

# MBR835, MBR840, MBR845

Preferred Devices



ON Semiconductor™

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## Axial Lead Rectifiers

...employing the Schottky Barrier principle in a large area metal-to-silicon power diode. State-of-the-art geometry features epitaxial construction with oxide passivation and metal overlap contact. Ideally suited for use as rectifiers in low-voltage, high-frequency inverters, free wheeling diodes, and polarity protection diodes.

- High Current Capability
- Low Stored Charge, Majority Carrier Conduction
- Low Power Loss/High Efficiency
- Highly Stable Oxide Passivated Junction
- Guard-Ring for Stress Protection
- Low Forward Voltage
- High Surge Capacity

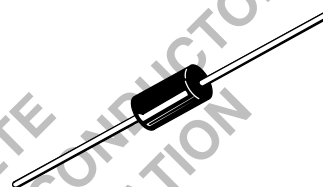
### Mechanical Characteristics:

- Case: Epoxy, Molded
- Weight: 1.1 gram (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 220°C Max. for 10 Seconds, 1/16" from case
- Shipped in plastic bags, 500 per bag
- Available Tape and Reeled, 1500 per reel, by adding a "RL" suffix to the part number
- Polarity: Cathode indicated by Polarity Band
- ESD Protection: Human Body Model > 4000 V (Class 3)  
for Machine Model > 400 V (Class C)

### MAXIMUM RATINGS

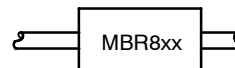
| Rating   | Symbol                          | Max         | Unit |
|--|---------------------------------|-------------|------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage   | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ |             | V    |
| MBR835   |                                 | 35          |      |
| MBR840   |                                 | 40          |      |
| MBR845   |                                 | 45          |      |
| Average Rectified Forward Current<br>$T_L = 75^\circ\text{C}$ ( $\text{Psi}_{JL} = 12^\circ\text{C/W}$ ,<br>P.C. Board Mounting, see Note 2) | $I_O$                           | 8.0         | A    |
| Non-Repetitive Peak Surge Current<br>(Surge Applied at Rated Load<br>Conditions Halfwave, Single<br>Phase, 60 Hz)                            | $I_{FSM}$                       | 140         | A    |
| Operating and Storage Junction<br>Temperature Range<br>(Reverse Voltage Applied)   | $T_J, T_{stg}$                  | -65 to +125 | °C   |
| Voltage Rate of Change (Rated $V_R$ )  | dv/dt                           | 10          | V/ns |

## SCHOTTKY BARRIER RECTIFIERS 8.0 AMPERES



AXIAL LEAD  
CASE 267-05  
(DO-201AD)  
STYLE 1

### MARKING DIAGRAM



MBR8xx = Device Code  
xx = 35, 40 or 45

### ORDERING INFORMATION

| Device   | Package    | Shipping         |
|----------|------------|------------------|
| MBR835   | Axial Lead | 500 Units/Bag    |
| MBR835RL | Axial Lead | 1500/Tape & Reel |
| MBR840   | Axial Lead | 500 Units/Bag    |
| MBR840RL | Axial Lead | 1500/Tape & Reel |
| MBR845   | Axial Lead | 500 Units/Bag    |
| MBR845RL | Axial Lead | 1500/Tape & Reel |

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

# MBR835, MBR840, MBR845

## THERMAL CHARACTERISTICS

| Characteristic   | Symbol          | 0.9 in x 0.9 in<br>Copper Pad Size | 6.75 in x 6.75 in<br>Copper Pad Size | Unit          |
|--|-----------------|------------------------------------|--------------------------------------|---------------|
| Thermal Resistance – Junction–to–Lead<br>(See Note 2 – Mounting Data)    | $R_{\theta JL}$ | 13                                 | 12                                   | $^{\circ}C/W$ |
| Thermal Resistance – Junction–to–Ambient<br>(See Note 2 – Mounting Data) | $R_{\theta JA}$ | 50                                 | 40                                   |               |

## ELECTRICAL CHARACTERISTICS ( $T_L = 25^{\circ}C$ unless otherwise noted)

| Characteristic   | Symbol | Max       | Unit |
|--|--------|-----------|------|
| Maximum Instantaneous Forward Voltage (Note 1)<br>( $i_F = 8.0$ Amps, $T_L = 25^{\circ}C$ )                      | $V_F$  | 0.55      | V    |
| Maximum Instantaneous Reverse Current @ Rated dc Voltage (Note 1)<br>$T_L = 25^{\circ}C$<br>$T_L = 100^{\circ}C$ | $i_R$  | 1.0<br>50 | mA   |

1. Pulse Test: Pulse Width = 300  $\mu s$ , Duty Cycle = 2.0%.

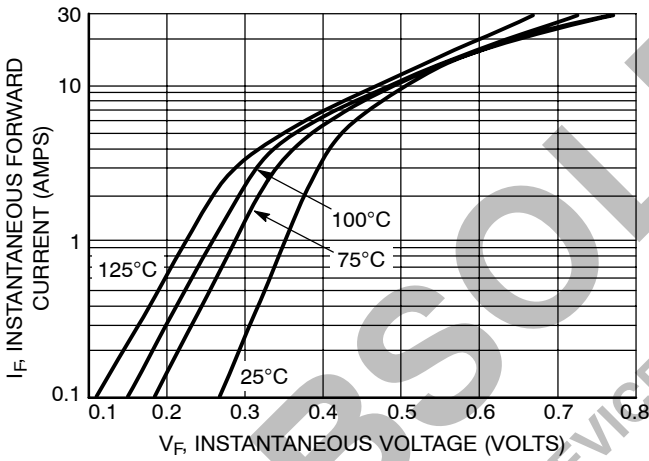


Figure 1. Typical Forward Voltage

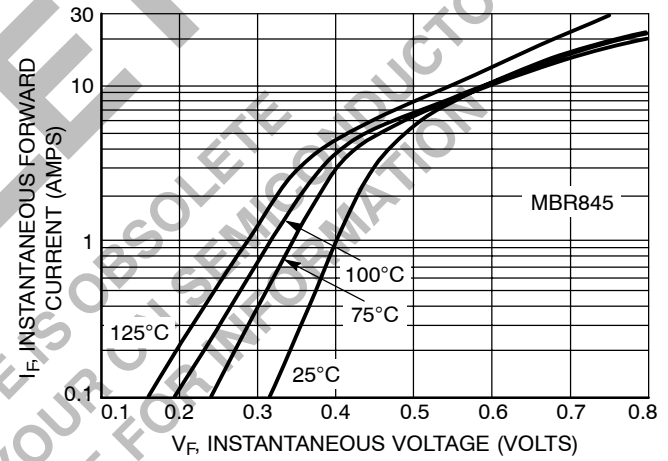


Figure 2. Maximum Forward Voltage

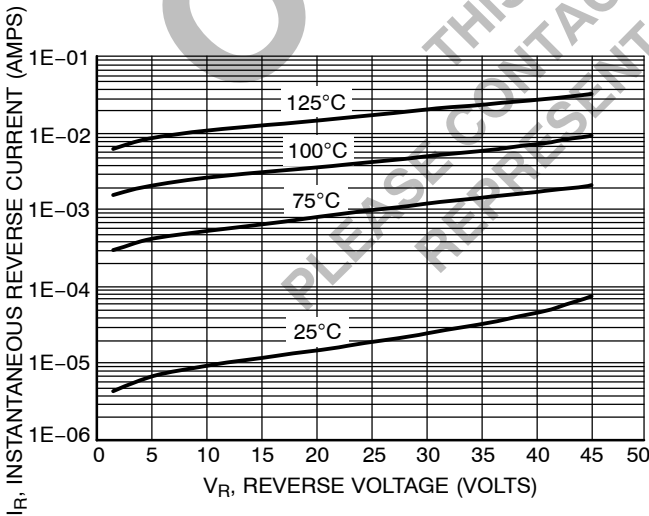


Figure 3. Typical Reverse Current

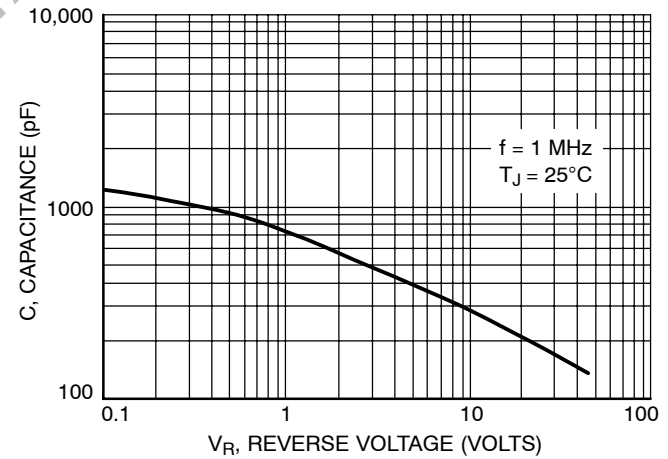
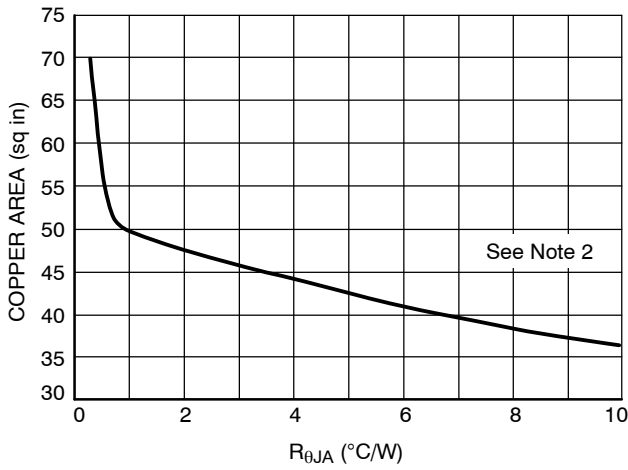
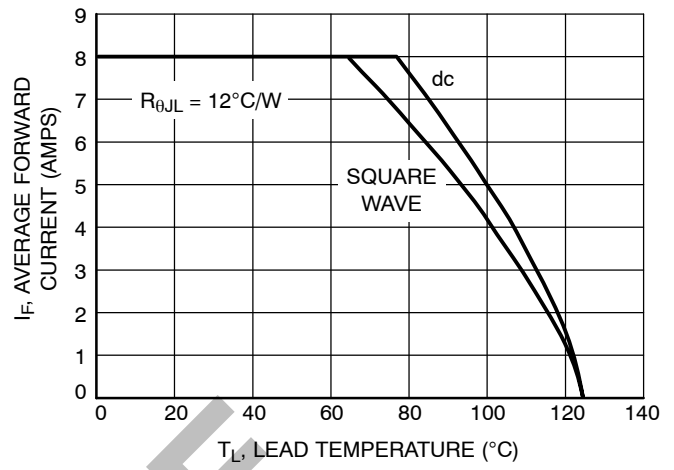


Figure 4. Typical Capacitance

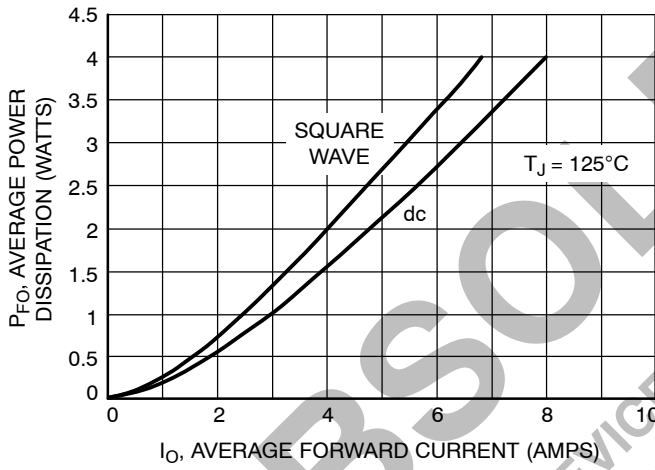
**MBR835, MBR840, MBR845**



**Figure 5.  $R_{\theta JA}$  versus Copper Area**



**Figure 6. Current Derating - Lead**

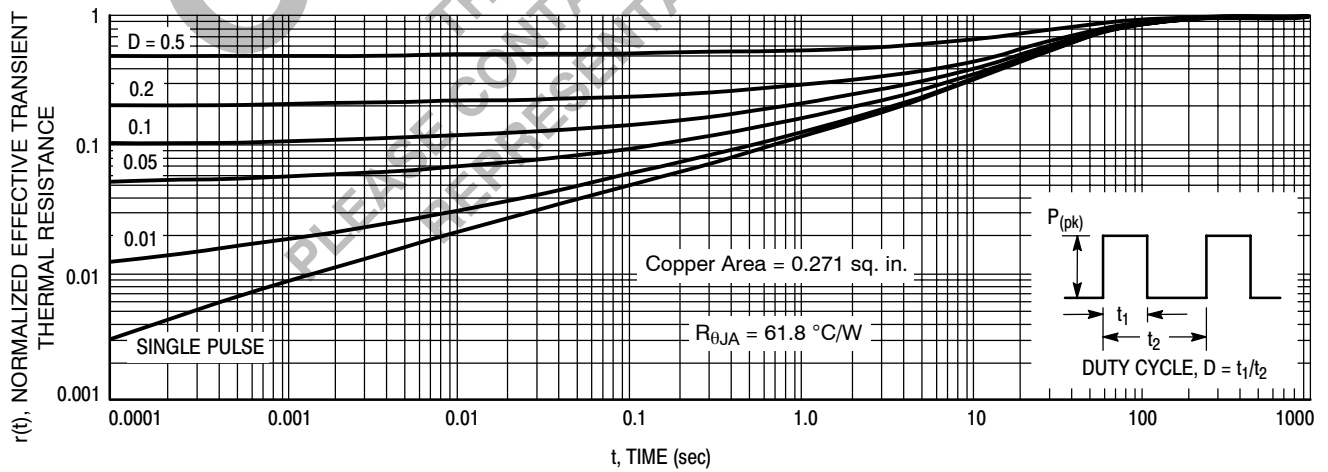
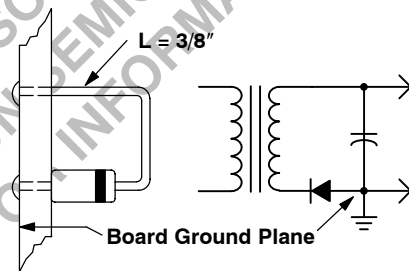


**Figure 7. Forward Power Dissipation**

**NOTE 2 — MOUNTING DATA**

**Mounting Method**

P.C. Board with 6.75 sq. in. copper surface.

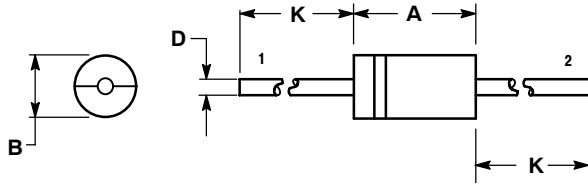


**Figure 8. Thermal Response, Junction-to-Ambient**

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## PACKAGE DIMENSIONS

AXIAL LEAD  
CASE 267-05  
(DO-201AD)  
ISSUE G



### NOTES:

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

| DIM | INCHES |       | MILLIMETERS |      |
|-----|--------|-------|-------------|------|
|     | MIN    | MAX   | MIN         | MAX  |
| A   | 0.287  | 0.374 | 7.30        | 9.50 |
| B   | 0.189  | 0.209 | 4.80        | 5.30 |
| D   | 0.047  | 0.051 | 1.20        | 1.30 |
| K   | 1.000  | ---   | 25.40       | ---  |

### STYLE 1:

- PIN 1. CATHODE (POLARITY BAND)
- ANODE

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