

# SWITCHMODE™ Power Rectifiers

... using the Schottky Barrier principle with a platinum barrier metal. These state-of-the-art devices have the following features:

- Guardring for Stress Protection
- Low Forward Voltage
- 150°C Operating Junction Temperature
- Guaranteed Reverse Avalanche
- Epoxy Meets UL94, VO at 1/8"

### Mechanical Characteristics:

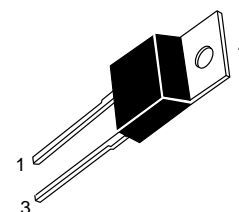
- Case: Epoxy, Molded
- Weight: 1.9 grams (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Shipped 50 units per plastic tube
- Marking: B735, B745



**MBR735**  
**MBR745**

MBR745 is a  
Motorola Preferred Device

**SCHOTTKY BARRIER  
RECTIFIERS**  
**7.5 AMPERES**  
**35 and 45 VOLTS**



**CASE 221B-03**  
**TO-220AC**

### MAXIMUM RATINGS

Rating	Symbol	MBR735	MBR745	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	35	45	Volts
Average Rectified Forward Current (Rated $V_R$ ) $T_C = 105^\circ\text{C}$	$I_{F(AV)}$	7.5	7.5	Amps
Peak Repetitive Forward Current (Rated $V_R$ , Square Wave, 20 kHz) $T_C = 105^\circ\text{C}$	$I_{FRM}$	15	15	Amps
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	$I_{FSM}$	150	150	Amps
Peak Repetitive Reverse Surge Current (2.0 $\mu\text{s}$ , 1.0 kHz)	$I_{RRM}$	1.0	1.0	Amp
Operating Junction Temperature	$T_J$	-65 to +150	-65 to +150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-65 to +175	-65 to +175	$^\circ\text{C}$
Voltage Rate of Change (Rated $V_R$ )	$dv/dt$	1000	10000	$\text{V}/\mu\text{s}$

### THERMAL CHARACTERISTICS

Maximum Thermal Resistance, Junction to Case	$R_{\theta JC}$	3.0	3.0	$^\circ\text{C}/\text{W}$
Maximum Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	60	60	$^\circ\text{C}/\text{W}$

### ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (1) ( $i_F = 7.5$ Amps, $T_C = 125^\circ\text{C}$ ) ( $i_F = 15$ Amps, $T_C = 125^\circ\text{C}$ ) ( $i_F = 15$ Amps, $T_C = 25^\circ\text{C}$ )	$v_F$	0.57 0.72 0.84	0.57 0.72 0.84	Volts
Maximum Instantaneous Reverse Current (1) (Rated dc Voltage, $T_C = 125^\circ\text{C}$ ) (Rated dc Voltage, $T_C = 25^\circ\text{C}$ )	$i_R$	15 0.1	15 0.1	mA

(1) Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

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

# MBR735 MBR745

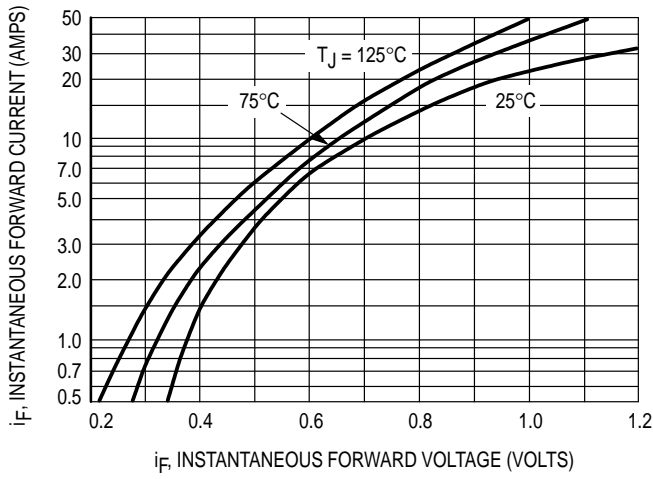


Figure 1. Typical Forward Voltage

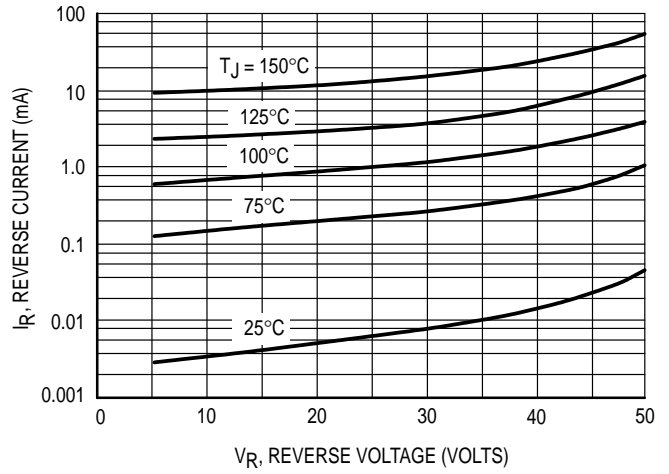


Figure 2. Typical Reverse Current

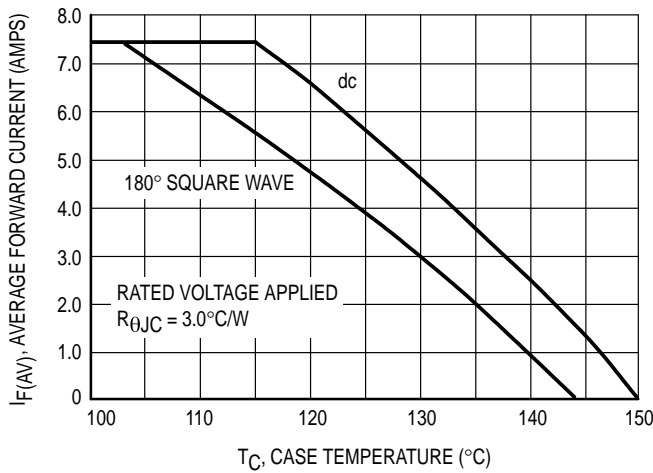


Figure 3. Current Derating, Case

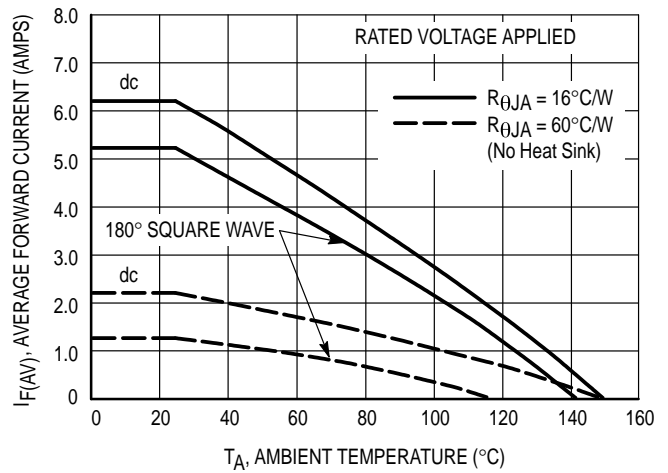


Figure 4. Current Derating, Ambient

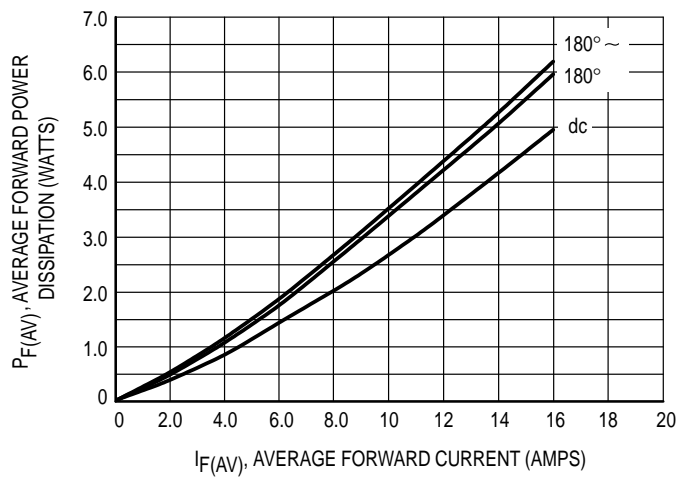
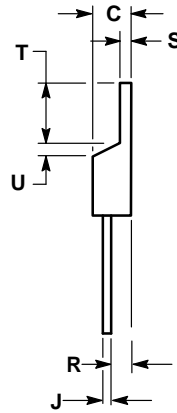
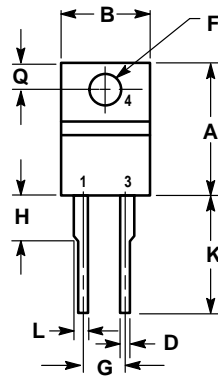


Figure 5. Power Dissipation

PACKAGE DIMENSIONS




NOTES:

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

DIM	INCHES		MILLIMETERS	
	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

CASE 221B-03  
(TO-220AC)  
ISSUE B

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