

SWITCHMODE™ Power Rectifiers

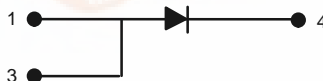
DPAK Surface Mount Package

... designed for use as output rectifiers, free wheeling, protection and steering diodes in switching power supplies, inverters and other inductive switching circuits. These state-of-the-art devices have the following features:

- Extremely Fast Switching
- Extremely Low Forward Drop
- Platinum Barrier with Avalanche Guardrings
- Guaranteed Reverse Avalanche

Mechanical Characteristics:

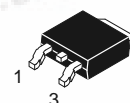
- Case: Epoxy, Molded
- Weight: 0.4 gram (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Shipped 75 units per plastic tube
- Available in 16 mm Tape and Reel, 2500 units per reel, by adding a "T4" suffix to the part number
- Marking: B320, B330, B340, B350, B360



MBRD320
MBRD330
MBRD340
MBRD350
MBRD360

MBRD320, MBRD340 and MBRD360 are
Motorola Preferred Devices

**SCHOTTKY BARRIER
RECTIFIERS**
3 AMPERES
20 TO 60 VOLTS



CASE 369A-13
PLASTIC

MAXIMUM RATINGS

| Rating | Symbol | MBRD | | | | | Unit |
|--|---------------------------------|-------------|-----|-----|-----|-----|------------------------|
| | | 320 | 330 | 340 | 350 | 360 | |
| Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage | V_{RRM} V_{RWM} V_R | 20 | 30 | 40 | 50 | 60 | Volts |
| Average Rectified Forward Current ($T_C = +125^\circ\text{C}$, Rated V_R) | $I_{F(AV)}$ | 3 | | | | | Amps |
| Peak Repetitive Forward Current, $T_C = +125^\circ\text{C}$ (Rated V_R , Square Wave, 20 kHz) | I_{FRM} | 6 | | | | | Amps |
| Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz) | I_{FSM} | 75 | | | | | Amps |
| Peak Repetitive Reverse Surge Current (2 μs , 1 kHz) | I_{RRM} | 1 | | | | | Amp |
| Operating Junction Temperature | T_J | -65 to +150 | | | | | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | -65 to +175 | | | | | $^\circ\text{C}$ |
| Voltage Rate of Change (Rated V_R) | dv/dt | 10000 | | | | | $\text{V}/\mu\text{s}$ |

THERMAL CHARACTERISTICS

| | | | |
|---|-----------------|----|---------------------------|
| Maximum Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 6 | $^\circ\text{C}/\text{W}$ |
| Maximum Thermal Resistance, Junction to Ambient (1) | $R_{\theta JA}$ | 80 | $^\circ\text{C}/\text{W}$ |

(1) Rating applies when surface mounted on the minimum pad size recommended.

SWITCHMODE is a trademark of Motorola, Inc.

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

MBRD320 MBRD330 MBRD340 MBRD350 MBRD360

ELECTRICAL CHARACTERISTICS

| | | | |
|---|-------|-----------------------------|-------|
| Maximum Instantaneous Forward Voltage (2) $i_F = 3$ Amps, $T_C = +25^\circ\text{C}$ $i_F = 3$ Amps, $T_C = +125^\circ\text{C}$ $i_F = 6$ Amps, $T_C = +25^\circ\text{C}$ $i_F = 6$ Amps, $T_C = +125^\circ\text{C}$ | V_F | 0.6 0.45 0.7 0.625 | Volts |
| Maximum Instantaneous Reverse Current (2) (Rated dc Voltage, $T_C = +25^\circ\text{C}$) (Rated dc Voltage, $T_C = +125^\circ\text{C}$) | i_R | 0.2 20 | mA |

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

TYPICAL CHARACTERISTICS

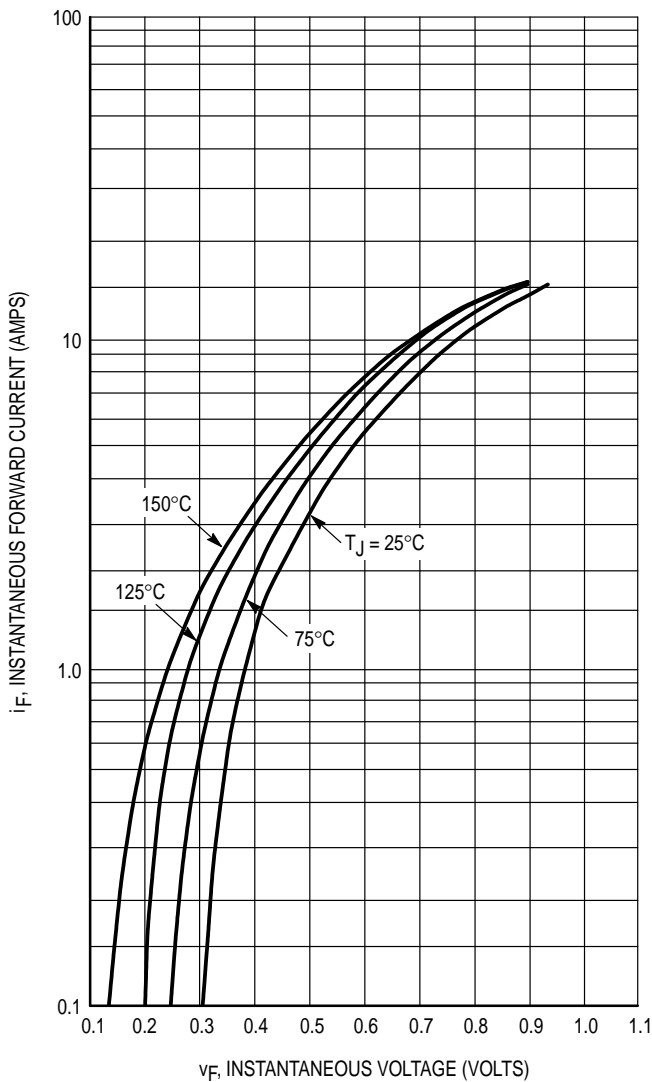
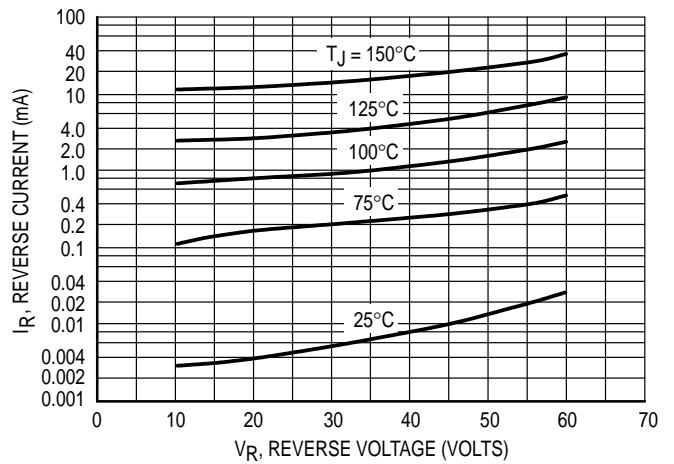


Figure 1. Typical Forward Voltage



*The curves shown are typical for the highest voltage device in the voltage grouping. Typical reverse current for lower voltage selections can be estimated from these curves if V_R is sufficient below rated V_R .

Figure 2. Typical Reverse Current

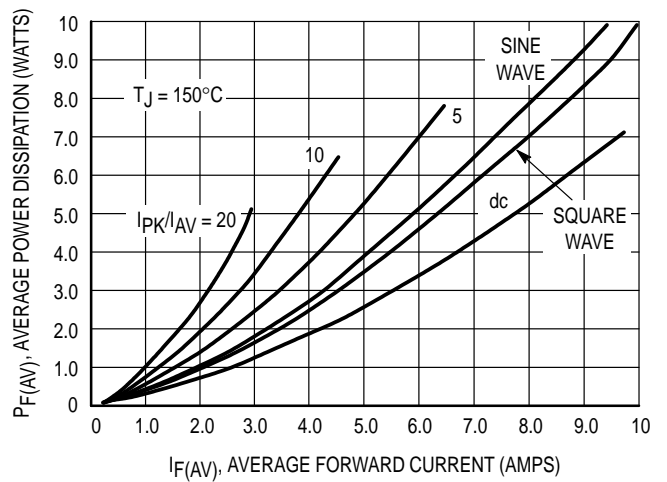


Figure 3. Average Power Dissipation

MBRD320 MBRD330 MBRD340 MBRD350 MBRD360

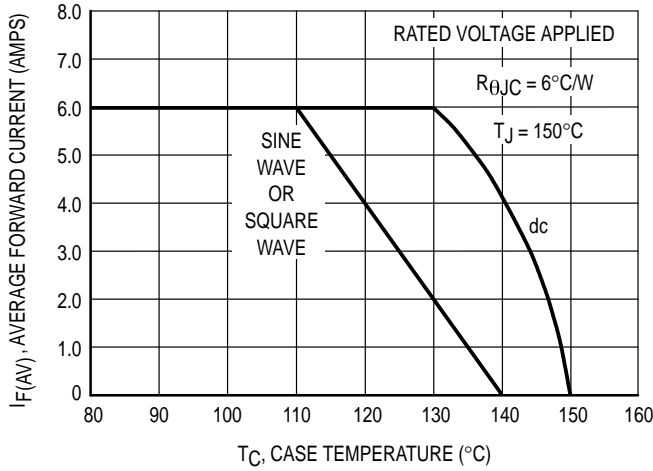


Figure 4. Current Derating, Case

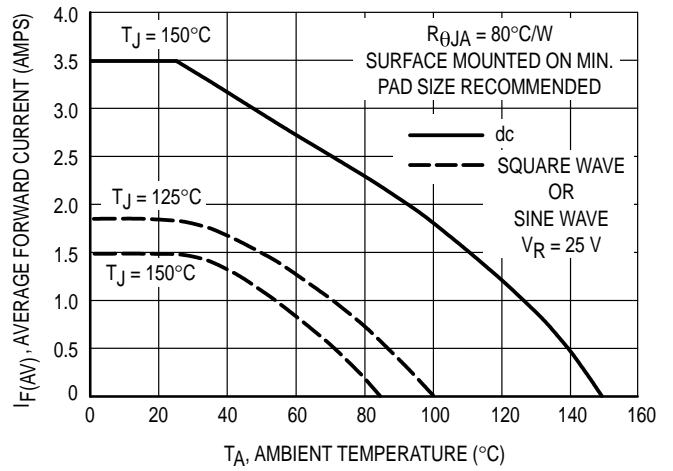


Figure 5. Current Derating, Ambient

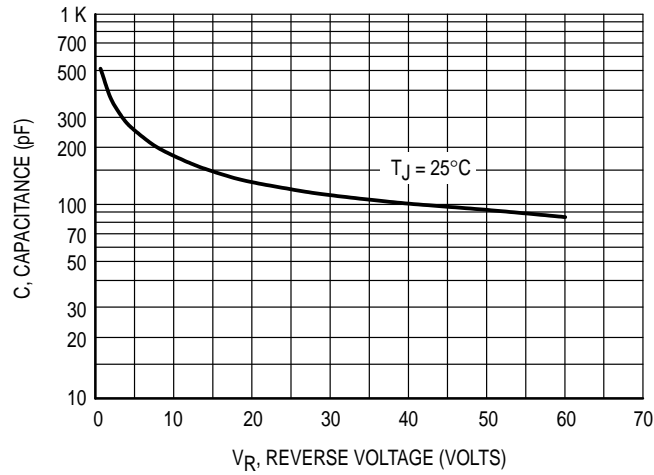
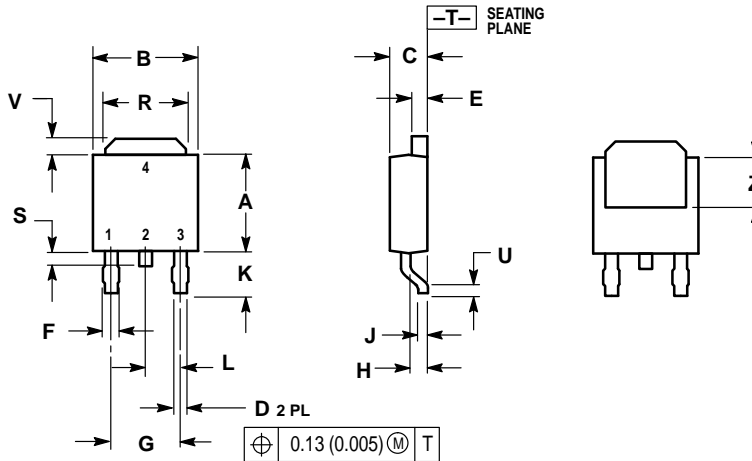


Figure 6. Typical Capacitance

MBRD320 MBRD330 MBRD340 MBRD350 MBRD360

PACKAGE DIMENSIONS



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

| DIM | INCHES | | MILLIMETERS | |
|-----|-----------|-------|-------------|------|
| | MIN | MAX | MIN | MAX |
| A | 0.235 | 0.250 | 5.97 | 6.35 |
| B | 0.250 | 0.265 | 6.35 | 6.73 |
| C | 0.086 | 0.094 | 2.19 | 2.38 |
| D | 0.027 | 0.035 | 0.69 | 0.88 |
| E | 0.033 | 0.040 | 0.84 | 1.01 |
| F | 0.037 | 0.047 | 0.94 | 1.19 |
| G | 0.180 BSC | | 4.58 BSC | |
| H | 0.034 | 0.040 | 0.87 | 1.01 |
| J | 0.018 | 0.023 | 0.46 | 0.58 |
| K | 0.102 | 0.114 | 2.60 | 2.89 |
| L | 0.090 BSC | | 2.29 BSC | |
| R | 0.175 | 0.215 | 4.45 | 5.46 |
| S | 0.020 | 0.050 | 0.51 | 1.27 |
| U | 0.020 | — | 0.51 | — |
| V | 0.030 | 0.050 | 0.77 | 1.27 |
| Z | 0.138 | — | 3.51 | — |

**CASE 369A-13
 ISSUE Y**

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