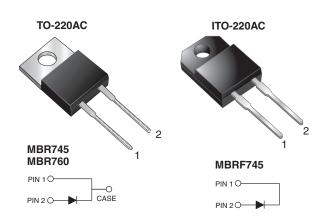
## MBR745, MBR760, MBRF745

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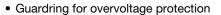
# **Schottky Barrier Rectifier**



PRIMARY CHARACTERISTICS					
I <sub>F(AV)</sub> 7.5 A					
$V_{RRM}$	45 V, 60 V				
I <sub>FSM</sub>	150 A				
V <sub>F</sub>	0.57 V, 0.65 V				
T <sub>J</sub> max.	150 °C				
Package	TO-220AC, ITO-220AC				
Diode variations	Single				

#### **FEATURES**

Power pack





- Low power loss, high efficiency
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- Solder bath temperature 275 °C maximum, 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see <a href="https://www.vishay.com/doc?99912"><u>www.vishay.com/doc?99912</u></a>

### **TYPICAL APPLICATIONS**

For use in low voltage, high frequency rectifier of switching mode power supplies, freewheeling diodes, DC/DC converters, and polarity protection application.

#### **MECHANICAL DATA**

Case: TO-220AC, ITO-220AC

Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant, commercial grade

Terminals: matte tin plated leads, solderable per

J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test

Polarity: as marked

Mounting Torque: 10 in-lbs maximum

<b>MAXIMUM RATINGS</b> (T <sub>C</sub> = 25 °C unless otherwise noted)					
PARAMETER		MBR745	MBR760	UNIT	
Maximum repetitive peak reverse voltage	$V_{RRM}$	45	60		
Working peak reverse voltage	$V_{RWM}$	45	60	V	
Maximum DC blocking voltage	$V_{DC}$	45	60		
Maximum average forward rectified current (fig. 1)	I <sub>F(AV)</sub>	7.5		A	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	150			
Peak repetitive reverse surge current at t <sub>p</sub> = 2.0 μs, 1 kHz	I <sub>RRM</sub> 1.0 0.5		0.5		
Voltage rate of change (rated V <sub>R</sub> )	dV/dt	10 000			
Operating junction temperature range	TJ	-65 to +150		°C	
Operating storage temperature range	T <sub>STG</sub>	-65 to +175			
Isolation voltage (ITO-220AC only) from terminal to heatsink t = 1 min	V <sub>AC</sub> 1500		000	V	



# MBR745, MBR760, MBRF745

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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>C</sub> = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	TEST CONDITIONS		MBR745	MBR760	UNIT	
Maximum instantaneous forward voltage	V <sub>F</sub> (1)	I <sub>F</sub> = 7.5 A	T <sub>C</sub> = 25 °C	-	0.75	V	
		I <sub>F</sub> = 7.5 A	T <sub>C</sub> = 125 °C	0.57	0.65		
		I <sub>F</sub> = 15 A	T <sub>C</sub> = 25 °C	0.84	-		
		I <sub>F</sub> = 15 A	T <sub>C</sub> = 125 °C	0.72	-		
Maximum reverse current at DC blocking voltage	I <sub>R</sub> <sup>(2)</sup>	Rated V <sub>R</sub>	T <sub>C</sub> = 25 °C	0.1	0.5	- mA	
			T <sub>C</sub> = 125 °C	15	50		

#### Notes

 $^{(1)}\,$  Pulse test: 300  $\mu s$  pulse width, 1 % duty cycle

(2) Pulse test: pulse width  $\leq$  40 ms

THERMAL CHARACTERISTICS (T <sub>C</sub> = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	MBR	MBRF	UNIT	
Typical thermal resistance from junction to case	$R_{ heta JC}$	3.0	5.0	°C/W	

ORDERING INFORMATION (Example)						
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
TO-220AC	MBR745-E3/45 (1)	1.80	45	50/tube	Tube	
ITO-220AC	MBRF745-E3/45	1.94	45	50/tube	Tube	

### Note

(1) 60 V device available in TO-220AC package only

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### RATINGS AND CHARACTERISTICS CURVES (T<sub>C</sub> = 25 °C unless otherwise noted)

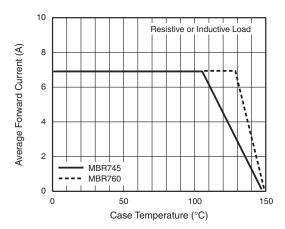
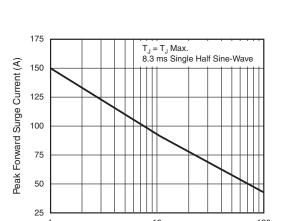


Fig. 1 - Forward Current Derating Curve



Number of Cycles at 60 Hz

Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

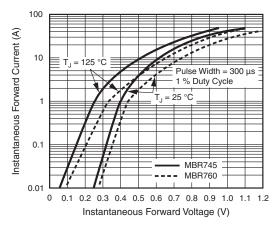


Fig. 3 - Typical Instantaneous Forward Characteristics

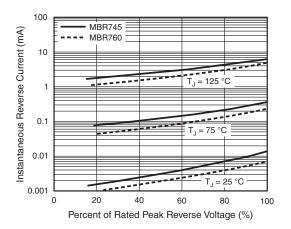


Fig. 4 - Typical Reverse Characteristics

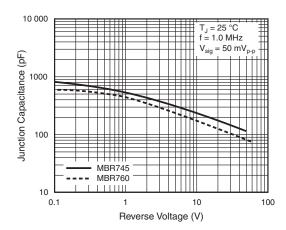


Fig. 5 - Typical Junction Capacitance

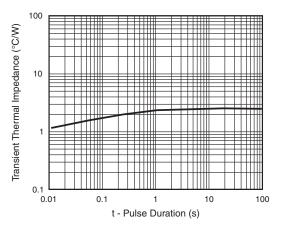


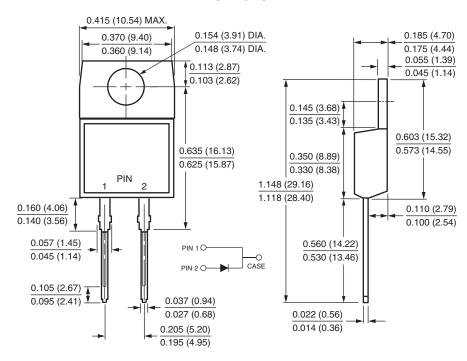
Fig. 6 - Typical Transient Thermal Impedance



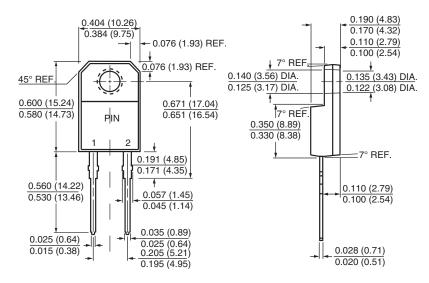
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### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

#### **TO-220AC**



### ITO-220AC





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