

## Product Summary

DIODES™ MBRD10200CT (Per Leg)

V <sub>RRM</sub> (V)	I <sub>o</sub> (A)	V <sub>F</sub> (MAX) (V) @ +25°C	I <sub>R</sub> (MAX) (mA) @ +25°C
200	5	0.91	0.05

## Description

This Schottky Barrier Rectifier is designed to meet the stringent requirements of commercial applications.

## Applications

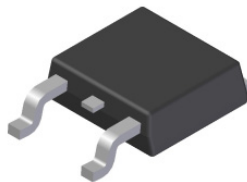
- Polarity protection diodes
- Re-circulating diodes
- Switching diodes

## Features and Benefits

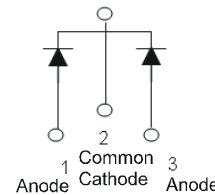
- Guard Ring Die Construction for Transient Protection
- High Surge Current Capability
- Low Forward Voltage Drop
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e.: parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at <https://www.diodes.com/products/automotive/automotive-products/>.**
- **This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability. <https://www.diodes.com/quality/product-definitions/>**

## Mechanical Data

- Package: TO252
- Package 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: TO252 (DPAK) – 0.317 grams (Approximate)  
TO252 (DPAK) (Type TH) – 0.317 grams (Approximate)  
TO252 (DPAK) (Type BR) – 0.317 grams (Approximate)

 TO252 (DPAK)/TO252 (DPAK) (Type TH)/  
TO252 (DPAK) (Type BR)


Top View



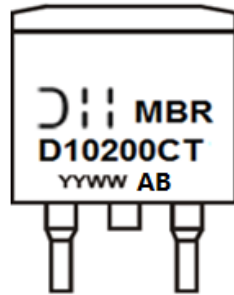
Package Pin Out Configuration

## Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
MBRD10200CT-13	TO252 (DPAK)	2500 Pieces	Reel
MBRD10200CT-13	TO252 (DPAK) (Type TH)	2500 Pieces	Reel
MBRD10200CT-13	TO252 (DPAK) (Type BR)	2500 Pieces	Reel

- 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



D|| = Manufacturer's Marking  
 MBRD10200CT = Product Type Marking Code  
 AB = Foundry and Assembly Code  
 YYWW = Date Code Marking  
 YY = Last Two Digits of Year (ex: 22 = 2022)  
 WW = Week (01 to 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	Value	Unit
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	200	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>RM</sub>		
Average Rectified Output Current (Per Leg)	I <sub>O</sub>	5	A
(Total)		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>	6	°C/W
Typical Thermal Resistance, Junction to Ambient (Note 5)	R <sub>θJA</sub>	22	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +175	°C

## Electrical Characteristics (Per Leg) (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V <sub>F</sub>	—	0.85	0.91	V	I <sub>F</sub> = 5A, T <sub>J</sub> = +25°C
		—	—	0.84		I <sub>F</sub> = 5A, T <sub>J</sub> = +125°C
Leakage Current (Note 6)	I <sub>R</sub>	—	—	0.05	mA	V <sub>R</sub> = 200V, T <sub>J</sub> = +25°C
		—	—	10		V <sub>R</sub> = 200V, T <sub>J</sub> = +125°C

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

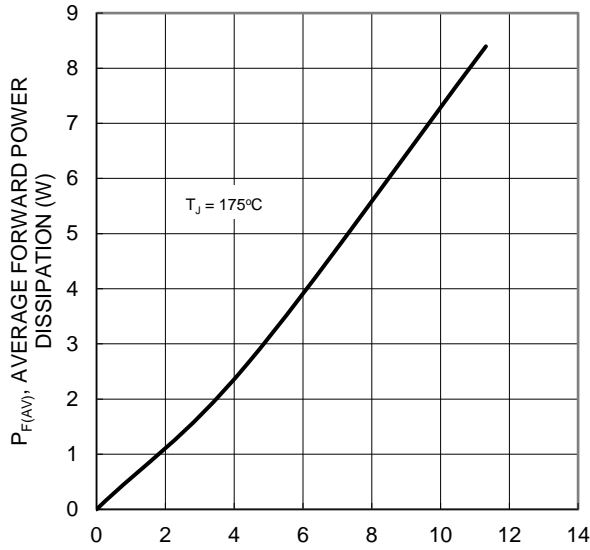


Figure 1 Forward Power Dissipation

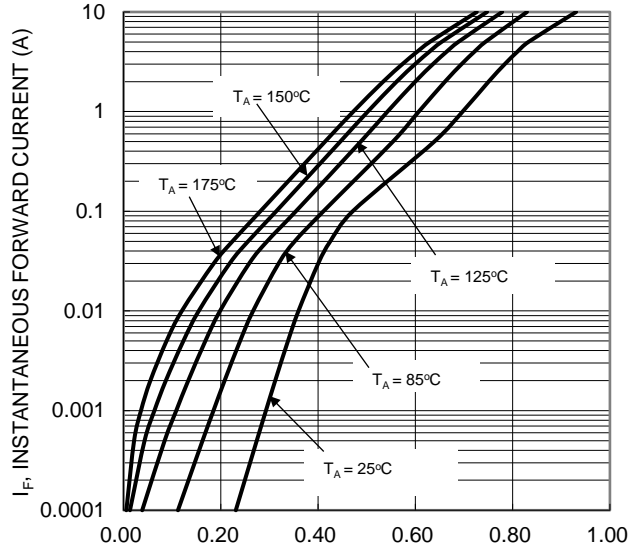


Figure 2 Typical Forward Characteristics

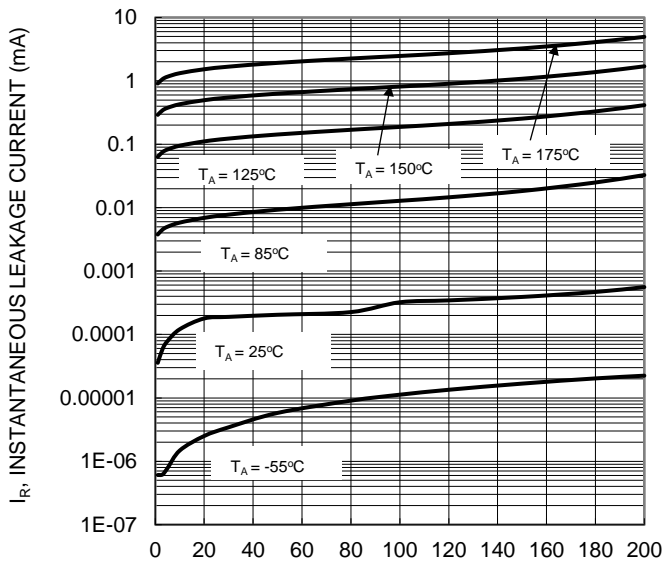


Figure 3 Typical Reverse Characteristics

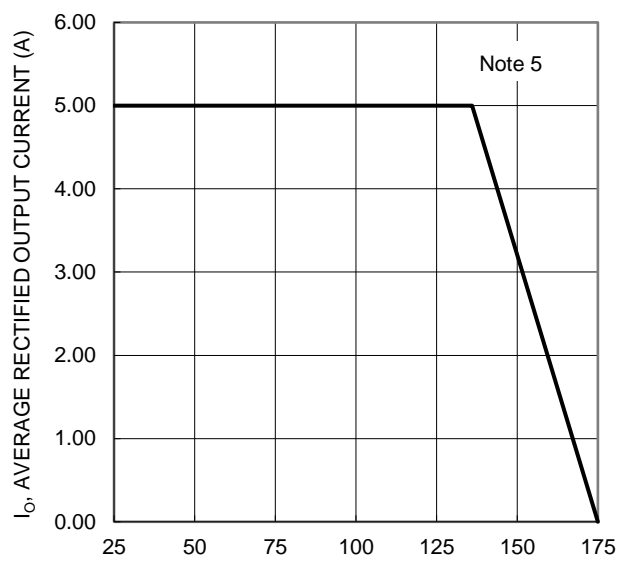


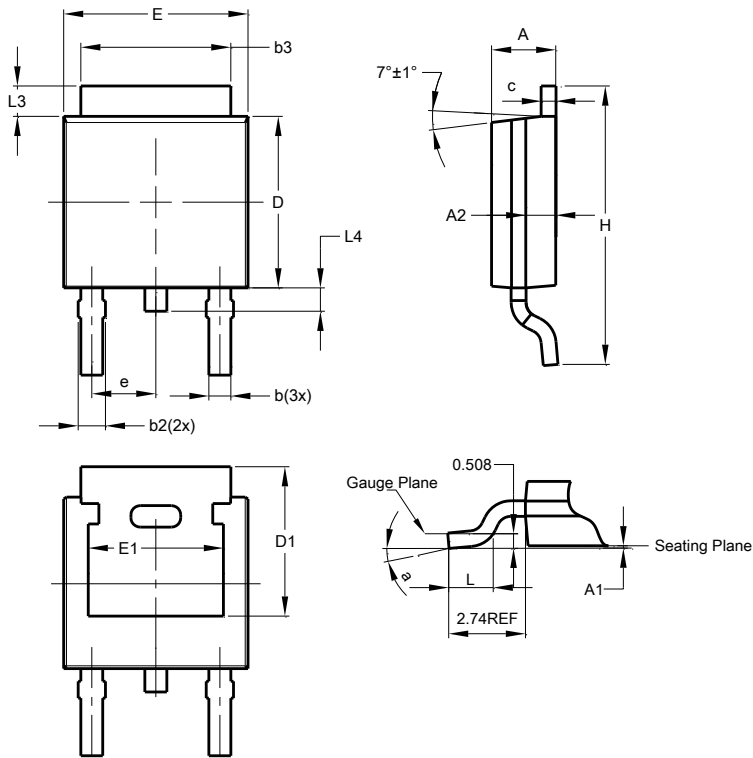
Figure 4. DC Forward Current Derating

Note: 5. Test with 2inch Al board.

**Package Outline Dimensions**

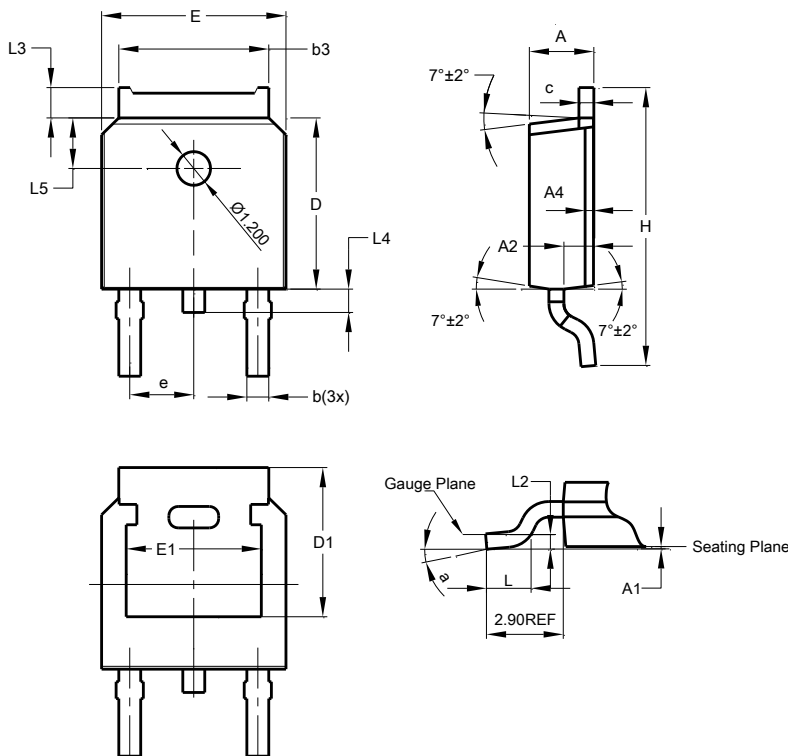
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**TO252 (DPAK)**



TO252 (DPAK)			
Dim	Min	Max	Typ
A	2.19	2.39	2.29
A1	0.00	0.13	0.08
A2	0.97	1.17	1.07
b	0.64	0.88	0.783
b2	0.76	1.14	0.95
b3	5.21	5.46	5.33
c	0.45	0.58	0.531
D	6.00	6.20	6.10
D1	5.21	-	-
e	-	-	2.286
E	6.45	6.70	6.58
E1	4.32	-	-
H	9.40	10.41	9.91
L	1.40	1.78	1.59
L3	0.88	1.27	1.08
L4	0.64	1.02	0.83
a	0°	10°	-
All Dimensions in mm			

**TO252 (DPAK) (Type TH)**

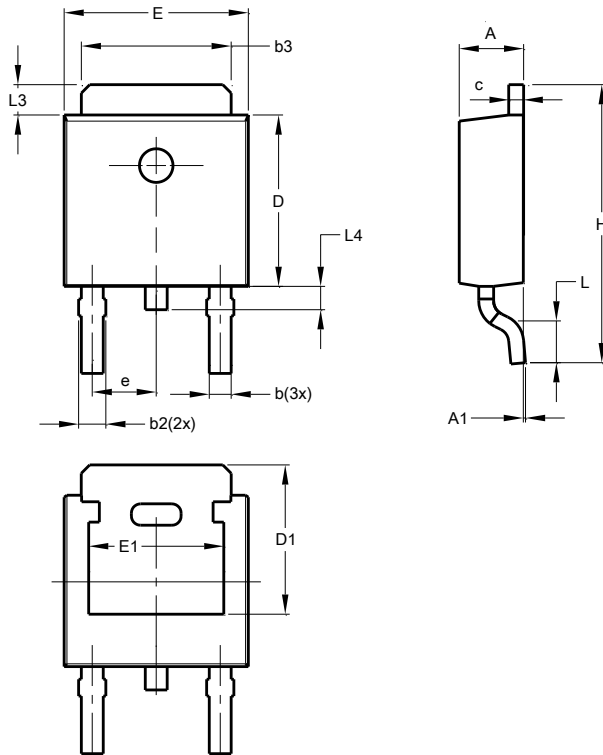


TO252 (DPAK) (Type TH)			
Dim	Min	Max	Typ
A	2.20	2.38	2.30
A1	0.00	0.10	-
A2	0.97	1.17	1.07
A4	0.10 REF		
b	0.72	0.85	0.78
b3	5.23	5.45	5.33
c	0.47	0.58	0.53
D	6.00	6.20	6.10
D1	5.30 REF		
e	2.286 BSC		
E	6.50	6.70	6.60
E1	4.70	4.92	4.83
H	9.90	10.30	10.10
L	1.40	1.70	1.60
L2	0.51 BSC		
L3	0.90	1.25	-
L4	0.60	1.00	0.80
L5	1.70	1.90	1.80
a	0°	8°	-
All Dimensions in mm			

**Package Outline Dimensions** (continued)

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

**TO252 (DPAK) (Type BR)**

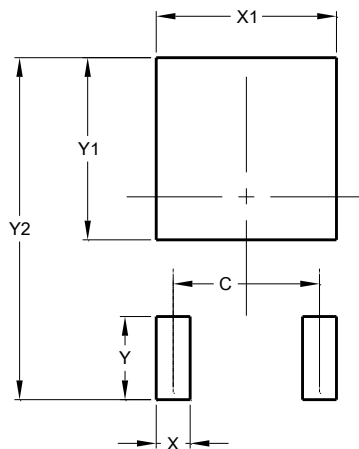


TO252 (DPAK) (Type BR)			
Dim	Min	Max	Typ
A	2.20	2.40	-
A1	0.00	0.10	-
b	0.50	0.70	-
b3	5.20	5.40	-
c	0.45	0.55	-
D	5.95	6.25	-
D1	5.10	5.50	-
E	6.45	6.70	-
E1	4.71	4.91	-
e	2.24	2.34	-
H	9.45	9.95	-
L	1.25	1.75	-
L3	0.95	1.25	-
L4	0.60	0.90	-
<b>All Dimensions in mm</b>			

**Suggested Pad layout**

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

**TO252 (DPAK)/TO252 (DPAK) (Type TH)/TO252 (DPAK) (Type BR)**



Dimensions	Value (in mm)
C	4.572
X	1.060
X1	5.632
Y	2.600
Y1	5.700
Y2	10.700

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