

SWITCHMODE™ Power Rectifiers

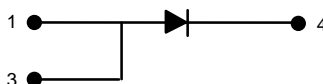
DPAK Surface Mount Package

... 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:

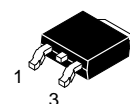
- Case: Epoxy, Molded
- Weight: 0.4 gram (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Shipped 75 units per plastic tube
- Available in 16 mm Tape 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.

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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

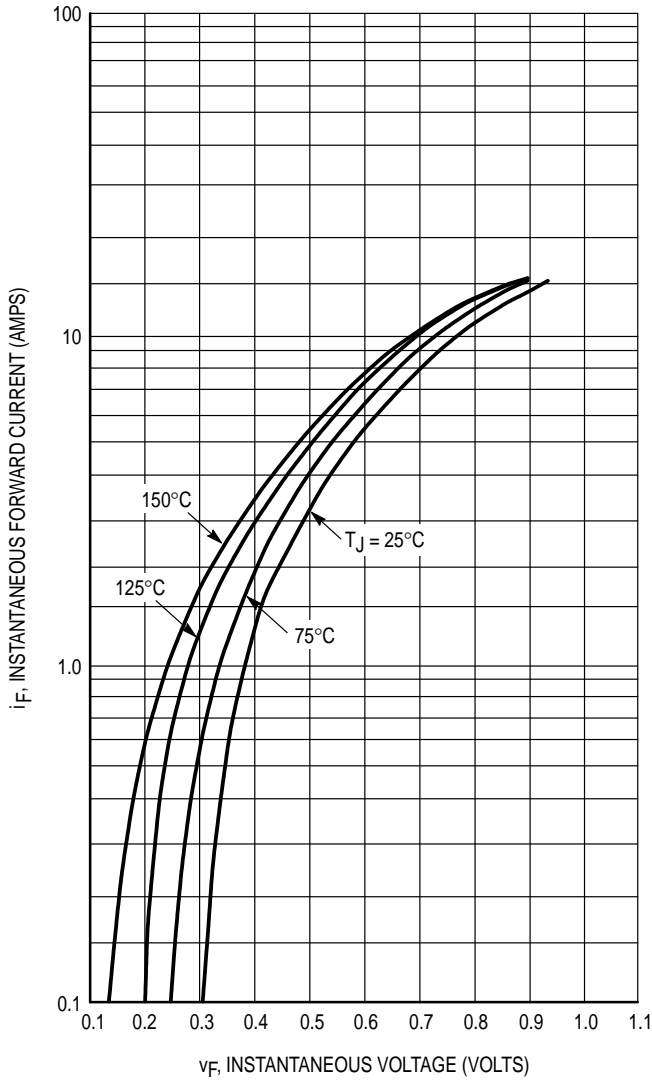
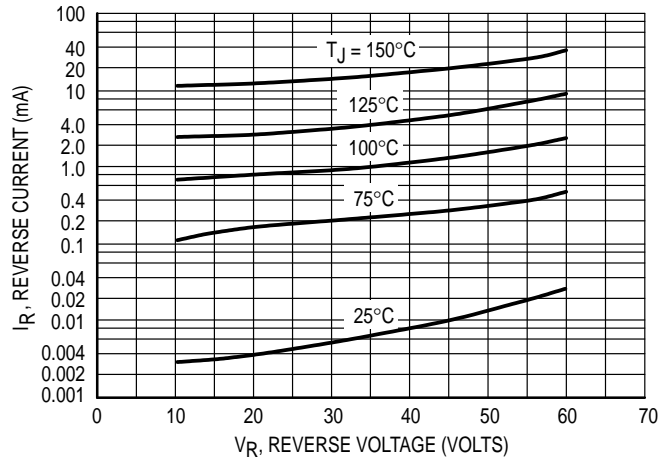


Figure 1. Typical Forward Voltage



*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

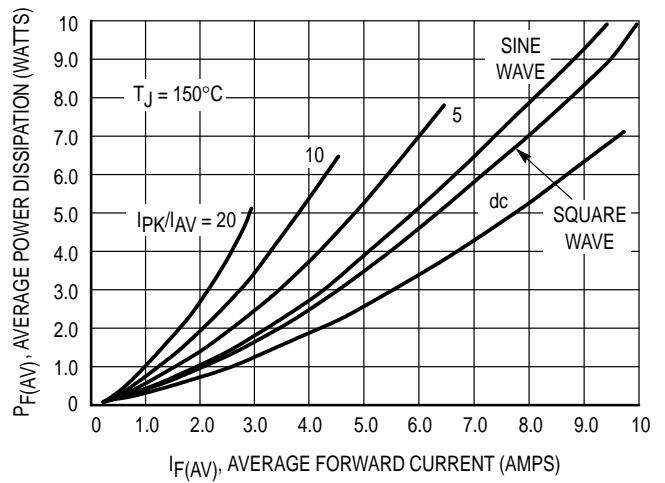


Figure 3. Average Power Dissipation

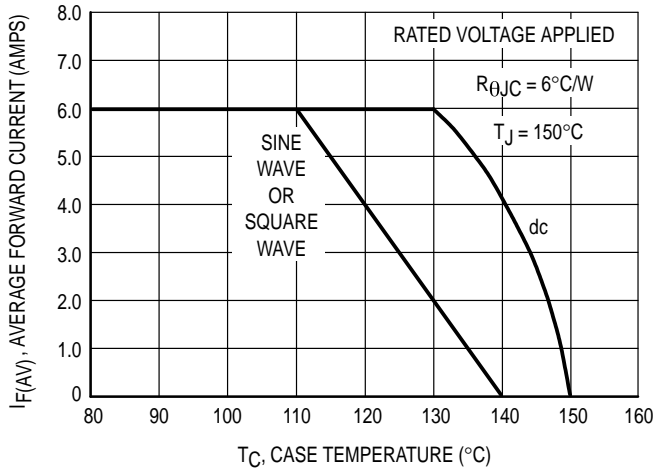


Figure 4. Current Derating, Case

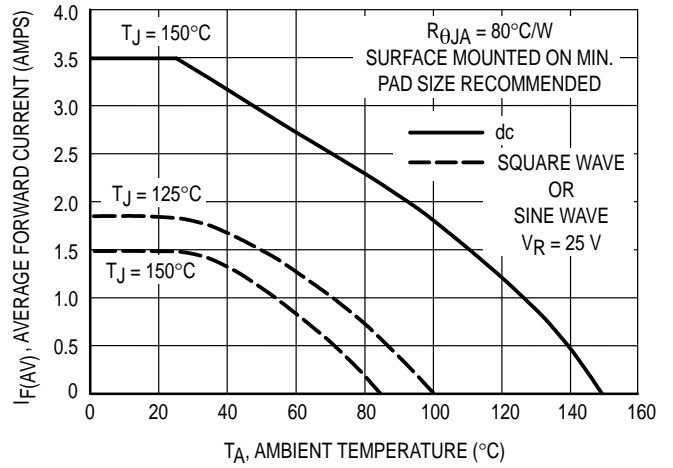


Figure 5. Current Derating, Ambient

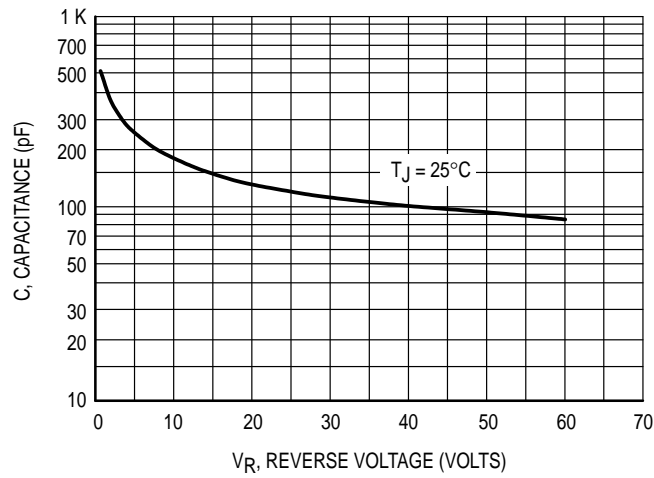
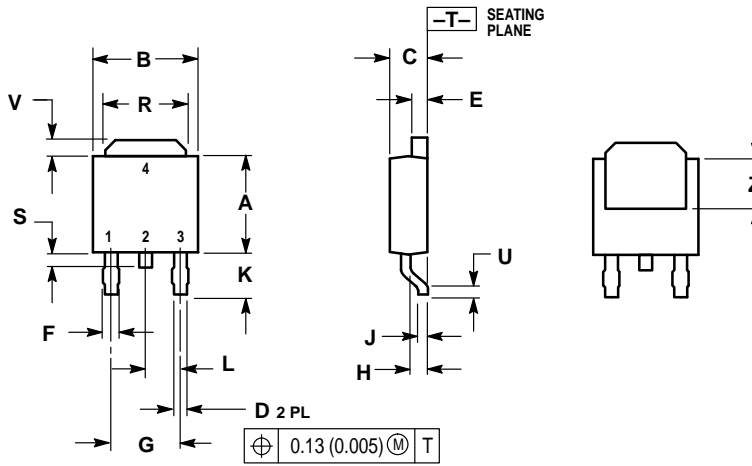


Figure 6. Typical Capacitance

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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MBRD320/D