

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

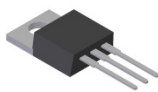
MBR2060CT-/ MBRF2060CT (Per Leg)

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

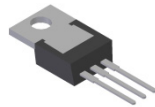
Description and Applications

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

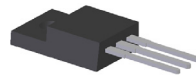
- Polarity Protection Diode
- Re-Circulating Diode
- Switching Diode



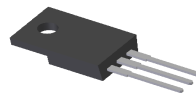
TO-220AB
Top View



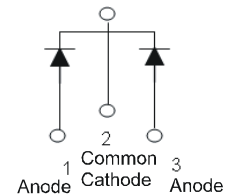
TO-220AB
Bottom View



ITO-220AB
Top View



ITO-220AB
Bottom View



Package Pin Out
Configuration

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

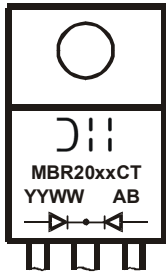
- Case: TO-220AB, ITO-220AB
- Case Material: Molded Plastic, "Green" Molding compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Polarity: See Below
- Weight: TO-220AB – 1.95 grams (approximate)
ITO-220AB – 1.69 grams (approximate)

Ordering Information (Note 4)

Part Number	Case	Packaging
MBR2045CT	TO-220AB	50 pieces/tube
MBR2045CT-LJ	TO-220AB (Type C)	50 pieces/tube
MBRF2045CT	ITO-220AB	50 pieces/tube
MBRF2045CT-JT	ITO-220AB (Alternate)	50 pieces/tube
MBRF2045CT-LJ	TO220F-3	50 pieces/tube
MBR2060CT-I	TO-220AB	50 pieces/tube
MBR2060CT-LJ	TO-220AB (Type C)	50 pieces/tube
MBRF2060CT-I	ITO-220AB	50 pieces/tube
MBRF2060CT-JT	ITO-220AB (Alternate)	50 pieces/tube
MBRF2060CT-LJ	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°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}	45	V
Working Peak Reverse Voltage			
DC Blocking Voltage			
MBR2045CT / MBRF2045CT	V _{RM}	60	
MBR2060CT / MBRF2060CT			
Average Rectified Output Current (Per Leg)	I _O	10	A
(Total)		20	
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)	R _{θJC}	2	°C/W
Package = TO-220AB		4	
Typical Thermal Resistance, Junction to Ambient (Note 5)	R _{θJA}	15	°C/W
Package = TO-220AB		25	
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	Min	Typ	Max	Unit	Test Condition
MBR2045CT / MBRF2045CT	V _F	—	0.58	0.64	V	I _F = 10A, T _J = +25°C
Forward Voltage Drop		—	—	0.57		I _F = 10A, T _J = +125°C
MBR2060CT / MBRF2060CT	V _F	—	0.75	0.81	V	I _F = 10A, T _J = +25°C
Forward Voltage Drop		—	—	0.69		I _F = 10A, T _J = +125°C
Leakage Current (Note 6) at Rated DC Blocking Voltage	I _R	—	—	0.1	mA	V _R = Rated V, T _J = +25°C
		—	—	15		V _R = Rated V, T _J = +125°C

Notes: 5. Device mounted on Device with FR4 add 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

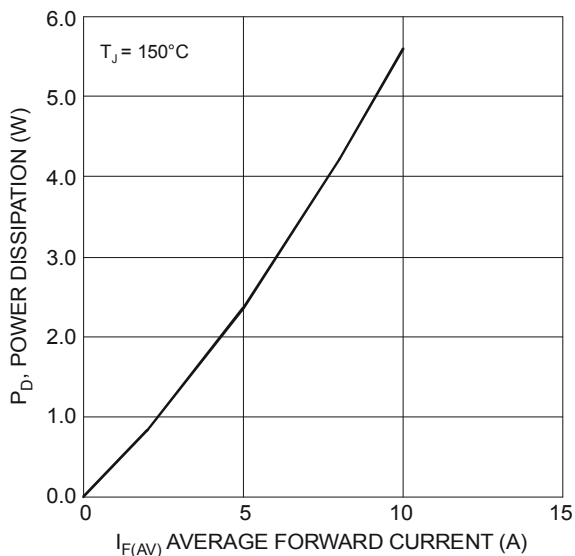


Figure 1 Forward Power Dissipation

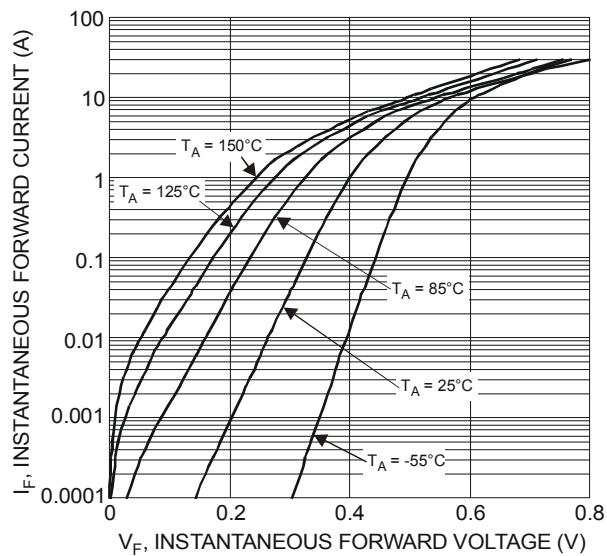


Figure 2 Typical Forward Characteristics

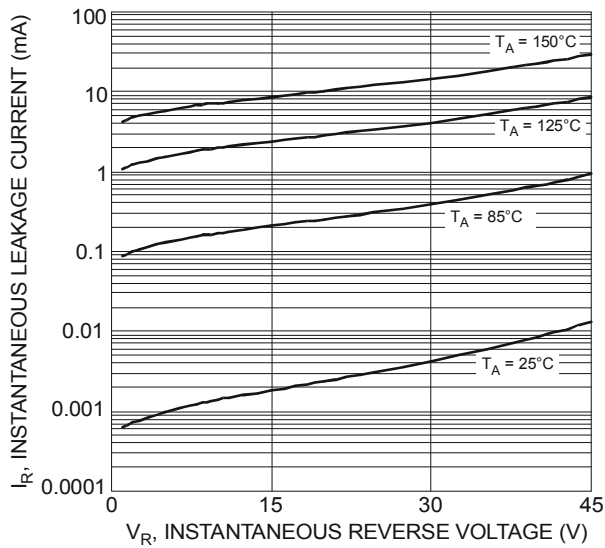


Figure 3 Typical Reverse Characteristics

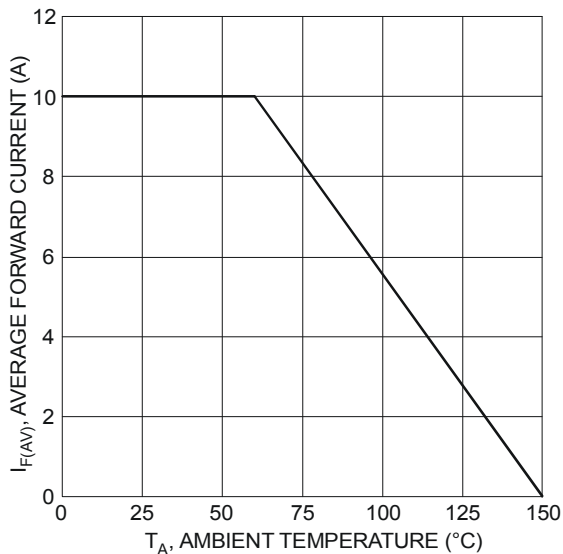


Figure 4 Forward Current Derating Curve

MBR2060CT / MBRF2060CT

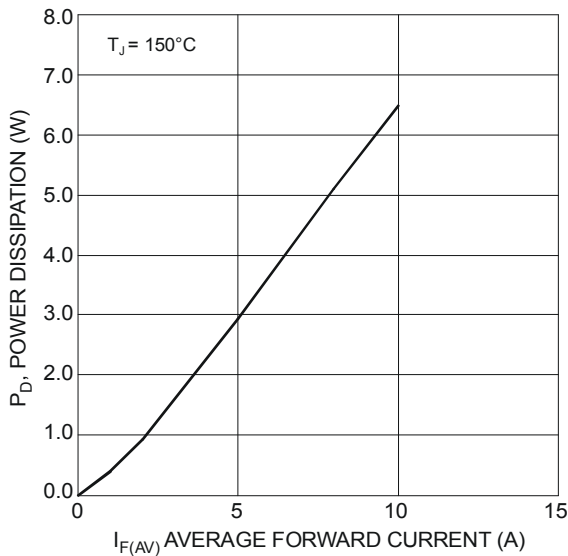


Figure 1 Forward Power Dissipation

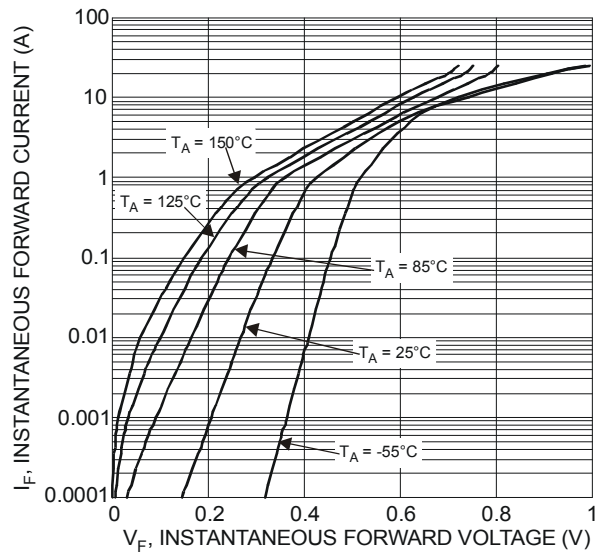


Figure 2 Typical Forward Characteristics

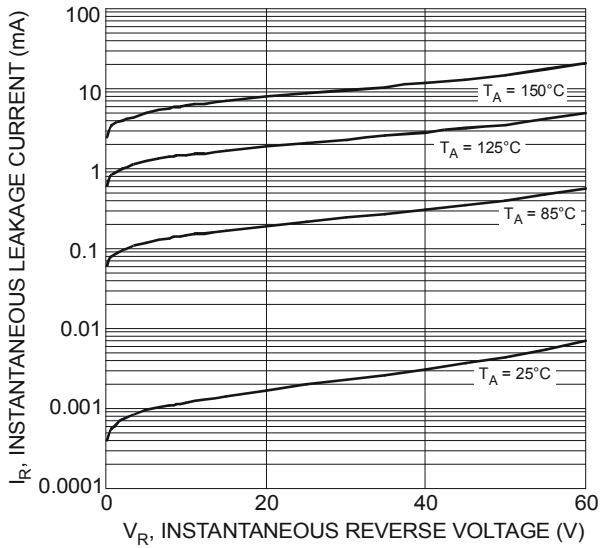


Figure 3 Typical Reverse Characteristics

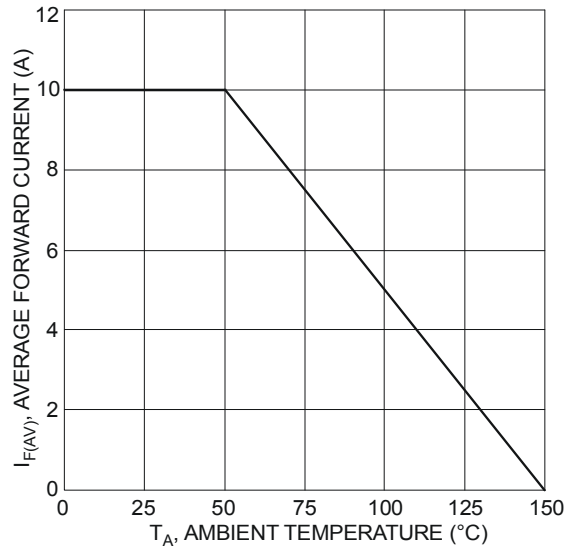
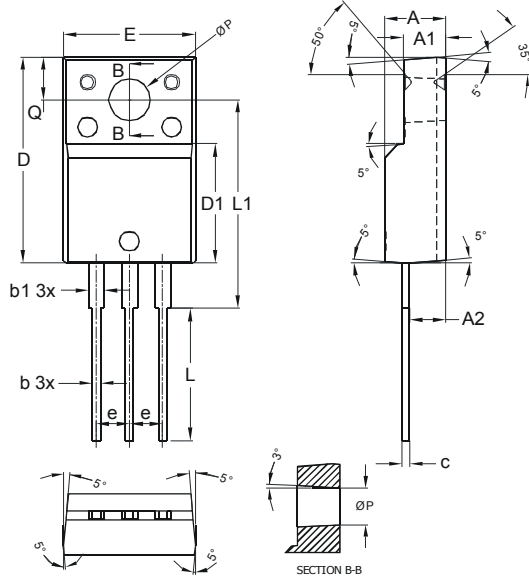


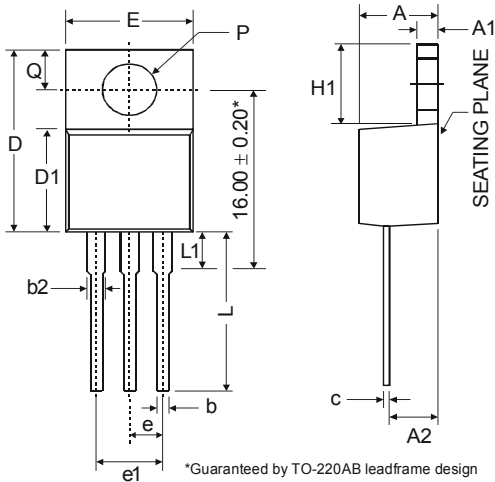
Figure 4 Forward Current Derating Curve

Package Outline Dimensions

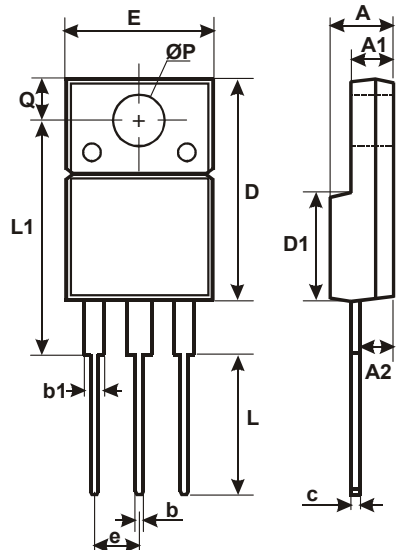
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



ITO-220AB			
Dim	Min	Typ	Max
A	4.50	4.70	4.90
A1	3.04	3.24	3.44
A2	2.56	2.76	2.96
b	0.50	0.60	0.75
b1	1.10	1.20	1.35
c	0.50	0.60	0.70
D	15.67	15.87	16.07
D1	8.99	9.19	9.39
e	2.54		
E	9.91	10.11	10.31
L	9.45	9.75	10.05
L1	15.80	16.00	16.20
P	2.98	3.18	3.38
Q	3.10	3.30	3.50
All Dimensions in mm			

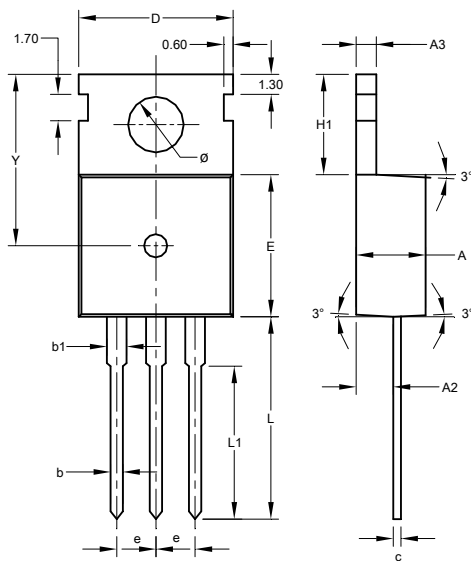


TO220AB			
Dim	Min	Typ	Max
A	3.56	-	4.82
A1	0.51	-	1.39
A2	2.04	-	2.92
b	0.39	0.81	1.01
b2	1.15	1.24	1.77
c	0.356	-	0.61
D	14.22	-	16.51
D1	8.39	-	9.01
e	2.54		
e1	5.08		
E	9.66	-	10.66
H1	5.85	-	6.85
L	12.70	-	14.73
L1	-	-	6.35
P	3.54	-	4.08
Q	2.54	-	3.42
All Dimensions in mm			

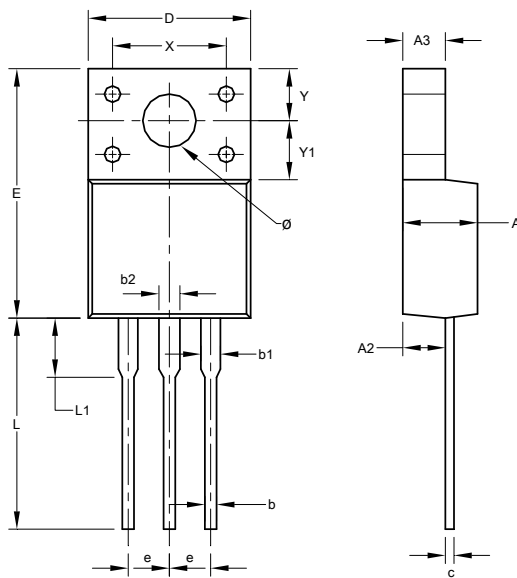


ITO-220AB Alternate			
Dim	Min	Max	
A	4.36	4.77	
A1	2.54	3.1	
A2	2.54	2.8	
b	0.55	0.75	
b1	1.2	1.5	
c	0.38	0.68	
D	14.5	15.5	
D1	8.38	8.89	
E	9.72	10.27	
e	2.41	2.67	
L	9.87	10.67	
L1	15.8	17	
ØP	3.08	3.39	
Q	2.6	3.0	
All Dimensions in mm			

Package Outline Dimensions (cont.)



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
ϕ	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	-
ϕ	3.00	3.55	-
All Dimensions in mm			

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