# MBRB20100CT1

*Product Preview*

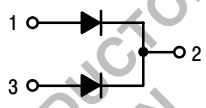
## SWITCHMODE™ Schottky Power Rectifier

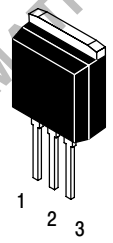
### D²PAK−SL Straight−Leaded Through Hole Mount Package

ON Semiconductor®

http://onsemi.com

**SCHOTTKY BARRIER RECTIFIER 20 AMPERES 100 VOLTS**




**D²PAK−SL**
**CASE 418C−01**

…using the Schottky Barrier principle with a platinum barrier metal. These state−of−the−art devices have the following features:

- Package Designed for Low Profile Through Hole Mount
- Center−Tap Configuration
- Guardring for Stress Protection
- Low Forward Voltage
- 150°C Operating Junction Temperature
- Epoxy Meets UL94, $V_O$ at 1/8″
- Guaranteed Reverse Avalanche
- Short Heat Sink Tab Manufactured — Not Sheared!
- Similar in Size to Industry Standard TO−220

**Mechanical Characteristics**

- Case: Epoxy, Molded
- Weight: 1.7 grams (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Marking: B20101 With 1 signifying straight leads



**MAXIMUM RATINGS PER DIODE LEG**

| Rating | | Symbol | Value | Unit |
|---|---|---|---|---|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 100 | Volts |
| Average Rectified Forward Current<br>(At Rated $V_R$, $T_C$ = 110°C) | Per Leg<br>Per Package | $I_{F(AV)}$ | 10<br>20 | Amps |
| Peak Repetitive Forward Current<br>(At Rated $V_R$, Square Wave, 20 kHz, $T_C$ = 100°C) | Per Leg | $I_{FRM}$ | 20 | Amps |
| Non-Repetitive Peak Surge Current<br>(Surge applied at rated load conditions, halfwave, single phase, 60 Hz) | Per Package | $I_{FSM}$ | 150 | Amps |
| Peak Repetitive Reverse Surge Current (2.0 μs, 1.0 kHz) | | $I_{RRM}$ | 0.5 | Amp |
| Storage / Operating Case Temperature | | $T_{stg}$, $T_C$ | −65 to +175 | °C |
| Operating Junction Temperature | | $T_J$ | −65 to +150 | °C |
| Voltage Rate of Change | | dv/dt | 10,000 | V/μs |

**THERMAL CHARACTERISTICS**

| | | | | |
|---|---|---|---|---|
| Thermal Resistance — Junction to Case<br>— Junction to Ambient | Per Leg<br>Per Leg | $R_{\theta JC}$<br>$R_{\theta JA}$ | 2.0<br>50 | °C/W |

**ELECTRICAL CHARACTERISTICS**

| | | | | | |
|---|---|---|---|---|---|
| Maximum Instantaneous Forward Voltage (1), see Figure 2<br>$I_F$ = 1.0 Adc<br>$I_F$ = 2.0 Adc | Per Leg | $V_F$ | **$T_J$ = 25°C**<br>0.85<br>0.95 | **$T_J$ = 125°C**<br>0.75<br>0.85 | Volts |
| Maximum Instantaneous Reverse Current, see Figure 4<br>$V_R$ = 100 V | Per Leg | $I_R$ | **$T_J$ = 25°C**<br>0.1 | **$T_J$ = 125°C**<br>6.0 | mA |

(1) Pulse Test: Pulse Width ≤ μs, Duty Cycle ≤ 2%.

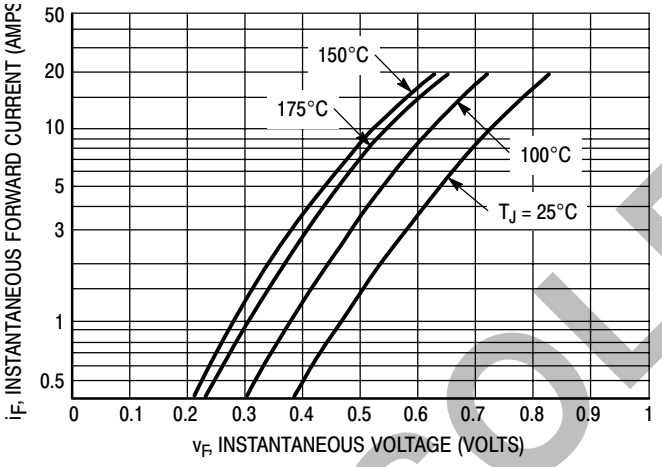



**Figure 1. Typical Forward Voltage Per Diode**

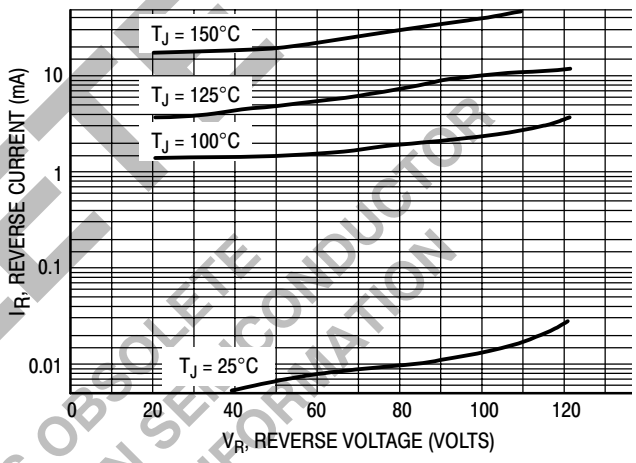



**Figure 2. Typical Reverse Current Per Diode**

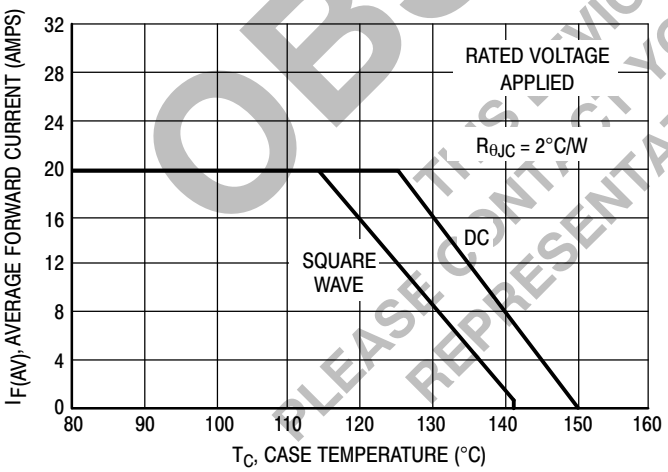



**Figure 3. Typical Current Derating, Case, Per Leg**

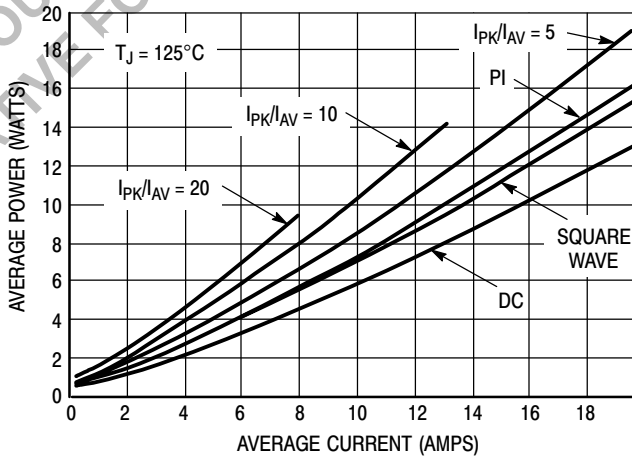
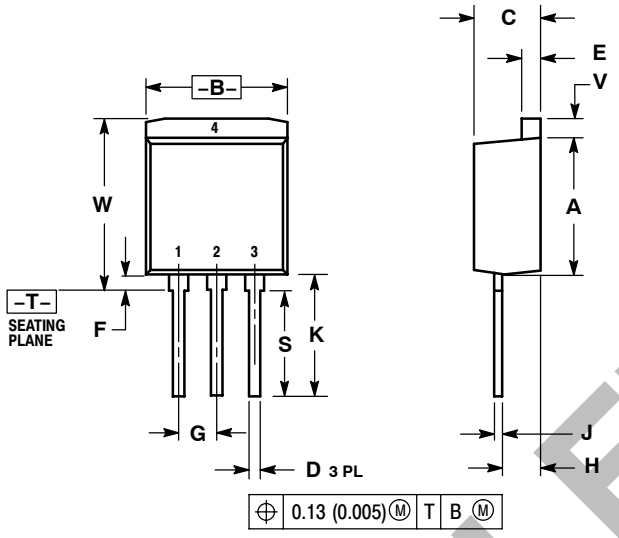



**Figure 4. Average Power Dissipation and Average Current**

## PACKAGE DIMENSIONS

### CASE 418C−01
### ISSUE O




NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

| | 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 | 0.039 REF | | 1.00 REF | |
| 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 | 0.280 | 0.360 | 7.11 | 9.14 |
| S | 0.276 REF | | 7.00 REF | |
| V | 0.045 | 0.055 | 1.14 | 1.40 |
| W | 0.423 | 0.462 | 10.75 | 11.75 |





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