





10A SCHOTTKY BARRIER RECTIFIER

Product Summary

MBR1040CT - MBR1045CT (Per Leg)

V _{RRM} (V)	I _O (A)	V _{F (MAX)} (V) @ +25°C	I _{R (MAX)} (mA) @ +25°C
40 , 45	5	0.65	0.1

MBR1060CT-I (Per Leg)

V _{RRM} (V)	I _O (A)	V _{F (MAX)} (V) @ +25°C	I _{R (MAX)} (mA) @ +25°C
60	5	0.75	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: TO220AB
- 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: As Marked on Body
- Weight: TO220AB 1.95 grams (Approximate)

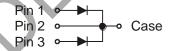
TO220AB



Top View



Bottom View



Device Schematic

Ordering Information (Note 4)

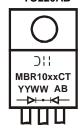
Part Number	Packaging	Shipping				
MBR1040CT	TO220AB	50/Tube				
MBR1045CT	TO220AB	50/Tube				
MBR1060CT-I	TO220AB	50/Tube				

Notes:

- 1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
- 2. See https://www.diodes.com/quality/lead-free/ 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 https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information

TO220AB



MBR10xxCT = 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 to 53)



MBR1040CT MBR1060CT-I

Maximum Ratings (Per Leg) (@T_A = +25°C, unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.

Characteristic	Symbol	MBR1040CT	MBR1045CT	MBR1060CT-I	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V _{RRM} V _{RWM} V _R	40	45	60	V
RMS Reverse Voltage	V _{R(RMS)}	28	31.5	42	V
Average Rectified Output Current (Note 5) (Per Leg) (Total)	lo		5 10		Α
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I _{FSM}		100		А

Thermal Characteristics (Per Leg)

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Case (Note 5)	$R_{ heta JC}$	3	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

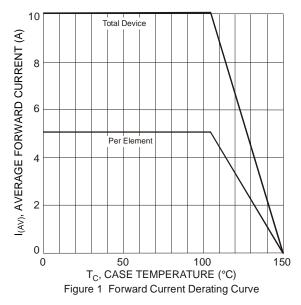
Electrical Characteristics (Per Leg) (@TA = +25°C, unless otherwise specified.)

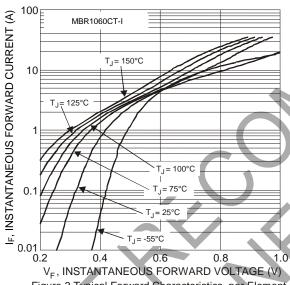
Characteristic	Symbol	MBR1040CT MBR1045CT	MBR1060CT-I	Unit
Forward Voltage Drop Maximum				
@ $I_F = 5.0A$, $T_C = +125$ °C	V _{FM}	0.55	0.65	V
@ $I_F = 5.0A$, $T_C = +25^{\circ}C$		0.65	0.75	
Peak Reverse Current Maximum @ T _C = +25°C		0.1		mA
at Rated DC Blocking Voltage (Note 6) @ T _C = +125°C	IRM	15		IIIA
Typical Total Capacitance (Note 7)	Ст	150		pF

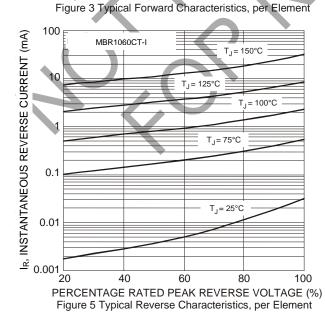
5. Device mounted on PCB with minimum recommended pad layout and additional heat sink (45mm x 20mm x 12mm) attached, with minimum recommended pad layout per http://www.diodes.com/package-outlines.html.
6. Short duration pulse test used to minimize self-heating effect.
7. Measured at 1.0 MHz and applied reverse voltage of 4.0V DC and per element. Notes:

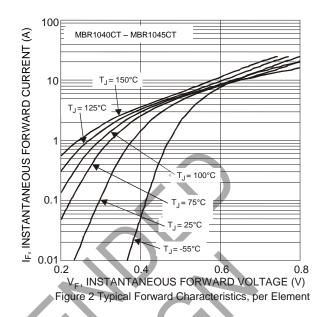


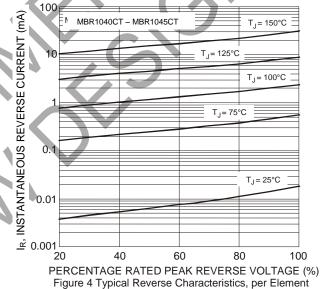
MBR1040CT MBR1060CT-I

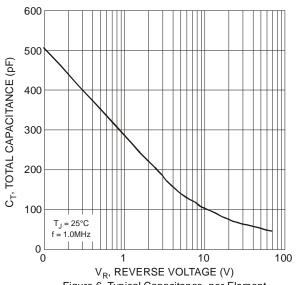










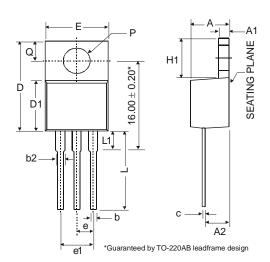




MBR1040CT MBR1060CT-I

Package Outline Dimensions

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



TO220AB					
Dim	Min	Тур	Max		
Α	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		
С	0.356	-	0.61		
D	14.22	-	16.51		
D1	8.39	ŀ	9.01		
е		2.54			
e1		5.08			
E	9.66		10.66		
H1	5.85	-	6.85		
L	12.70	-	14.73		
1		-	6.35		
Р	3.54	-	4.08		
Ø	2.54	-	3.42		
All Dimensions in mm					



MBR1040CT MBR1060CT-I

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