

Preferred Device

SWITCHMODE™ Power Rectifier

D²PAK Surface Mount Power Package

The D²PAK Power Rectifier is a state-of-the-art device that employs the use of the Schottky Barrier principle with a platinum barrier metal.

Features

- Package Designed for Power Surface Mount Applications
- Center-Tap Configuration
- Guardring for Stress Protection
- Low Forward Voltage
- 175°C Operating Junction Temperature
- Epoxy Meets UL 94 V-0 @ 0.125 in
- Short Heat Sink Tab Manufactured – Not Sheared!
- Similar in Size to Industry Standard TO-220 Package
- 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
- ESD Ratings: Machine Model, C >400 V
Human Body Model, 3B >8000 V

MAXIMUM RATINGS (Per Leg)

| Rating | Symbol | Value | Unit |
|---|-------------|-------------|------------------|
| Peak Repetitive Reverse Voltage | V_{RRM} | 100 | V |
| Working Peak Reverse Voltage | V_{RWM} | | |
| DC Blocking Voltage | V_R | | |
| Average Rectified Forward Current (Rated V_R , $T_C = 110^\circ\text{C}$) Total Device | $I_{F(AV)}$ | 10 20 | A |
| Peak Repetitive Forward Current (Rated V_R , Square Wave, 20 kHz, $T_C = 100^\circ\text{C}$) | I_{FRM} | 20 | A |
| Non-Repetitive 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} | 0.5 | A |
| Storage Temperature Range | T_{stg} | -65 to +175 | °C |
| Operating Junction Temperature (Note 1) | T_J | -65 to +175 | °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.

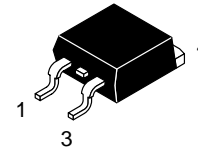
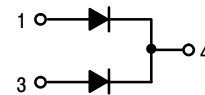
1. The heat generated must be less than the thermal conductivity from Junction-to-Ambient: $dP_D/dT_J < 1/R_{\theta JA}$.



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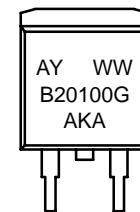
<http://onsemi.com>

SCHOTTKY BARRIER RECTIFIER 20 AMPERES 100 VOLTS



**D²PAK
CASE 418B
STYLE 3**

MARKING DIAGRAM



A = Assembly Location
 Y = Year
 WW = Work Week
 B20100 = 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.

Preferred devices are recommended choices for future use and best overall value.

MBRB20100CT

THERMAL CHARACTERISTICS (Per Leg)

| Characteristic | Symbol | Value | Unit |
|--------------------------------------|-----------------|-------|-----------------------------|
| Thermal Resistance, Junction-to-Case | $R_{\theta JC}$ | 2.0 | $^{\circ}\text{C}/\text{W}$ |
| Junction-to-Ambient (Note 2) | $R_{\theta JA}$ | 50 | $^{\circ}\text{C}/\text{W}$ |

ELECTRICAL CHARACTERISTICS (Per Leg)

| | | | | |
|--|--|-------|------|----|
| Maximum Instantaneous Forward Voltage (Note 3) | ($i_F = 10 \text{ Amp}$, $T_C = 125^{\circ}\text{C}$) | V_F | 0.75 | V |
| | ($i_F = 10 \text{ Amp}$, $T_C = 25^{\circ}\text{C}$) | | 0.85 | |
| | ($i_F = 20 \text{ Amp}$, $T_C = 125^{\circ}\text{C}$) | | 0.85 | |
| | ($i_F = 20 \text{ Amp}$, $T_C = 25^{\circ}\text{C}$) | | 0.95 | |
| Maximum Instantaneous Reverse Current (Note 3) | (Rated dc Voltage, $T_J = 125^{\circ}\text{C}$) | i_R | 6.0 | mA |
| | (Rated dc Voltage, $T_J = 25^{\circ}\text{C}$) | | 0.1 | |

2. When mounted using minimum recommended pad size on FR-4 board.

3. Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$.

ORDERING INFORMATION

| Device | Package | Shipping [†] |
|----------------|---------------------------------|-------------------------|
| MBRB20100CT | D ² PAK | 50 Units / Rail |
| MBRB20100CTG | D ² PAK (Pb-Free) | 50 Units / Rail |
| MBRB20100CTT4 | D ² PAK | 800 Units / Tape & Reel |
| MBRB20100CTT4G | D ² PAK (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.

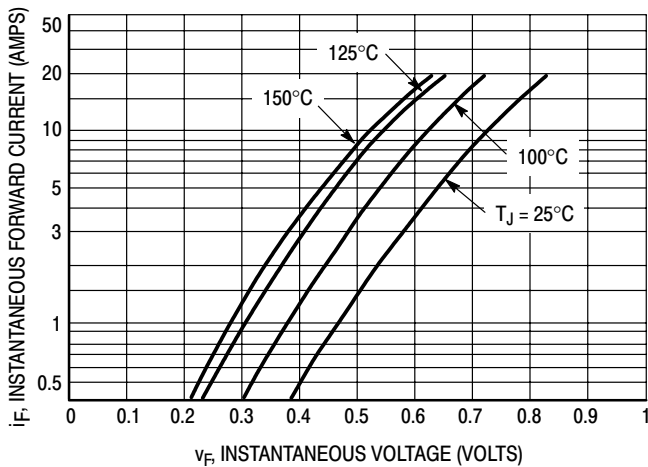


Figure 1. Typical Forward Voltage Per Diode

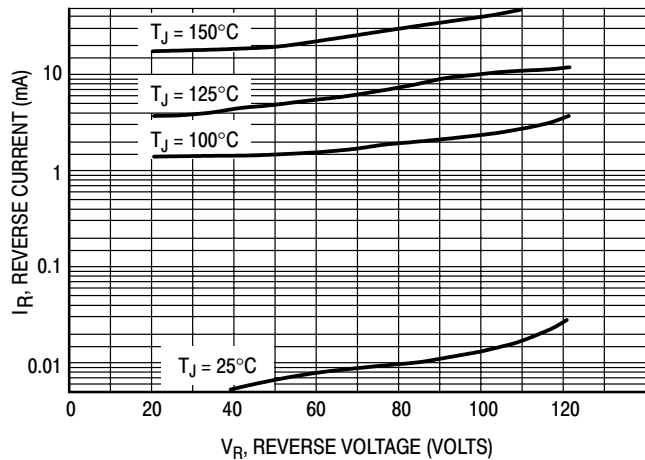


Figure 2. Typical Reverse Current Per Diode

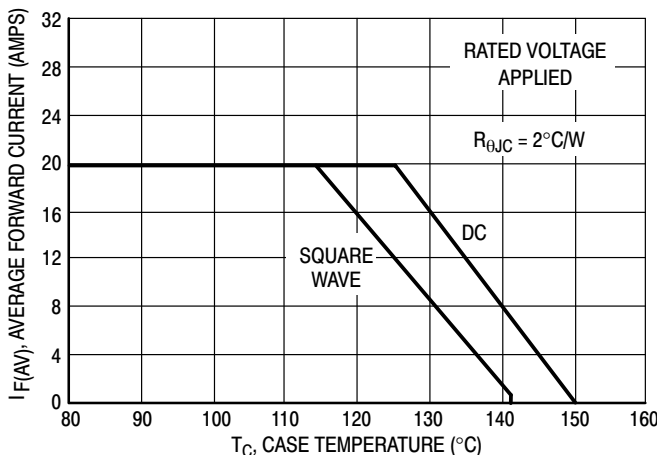


Figure 3. Typical Current Derating, Case, Per Leg

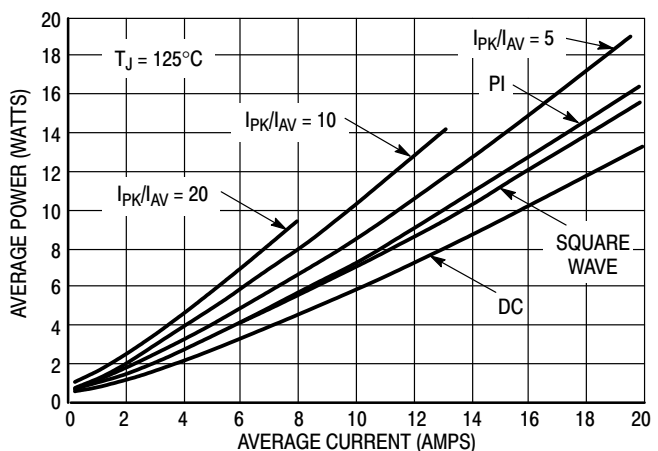


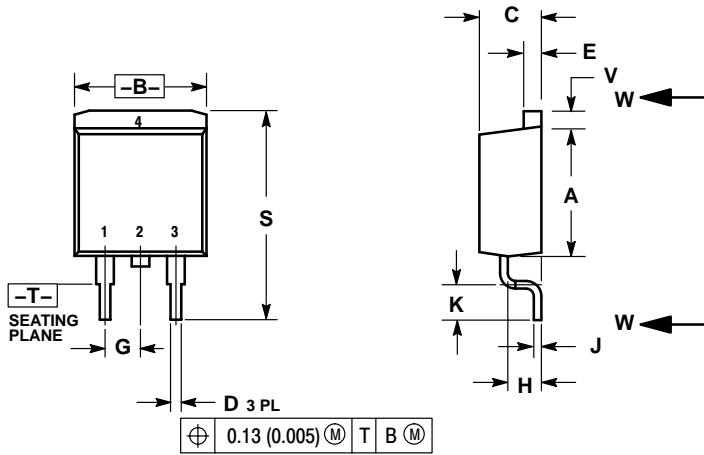
Figure 4. Average Power Dissipation & Average Current

MBRB20100CT

查询"MBRB20100CTT4G"供应商

PACKAGE DIMENSIONS

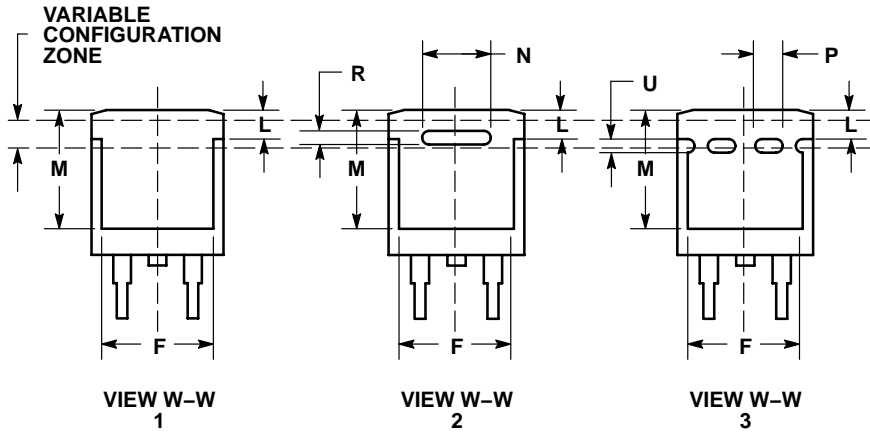
D²PAK
CASE 418B-04
ISSUE J



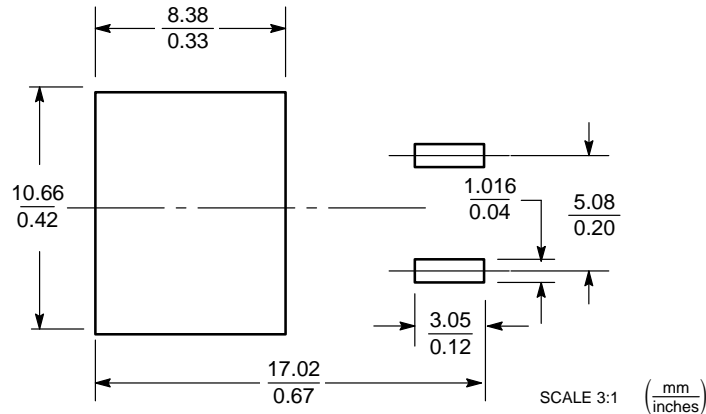
- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.
 3. 418B-01 THRU 418B-03 OBSOLETE, NEW STANDARD 418B-04.

| DIM | INCHES | | MILLIMETERS | |
|-----|-----------|-------|-------------|-------|
| | 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 |

- STYLE 3:
PIN 1. ANODE
2. CATHODE
3. ANODE
4. CATHODE




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.

[查询"MBRB20100CTT4G"供应商](#)

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