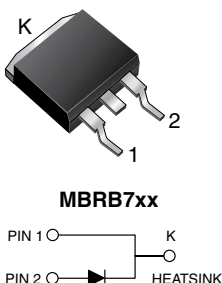


Schottky Barrier Rectifier

D²PAK (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


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 ² 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: D²PAK (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 _C = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	MBRB745	MBRB760	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		V/μs
Operating junction temperature range	T _J	-65 to +150		°C
Operating storage temperature range	T _{STG}	-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	mA
			$T_C = 125\text{ }^{\circ}\text{C}$	15	

Notes

(1) Pulse test: 300 μs 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 ² PAK (TO-263AB)	MBRB745-M3/I	1.33	I	800/reel	Tape and reel
D ² PAK (TO-263AB)	MBRB745HM3/I ⁽¹⁾	1.33	I	800/reel	Tape and reel

Note

(1) AEC-Q101 qualified

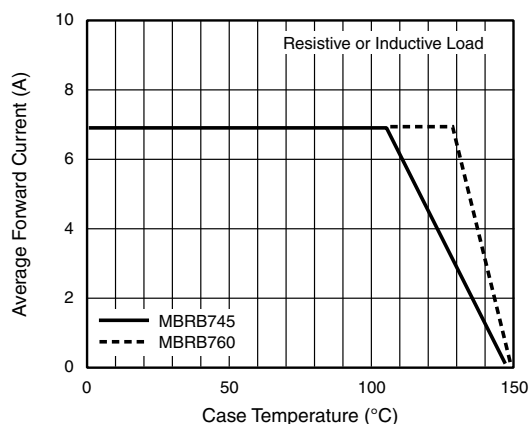
RATINGS AND CHARACTERISTICS CURVES ($T_C = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

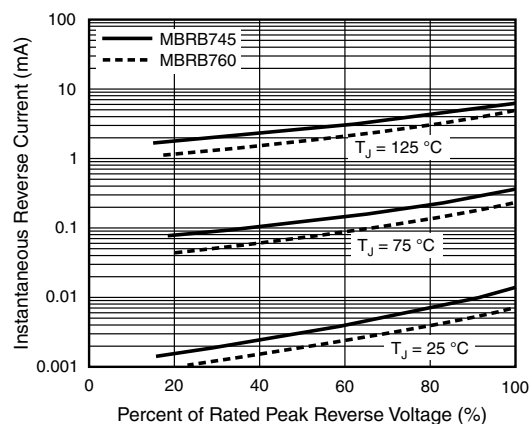


Fig. 4 - Typical Reverse Characteristics

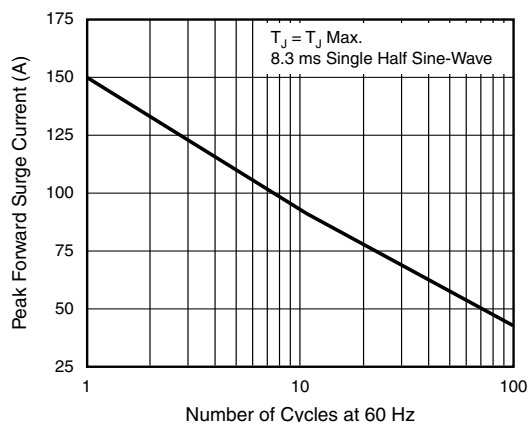


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

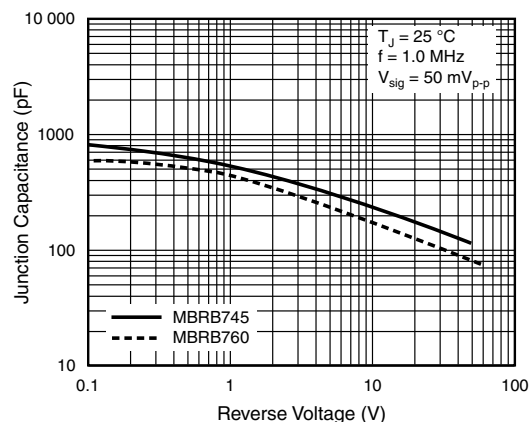


Fig. 5 - Typical Junction Capacitance

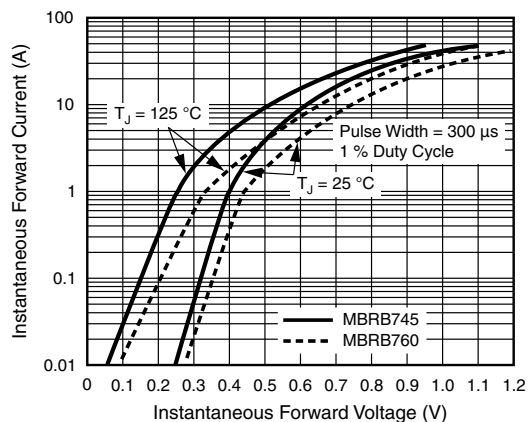


Fig. 3 - Typical Instantaneous Forward Characteristics

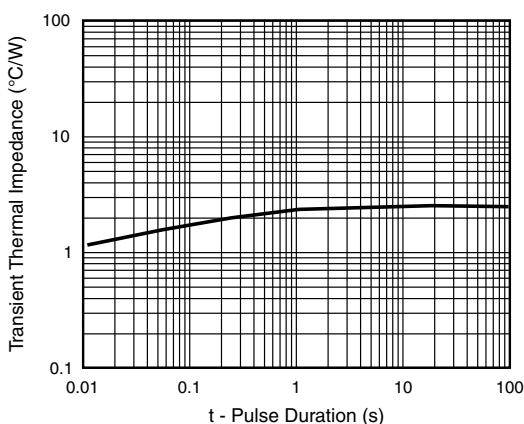
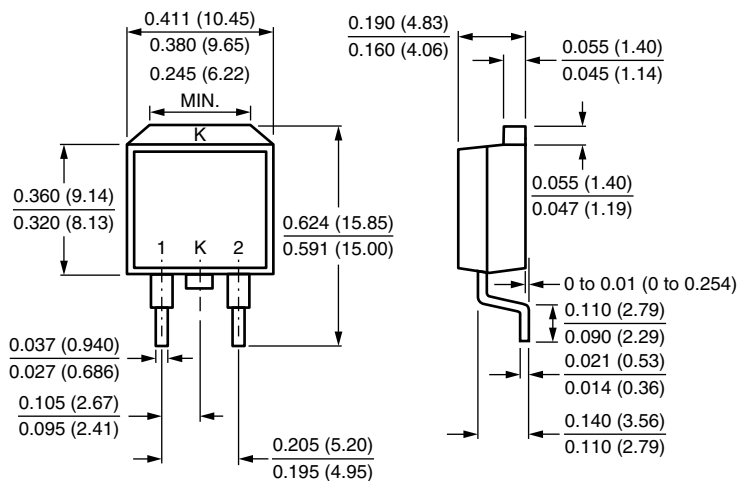


Fig. 6 - Typical Transient Thermal Impedance

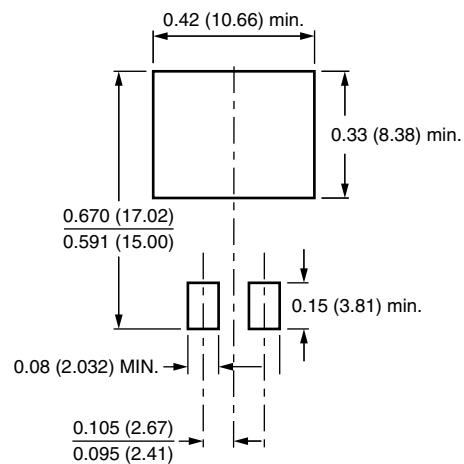


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

D²PAK (TO-263AB)



Mounting Pad Layout





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