

## 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

## 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**

## 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

## Mechanical Data

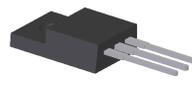
- Case: TO-220AB, ITO-220AB
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208  $\text{E3}$
- Polarity: See Below
- Weight: TO-220AB – 1.95 grams (Approximate)  
ITO-220AB – 1.69 grams (Approximate)



TO-220AB  
Top View



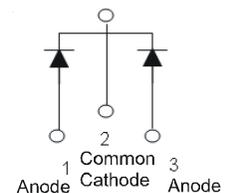
TO-220AB  
Bottom View



ITO-220AB  
Top View



ITO-220AB  
Bottom View



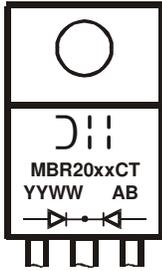
Package Pin Out  
Configuration

## 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](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<sub>A</sub> = +25°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			
Working Peak Reverse Voltage	V <sub>RRM</sub>		V
DC Blocking Voltage	V <sub>RWM</sub>	45	
MBR2045CT / MBRF2045CT	V <sub>RM</sub>	60	
MBR2060CT / MBRF2060CT			
Average Rectified Output Current (Per Leg) (Total)	I <sub>O</sub>	10 20	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	180	A

## Thermal Characteristics (Per Leg)

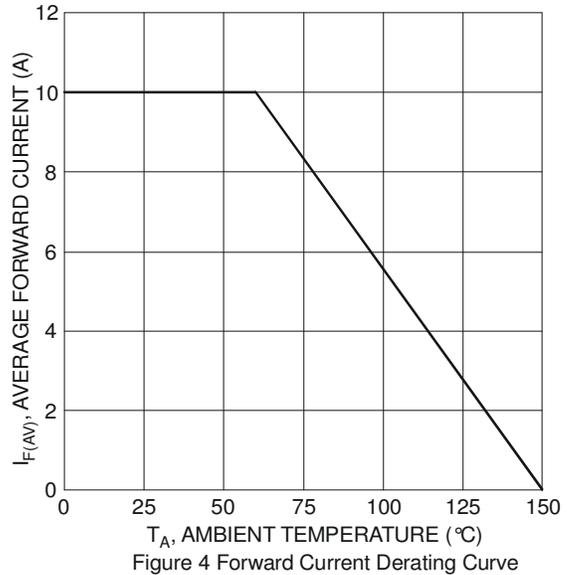
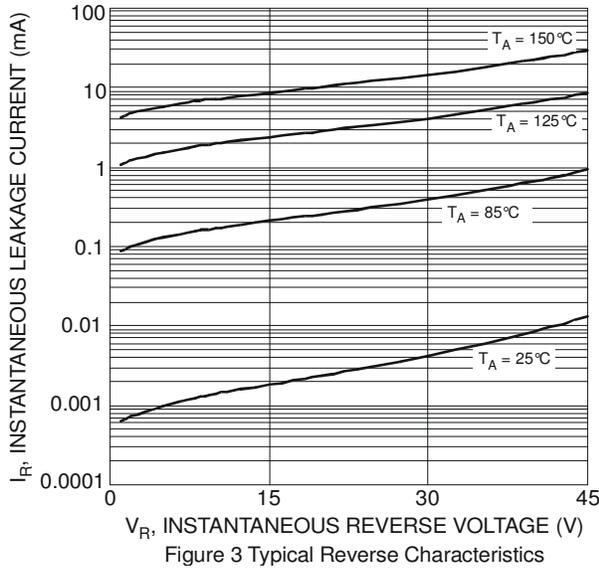
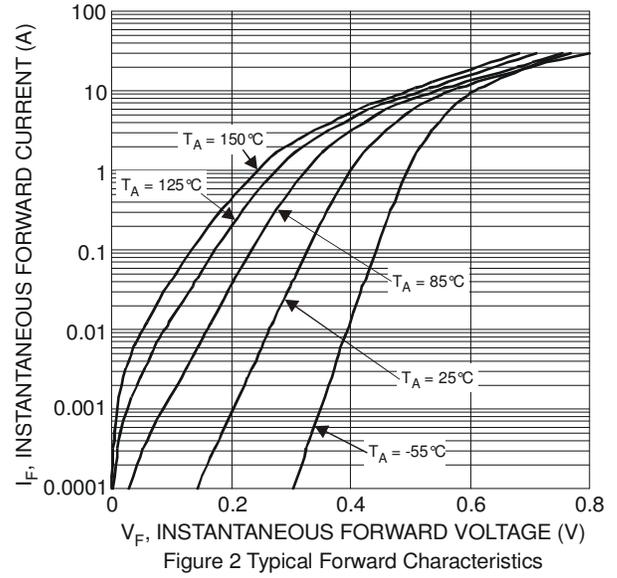
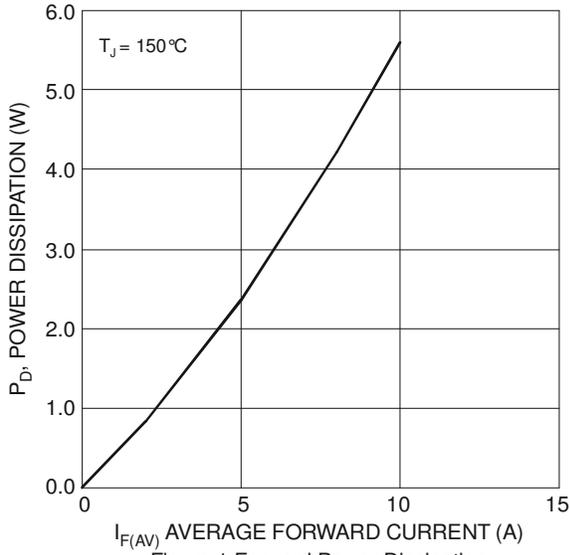
Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Case (Note 5) Package = TO-220AB Package = ITO-220AB	R <sub>θJC</sub>	2 4	°C/W
Typical Thermal Resistance, Junction to Ambient (Note 5) Package = TO-220AB Package = ITO-220AB	R <sub>θJA</sub>	15 25	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

## Electrical Characteristics (Per Leg) (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
MBR2045CT / MBRF2045CT Forward Voltage Drop	V <sub>F</sub>	—	0.58	0.64 0.57	V	I <sub>F</sub> = 10A, T <sub>J</sub> = +25°C I <sub>F</sub> = 10A, T <sub>J</sub> = +125°C
MBR2060CT / MBRF2060CT Forward Voltage Drop	V <sub>F</sub>	—	0.75	0.81 0.69	V	I <sub>F</sub> = 10A, T <sub>J</sub> = +25°C I <sub>F</sub> = 10A, T <sub>J</sub> = +125°C
Leakage Current (Note 6) at Rated DC Blocking Voltage	I <sub>R</sub>	—	—	0.1 15	mA	V <sub>R</sub> = Rated V, T <sub>J</sub> = +25°C V <sub>R</sub> = Rated V, T <sub>J</sub> = +125°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**

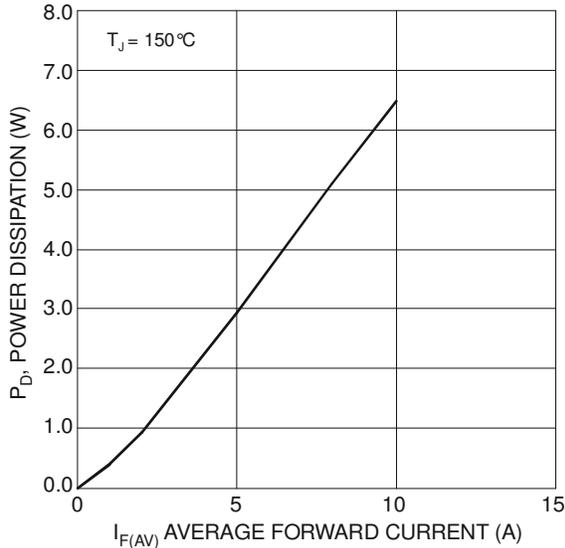


Figure 1 Forward Power Dissipation

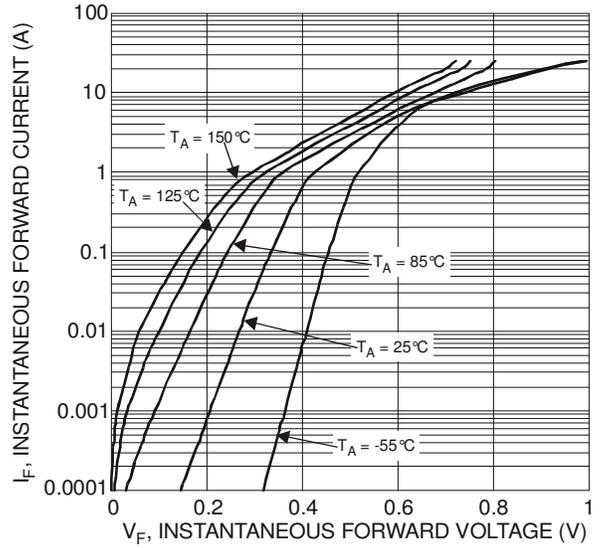


Figure 2 Typical Forward Characteristics

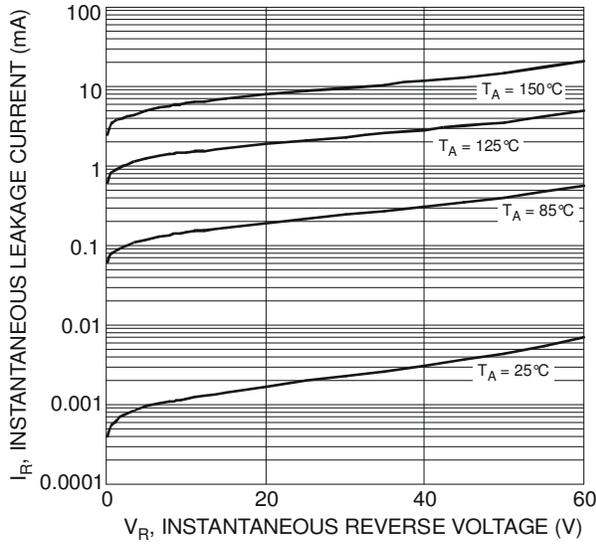


Figure 3 Typical Reverse Characteristics

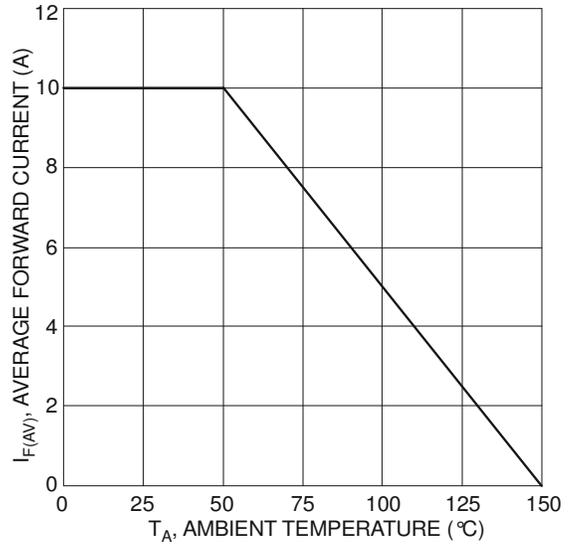


Figure 4 Forward Current Derating Curve



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