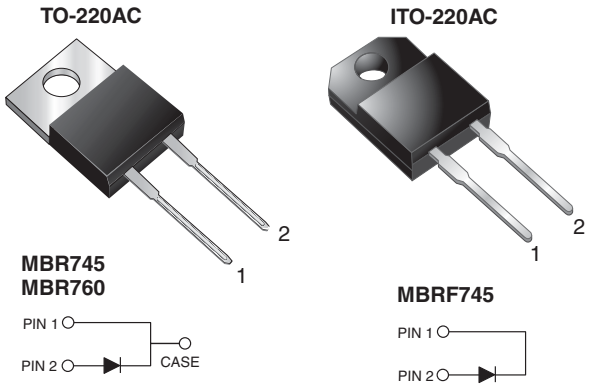
Schottky Barrier Rectifier



FEATURES

- Power pack
- Guardring for overvoltage protection
- 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 www.vishay.com/doc?99912

RoHS COMPLIANT

TYPICAL APPLICATIONS

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

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

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	SYMBOL	MBR745	MBR760	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	45	60	V
Working peak reverse voltage	V_{RWM}	45	60	
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	
Voltage rate of change (rated V_R)	dV/dt	10 000		
Operating junction temperature range	T_J	-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		V

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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 ≤ 40 ms

THERMAL CHARACTERISTICS (T_C = 25 °C unless otherwise noted)				
PARAMETER	**SYMBOL**	**MBR**	**MBRF**	**UNIT**
Typical thermal resistance from junction to case	$R_{\theta JC}$	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)

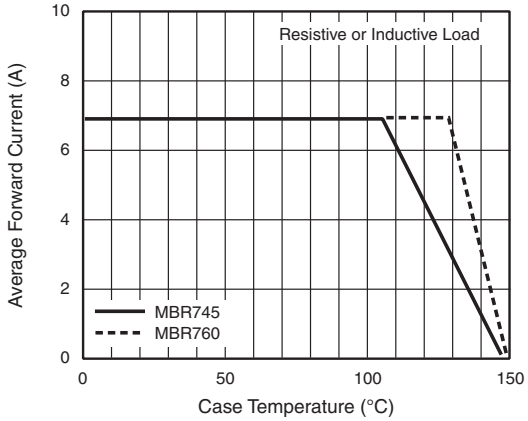


Fig. 1 - Forward Current Derating Curve

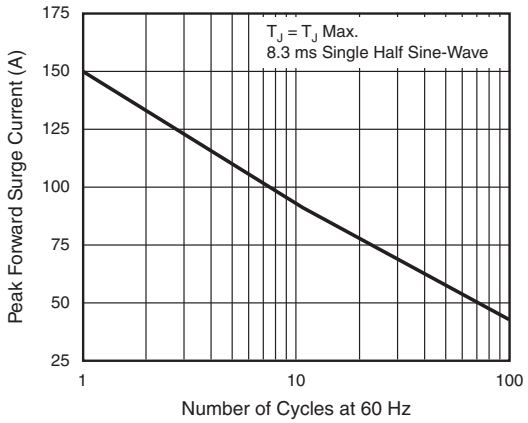


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

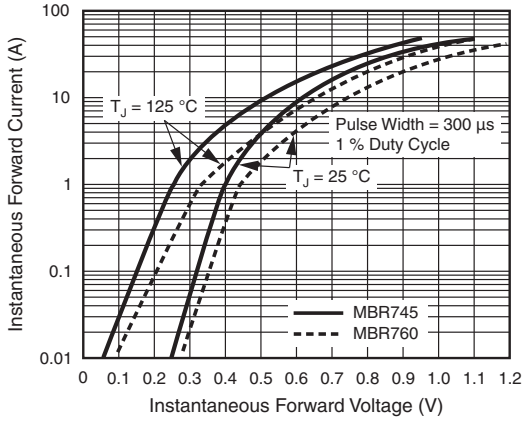


Fig. 3 - Typical Instantaneous Forward Characteristics

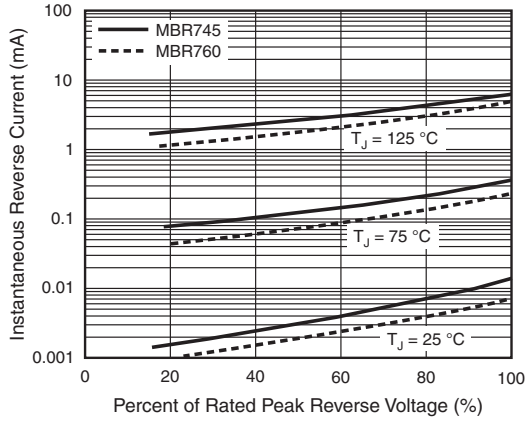


Fig. 4 - Typical Reverse Characteristics

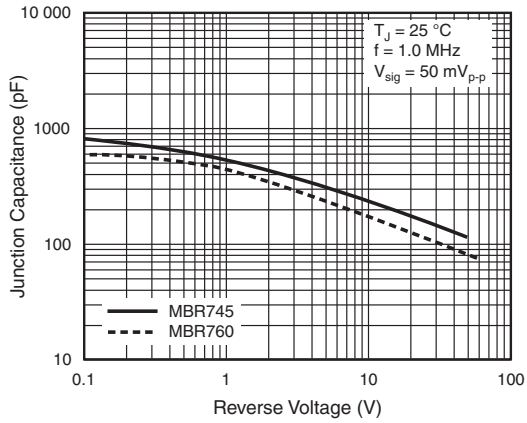


Fig. 5 - Typical Junction Capacitance

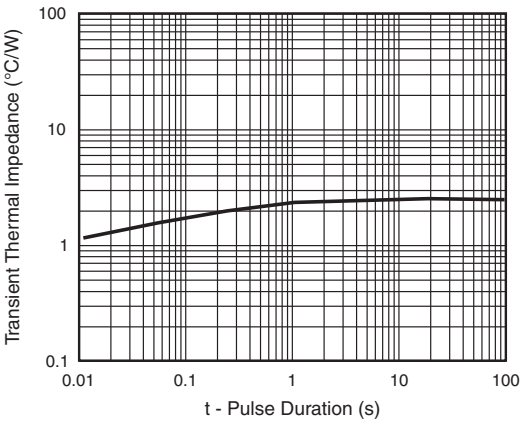
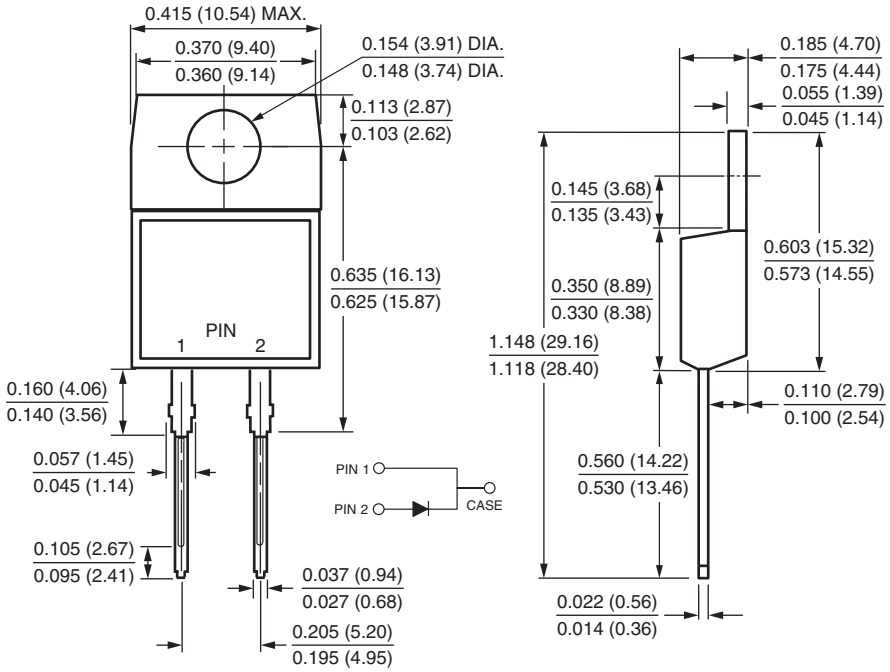


Fig. 6 - Typical Transient Thermal Impedance

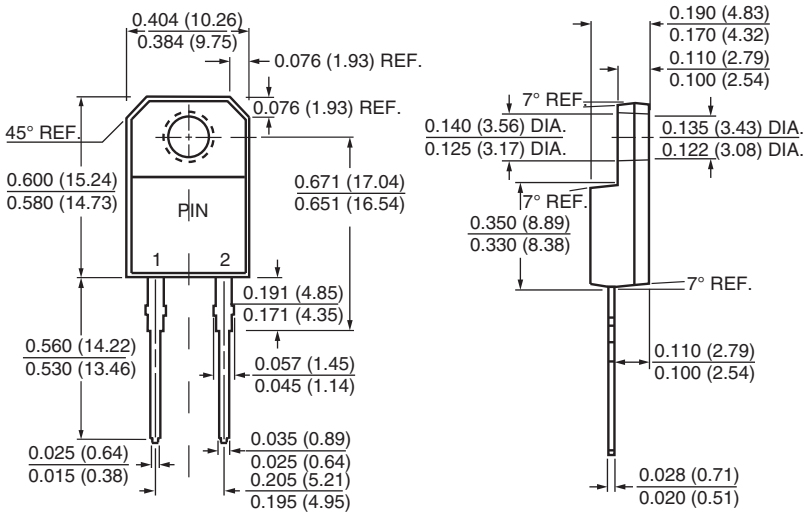
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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AC



ITO-220AC



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