

Product Summary

MBR2045CTI (Per Leg)

V_{RRM} (V)	I_O (A)	V_F (MAX) (V) @ +25°C	I_R (MAX) (mA) @ +25°C
45	10	0.65	0.1

Description

This Schottky Barrier Rectifier has been designed to meet requirements of Consumer grade Applications.

Applications

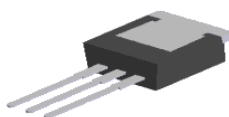
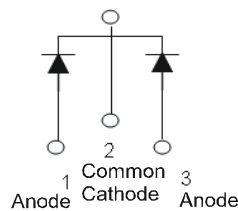
- Polarity Protection Diode
- Re-Circulating Diode
- Switching Diode

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: TO251
- 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: 0.382 grams (Approximate)


 TO251
Top View

 TO251
Bottom View

 Package Pin Out
Configuration

Ordering Information (Note 4)

Part Number	Case	Packaging
MBR2045CTI	TO251	75 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



= Manufactures' Code Marking
 MBR2045CTI = Product Type Marking Code
 AB = Foundry and Assembly Code
 YYWW = Date Code Marking
 YY = Last Two Digits of Year (ex: 16 = 2016)
 WW = Week (01 to 53)

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

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive 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)	I_O	10	A
(Total)		20	
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	130	A

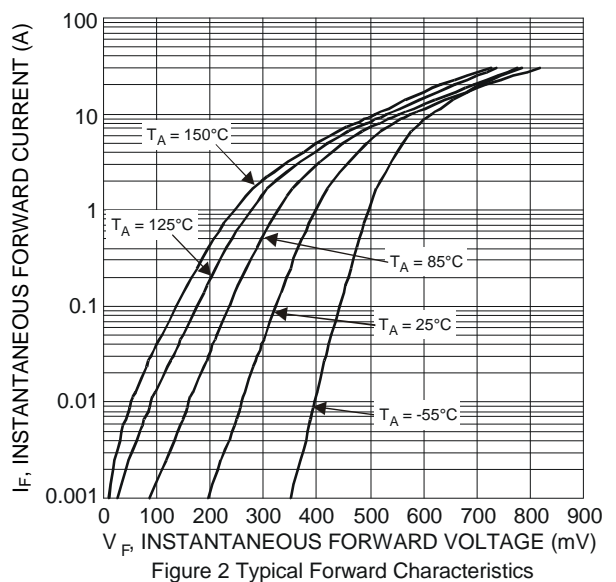
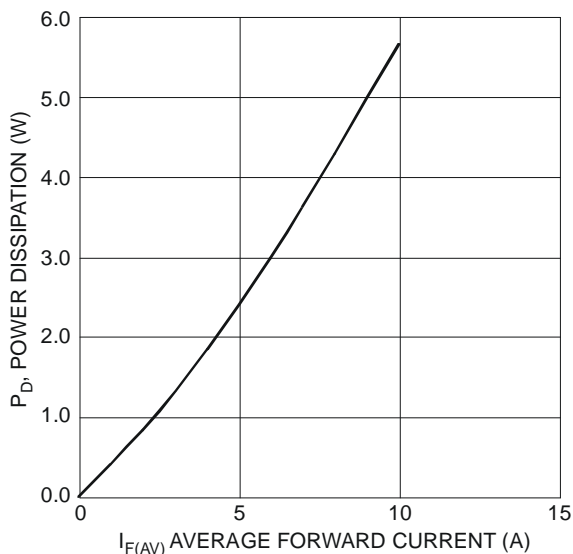
Thermal Characteristics (Per Leg)

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Case (Note 5)	$R_{\theta JC}$	16	$^\circ\text{C/W}$
Typical Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	80	$^\circ\text{C/W}$
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	0.65	V	$I_F = 10\text{A}, T_J = +25^\circ\text{C}$
		—	0.53	0.60		$I_F = 10\text{A}, T_J = +125^\circ\text{C}$
		—	0.72	0.80		$I_F = 20\text{A}, T_J = +25^\circ\text{C}$
		—	0.66	0.73		$I_F = 20\text{A}, T_J = +125^\circ\text{C}$
Leakage Current (Note 6)	I_R	—	—	0.1	mA	$V_R = 45\text{V}, T_J = +25^\circ\text{C}$
		—	—	15		$V_R = 45\text{V}, T_J = +125^\circ\text{C}$

Notes: 5. FR-4 PCB, 2oz. Copper, minimum recommended pad layout per <http://www.diodes.com/package-outlines.html>.
6. Short duration pulse test used to minimize self-heating effect.



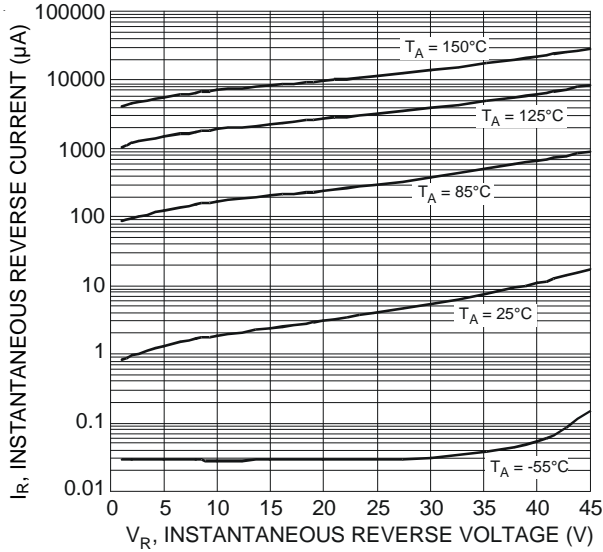


Figure 3 Typical Reverse Characteristics

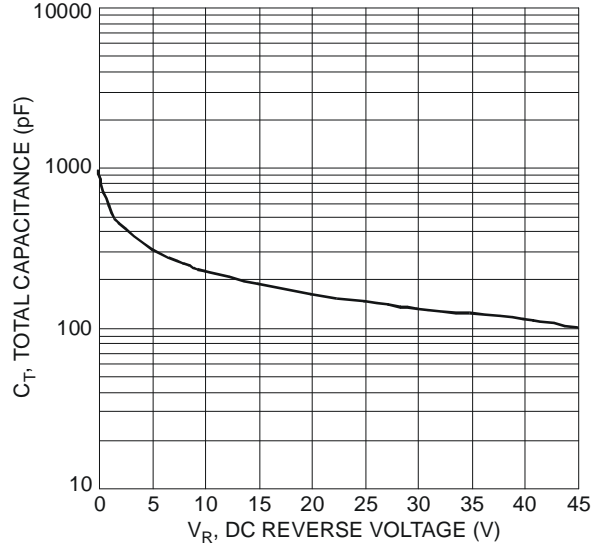


Figure 4 Total Capacitance vs. Reverse Voltage

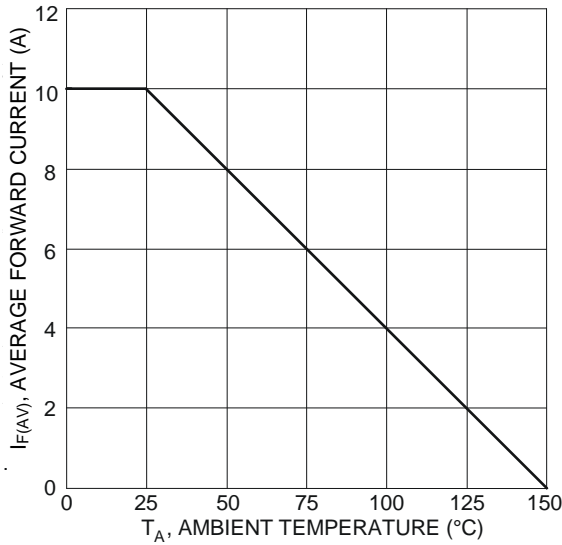


Figure 5 Forward Current Derating Curve

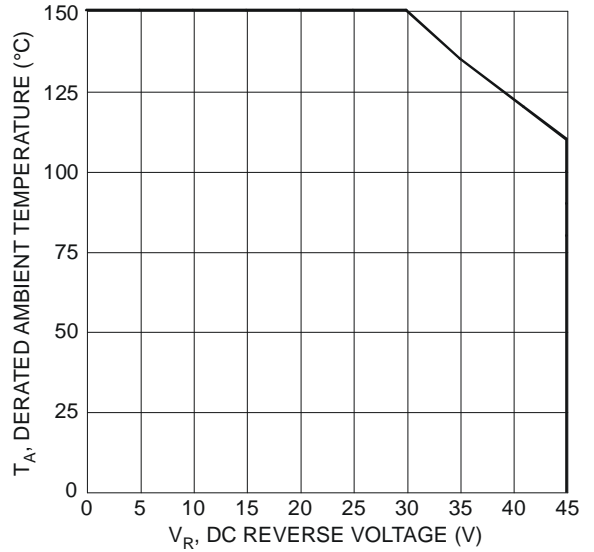
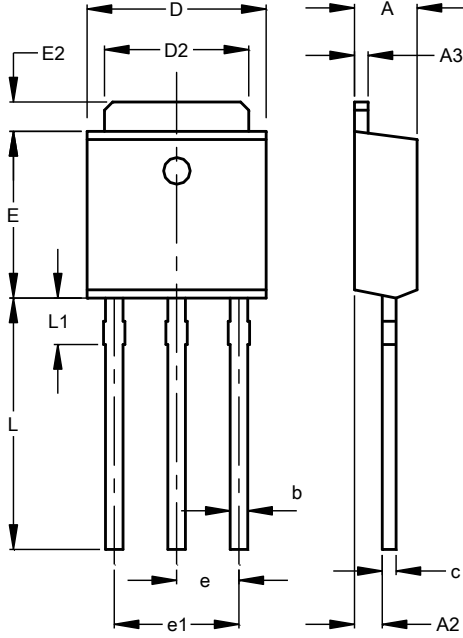


Figure 6 Operating Temperature Derating

Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

TO251



TO251		
Dim	Min	Max
A	2.20	2.40
A2	0.95	1.15
A3	0.45	0.55
b	0.55	0.74
c	0.45	0.55
D	6.45	6.75
D2	5.20	5.40
E	5.95	6.25
E2	0.95	1.25
e	2.24	2.34
e1	4.43	4.73
L	9.00	9.40
L1	1.30	1.70
All Dimensions in mm		

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