MBR735, MBR745

MBR745 is a Preferred Device

SWITCHMODE™ Power Rectifiers

The MBR735/45 series uses the Schottky Barrier principle with a platinum barrier metal. These state−of−the−art devices have the following features:

Features

- Pb−Free Packages are Available*
- Guardring for Stress Protection
- Low Forward Voltage
- 175°C Operating Junction Temperature
- Epoxy Meets UL 94, V−0 @ 0.125 in

Mechanical Characteristics

- Case: Epoxy, Molded
- Weight: 1.9 grams (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds

MAXIMUM RATINGS

Rating		Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	MBR735 MBR745	V_{RRM} V_{RWM} V_R	 35 45	V
Average Rectified Forward Current (Rated V_R, T_C = 105°C)		$I_{F(AV)}$	7.5	A
Peak Repetitive Forward Current, (Rated V_R, Square Wave, 20 kHz, T_C = 105°C)		I_{FRM}	15	A
Non−Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)		I_{FSM}	150	A
Peak Repetitive Reverse Surge Current (2.0 μs, 1.0 kHz)		I_{RRM}	1.0	A
Storage Temperature Range		T_{stg}	−65 to +175	°C
Operating Junction Temperature (Note 1)		T_J	−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.

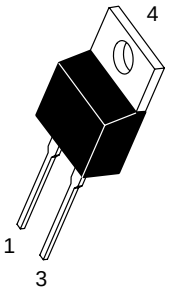
1. The heat generated must be less than the thermal conductivity from Junction−to−Ambient: $dP_D/dT_J < 1/R_{\theta JA}$.

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

ON Semiconductor®

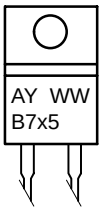
http://onsemi.com

SCHOTTKY BARRIER RECTIFIERS 7.5 AMPERES 35 and 45 VOLTS



TO−220AC
CASE 221B
PLASTIC

MARKING DIAGRAM



A = Assembly Location
Y = Year
WW = Work Week
B7x5 = Device Code
x = 3 or 4

ORDERING INFORMATION

Device	Package	Shipping
MBR735	TO−220	50 Units/Rail
MBR735G	TO−220 (Pb−Free)	50 Units/Rail
MBR745	TO−220	50 Units/Rail
MBR745G	TO−220 (Pb−Free)	50 Units/Rail

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

THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance, Junction−to−Case	$R_{\theta JC}$	3.0	°C/W
Maximum Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	60	°C/W

ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (Note 2) (i_F = 7.5 Amps, T_C = 125°C) (i_F = 15 Amps, T_C = 125°C) (i_F = 15 Amps, T_C = 25°C)	v_F	 0.57 0.72 0.84	V
Maximum Instantaneous Reverse Current (Note 2) (Rated dc Voltage, T_C = 125°C) (Rated dc Voltage, T_C = 25°C)	i_R	 15 0.1	mA

2. Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.

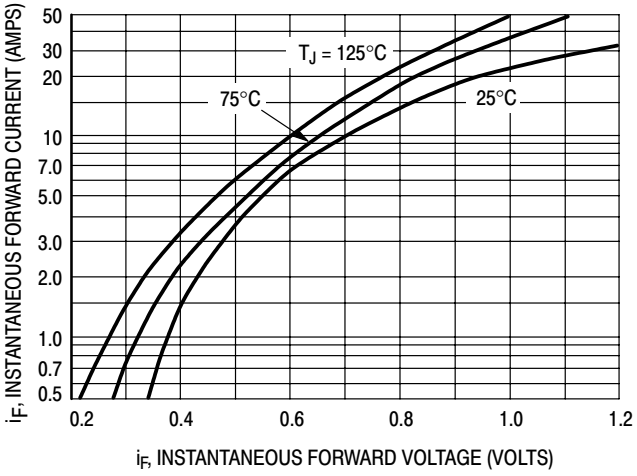


Figure 1. Typical Forward Voltage

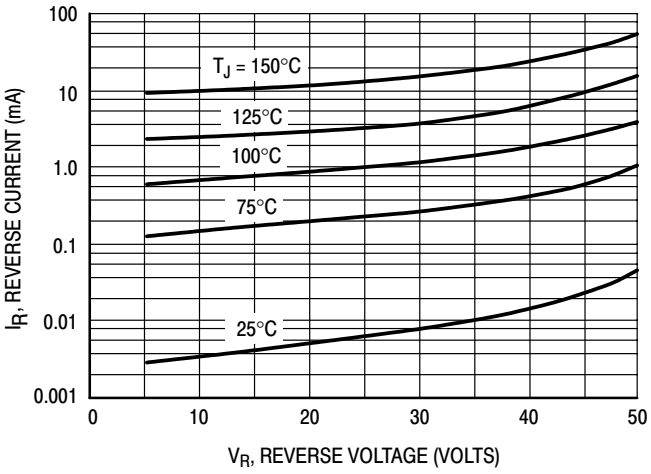


Figure 2. Typical Reverse Current

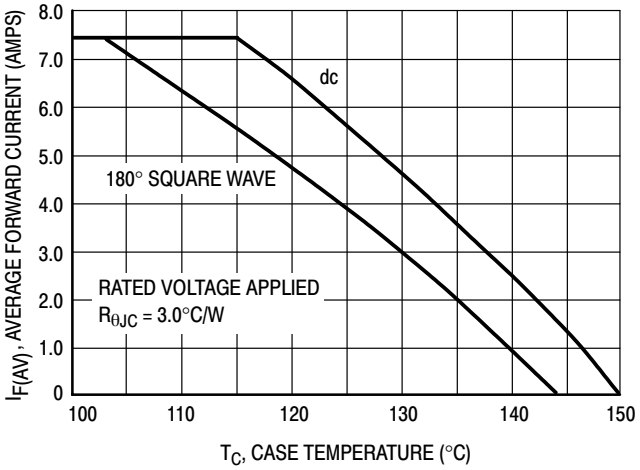


Figure 3. Current Derating, Case

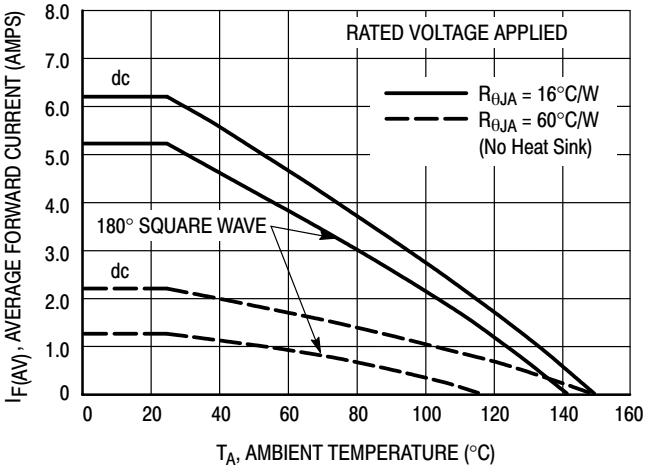


Figure 4. Current Derating, Ambient

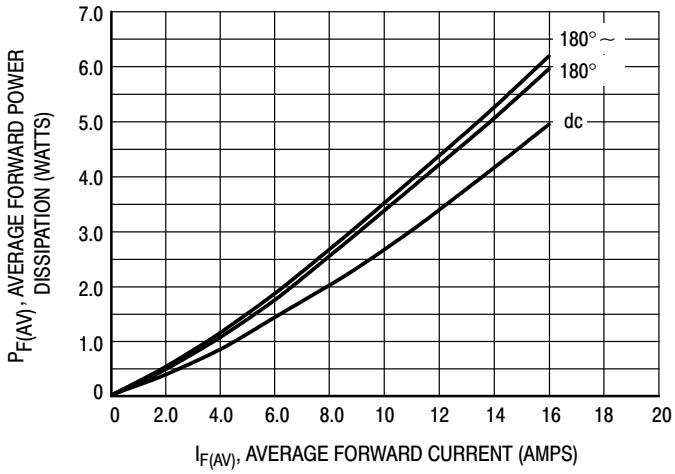
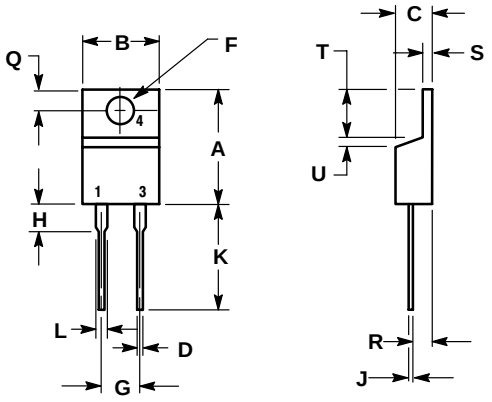


Figure 5. Power Dissipation

PACKAGE DIMENSIONS

TO−220
PLASTIC
CASE 221B−04
ISSUE D



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

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.595	0.620	15.11	15.75
B	0.380	0.405	9.65	10.29
C	0.160	0.190	4.06	4.82
D	0.025	0.035	0.64	0.89
F	0.142	0.147	3.61	3.73
G	0.190	0.210	4.83	5.33
H	0.110	0.130	2.79	3.30
J	0.018	0.025	0.46	0.64
K	0.500	0.562	12.70	14.27
L	0.045	0.060	1.14	1.52
Q	0.100	0.120	2.54	3.04
R	0.080	0.110	2.04	2.79
S	0.045	0.055	1.14	1.39
T	0.235	0.255	5.97	6.48
U	0.000	0.050	0.000	1.27

SWITCHMODE is a trademark of Semiconductor Components Industries, LLC.

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.