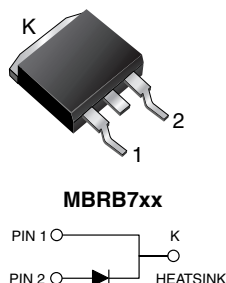


# Schottky Barrier Rectifier

**D<sup>2</sup>PAK (TO-263AB)**


## FEATURES

- Power pack
- Guardring for overvoltage protection
- Low power loss, high efficiency
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C
- AEC-Q101 qualified available
  - Automotive ordering code: base P/NHM3
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

## LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	7.5 A
$V_{RRM}$	45, 60 V
$I_{FSM}$	150 A
$V_F$	0.57 V, 0.65 V
$T_J \text{ max.}$	150 °C
Package	D <sup>2</sup> PAK (TO-263AB)
Circuit configuration	Single

## 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:** D<sup>2</sup>PAK (TO-263AB)

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-M3 - RoHS-compliant, halogen-free, commercial grade

Base P/NHM3 - RoHS-compliant, halogen-free, AEC-Q101 qualified

**Terminals:** matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 2 whisker test, HM3 suffix meets JESD 201 class 2 whisker test

**Polarity:** as marked

MAXIMUM RATINGS (T <sub>C</sub> = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	MBRB745	MBRB760	UNIT
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	45	60	V
Working peak reverse voltage	V <sub>RWM</sub>	45	60	
Maximum DC blocking voltage	V <sub>DC</sub>	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	
Voltage rate of change (rated V <sub>R</sub> )	dV/dt	10 000		V/μs
Operating junction temperature range	T <sub>J</sub>	-65 to +150		°C
Operating storage temperature range	T <sub>STG</sub>	-65 to +175		

**ELECTRICAL CHARACTERISTICS** ( $T_C = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS		MBRB745	MBRB760	UNIT
Maximum instantaneous forward voltage	$V_F^{(1)}$	$I_F = 7.5\text{ A}$	$T_C = 25\text{ }^{\circ}\text{C}$	-	0.75	V
		$I_F = 7.5\text{ A}$	$T_C = 125\text{ }^{\circ}\text{C}$	0.57	0.65	
		$I_F = 15\text{ A}$	$T_C = 25\text{ }^{\circ}\text{C}$	0.84	-	
		$I_F = 15\text{ A}$	$T_C = 125\text{ }^{\circ}\text{C}$	0.72	-	
Maximum reverse current at DC blocking voltage	$I_R^{(2)}$	Rated $V_R$	$T_C = 25\text{ }^{\circ}\text{C}$	0.1	0.5	mA
			$T_C = 125\text{ }^{\circ}\text{C}$	15	50	

**Notes**

- (1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle  
 (2) Pulse test: pulse width  $\leq 40\text{ ms}$

**THERMAL CHARACTERISTICS** ( $T_C = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

PARAMETER	SYMBOL	MBRB745	MBRB760	UNIT
Typical thermal resistance from junction to case	$R_{\theta JC}$	3.0		$^{\circ}\text{C/W}$

**ORDERING INFORMATION** (Example)

PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
D <sup>2</sup> PAK (TO-263AB)	MBRB745-M3/I	1.33	I	800/reel	Tape and reel
D <sup>2</sup> PAK (TO-263AB)	MBRB745HM3/I <sup>(1)</sup>	1.33	I	800/reel	Tape and reel

**Note**

- (1) AEC-Q101 qualified

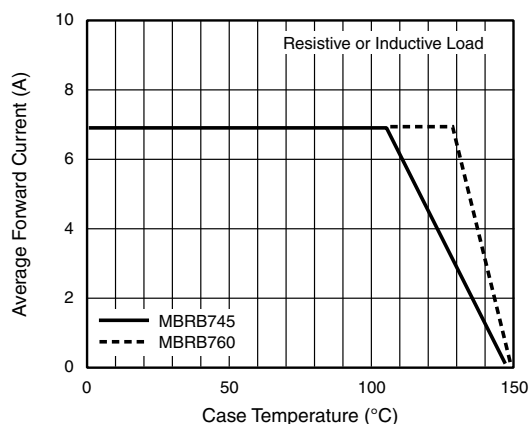
**RATINGS AND CHARACTERISTICS CURVES** ( $T_C = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

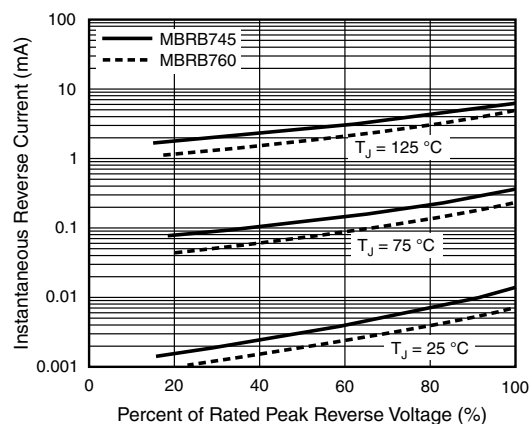


Fig. 4 - Typical Reverse Characteristics

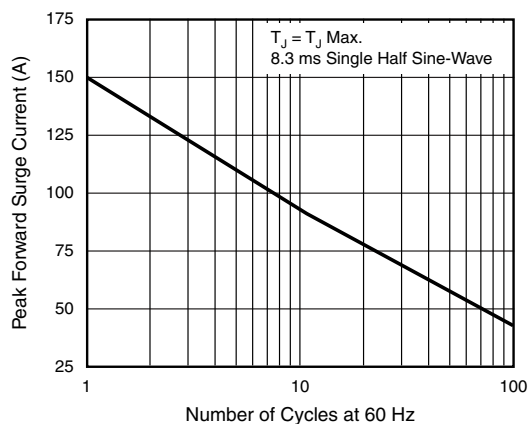


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

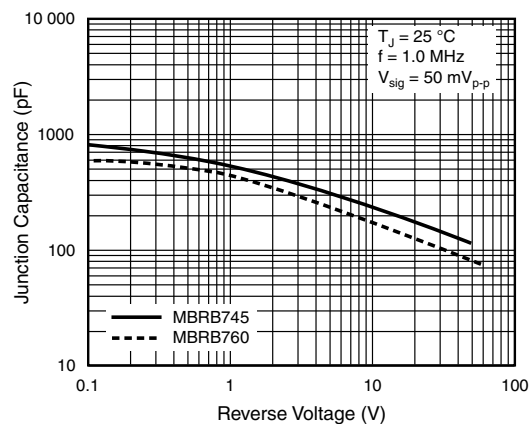


Fig. 5 - Typical Junction Capacitance

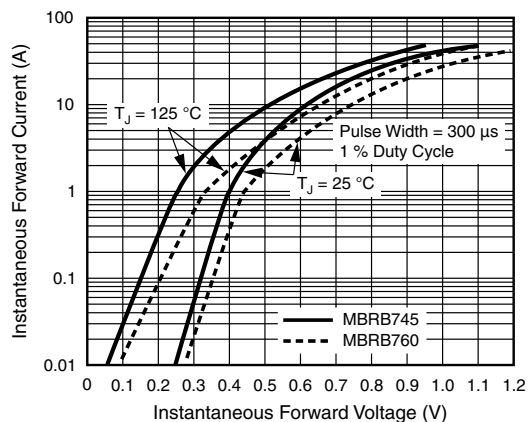


Fig. 3 - Typical Instantaneous Forward Characteristics

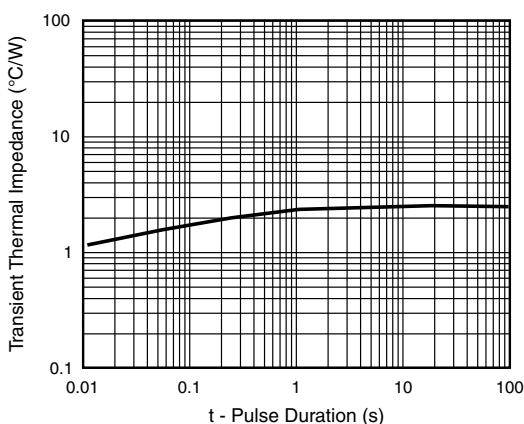
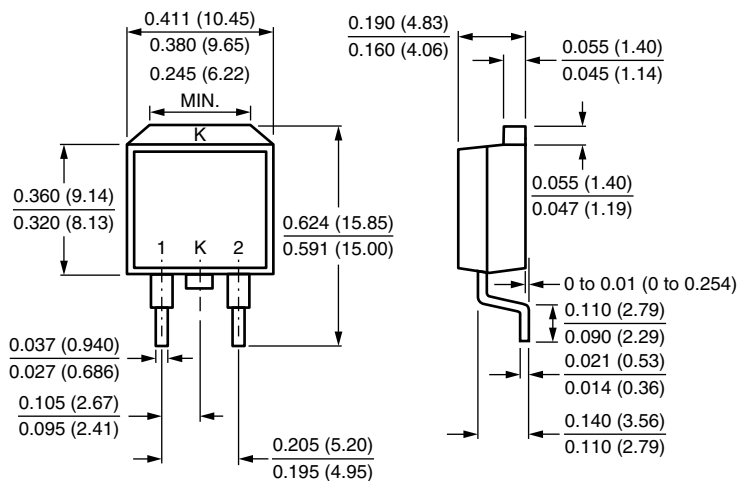


Fig. 6 - Typical Transient Thermal Impedance

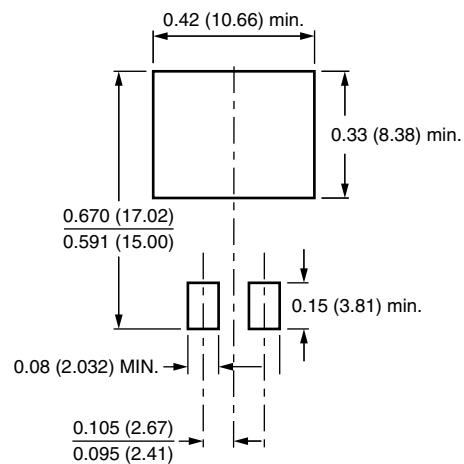


**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**D<sup>2</sup>PAK (TO-263AB)**



**Mounting Pad Layout**





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