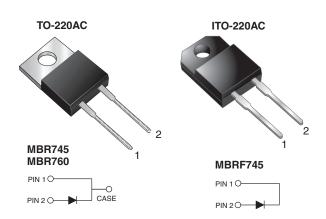
MBR745, MBR760, MBRF745

Vishay General Semiconductor

Schottky Barrier Rectifier



PRIMARY CHARACTERISTICS					
I _{F(AV)} 7.5 A					
V_{RRM}	45 V, 60 V				
I _{FSM}	150 A				
V _F	0.57 V, 0.65 V				
T _J 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 <u>www.vishay.com/doc?99912</u>

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

MAXIMUM RATINGS (T _C = 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 _{F(AV)}	7.5		A	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	150			
Peak repetitive reverse surge current at t _p = 2.0 μs, 1 kHz	I _{RRM} 1.0 0.5		0.5		
Voltage rate of change (rated V _R)	dV/dt	10 000			
Operating junction temperature range	TJ	-65 to +150		°C	
Operating storage temperature range	T _{STG}	-65 to +175			
Isolation voltage (ITO-220AC only) from terminal to heatsink t = 1 min	V _{AC} 1500		000	V	



MBR745, MBR760, MBRF745

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

Notes

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

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

THERMAL CHARACTERISTICS (T _C = 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_C = 25 °C unless otherwise noted)

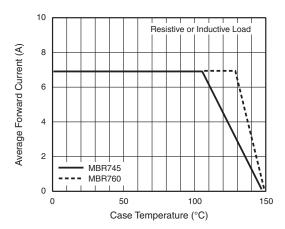
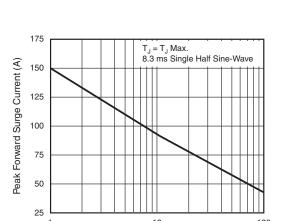


Fig. 1 - Forward Current Derating Curve



Number of Cycles at 60 Hz

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

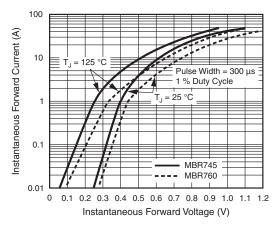


Fig. 3 - Typical Instantaneous Forward Characteristics

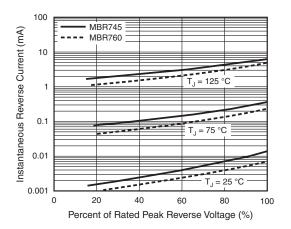


Fig. 4 - Typical Reverse Characteristics

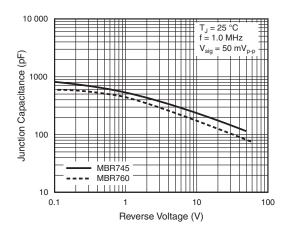


Fig. 5 - Typical Junction Capacitance

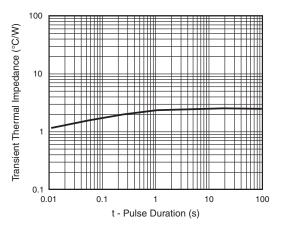


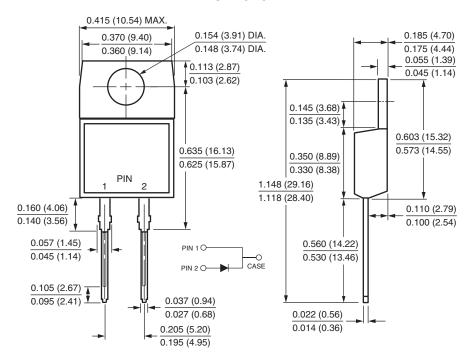
Fig. 6 - Typical Transient Thermal Impedance



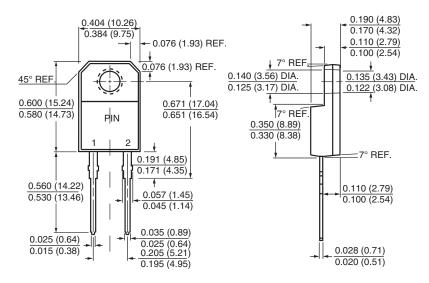
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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AC



ITO-220AC





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