MBRD320, MBRD330, MBRD340, MBRD350, MBRD360

MBRD320, MBRD340 and MBRD360 are Preferred Devices

SWITCHMODE™ Power Rectifiers

DPAK Surface Mount Package

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

Features

- Extremely Fast Switching
- Extremely Low Forward Drop
- Platinum Barrier with Avalanche Guardrings
- Pb−Free Packages are Available

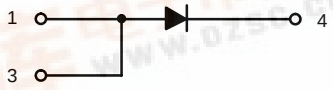
Mechanical Characteristics:

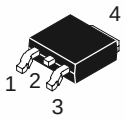
- Case: Epoxy, Molded
- Weight: 0.4 Gram (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes; 260°C Max. for 10 Seconds

ON Semiconductor®

http://onsemi.com

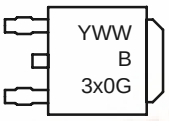
SCHOTTKY BARRIER RECTIFIERS 3.0 AMPERES, 20 − 60 VOLTS





DPAK
CASE 369C

MARKING DIAGRAM



Y	= Year
WW	= Work Week
B3x0	= Device Code
x	= 2, 3, 4, 5, or 6
G	= Pb−Free Package

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 3 of this data sheet.

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

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	V
Average Rectified Forward Current (T_C = +125°C, Rated V_R)	$I_{F(AV)}$	3					A
Peak Repetitive Forward Current, T_C = +125°C (Rated V_R, Square Wave, 20 kHz)	I_{FRM}	6					A
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I_{FSM}	75					A
Peak Repetitive Reverse Surge Current (2 μs, 1 kHz)	I_{RRM}	1					A
Operating Junction Temperature Range	T_J	−65 to +150					°C
Storage Temperature Range	T_{stg}	−65 to +175					°C
Voltage Rate of Change (Rated V_R)	dv/dt	10,000					V/μs

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS

Rating	Symbol	Value	Unit
Maximum Thermal Resistance, Junction−to−Case	$R_{\theta JC}$	6	°C/W
Maximum Thermal Resistance, Junction−to−Ambient (Note 1)	$R_{\theta JA}$	80	°C/W

ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (Note 2) i_F = 3 Amps, T_C = +25°C i_F = 3 Amps, T_C = +125°C i_F = 6 Amps, T_C = +25°C i_F = 6 Amps, T_C = +125°C	V_F	 0.6 0.45 0.7 0.625	V
Maximum Instantaneous Reverse Current (Note 2) (Rated dc Voltage, T_C = +25°C) (Rated dc Voltage, T_C = +125°C)	i_R	 0.2 20	mA

1. Rating applies when surface mounted on the minimum pad size recommended.
2. Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.

ORDERING INFORMATION

Device	Package	Shipping†
MBRD320	DPAK	75 Units / Rail
MBRD320G	DPAK (Pb−Free)	75 Units / Rail
MBRD320RL	DPAK	1800 Tape & Reel
MBRD320RLG	DPAK (Pb−Free)	1800 Tape & Reel
MBRD320T4	DPAK	2500 Tape & Reel
MBRD320T4G	DPAK (Pb−Free)	2500 Tape & Reel
MBRD330	DPAK	75 Units / Rail
MBRD330G	DPAK (Pb−Free)	75 Units / Rail
MBRD330RL	DPAK	1800 Tape & Reel
MBRD330RLG	DPAK (Pb−Free)	1800 Tape & Reel
MBRD330T4	DPAK	2500 Tape & Reel
MBRD330T4G	DPAK (Pb−Free)	2500 Tape & Reel
MBRD340	DPAK	75 Units / Rail
MBRD340G	DPAK (Pb−Free)	75 Units / Rail
MBRD340RL	DPAK	1800 Tape & Reel
MBRD340RLG	DPAK (Pb−Free)	1800 Tape & Reel
MBRD340T4	DPAK	2500 Tape & Reel
MBRD340T4G	DPAK (Pb−Free)	2500 Tape & Reel
MBRD350	DPAK	75 Units / Rail
MBRD350G	DPAK (Pb−Free)	75 Units / Rail
MBRD350RL	DPAK	1800 Tape & Reel
MBRD350RLG	DPAK (Pb−Free)	1800 Tape & Reel
MBRD350T4	DPAK	2500 Tape & Reel
MBRD350T4G	DPAK (Pb−Free)	2500 Tape & Reel
MBRD360	DPAK	75 Units / Rail
MBRD360G	DPAK (Pb−Free)	75 Units / Rail
MBRD360RL	DPAK	1800 Tape & Reel
MBRD360RLG	DPAK (Pb−Free)	1800 Tape & Reel
MBRD360T4	DPAK	2500 Tape & Reel
MBRD360T4G	DPAK (Pb−Free)	2500 Tape & 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.

TYPICAL CHARACTERISTICS

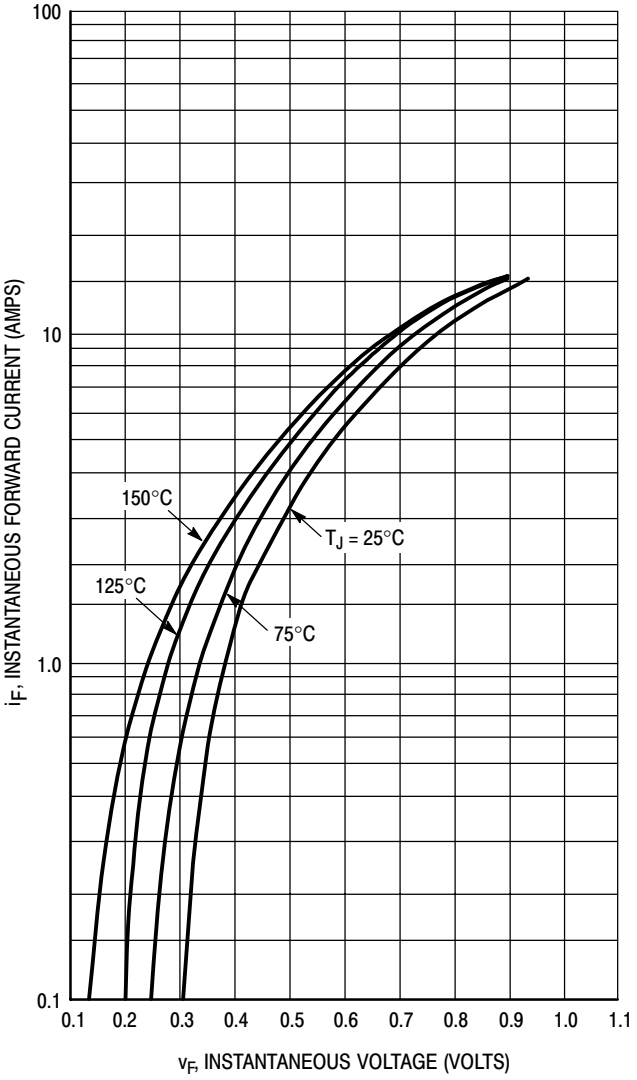
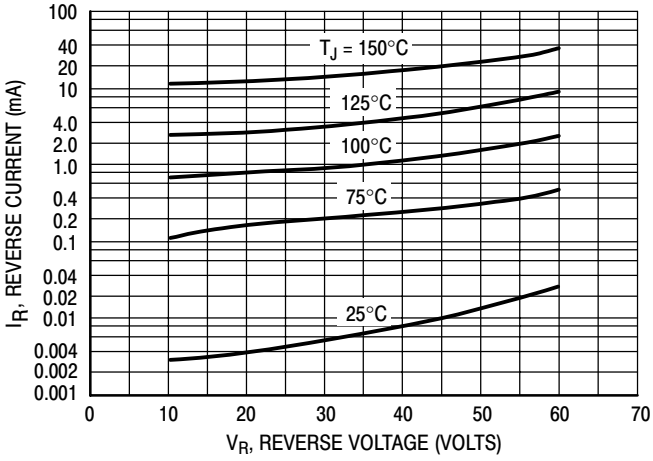


Figure 1. Typical Forward Voltage



*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

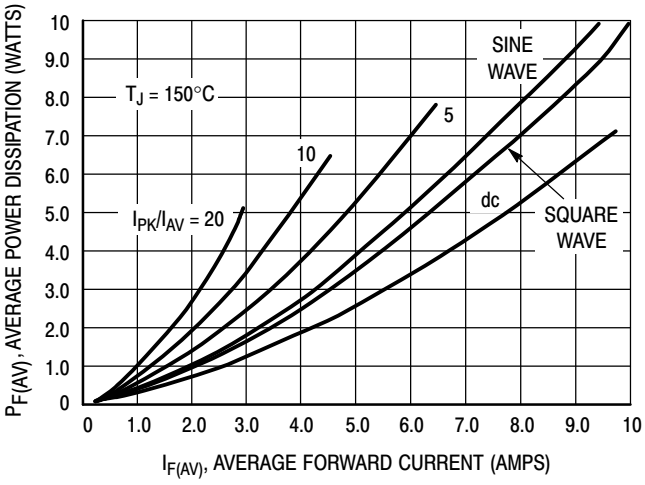


Figure 3. Average Power Dissipation

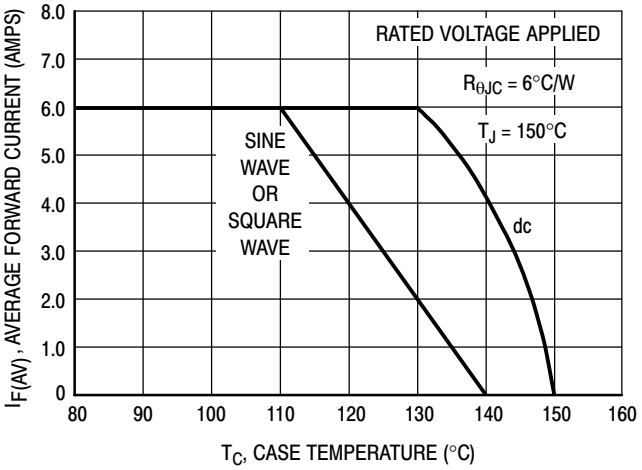


Figure 4. Current Derating, Case

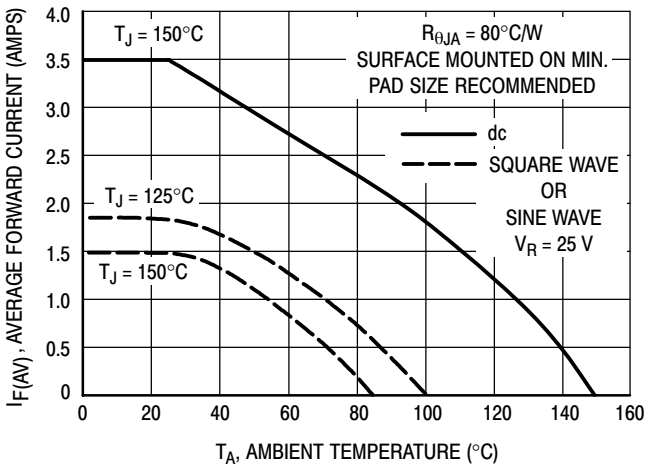


Figure 5. Current Derating, Ambient

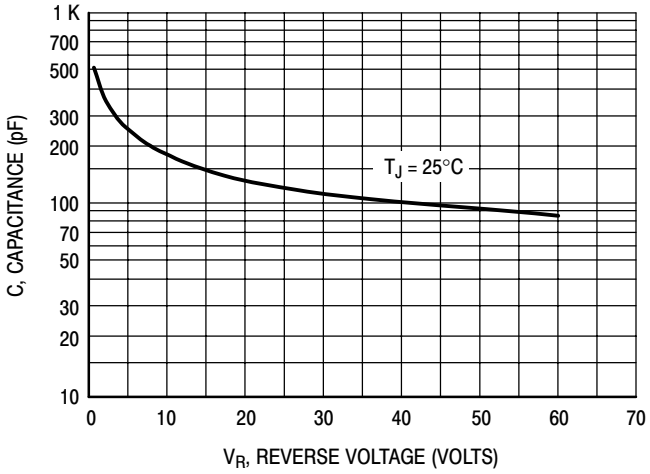
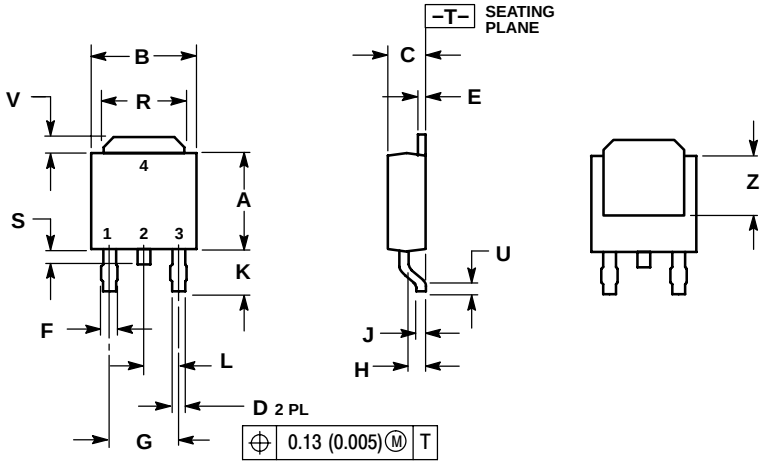


Figure 6. Typical Capacitance

PACKAGE DIMENSIONS

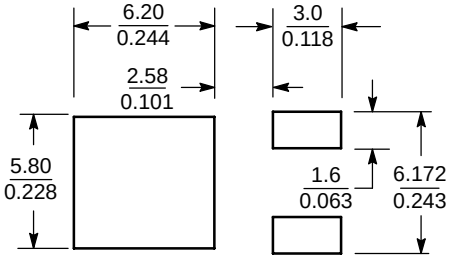
DPAK (SINGLE GUAGE)
CASE 369C
ISSUE O



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

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.235	0.245	5.97	6.22
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	0.018	0.023	0.46	0.58
F	0.037	0.045	0.94	1.14
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	0.180	0.215	4.57	5.45
S	0.025	0.040	0.63	1.01
U	0.020	−−−	0.51	−−−
V	0.035	0.050	0.89	1.27
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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PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 61312, Phoenix, Arizona 85082−1312 USA
Phone: 480−829−7710 or 800−344−3860 Toll Free USA/Canada
Fax: 480−829−7709 or 800−344−3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800−282−9855 Toll Free USA/Canada

Japan: ON Semiconductor, Japan Customer Focus Center
2−9−1 Kamimeguro, Meguro−ku, Tokyo, Japan 153−0051
Phone: 81−3−5773−3850

ON Semiconductor Website: http://onsemi.com

Order Literature: http://www.onsemi.com/litorder

For additional information, please contact your local Sales Representative.