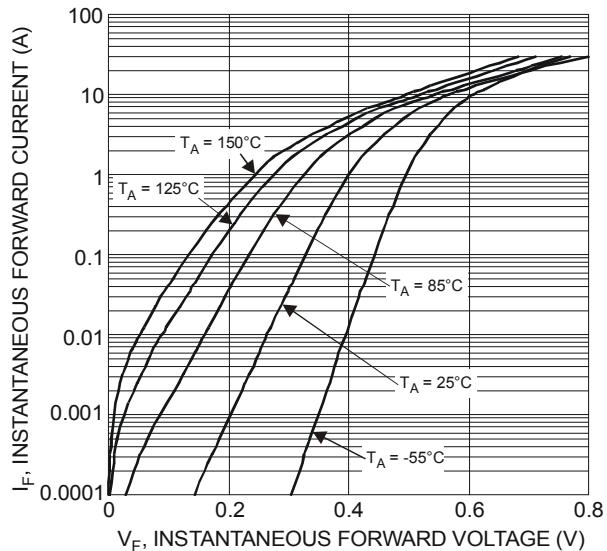
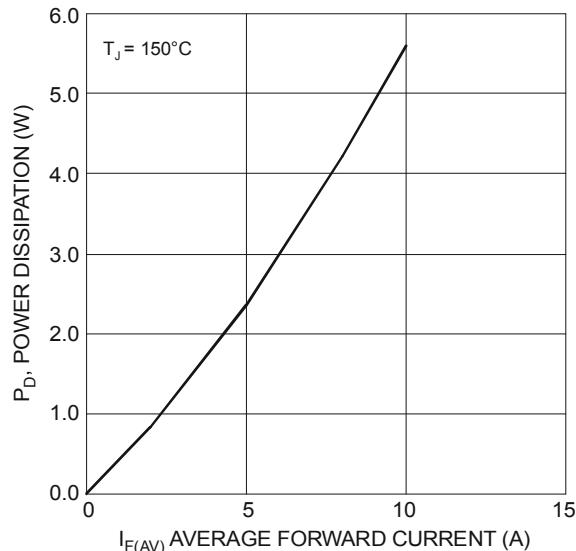
Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Case (Note 5) Package = TO-220AB	$R_{\theta JC}$	2	$^\circ\text{C}/\text{W}$
Package = ITO-220AB		4	
Typical Thermal Resistance, Junction to Ambient (Note 5) Package = TO-220AB	$R_{\theta JA}$	15	$^\circ\text{C}/\text{W}$
Package = ITO-220AB		25	
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Electrical Characteristics (Per Leg) (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

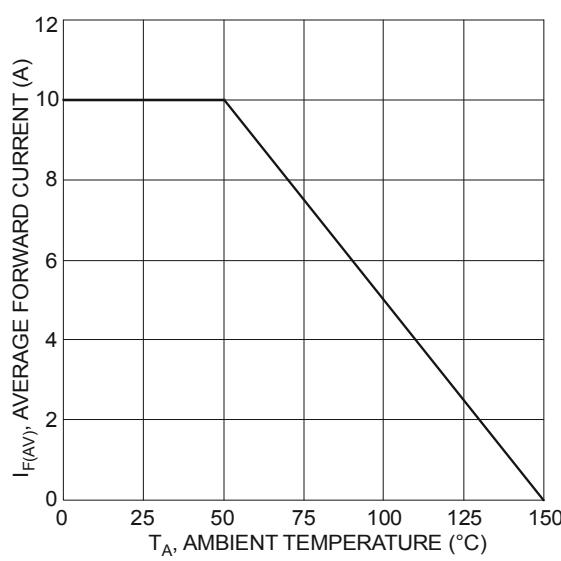
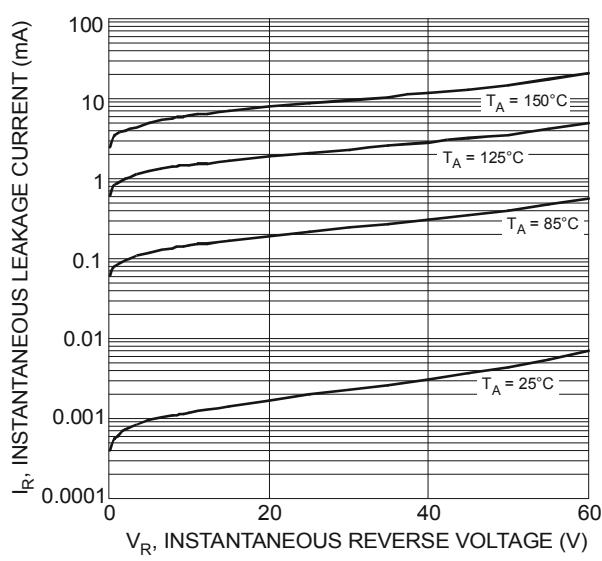
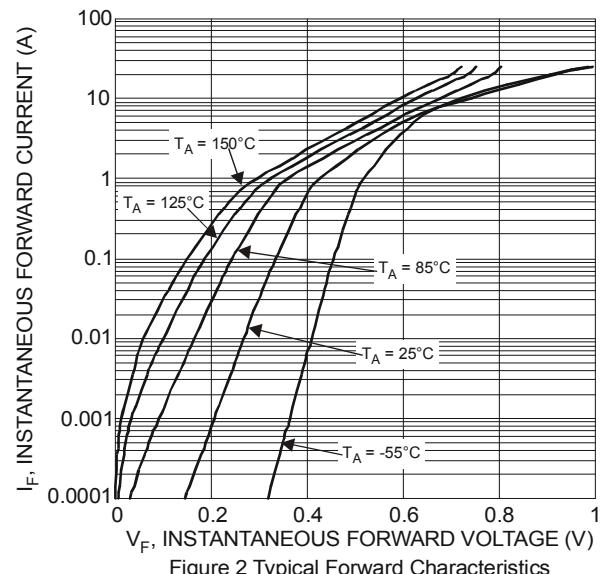
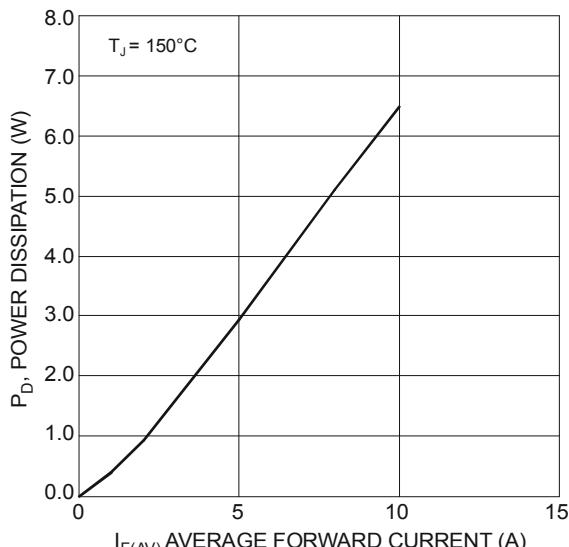
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
MBR2045CT / MBRF2045CT Forward Voltage Drop	V_F	—	0.58 —	0.64 0.57	V	$I_F = 10\text{A}, T_J = +25^\circ\text{C}$ $I_F = 10\text{A}, T_J = +125^\circ\text{C}$
MBR2060CT / MBRF2060CT Forward Voltage Drop	V_F	—	0.75 —	0.81 0.69	V	$I_F = 10\text{A}, T_J = +25^\circ\text{C}$ $I_F = 10\text{A}, T_J = +125^\circ\text{C}$
Leakage Current (Note 6) at Rated DC Blocking Voltage	I_R	—	—	0.1 15	mA	$V_R = \text{Rated V}, T_J = +25^\circ\text{C}$ $V_R = \text{Rated V}, T_J = +125^\circ\text{C}$

Notes: 5. Device mounted on heat sink (45mm x 20mm x 12mm), with minimum recommended pad layout per <http://www.diodes.com>
 6. Short duration pulse test used to minimize self-heating effect

MBR2045CT / MBRF2045CT

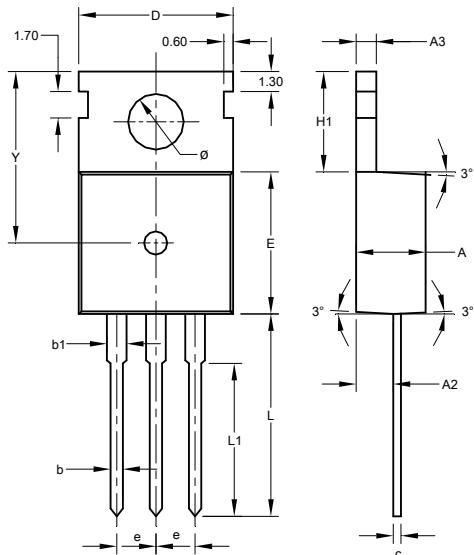


MBR2060CT / MBRF2060CT



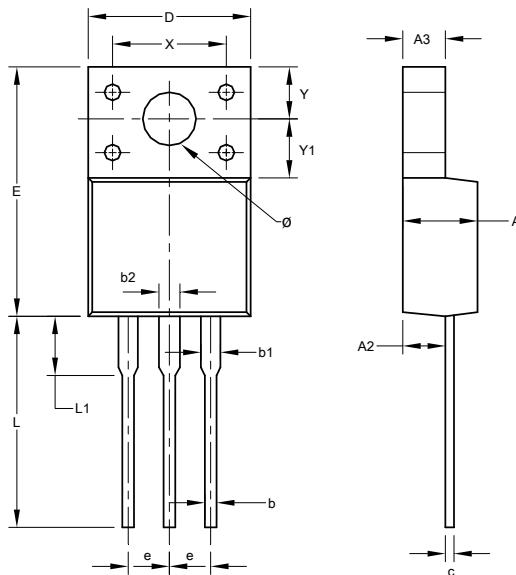
Package Outline Dimensions

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



TO220AB Type C			
Dim	Min	Max	Typ
A	-	-	4.50
A2	-	-	2.40
A3	-	-	1.30
b	0.70	0.90	-
b1	-	-	1.27
c	0.40	0.60	-
D	9.80	10.20	-
E	9.00	9.40	-
e	-	-	2.54
H1	6.30	6.70	-
L	12.60	13.60	-
L1	9.60	10.60	-
Y	-	-	11.10
Ø	3.56	3.64	-

All Dimensions in mm



ITO220AB (TO220F-3)			
Dim	Min	Max	Typ
A	4.30	4.90	-
A2	2.52	2.92	-
A3	2.35	2.90	-
b	0.55	0.90	-
b1	1.00	1.40	-
b2	1.10	1.50	-
c	0.45	0.60	-
D	9.70	10.30	-
E	14.70	16.00	-
e	-	-	2.54
L	12.50	13.50	-
L1	2.79	4.50	-
X	6.90	7.10	-
Y	3.00	3.40	-
Y1	3.37	3.90	-
Ø	3.00	3.55	-

All Dimensions in mm

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