

## Product Summary

MBRF1030CT – MBRF1045CT (Per Leg)

$V_{RRM}$ (V)	$I_O$ (A)	$V_F$ (MAX) (V) @ +25°C	$I_R$ (MAX) (mA) @ +25°C
30 - 45	5	0.65	0.1

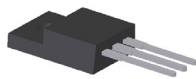
MBRF1050CT – MBRF1060CT (Per Leg)

$V_{RRM}$ (V)	$I_O$ (A)	$V_F$ (MAX) (V) @ +25°C	$I_R$ (MAX) (mA) @ +25°C
50 - 60	5	0.75	0.1

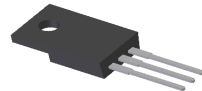
## Description and Applications

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

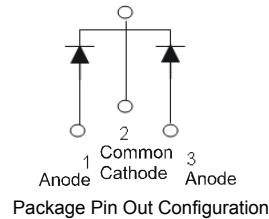
- Polarity Protection Diode
- Re-Circulating Diode
- Switching Diode



ITO-220AB  
Top View



ITO-220AB  
Bottom View



## 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

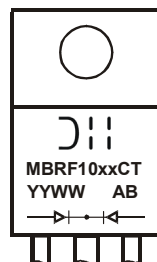
- Case: ITO-220AB
- Case Material: Molded Plastic, "Green" Molding compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208  $\text{E3}$
- Polarity: As Marked on Body
- Weight: ITO-220AB – 1.69 grams (approximate)

## Ordering Information (Note 4)

Device	Packaging	Shipping
MBRF1040CT-JT	ITO-200AB (Alternate)	50/Tube
MBRF1045CT-JT	ITO-200AB (Alternate)	50/Tube
MBRF1060CT-JT	ITO-200AB (Alternate)	50/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



MBRF10xxCT = 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 capacitive load, derate current by 20%.

Characteristic	Symbol	MBRF 1030CT	MBRF 1040CT	MBRF 1045CT	MBRF 1050CT	MBRF 1060CT	Unit
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	30	40	45	50	60	V
Working Peak Reverse Voltage	V <sub>RWM</sub>						
DC Blocking Voltage	V <sub>R</sub>						
RMS Reverse Voltage	V <sub>R(RMS)</sub>	21	28	31.5	35	42	V
Average Rectified Output Current (Note 5)	I <sub>O</sub>			5			A
				10			
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>			100			A

**Thermal Characteristics (Per Leg)**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Case (Note 5)	R <sub>θJC</sub>	5	K/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	MBRF 1030CT	MBRF 1040CT	MBRF 1045CT	MBRF 1050CT	MBRF 1060CT	Unit
Forward Voltage Drop Maximum @ I <sub>F</sub> = 5.0A, T <sub>C</sub> = +125°C @ I <sub>F</sub> = 5.0A, T <sub>C</sub> = +25°C	V <sub>FM</sub>		0.55 0.65			0.65 0.75	V
Peak Reverse Current Maximum at Rated DC Blocking Voltage (Note 6)	I <sub>RM</sub>			0.1 15			mA
Typical Total Capacitance (Note 7)	C <sub>T</sub>			150			pF

Notes: 5. Device mounted on Device with additional 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.  
7. Measured at 1.0 MHz and applied reverse voltage of 4.0V DC and per element.

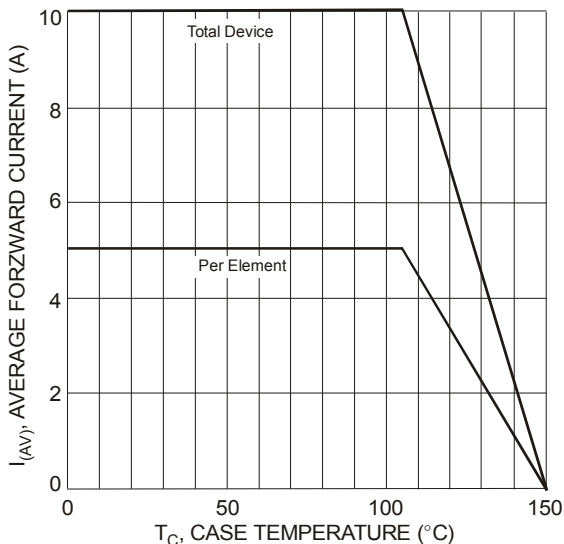


Figure 1 Forward Current Derating Curve

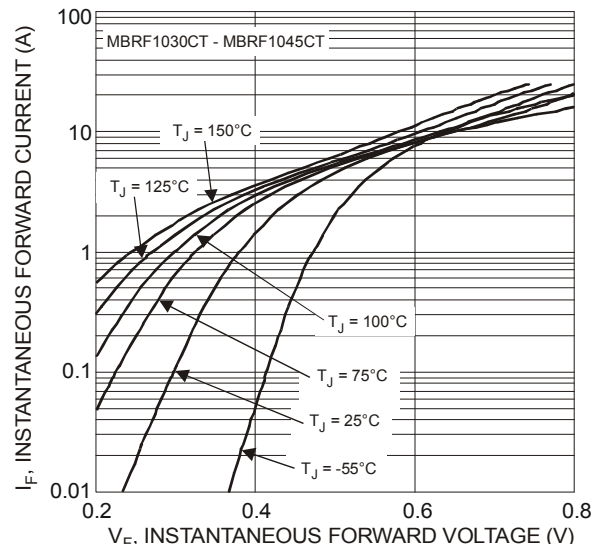


Figure 2 Typical Forward Characteristics, per Element

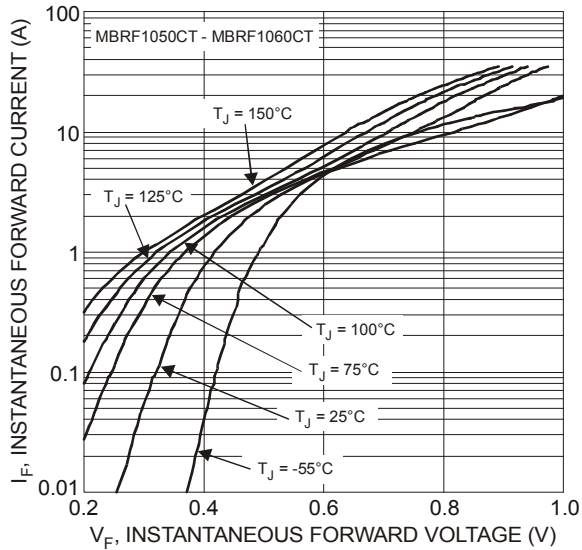


Figure 3 Typical Forward Characteristics, per Element

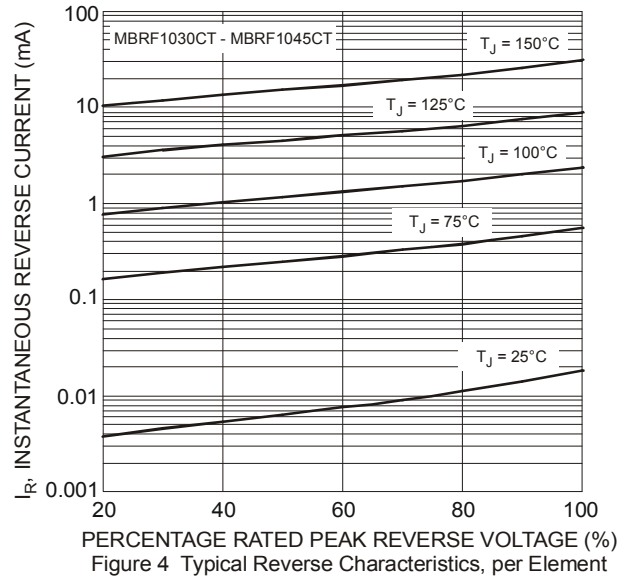


Figure 4 Typical Reverse Characteristics, per Element

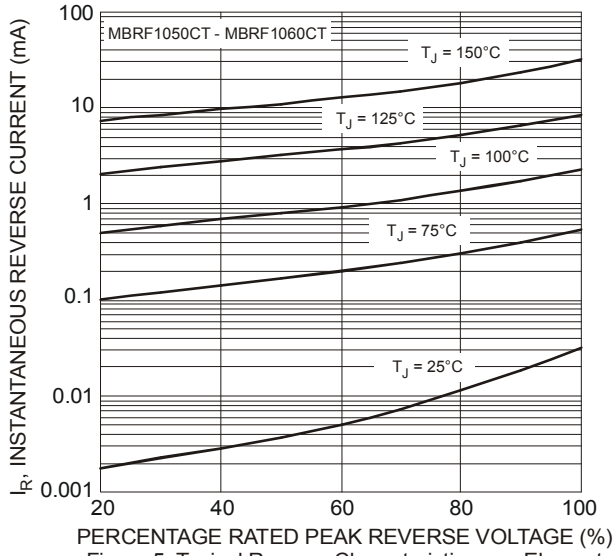


Figure 5 Typical Reverse Characteristics, per Element

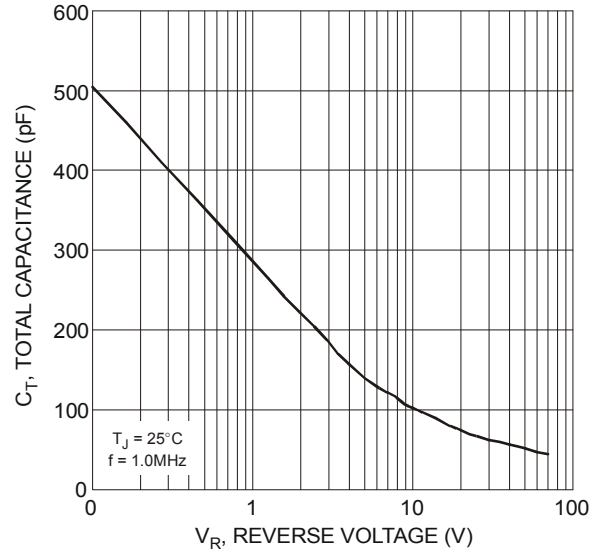
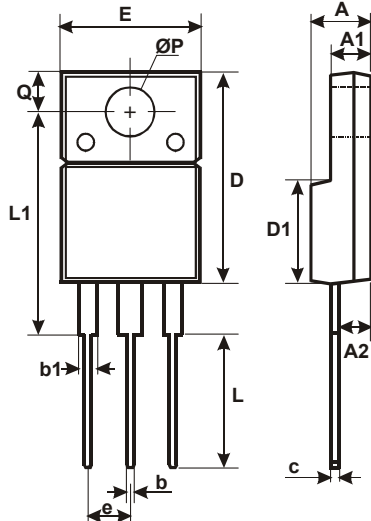


Figure 6 Typical Capacitance, per Element

## Package Outline Dimensions

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



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

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