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10A SCHOTTKY BARRIER RECTIFIER

Product Summary

MBR10100CT / MBRF10100CT (Per Leg)

V_{RRM} (V)	I_O (A)	$V_{F(MAX)}$ (V) @ +25°C	$I_{R(MAX)}$ (mA) @ +25°C
100	5	0.84	0.05

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**

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

Mechanical Data

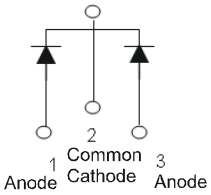
- Case: TO220AB, ITO220AB (Alternate)
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 e3
- Polarity: See Below
- Weight: TO220AB – 1.95 grams (Approximate)
  ITO220AB (Alternate) – 1.69 grams (Approximate)

TO220AB
Top View

TO220AB
Bottom View

ITO220AB (Alternate)
Top View

ITO220AB (Alternate)
Bottom View



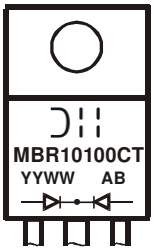
Package Pin Out
Configuration

Ordering Information (Notes 4)

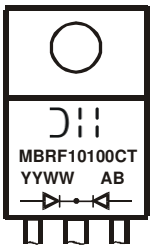
Part Number	Case	Packaging
MBR10100CT	TO220AB	50 Pieces/Tube
MBRF10100CT-JT	ITO220AB (Alternate)	50 Pieces/Tube

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



MBR10100CT = 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)



MBRF10100CT = 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)

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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	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_{RM}	100	V
Average Rectified Output Current (Per Leg) (Total)	I_O	5 10	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	110	A

Thermal Characteristics (Per Leg)

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Case (Note 5) Package = TO220AB Package = ITO220AB (Alternate)	$R_{\theta JC}$	4 6	°C/W
Typical Thermal Resistance, Junction to Ambient (Note 5) Package = TO220AB Package = ITO220AB (Alternate)	$R_{\theta JA}$	16 30	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +175	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V_F	— —	0.79 —	0.84 0.72	V	I_F = 5A, T_A = +25°C I_F = 5A, T_A = +125°C
Leakage Current (Note 6)	I_R	— —	— —	0.05 10	mA	V_R =100V, T_A = +25°C V_R = 100V, T_A = +125°C

Notes: 5. Device mounted on heatsink (45mm x 20mm x 12mm), with minimum recommended pad layout per http://www.diodes.com/package-outlines.html.
6. Short duration pulse test used to minimize self-heating effect.

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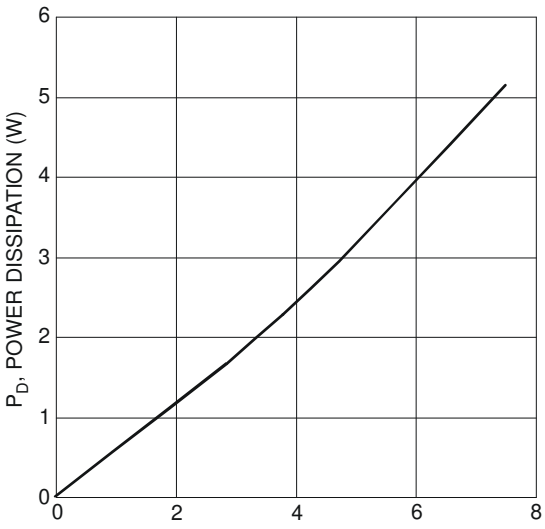

Figure 1 Forward Power Dissipation

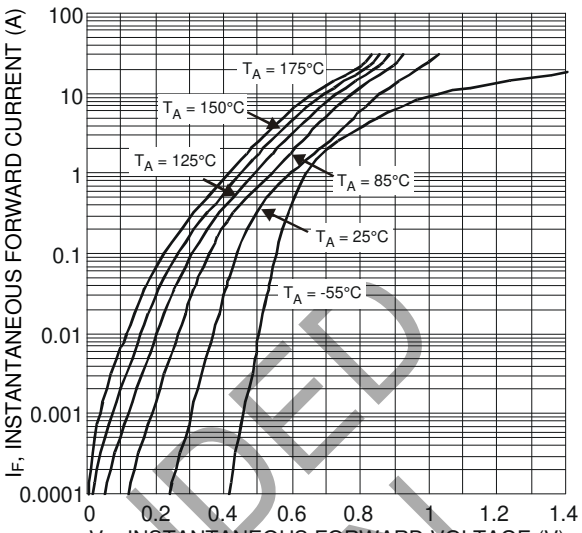

Figure 2 Typical Forward Characteristics

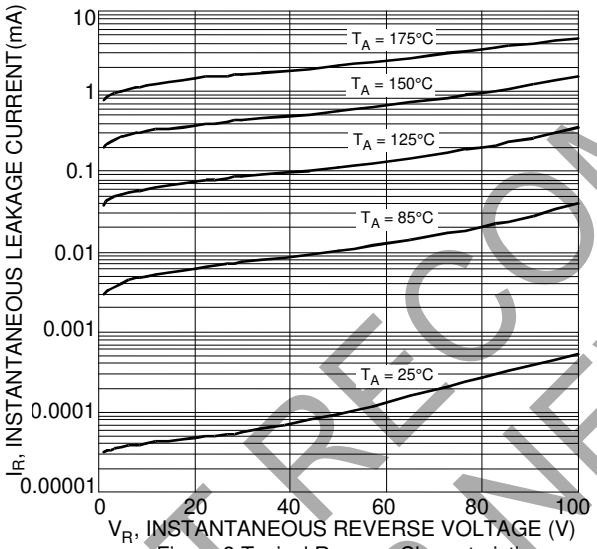

Figure 3 Typical Reverse Characteristics

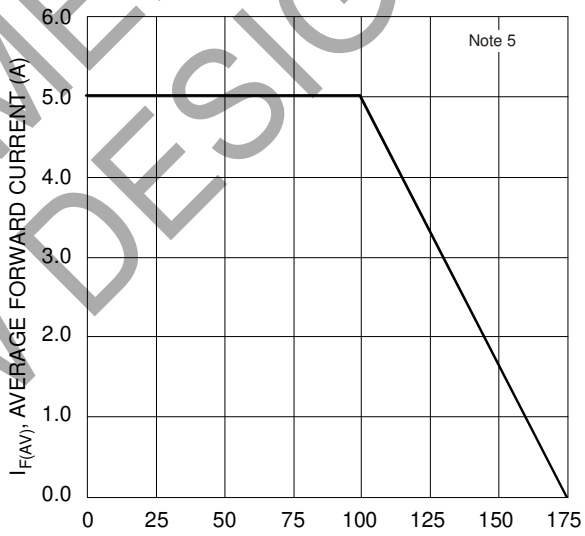

Figure 4 Forward Current Derating Curve

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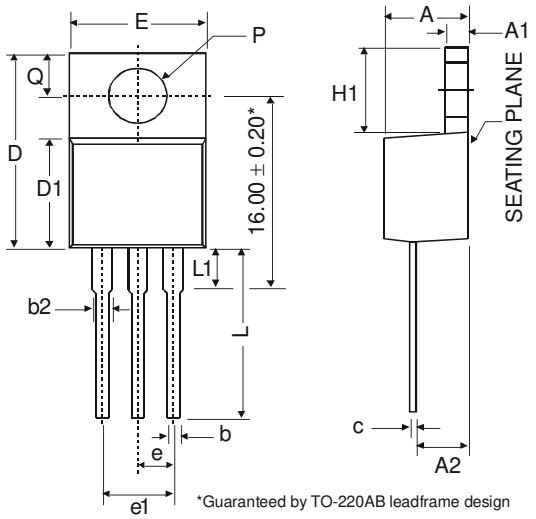
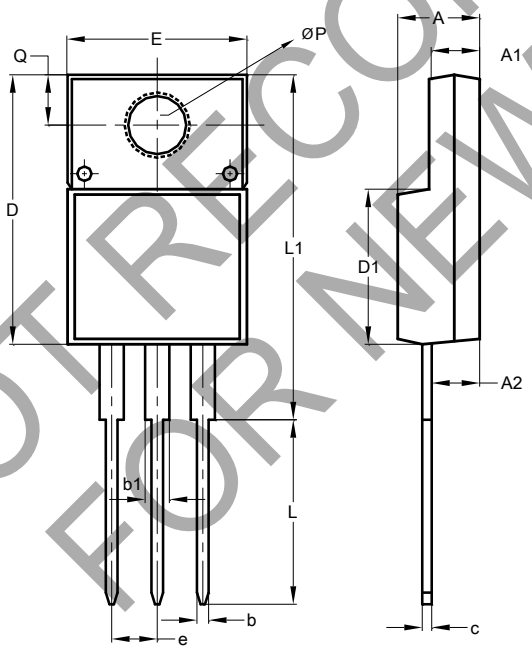
Package Outline Dimensions

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



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			



ITO220AB Alternate		
Dim	Min	Max
A	4.36	4.77
A1	2.54	3.10
A2	2.54	2.80
b	0.55	0.75
b1	1.20	1.50
c	0.38	0.68
D	14.50	15.50
D1	8.38	8.89
e	2.41	2.67
E	9.72	10.27
L	9.87	10.67
L1	15.8	17.00
P	3.08	3.39
Q	2.60	3.00
All Dimensions in mm		

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