# MBRS230LT3

# Surface Mount Schottky Power Rectifier

## SMB Power Surface Mount Package

. . . employing the Schottky Barrier principle in a metal-to-silicon power rectifier. Features epitaxial construction with oxide passivation and metal overlay contact. Ideally suited for low voltage, high frequency switching power supplies; free wheeling diodes and polarity protection diodes.

- Compact Package with J-Bend Leads Ideal for Automated Handling
- Highly Stable Oxide Passivated Junction
- Guardring for Over-Voltage Protection
- Low Forward Voltage Drop

**Mechanical Characteristics:**

- Case: Molded Epoxy
- Epoxy Meets UL94, VO at 1/8″
- Weight: 95 mg (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Maximum Temperature of 260°C/10 Seconds for Soldering
- Available in 12 mm Tape, 2500 Units per 13″ Reel, Add “T3” Suffix to Part Number
- Cathode Polarity Band
- Marking: 2BL3

**MAXIMUM RATINGS**

| Rating | Symbol | Value | Unit |
|---|---|---|---|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 30 | V |
| Average Rectified Forward Current (At Rated $V_R$, $T_C$ = 110°C) | $I_O$ | 2.0 | A |
| Peak Repetitive Forward Current (At Rated $V_R$, Square Wave, 20 kHz, $T_C$ = 105°C) | $I_{FRM}$ | 4.0 | A |
| Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions, Halfwave, Single Phase, 60 Hz) | $I_{FSM}$ | 40 | A |
| Storage/Operating Case Temperature | $T_{stg}$, $T_C$ | -55 to +175 | °C |
| Operating Junction Temperature | $T_J$ | -55 to +125 | °C |
| Voltage Rate of Change (Rated $V_R$, $T_J$ = 25°C) | dv/dt | 10,000 | V/μs |

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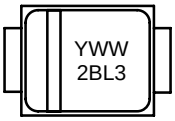
**SCHOTTKY BARRIER RECTIFIER 2.0 AMPERES 30 VOLTS**

**SMB**
**CASE 403A**
**PLASTIC**

**MARKING DIAGRAM**




Y = Year
WW = Work Week
2BL3 = Specific Device Code

**ORDERING INFORMATION**

| Device | Package | Shipping |
|---|---|---|
| MBRS230LT3 | SMB | 2500/Tape & Reel |

## THERMAL CHARACTERISTICS

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Thermal Resistance - Junction-to-Lead (Note 1)<br>Thermal Resistance - Junction-to-Ambient (Note 1) | $R_{\theta JL}$<br>$R_{\theta JA}$ | 18.6<br>135 | °C/W |

## ELECTRICAL CHARACTERISTICS

| | | | | |
|---|---|---|---|---|
| Maximum Instantaneous Forward Voltage (Note 2) | $V_F$ | **$T_J$ = 25°C** | **$T_J$ = 125°C** | Volts |
| ($I_F$ = 2.0 A) | | 0.50 | 0.45 | |
| see Figure 2 ($I_F$ = 4.0 A) | | 0.60 | 0.63 | |
| Maximum Instantaneous Reverse Current (Note 2) | $I_R$ | **$T_J$ = 25°C** | **$T_J$ = 125°C** | mA |
| ($V_R$ = 30 V) | | 1 | 75 | |
| see Figure 4 ($V_R$ = 15 V) | | 0.31 | 35 | |

1. Minimum pad size (0.108″ X 0.085″) for each lead on FR4 board.
2. Pulse Test: Pulse Width ≤ 250 μs, Duty Cycle ≤ 2.0%.

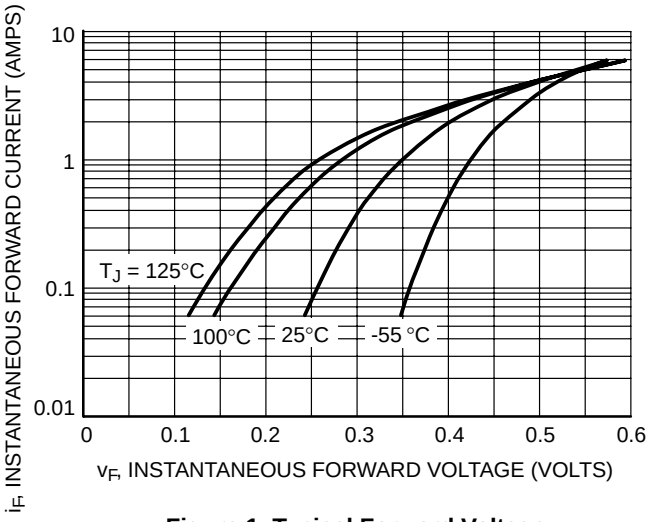



**Figure 1. Typical Forward Voltage**

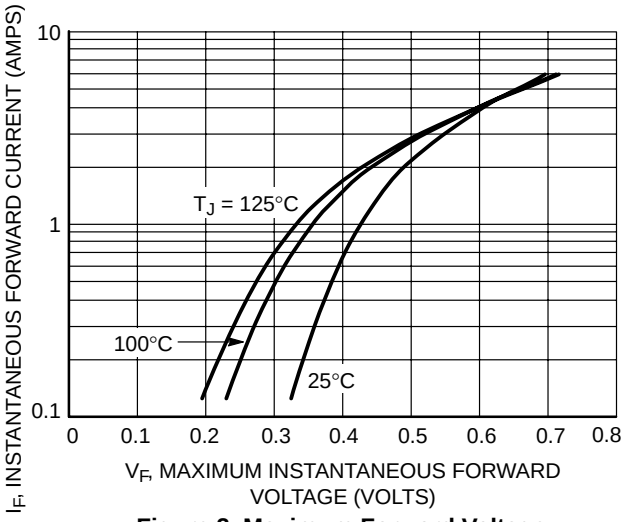



**Figure 2. Maximum Forward Voltage**

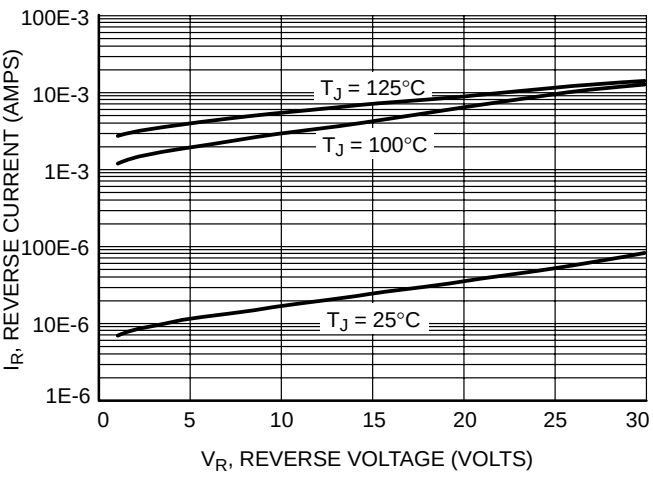



**Figure 3. Typical Reverse Current**

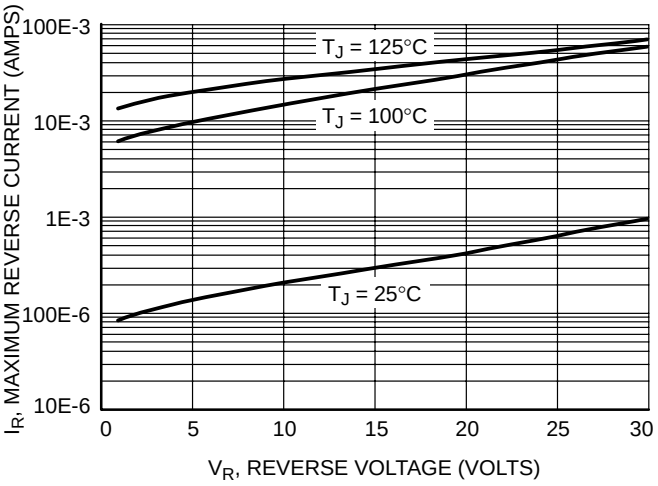



**Figure 4. Maximum Reverse Current**

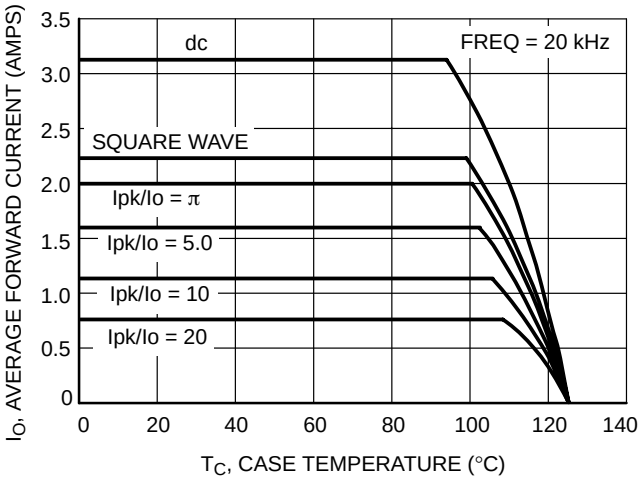



**Figure 5. Current Derating Per Leg**

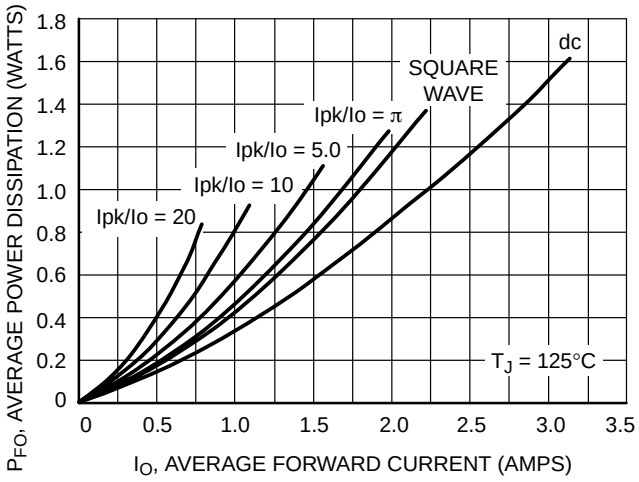



**Figure 6. Forward Power Dissipation Per Leg**

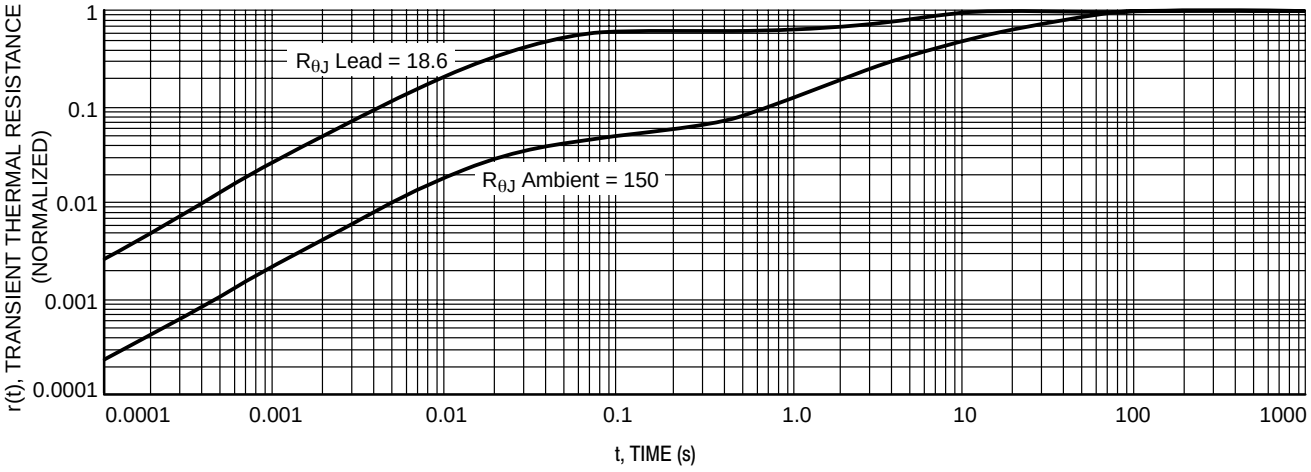
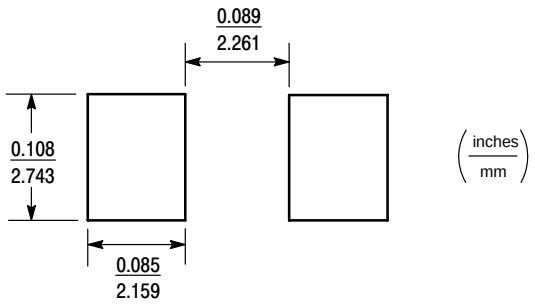


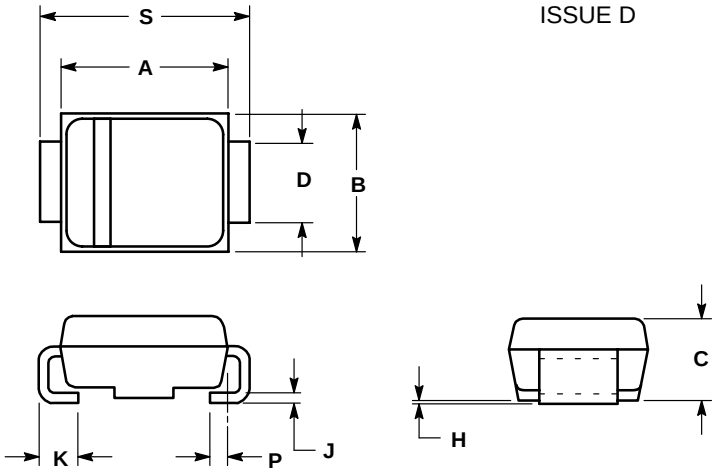

**Figure 7. Thermal Response**

## MINIMUM SOLDER PAD SIZES




## PACKAGE DIMENSIONS

**SMB**
PLASTIC PACKAGE
CASE 403A-03
ISSUE D




NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. D DIMENSION SHALL BE MEASURED WITHIN DIMENSION P.

| | INCHES | | MILLIMETERS | |
|---|---|---|---|---|
| DIM | MIN | MAX | MIN | MAX |
| A | 0.160 | 0.180 | 4.06 | 4.57 |
| B | 0.130 | 0.150 | 3.30 | 3.81 |
| C | 0.075 | 0.095 | 1.90 | 2.41 |
| D | 0.077 | 0.083 | 1.96 | 2.11 |
| H | 0.0020 | 0.0060 | 0.051 | 0.152 |
| J | 0.006 | 0.012 | 0.15 | 0.30 |
| K | 0.030 | 0.050 | 0.76 | 1.27 |
| P | 0.020 REF | | 0.51 REF | |
| S | 0.205 | 0.220 | 5.21 | 5.59 |



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