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MBRB20200CT

SWITCHMODE™ Power Rectifier

Dual Schottky Rectifier

This device uses the Schottky Barrier technology with a platinum barrier metal. This state−of−the−art device is designed for use in high frequency switching power supplies and converters with up to 48 V outputs. They block up to 200 V and offer improved Schottky performance at frequencies from 250 kHz to 5.0 MHz.

Features

- 200 V Blocking Voltage
- Low Forward Voltage Drop
- Guardring for Stress Protection and High dv/dt Capability (10,000 V/µs)
- Dual Diode Construction − Terminals 1 and 3 Must be Connected for Parallel Operation at Full Rating
- Pb−Free Packages are Available

Mechanical Characteristics:

- Case: Epoxy, Molded, Epoxy Meets UL 94 V−0
- Weight: 1.7 Grams (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Device Meets MSL1 Requirements

MAXIMUM RATINGS (Per Leg)

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	200	V
Average Rectified Forward Current (At Rated V_R, T_C = 134°C) Per Leg Per Device	$I_{F(AV)}$	 10 20	A
Peak Repetitive Forward Current (At Rated V_R, Square Wave, 20 kHz, T_C = +137°C) Per Leg	I_{FRM}	20	A
Nonrepetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I_{FSM}	150	A
Peak Repetitive Reverse Surge Current (2.0 µs, 1.0 kHz)	I_{RRM}	1.0	A
Storage Temperature Range	T_{stg}	−65 to +175	°C
Operating Junction Temperature	T_J	−65 to +150	°C
Voltage Rate of Change (Rated V_R)	dv/dt	10,000	V/µs

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

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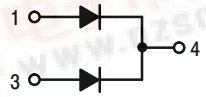
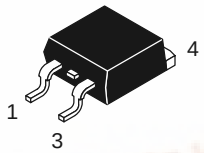
SCHOTTKY BARRIER RECTIFIER 20 AMPERES, 200 V





D²PAK CASE 418B PLASTIC

MARKING DIAGRAM

A	= Assembly Location
Y	= Year
WW	= Work Week
B20200	= Device Code
G	= Pb−Free Package
AKA	= Diode Polarity

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 2 of this data sheet.

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THERMAL CHARACTERISTICS (Per Leg)

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction−to−Case	$R_{\theta JC}$	2.0	°C/W

ELECTRICAL CHARACTERISTICS (Per Leg)

Characteristic	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage (Note 1)	V_F		V
(I_F = 10 A, T_C = 25°C)		0.9	
(I_F = 10 A, T_C = 125°C)		0.8	
(I_F = 20 A, T_C = 25°C)		1.0	
(I_F = 20 A, T_C = 125°C)		0.9	
Maximum Instantaneous Reverse Current (Note 1)	I_R		mA
(Rated dc Voltage, T_C = 25°C)		1.0	
(Rated dc Voltage, T_C = 125°C)		50	

DYNAMIC CHARACTERISTICS (Per Leg)

Capacitance (V_R = −5.0 V, T_C = 25°C, Frequency = 1.0 MHz)	C_T	500	pF

1. Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.

ORDERING INFORMATION

Device	Package	Shipping†
MBRB20200CT	D^2PAK	50 Units / Rail
MBRB20200CTG	D^2PAK (Pb−Free)	50 Units / Rail
MBRB20200CTT4	D^2PAK	800 Units / Tape & Reel
MBRB20200CTT4G	D^2PAK (Pb−Free)	800 Units / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

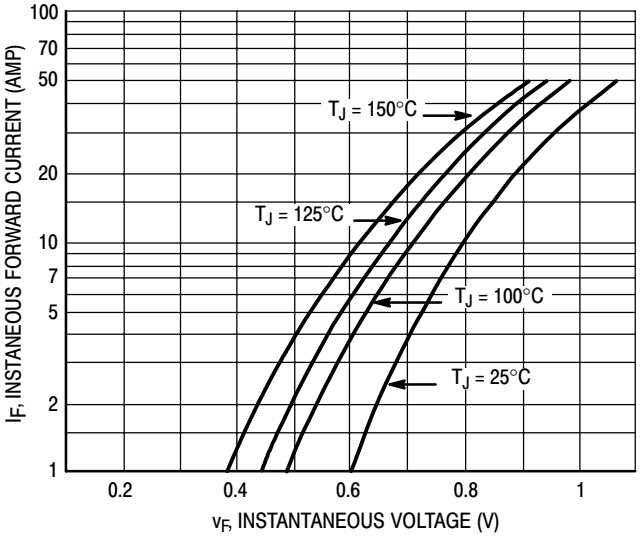


Figure 1. Typical Forward Voltage (Per Leg)

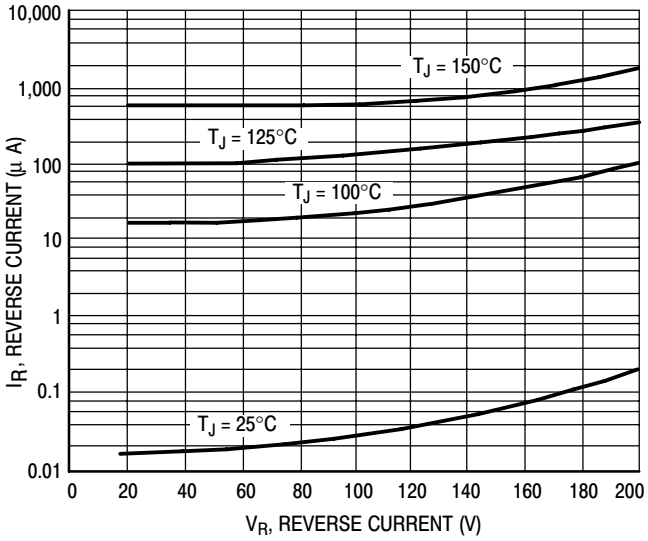


Figure 2. Typical Reverse Current (Per Leg)

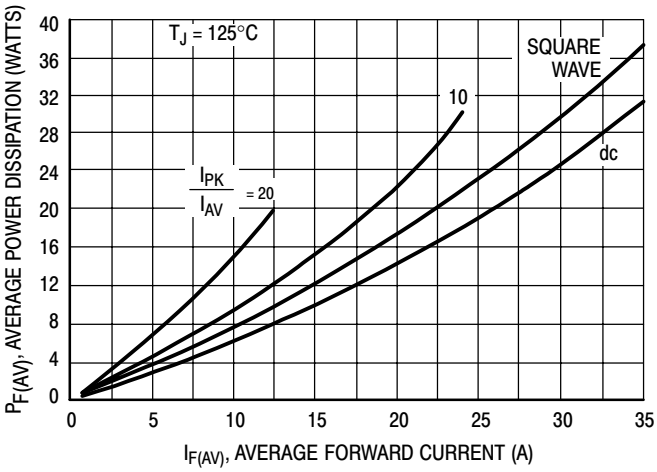


Figure 3. Forward Power Dissipation

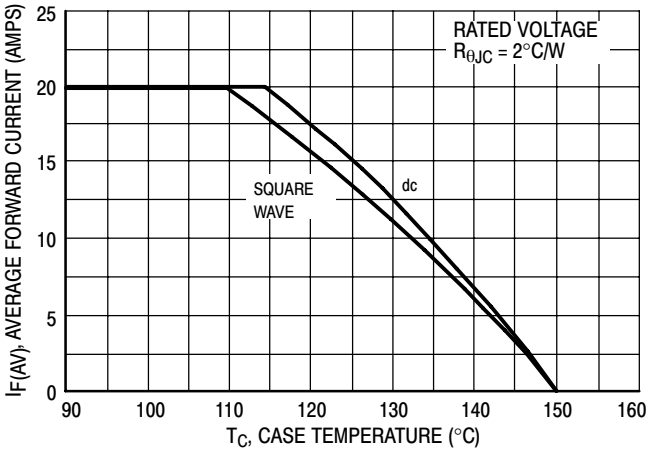


Figure 4. Current Derating, Case

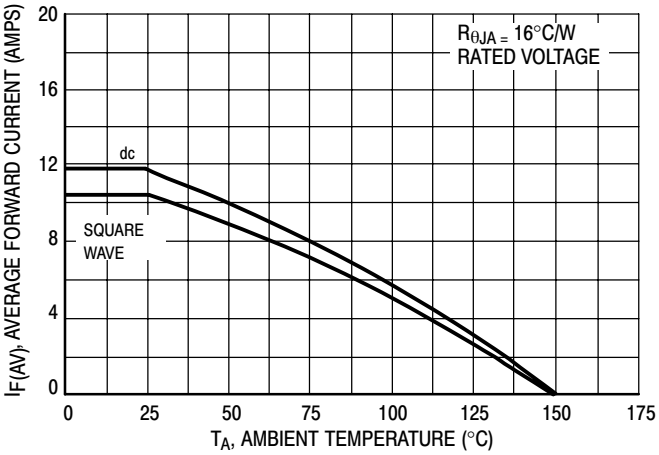


Figure 5. Current Derating, Ambient

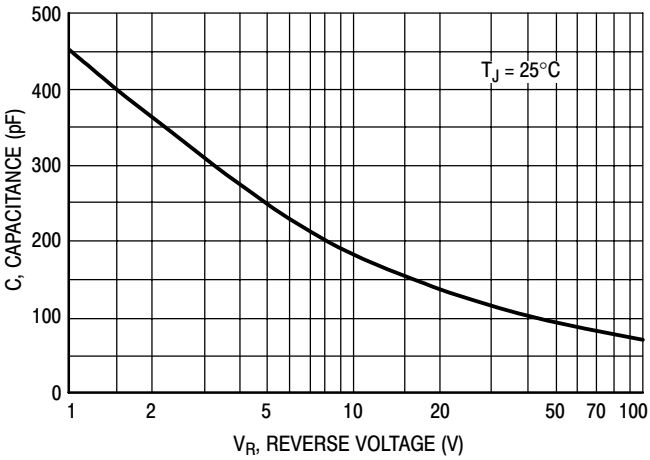
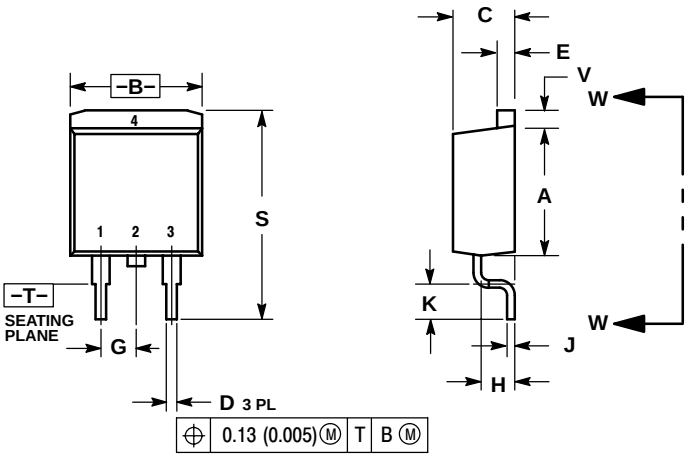


Figure 6. Typical Capacitance (Per Leg)

MBRB20200CT

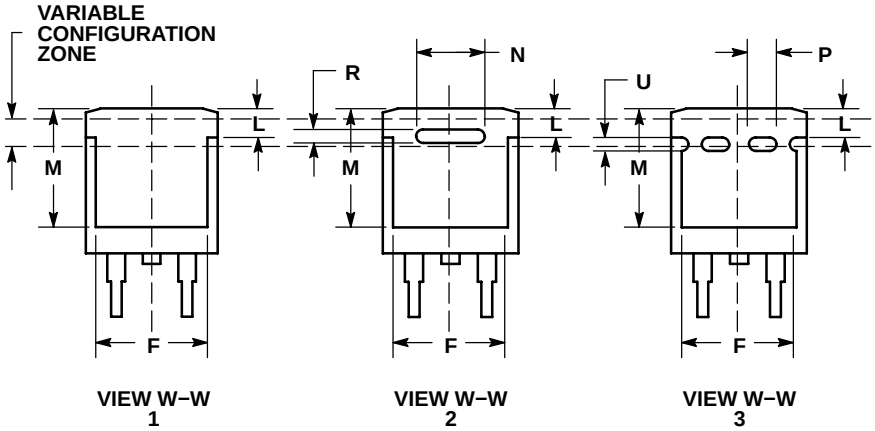
PACKAGE DIMENSIONS

D²PAK 3
CASE 418B−04
ISSUE J

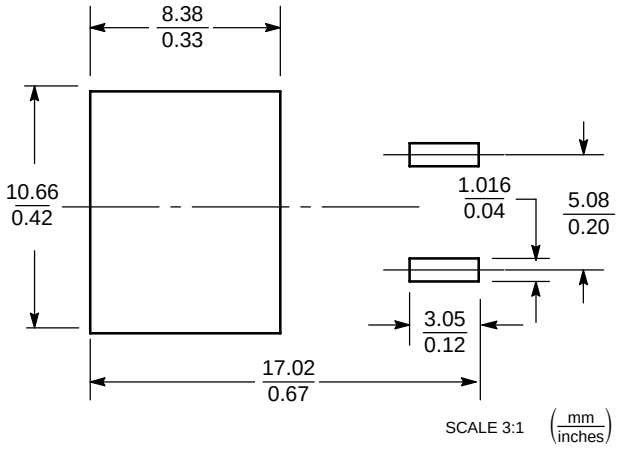


NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. 418B−01 THRU 418B−03 OBSOLETE, NEW STANDARD 418B−04.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.340	0.380	8.64	9.65
B	0.380	0.405	9.65	10.29
C	0.160	0.190	4.06	4.83
D	0.020	0.035	0.51	0.89
E	0.045	0.055	1.14	1.40
F	0.310	0.350	7.87	8.89
G	0.100 BSC		2.54 BSC	
H	0.080	0.110	2.03	2.79
J	0.018	0.025	0.46	0.64
K	0.090	0.110	2.29	2.79
L	0.052	0.072	1.32	1.83
M	0.280	0.320	7.11	8.13
N	0.197 REF		5.00 REF	
P	0.079 REF		2.00 REF	
R	0.039 REF		0.99 REF	
S	0.575	0.625	14.60	15.88
V	0.045	0.055	1.14	1.40



SOLDERING FOOTPRINT*



*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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