

# MBRD835LG, MBRD835LT4G, SBRD8835LG, SBRD8835LT4G

## SWITCHMODE Power Rectifier

### DPAK Surface Mount Package

This SWITCHMODE power rectifier which uses the Schottky Barrier principle with a proprietary barrier metal, is designed for use as output rectifiers, free wheeling, protection and steering diodes in switching power supplies, inverters and other inductive switching circuits.

#### Features

- Low Forward Voltage
- 150°C Operating Junction Temperature
- Epoxy Meets UL 94 V-0 @ 0.125 in
- Compact Size
- Lead Formed for Surface Mount
- SBRD8 Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free and are RoHS Compliant\*

#### Mechanical Characteristics

- Case: Epoxy, Molded
- Weight: 0.4 Gram (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
- Shipped 75 Units Per Plastic Tube
- ESD Rating:
  - ♦ Machine Model = C (> 400 V)
  - ♦ Human Body Model = 3B (> 8000 V)



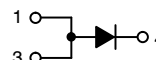
ON Semiconductor®

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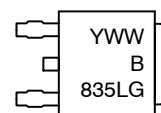
### SCHOTTKY BARRIER RECTIFIER 8.0 AMPERES, 35 VOLTS



DPAK  
CASE 369C



#### MARKING DIAGRAM



B835LG = Specific Device Number  
Y = Year  
WW = Work Week  
G = Pb-Free Device

#### ORDERING INFORMATION

| Device       | Package           | Shipping†                 |
|--------------|-------------------|---------------------------|
| MBRD835LG    | DPAK<br>(Pb-Free) | 75 Units / Rail           |
| SBRD8835LG   | DPAK<br>(Pb-Free) | 75 Units / Rail           |
| MBRD835LT4G  | DPAK<br>(Pb-Free) | 2,500 /<br>Tape & Reel ** |
| SBRD8835LT4G | DPAK<br>(Pb-Free) | 2,500 /<br>Tape & Reel ** |

\*\* 16 mm Tape, 13" 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.

\*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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## 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>$V_R$ | 35          | V                |
| Average Rectified Forward Current<br>(At Rated $V_R$ , $T_C = 88^\circ\text{C}$ )                                         | $I_{F(AV)}$                     | 8.0         | A                |
| Peak Repetitive Forward Current<br>(At Rated $V_R$ , Square Wave, 20 kHz, $T_C = 80^\circ\text{C}$ )                      | $I_{FRM}$                       | 16          | A                |
| Non-Repetitive Peak Surge Current<br>(Surge applied at rated load conditions, halfwave, single phase, 60 Hz)              | $I_{FSM}$                       | 75          | A                |
| Repetitive Avalanche Current<br>(Current Decaying Linearly to Zero in 1 $\mu\text{s}$ , Frequency Limited by $T_{Jmax}$ ) | $I_{AR}$                        | 2.0         | A                |
| Storage / Operating Case Temperature                                                                                      | $T_{stg}$                       | -65 to +150 | $^\circ\text{C}$ |
| Operating Junction Temperature (Note 1)                                                                                   | $T_J$                           | -65 to +150 | $^\circ\text{C}$ |
| Voltage Rate of Change (Rated $V_R$ )                                                                                     | $dv/dt$                         | 10,000      | V/ $\mu\text{s}$ |

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

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

## THERMAL CHARACTERISTICS

| Characteristic                                    | Symbol          | Value | Unit               |
|---------------------------------------------------|-----------------|-------|--------------------|
| Thermal Resistance – Junction-to-Case             | $R_{\theta JC}$ | 2.8   | $^\circ\text{C/W}$ |
| Thermal Resistance – Junction-to-Ambient (Note 2) | $R_{\theta JA}$ | 80    | $^\circ\text{C/W}$ |

2. Rating applies when surface mounted on the minimum pad size recommended.

## ELECTRICAL CHARACTERISTICS

| Characteristic                                                                                                                                      | Symbol | Value        | Unit |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------------|------|
| Maximum Instantaneous Forward Voltage (Note 3)<br>( $I_F = 8$ Amps, $T_C = +25^\circ\text{C}$ )<br>( $I_F = 8$ Amps, $T_C = +125^\circ\text{C}$ )   | $V_F$  | 0.51<br>0.41 | V    |
| Maximum Instantaneous Reverse Current (Note 3)<br>(Rated dc Voltage, $T_C = +25^\circ\text{C}$ )<br>(Rated dc Voltage, $T_C = +100^\circ\text{C}$ ) | $I_R$  | 1.4<br>35    | mA   |

3. Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2\%$ .

TYPICAL CHARACTERISTICS

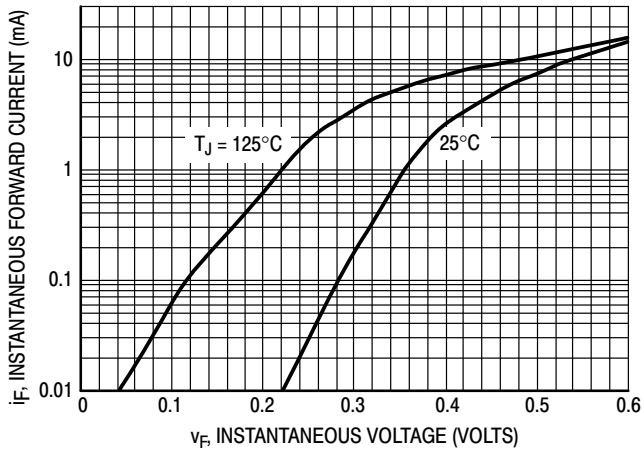


Figure 1. Maximum Forward Voltage

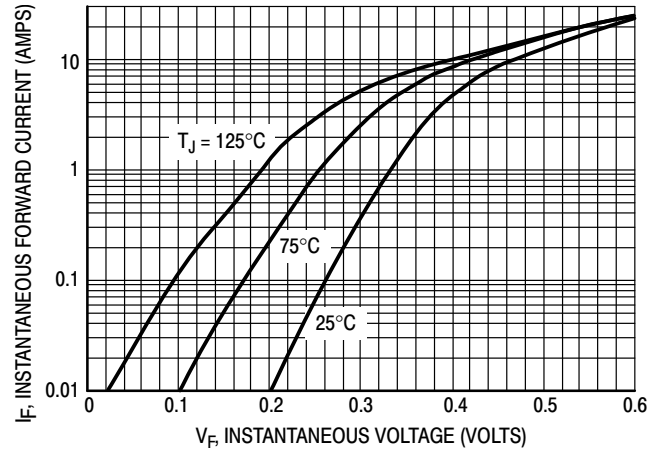


Figure 2. Typical Forward Voltage

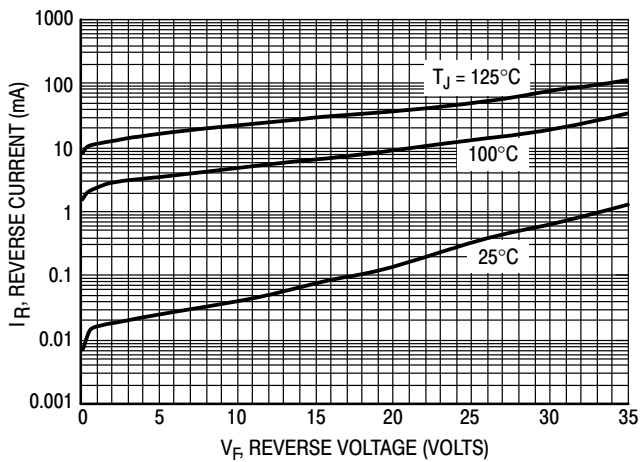


Figure 3. Maximum Reverse Current

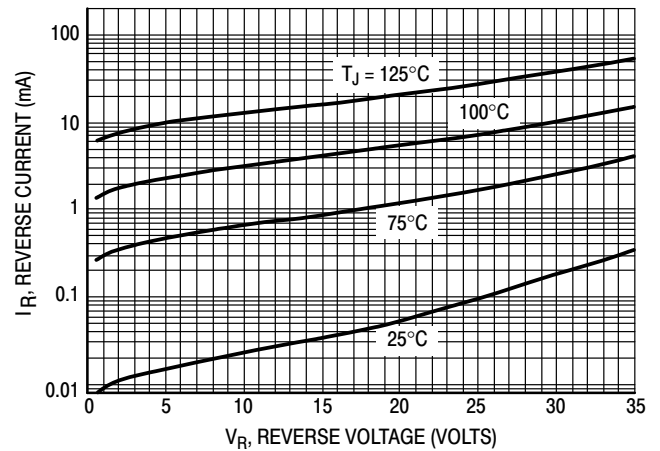


Figure 4. Typical Reverse Current

TYPICAL CHARACTERISTICS

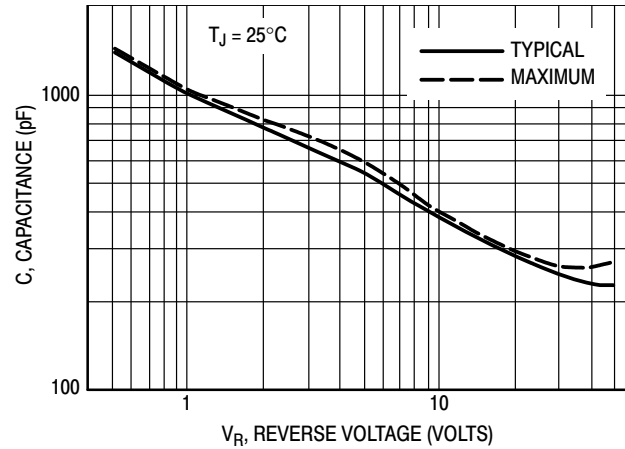


Figure 5. Maximum and Typical Capacitance

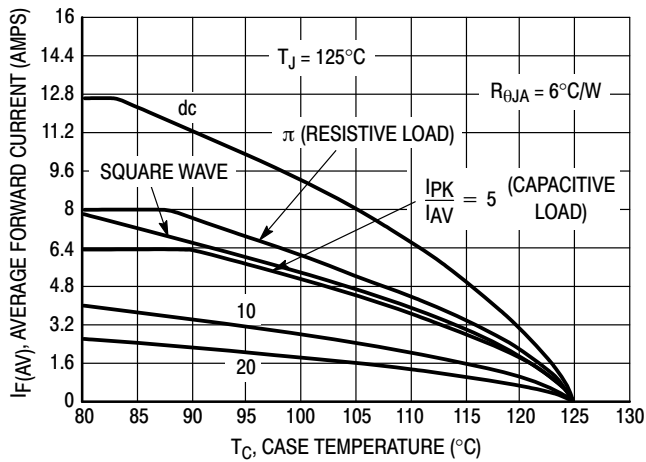


Figure 6. Current Derating, Infinite Heatsink

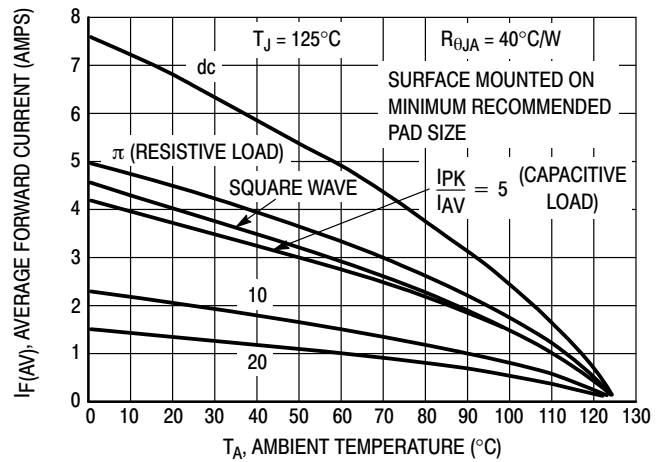


Figure 7. Current Derating

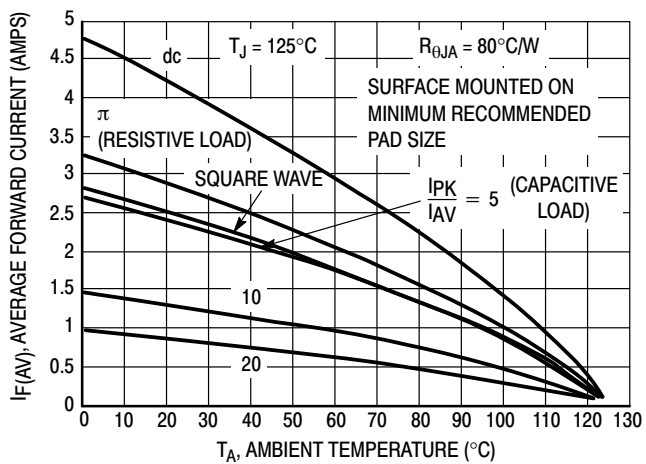


Figure 8. Current Derating, Free Air

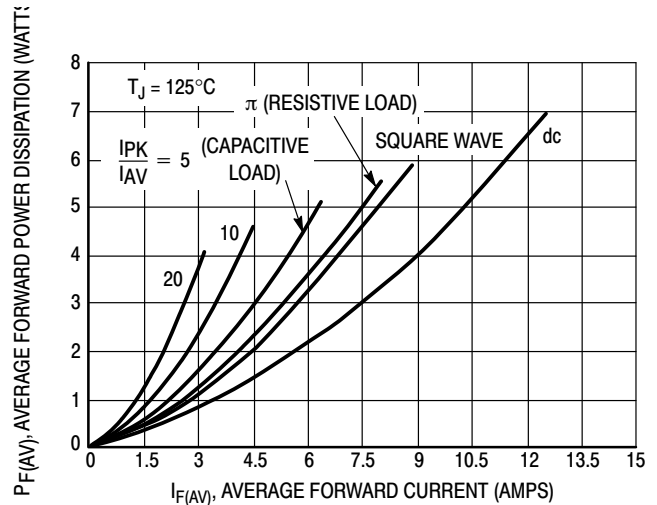
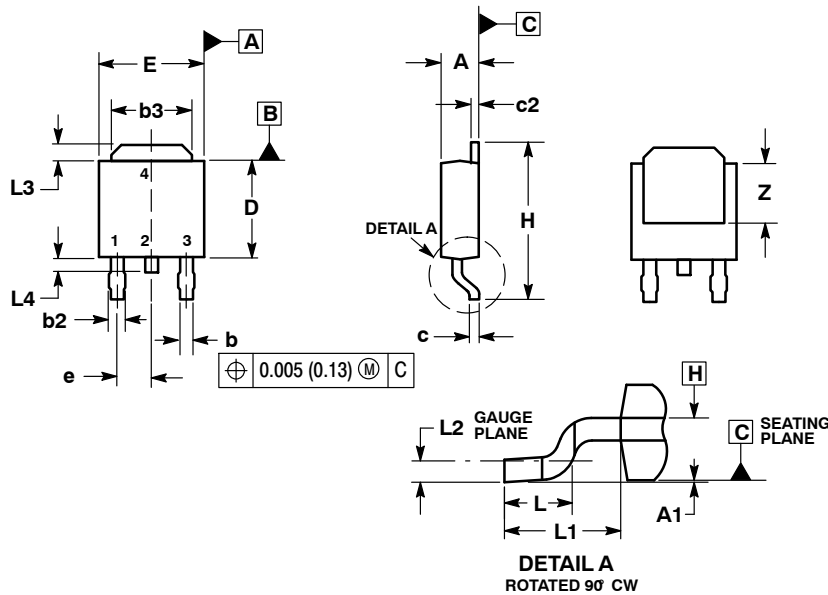


Figure 9. Forward Power Dissipation

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## PACKAGE DIMENSIONS

### DPAK (SINGLE GAUGE) CASE 369C ISSUE D

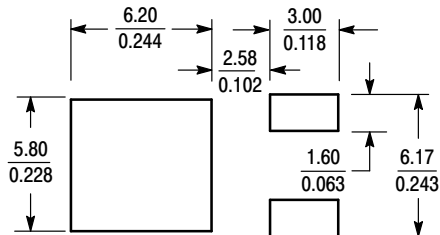


#### NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: INCHES.
3. THERMAL PAD CONTOUR OPTIONAL WITHIN DIMENSIONS b3, L3 and Z.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR BURRS. MOLD FLASH, PROTRUSIONS, OR GATE BURRS SHALL NOT EXCEED 0.006 INCHES PER SIDE.
5. DIMENSIONS D AND E ARE DETERMINED AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY.
6. DATUMS A AND B ARE DETERMINED AT DATUM PLANE H.

| DIM | INCHES    |       | MILLIMETERS |       |
|-----|-----------|-------|-------------|-------|
|     | MIN       | MAX   | MIN         | MAX   |
| A   | 0.086     | 0.094 | 2.18        | 2.38  |
| A1  | 0.000     | 0.005 | 0.00        | 0.13  |
| b   | 0.025     | 0.035 | 0.63        | 0.89  |
| b2  | 0.030     | 0.045 | 0.76        | 1.14  |
| b3  | 0.180     | 0.215 | 4.57        | 5.46  |
| c   | 0.018     | 0.024 | 0.46        | 0.61  |
| c2  | 0.018     | 0.024 | 0.46        | 0.61  |
| D   | 0.235     | 0.245 | 5.97        | 6.22  |
| E   | 0.250     | 0.265 | 6.35        | 6.73  |
| e   | 0.090 BSC |       | 2.29 BSC    |       |
| H   | 0.370     | 0.410 | 9.40        | 10.41 |
| L   | 0.055     | 0.070 | 1.40        | 1.78  |
| L1  | 0.108 REF |       | 2.74 REF    |       |
| L2  | 0.020 BSC |       | 0.51 BSC    |       |
| L3  | 0.035     | 0.050 | 0.89        | 1.27  |
| L4  | ---       | 0.040 | ---         | 1.01  |
| Z   | 0.155     | ---   | 3.93        | ---   |

### SOLDERING FOOTPRINT\*



SCALE 3:1 (mm/inches)

\*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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MBRD835L/D



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