MBRD20100CT

20A SCHOTTKY BARRIER RECTIFIER

Product Summary

MBRD20100CT (Per Leg)

V_{RRM} (V)	Io (A)	$V_{F\ (MAX)}$ (V) @ 25°C	$I_{R\ (MAX)}$ (mA) @ 25°C
100	10	0.84	0.1

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 contact us or your local Diodes representative. https://www.diodes.com/quality/product-definitions/**

Description and Applications

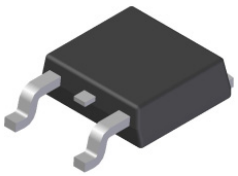
This Schottky Barrier Rectifier has been designed to meet the stringent requirements of commercial applications.

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

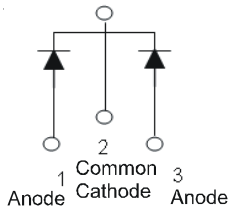
Mechanical Data

- 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: 0.317 grams (Approximate)

TO252 (DPAK), TO252 (DPAK) (Type TH)
TO252 (DPAK) (Type BR), TO252 (Type WX)



Top View



Package Pinout Configuration

Ordering Information (Note 4)

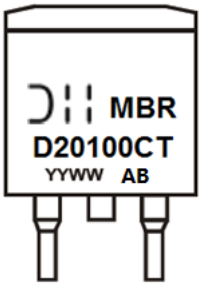
Orderable Part Number	Package	Packing	
		Qty.	Carrier
MBRD20100CT-13	TO252 (DPAK)	2500 pieces	Reel
MBRD20100CT-13	TO252 (DPAK) (Type TH)	2500 pieces	Reel
MBRD20100CT-13	TO252 (DPAK) (Type BR)	2500 pieces	Reel
MBRD20100CT-13	TO252 (Type WX)	2500 pieces	Reel

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/.

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Marking Information



MBRD20100CT = Product Type Marking Code
AB = Foundry and Assembly Code
YYWW = Date Code Marking
YY = Last Two Digits of Year (ex: 26 = 2026)
WW = Week (01 to 53)

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	10 20	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine Wave Superimposed on Rated Load	I_{FSM}	150	A

Thermal Characteristics (Per Leg)

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Case (Note 5)	$R_{\theta JC}$	6	°C/W
Typical Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	22	°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 = 10A, T_J = 25°C I_F = 10A, T_J = 125°C
Leakage Current (Note 6)	I_R	— —	— —	0.1 10	mA	V_R = 100V, T_J = 25°C V_R = 100V, T_J = 125°C

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

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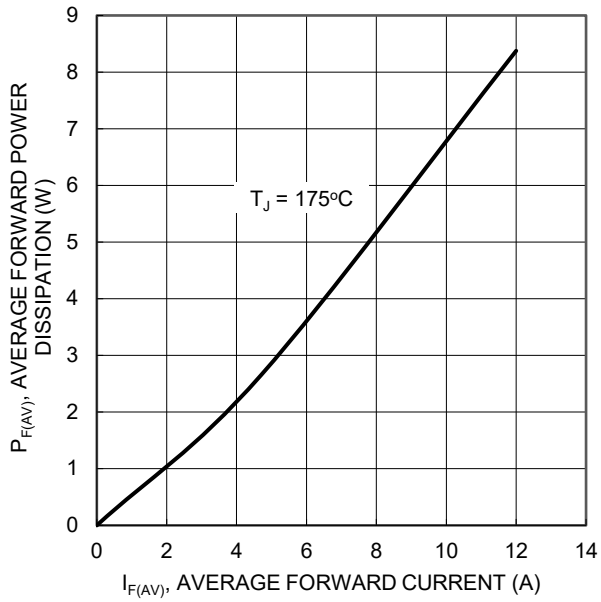


Figure 1. Forward Power Dissipation

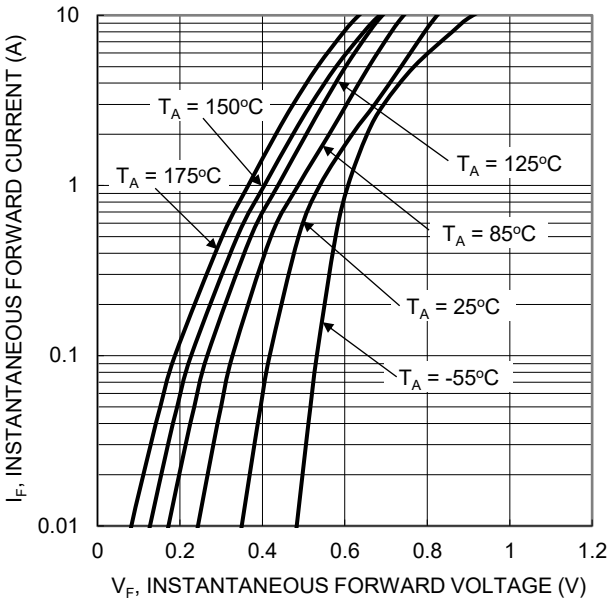


Figure 2. Typical Forward Characteristics

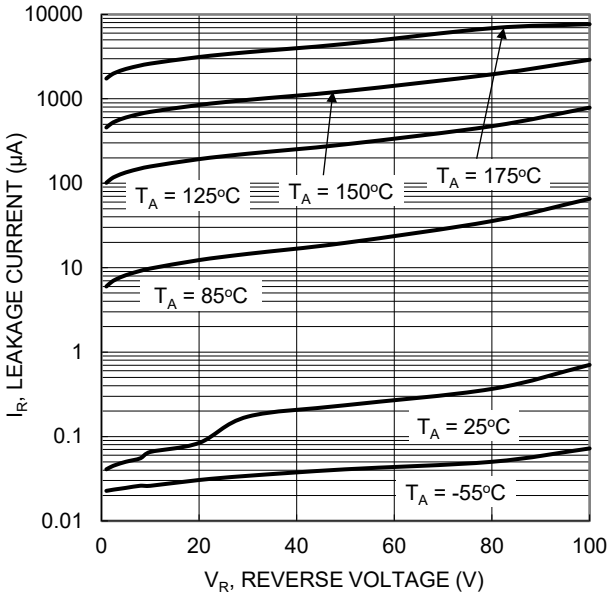


Figure 3. Typical Reverse Characteristics

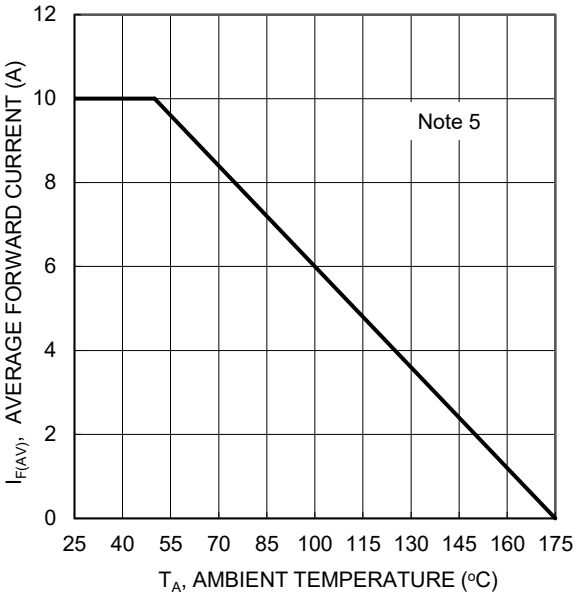


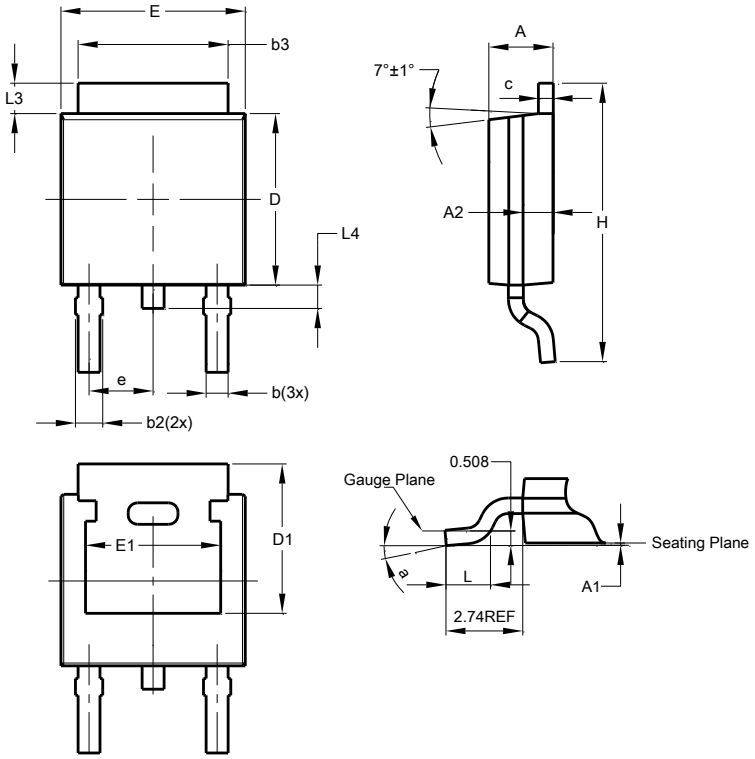
Figure 4. Forward Current Derating

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Package Outline Dimensions

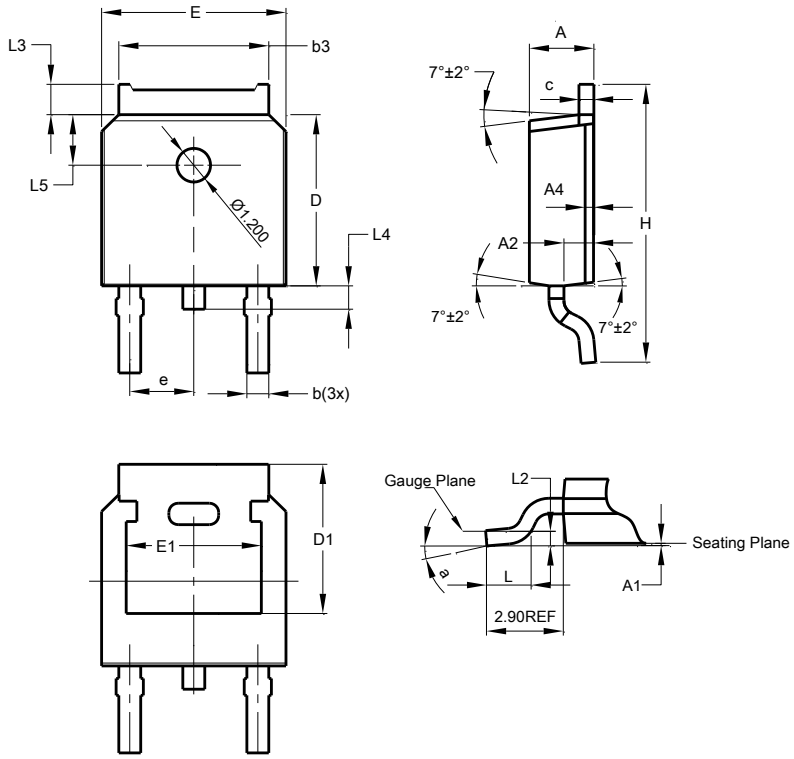
Please see http://www.diodes.com/package-outlines.html for the latest version.

(1) 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	5.50	5.33
c	0.45	0.58	0.531
D	6.00	6.20	6.10
D1	5.21	--	--
e	2.286 BSC		
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			

(2) 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			

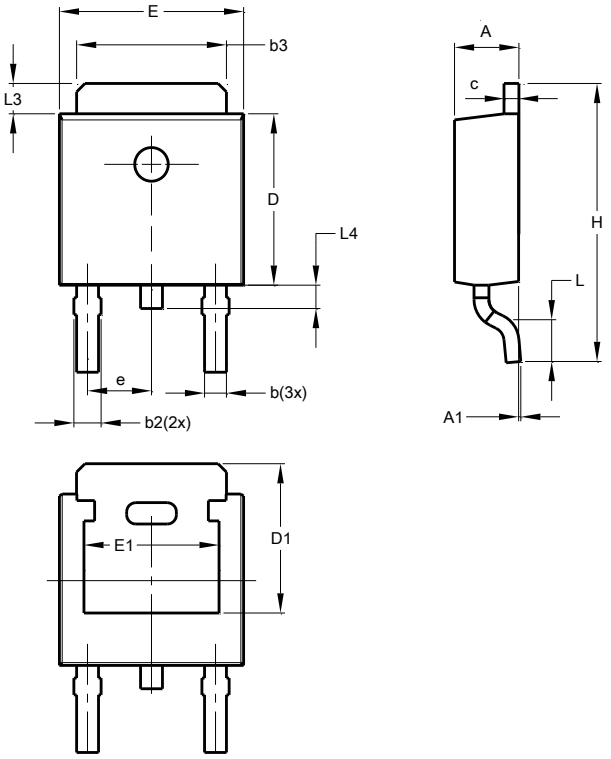
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Package Outline Dimensions (continued)

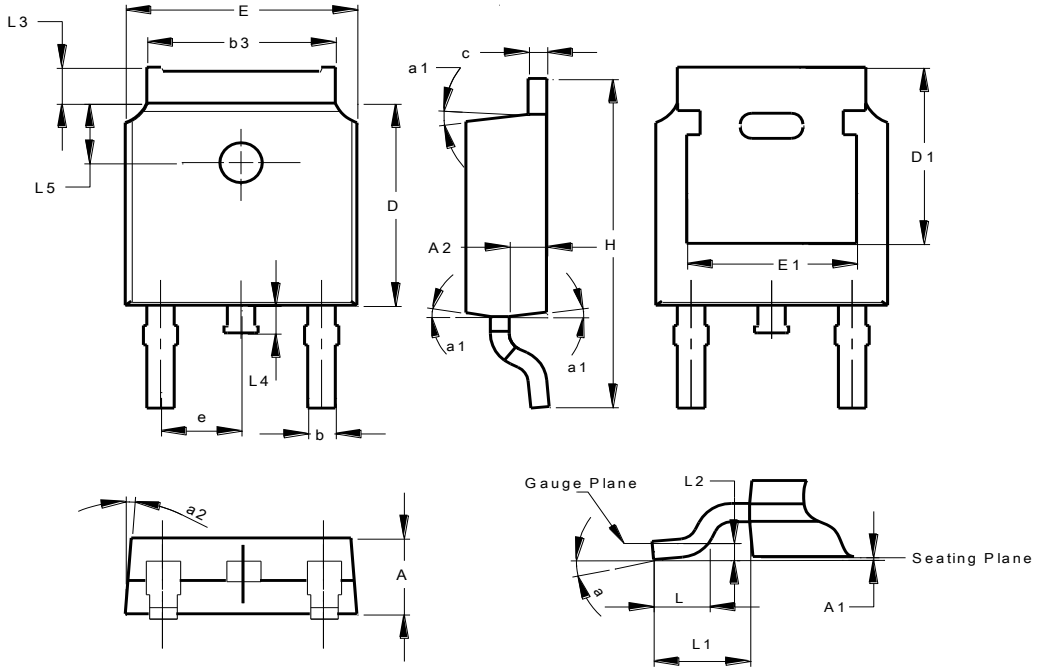
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(3) TO252 (DPAK) (Type BR)



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	-
All Dimensions in mm			

(4) TO252 (Type WX)



TO252 (Type WX)			
Dim	Min	Max	Typ
A	2.20	2.40	2.30
A1	0.00	0.15	--
A2	0.97	1.17	1.07
b	0.68	0.90	0.78
b3	5.20	5.50	5.33
c	0.43	0.63	0.53
D	5.98	6.22	6.10
D1	5.30 REF		
e	2.286 REF		
E	6.40	6.80	6.60
E1	4.63	5.03	4.83
H	9.40	10.50	10.10
L	1.38	1.75	1.50
L1	2,90 REF		
L2	0.51 BSC		
L3	0.88	1.28	--
L4	--	1.00	--
L5	1.65	1.95	1.80
a	0°	8°	-
a1	5°	9°	7°
a2	5°	9°	7°
All Dimensions in mm			

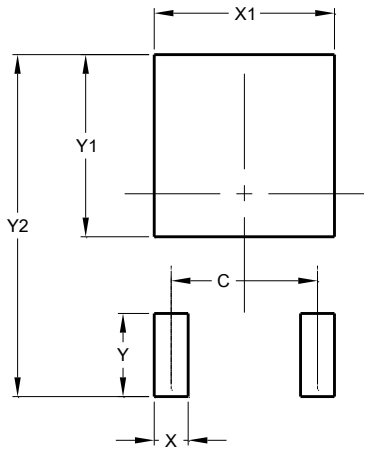
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Suggested Pad layout

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TO252 (DPAK), TO252 (DPAK) (Type TH), TO252 (DPAK) (Type BR), TO252 (Type WX)



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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