

Product Summary

MBR3045CT / MBRF3045CT (Per Leg)

V_{RRM} (V)	I_O (A)	V_F (MAX) (V) @ +25°C	I_R (MAX) (mA) @ +25°C
45	15	0.62	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:

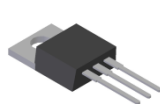
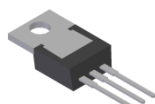
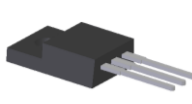
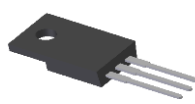
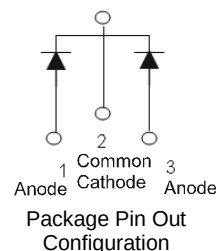
- Polarity Protection Diode
- Re-Circulating Diode
- Switching Diode

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, 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)

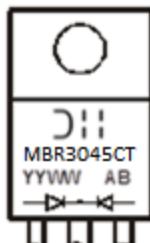

 TO-220AB
Top View

 TO-220AB
Bottom View

 ITO-220AB
Top View

 ITO-220AB
Bottom View


Ordering Information (Note 4)

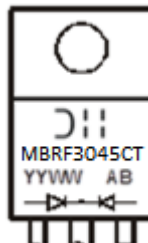
Part Number	Case	Packaging
MBR3045CT-LJ	TO-220AB (Type C)	50 pieces/tube
MBRF3045CT-LJ	ITO220AB (TO220F-3)	50 pieces/tube

- 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



MBR3045CT = 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)



MBRF3045CT = 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}	45	V
Working Peak Reverse Voltage	V_{RWM}		
DC Blocking Voltage	V_{RM}		
Average Rectified Output Current (Per Leg) (Total)	I_O	15 30	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	200	A

Thermal Characteristics (Per Leg)

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Case (Note 5) Package = TO-220AB Package = ITO-220AB	$R_{\theta JC}$	2 4	$^\circ\text{C/W}$
Typical Thermal Resistance, Junction to Ambient (Note 5) Package = TO-220AB Package = ITO-220AB	$R_{\theta JA}$	15 25	$^\circ\text{C/W}$
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
Forward Voltage Drop	V_F	—	0.58	0.62 0.59	V	$I_F = 15\text{A}, T_J = +25^\circ\text{C}$ $I_F = 15\text{A}, T_J = +125^\circ\text{C}$
Leakage Current (Note 6)	I_R	—	—	0.1 30	mA	$V_R = 45\text{V}, T_J = +25^\circ\text{C}$ $V_R = 45\text{V}, T_J = +125^\circ\text{C}$

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

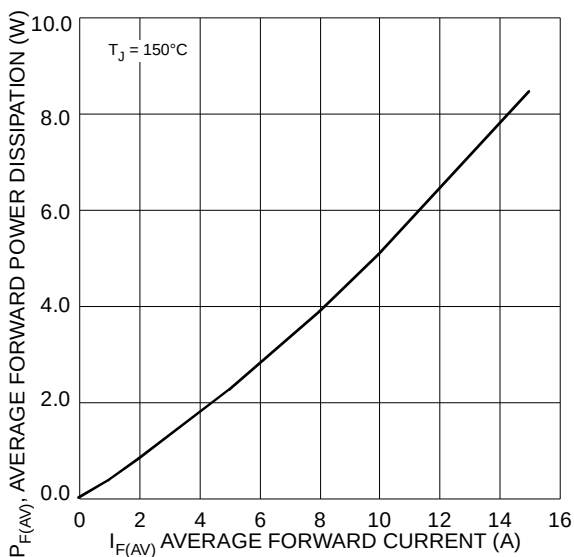


Figure 1 Forward Power Dissipation

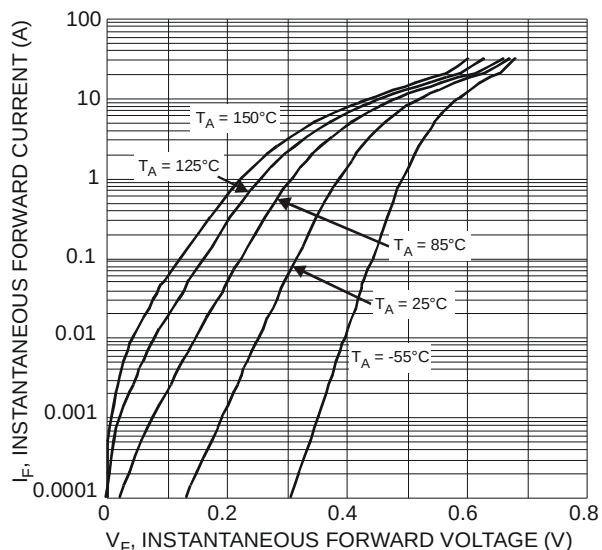


Figure 2 Typical Forward Characteristics

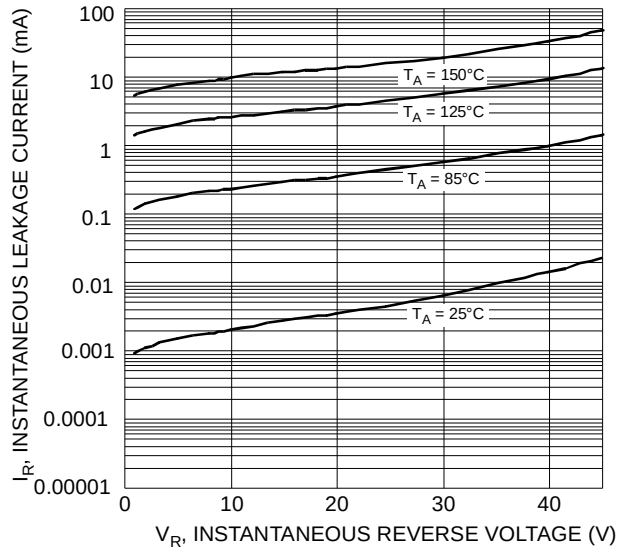


Figure 3 Typical Reverse Characteristics

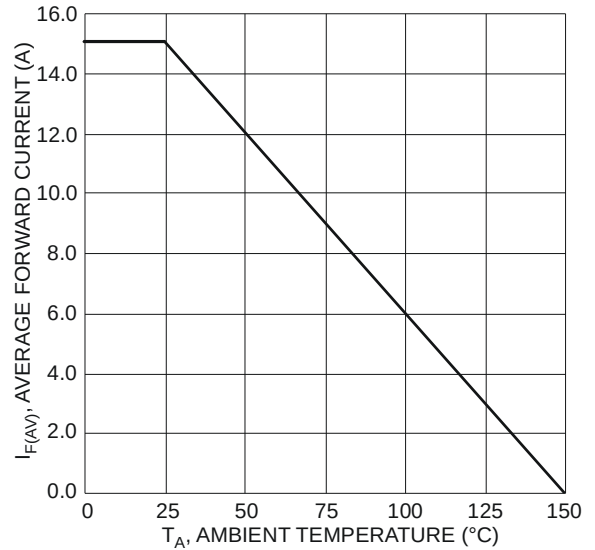
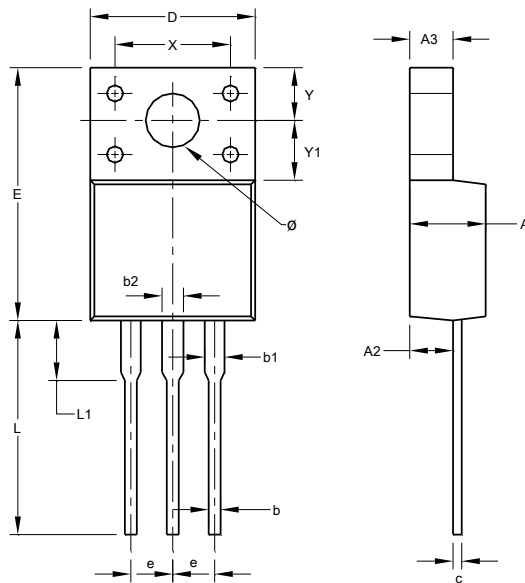


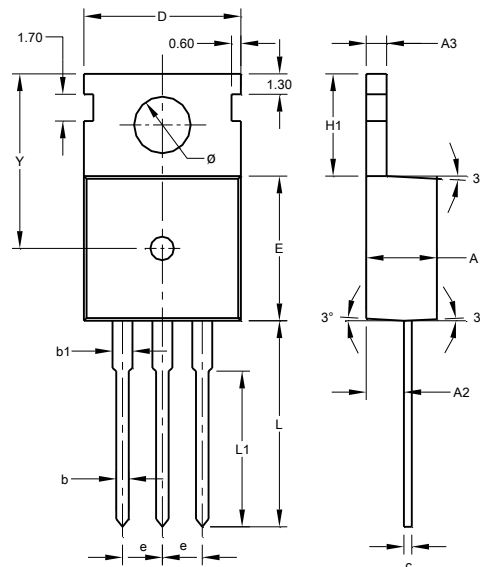
Figure 4 Forward Current Derating Curve

Package Outline Dimensions

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



ITO220AB (TO220F-3)			
Dim	Min	Max	Typ
A	4.300	4.900	-
A2	2.520	2.920	-
A3	2.350	2.900	-
b	0.550	0.900	-
b1	1.000	1.400	-
b2	1.100	1.500	-
c	0.450	0.600	-
D	9.70	10.30	-
E	14.70	16.00	-
e	-	-	2.540
L	12.50	13.50	-
L1	2.790	4.500	-
X	6.90	7.10	-
Y	3.000	3.400	-
Y1	3.370	3.900	-
Ø	3.000	3.550	-
All Dimensions in mm			



TO220AB Type C			
Dim	Min	Max	Typ
A	4.4	4.6	4.500
A2	2.2	2.5	2.400
A3	1.2	1.4	1.300
b	0.700	0.900	-
b1	1.17	1.39	1.270
c	0.400	0.600	-
D	9.800	10.200	-
E	9.000	9.400	-
e	-	-	2.54
H1	6.300	6.700	-
L	12.600	13.600	-
L1	9.600	10.600	-
Y	-	-	11.100
Ø	3.560	3.640	-
All Dimensions in mm			

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