

MBRD320, MBRD330, MBRD340, MBRD350, MBRD360

MBRD320, MBRD340 and MBRD360 are Preferred Devices

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:

Features

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

Mechanical Characteristics

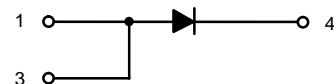
- Case: Epoxy, Molded
- Weight: 0.4 Gram (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes; 260°C Max. for 10 Seconds
- Shipped 75 Units Per Plastic Tube
- Available in 16 mm Tape and Reel, 2500 Units Per Reel, by Adding a "T4" Suffix to the Part Number



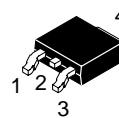
ON Semiconductor®

<http://onsemi.com>

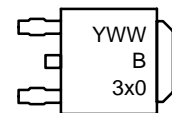
SCHOTTKY BARRIER
RECTIFIERS
3.0 AMPERES, 20 – 60 VOLTS



MARKING DIAGRAM



DPAK
CASE 369C



Y = Year
WW = Work Week
x = 2, 3, 4, 5 or 6

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.

MBRD320, MBRD330, MBRD340, MBRD350, MBRD360

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 ($T_C = +125^\circ\text{C}$, Rated V_R)	$I_{F(AV)}$	3					A
Peak Repetitive Forward Current, $T_C = +125^\circ\text{C}$ (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					$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-65 to +175					$^\circ\text{C}$
Voltage Rate of Change (Rated V_R)	dv/dt	10,000					$\text{V}/\mu\text{s}$

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

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

ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (Note 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	V
Maximum Instantaneous Reverse Current (Note 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

- Rating applies when surface mounted on the minimum pad size recommended.
- Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$.

MBRD320, MBRD330, MBRD340, MBRD350, MBRD360

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
MBRD330RL	DPAK	1800 Tape & Reel
MBRD330T4	DPAK	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
MBRD350RL	DPAK	1800 Tape & Reel
MBRD350T4	DPAK	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

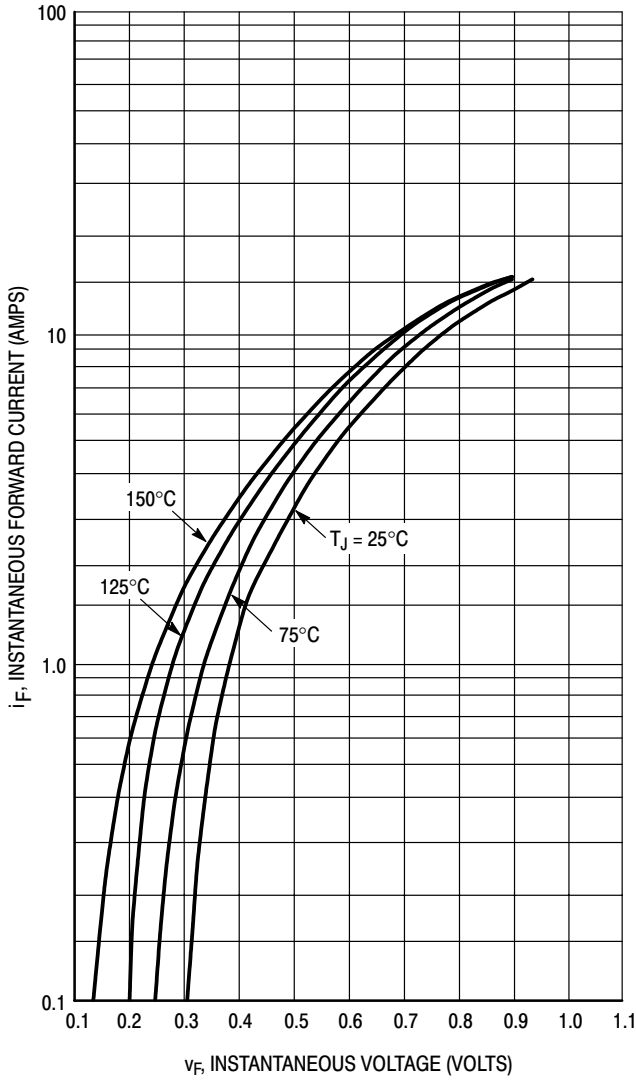
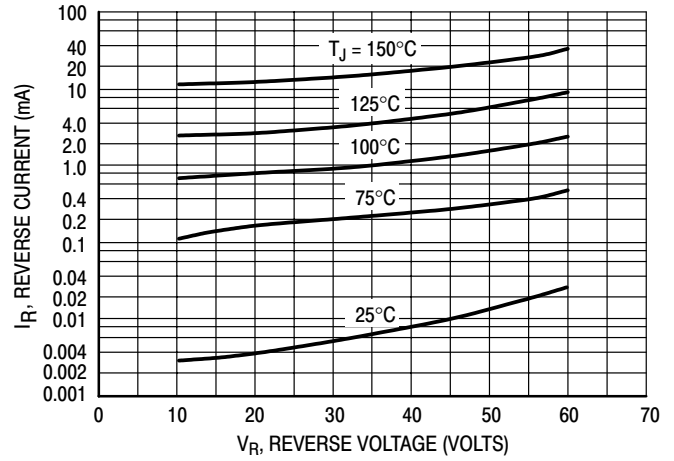


Figure 1. Typical Forward Voltage



*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

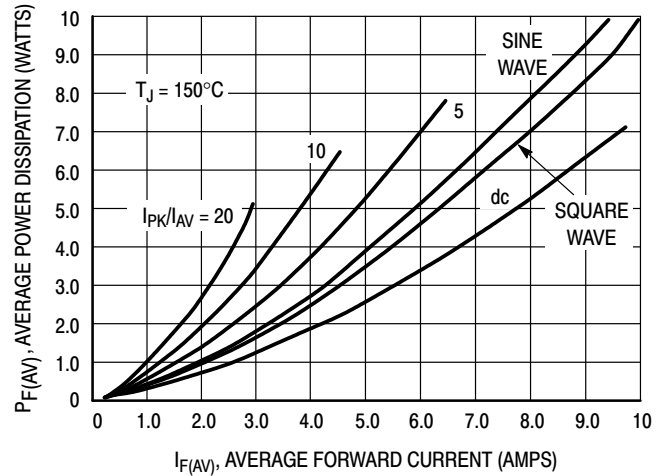


Figure 3. Average Power Dissipation

MBRD320, MBRD330, MBRD340, MBRD350, MBRD360

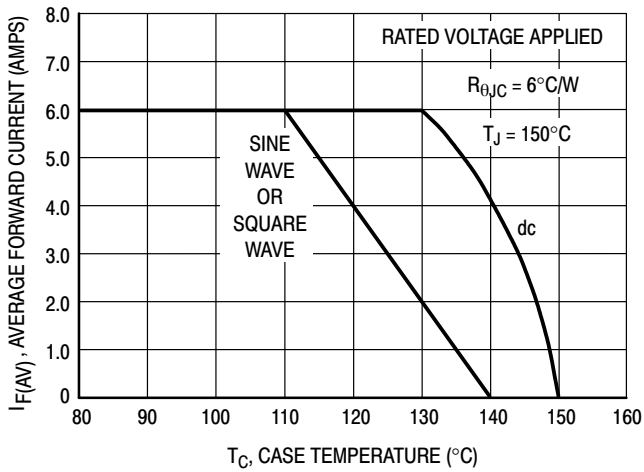


Figure 4. Current Derating, Case

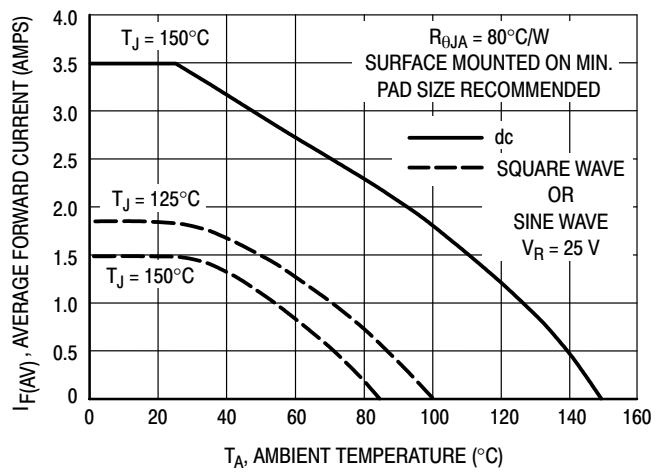


Figure 5. Current Derating, Ambient

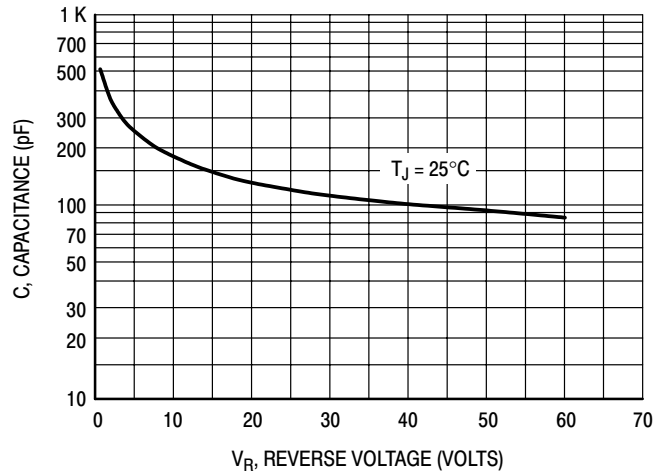
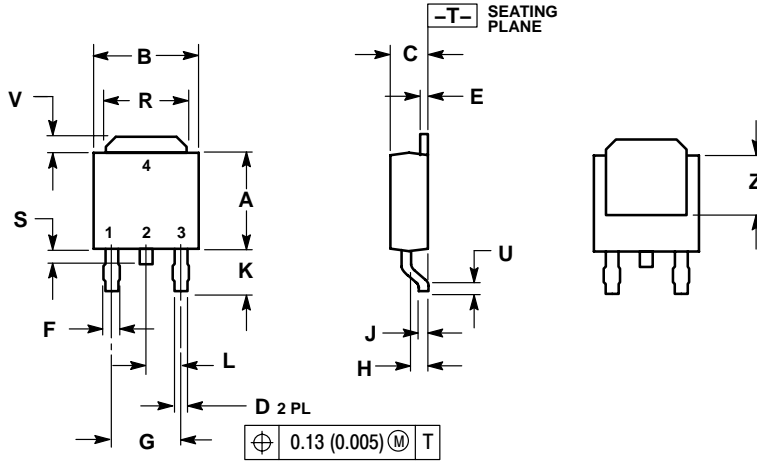


Figure 6. Typical Capacitance

MBRD320, MBRD330, MBRD340, MBRD350, MBRD360

PACKAGE DIMENSIONS

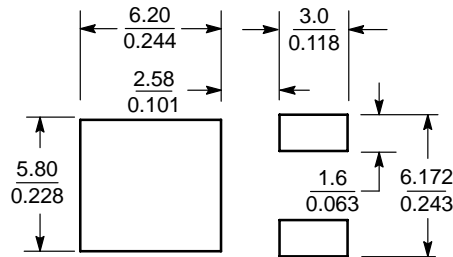
DPAK CASE 369C ISSUE O



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

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.235	0.245	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 $\left(\frac{\text{mm}}{\text{inches}}\right)$

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

SWITCHMODE is a trademark of Semiconductor Components Industries, LLC (SCILLC).

ON Semiconductor and  are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

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.