



# MBR2045CT - MBR2060CT / MBRF2045CT - MBRF2060CT

#### **20A SCHOTTKY BARRIER RECTIFIER**

#### **Product Summary**

MBR2045CT / MBRF2045CT (Per Leg)

V <sub>RRM</sub> (V)	I <sub>O</sub> (A)	V <sub>F (MAX)</sub> (V) @ +25℃	I <sub>R (MAX)</sub> (mA) @ +25℃
45	10	0.64	0.1

MBR2060CT / MBRF2060CT (Per Lea)

V <sub>RRM</sub> (V)	I <sub>O</sub> (A)	V <sub>F (MAX)</sub> (V) @ +25℃	I <sub>R (MAX)</sub> (mA) @ +25℃
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 (3)
- Polarity: See Below
- Weight: TO-220AB 1.95 grams (Approximate)
   ITO-220AB 1.69 grams (Approximate)



TO-220AB Top View



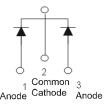
TO-220AB Bottom View



ITO-220AB Top View



ITO-220AB Bottom View



Package Pin Out Configuration

#### Ordering Information (Note 4)

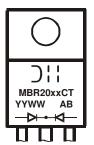
Part Number	Case	Packaging
MBR2045CT-LJ	TO-220AB (Type C)	50 pieces/tube
MBRF2045CT-LJ	ITO-220AB (TO220F-3)	50 pieces/tube
MBR2060CT-LJ	TO-220AB (Type C)	50 pieces/tube
MBRF2060CT-LJ	ITO-220AB (TO220F-3)	50 pieces/tube

Notes:

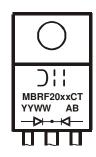
- $1.\ EU\ Directive\ 2002/95/EC\ (RoHS)\ \&\ 2011/65/EU\ (RoHS\ 2)\ compliant.\ All\ applicable\ RoHS\ exemptions\ applied.$
- See http://www.diodes.com/quality/lead\_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
- 3. Halogen- 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<sub>A</sub> = +25 ℃, 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 DC Blocking Voltage MBR2045CT / MBRF2045CT MBR2060CT / MBRF2060CT		V <sub>RRM</sub> V <sub>RWM</sub> V <sub>RM</sub>	45 60	V
Average Rectified Output Current	(Per Leg) (Total)	Io	10 20	Α
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load		I <sub>FSM</sub>	180	А

# Thermal Characteristics (Per Leg)

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Case (Note 5) Package = TO-220AB Package = ITO-220AB	R <sub>eJC</sub>	2 4	.c\M
Typical Thermal Resistance, Junction to Ambient (Note 5) Package = TO-220AB Package = ITO-220AB	R <sub>0</sub> JA	15 25	.c\M
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	℃

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

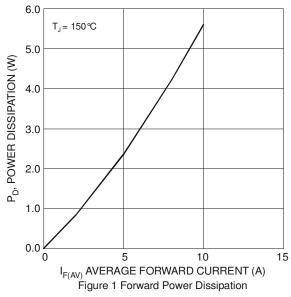
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
MBR2045CT / MBRF2045CT	VF	_	0.58	0.64		I <sub>F</sub> = 10A, T <sub>J</sub> = +25℃
Forward Voltage Drop	٧F	_	l	0.57	V	I <sub>F</sub> = 10A, T <sub>J</sub> = +125 ℃
MBR2060CT / MBRF2060CT	V		0.75	0.81	\/	I <sub>F</sub> = 10A, T <sub>J</sub> = +25℃
Forward Voltage Drop	V <sub>F</sub>	_	_	0.69	V	I <sub>F</sub> = 10A, T <sub>J</sub> = +125 ℃
Leakage Current (Note 6)	_		_	0.1	A	V <sub>R</sub> = Rated V, T <sub>J</sub> = +25 ℃
at Rated DC Blocking Voltage	IR	_	1	15	mA	V <sub>R</sub> = Rated V, T <sub>J</sub> = +125°C

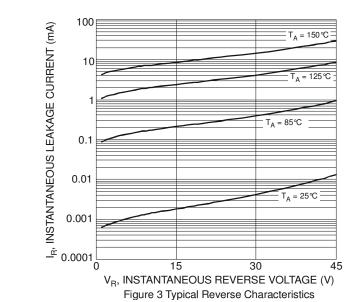
Notes: 5. Device mounted on heat sink (45mm x 20mm x12mm), with minimum recommended pad layout per http://www.diodes.com.

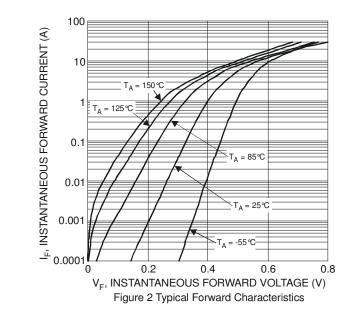
6. Short duration pulse test used to minimize self-heating effect.

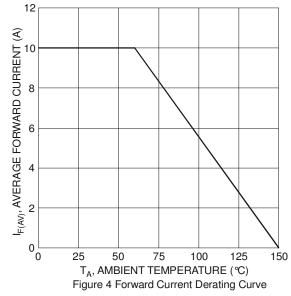


#### MBR2045CT / MBRF2045CT



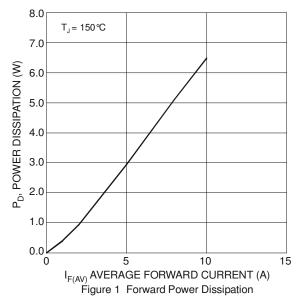


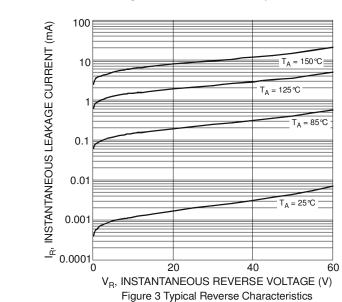


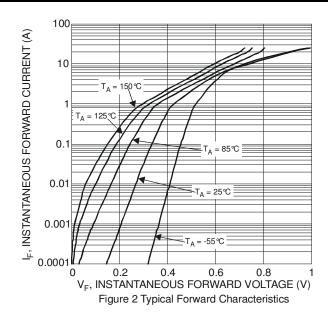


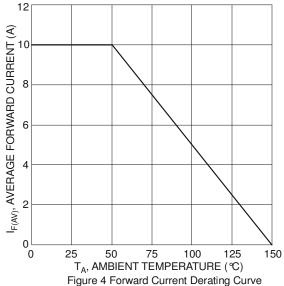


#### MBR2060CT / MBRF2060CT





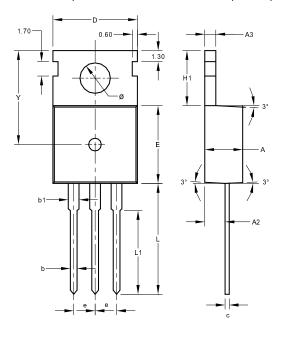




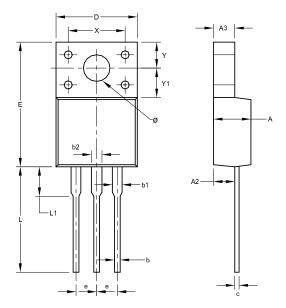


### **Package Outline Dimensions**

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



TO220AB (Type C)						
Dim	Min Max Typ					
Α	4.40	4.60	4.500			
A2	2.20	2.50	2.400			
А3	1.20	1.40	1.300			
b	0.700	0.900	-			
b1	1.170	1.390	1.270			
С	0.400	0.600	-			
D	9.800	10.200	-			
Е	9.000	9.400	-			
е	-	-	2.54			
H1	6.300	6.700	-			
L	12.600	13.600	-			
L1	9.600	10.600	-			
Υ	-	-	11.100			
Ø	3.560	3.640	-			
All Dimensions in mm						



ITO220AB (TO220F-3)						
Dim	Min	Max	Тур			
Α	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	-			
С	0.45	0.60	-			
D	9.70	10.30	-			
Е	14.70	16.00	-			
е	1	1	2.54			
L	12.50	13.50	-			
L1	2.79	4.50	-			
Х	6.90	7.10	-			
Υ	3.00	3.40	-			
Y1	3.37	3.90	-			
Ø	3.00	3.55	-			
All	All Dimensions in mm					





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