Green

20A SCHOTTKY BARRIER RECTIFIER

NEW PRODUCT

Product Summary

MBRB20150CT (Per Leg)

V_{RRM} (V)	I_O (A)	$V_{F\ (MAX)}$ (V) @ +25°C	$I_{R\ (MAX)}$ (mA) @ +25°C
150	10	0.90	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 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

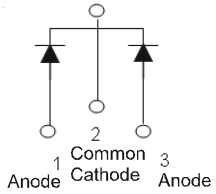
Mechanical Data

- Case: TO263AB (D2PAK)
- 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: TO263AB(D2PAK) – 1.6 grams (Approximate)



TO263AB(D2PAK)

Top View



Package Pin Out

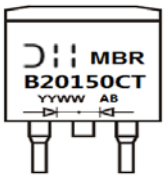
Configuration

Ordering Information (Note 4)

Part Number	Case	Packaging
MBRB20150CT	TO263AB (D2PAK)	50 pieces/tube
MBRB20150CT-13	TO263AB (D2PAK)	800 pieces/Reel

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



MBRB20150CT = Product Type Marking Code
AB = Foundry and Assembly Code
YYWW = Date Code Marking
YY = Last Two Digits of Year (ex: 14 = 2014)
WW = Week (01 - 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 capacitance 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}	150	V
Average Rectified Output Current (Per Leg) (Total)	I_O	10 20	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	170	A

Thermal Characteristics (Per Leg)

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Case (Note 5)	$R_{\theta JC}$	5	°C/W
Typical Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	20	°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	— —	0.86 —	0.90 0.75	V	I_F = 10A, T_J = +25°C I_F = 10A, T_J = +125°C
Leakage Current (Note 6)	I_R	— —	— —	0.05 10	mA	V_R = 150V, T_J = +25°C V_R = 150V, T_J = +125°C

Notes: 5. Test with 2inch Al board.
6. Short duration pulse test used to minimize self-heating effect.

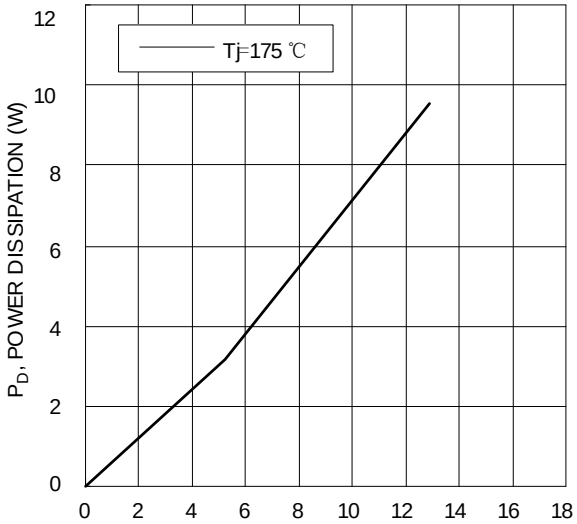


Figure 1 Forward Power Dissipation

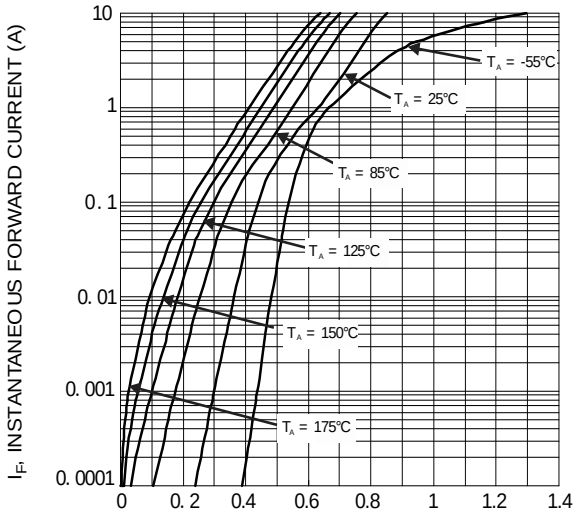


Figure 2 Typical Forward Characteristics

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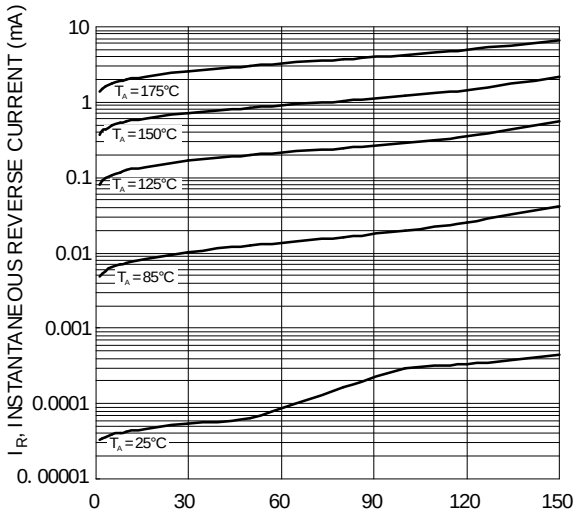


Figure 3 Typical Reverse Characteristics

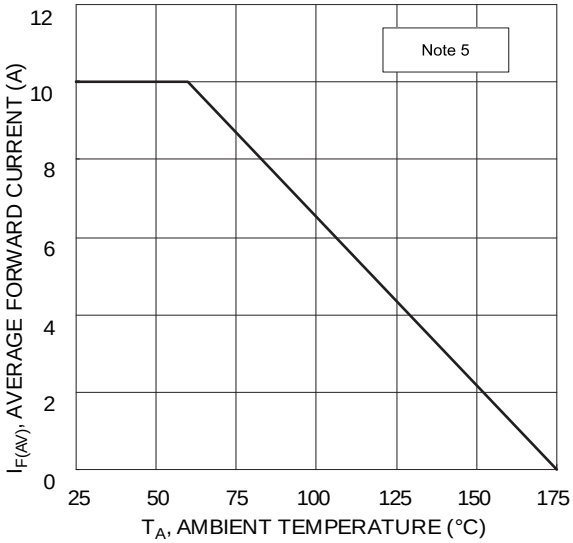
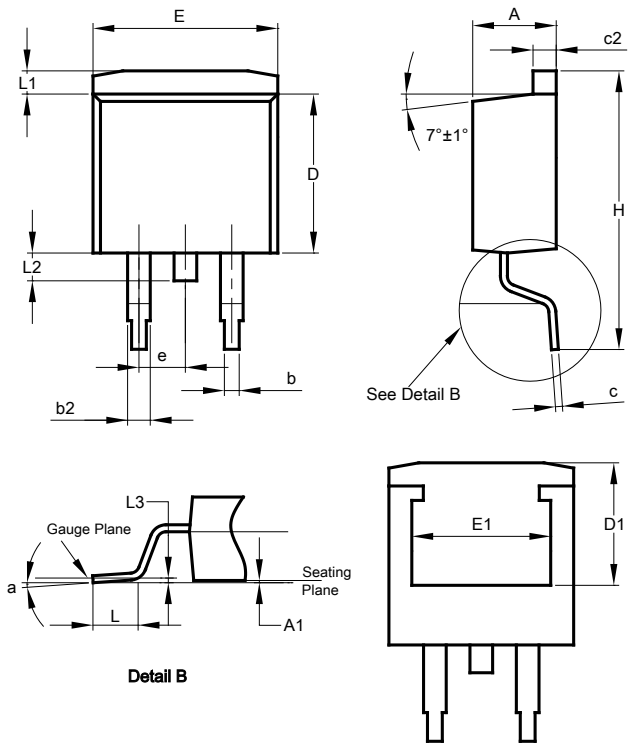


Figure 4 Forward Current Derating Curve

Package Outline Dimensions

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



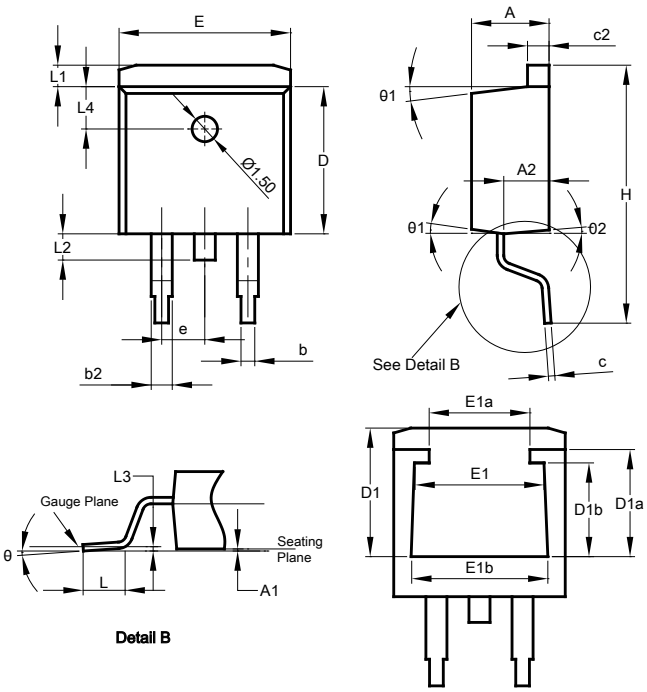
TO263AB (D2PAK)			
Dim	**Min**	**Max**	**Typ**
A	4.07	4.82	-
A1	0.00	0.25	-
b	0.51	0.99	-
b2	1.15	1.77	-
c	0.356	0.73	-
c2	1.143	1.65	-
D	8.39	9.65	-
D1	6.55	-	-
e	2.54 TYP		
E	9.66	10.66	-
E1	6.23	-	-
H	14.61	15.87	-
L	1.78	2.79	-
L1	-	1.67	-
L2	-	1.77	-
a	0°	8°	-
All Dimensions in mm			

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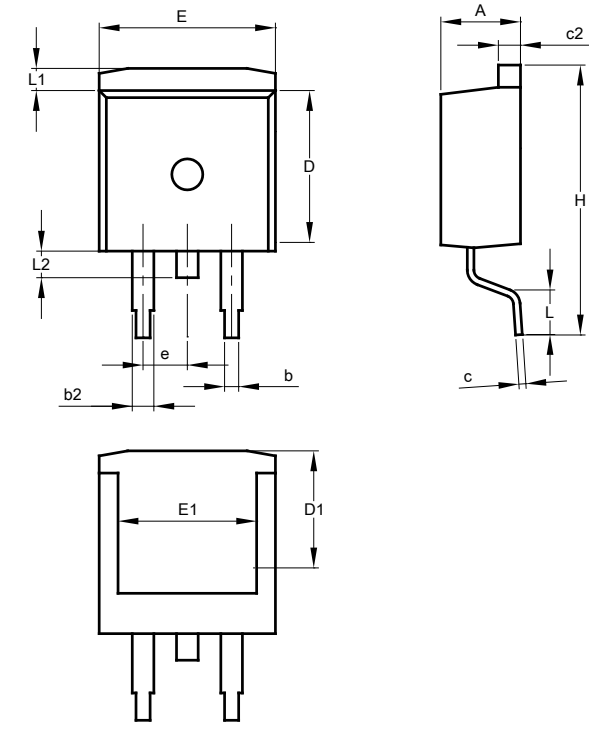
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Package Outline Dimensions (cont.)

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



TO263AB (D2PAK) (Type B)			
Dim	**Min**	**Max**	**Typ**
A	4.40	4.70	4.57
A1	0.00	0.20	0.10
A2	2.59	2.79	2.69
b	0.77	0.90	0.813
b2	1.20	1.36	1.27
c	0.356	0.47	0.381
c2	1.22	1.32	1.27
D	8.60	8.80	8.70
D1	6.60	7.80	7.60
D1a	5.33	6.53	6.33
D1b	4.54	5.74	5.54
e	2.54 BSC		
E	10.00	10.20	10.10
E1	6.67	7.87	7.67
E1a	4.94	6.14	5.94
E1b	7.06	8.26	8.06
H	14.70	15.50	15.10
L	2.00	2.60	2.30
L1	1.17	1.40	1.27
L2	1.45	1.70	1.55
L3	0.25 BSC		
L4	2.50 REF		
θ	0°	8°	5°
θ1	5°	9°	7°
θ2	1°	5°	3°
All Dimensions in mm			



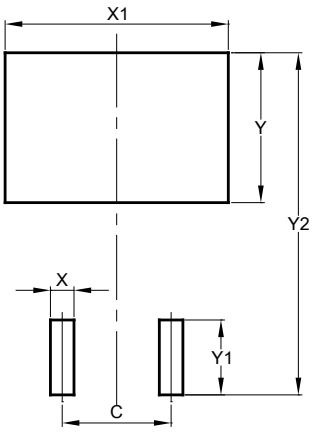
TO263AB (D2PAK) Type C			
Dim	**Min**	**Max**	**Typ**
A	4.30	4.70	-
b	0.70	0.90	-
b2	1.15	1.35	-
c	0.40	0.60	-
c2	1.20	1.40	-
D	9.00	9.40	-
D1	7.96	8.36	-
E	9.80	10.20	-
E1	7.85	8.05	-
e	2.34	2.74	
H	15.00	15.87	-
L	2.24	2.84	-
L1	1.00	1.40	-
L2	1.20	1.60	-
All Dimensions in mm			

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Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for latest version.



Dimensions	Value (in mm)
C	5.08
X	1.10
X1	10.41
Y	3.50
Y1	7.01
Y2	15.99

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