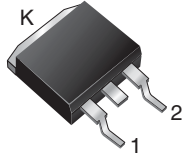


## Schottky Barrier Rectifier

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

**MBRB7xx**


### 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
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	7.5 A
$V_{RRM}$	35 V to 60 V
$I_{FSM}$	150 A
$V_F$	0.57 V, 0.65 V
$T_J$ max.	150 °C
Package	D <sup>2</sup> PAK (TO-263AB)
Diode variations	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-E3 - RoHS-compliant, commercial grade  
 Base P/NHE3\_X - RoHS-compliant, AEC-Q101 qualified  
 (“\_X” denotes revision code, e.g. A, B, ...)

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

E3 suffix meets JESD 201 class 2 whisker test, HE3 suffix meets JESD 201 class 2 whisker test

**Polarity:** as marked

MAXIMUM RATINGS ( $T_C = 25\text{ °C}$ unless otherwise noted)						
PARAMETER	SYMBOL	MBRB735	MBRB745	MBRB750	MBRB760	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	35	45	50	60	V
Working peak reverse voltage	$V_{RWM}$	35	45	50	60	
Maximum DC blocking voltage	$V_{DC}$	35	45	50	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 $t_p = 2.0\ \mu\text{s}$ , 1 kHz	$I_{RRM}$	1.0		0.5		
Voltage rate of change (rated $V_R$ )	$dV/dt$	10 000				V/ $\mu\text{s}$
Operating junction temperature range	$T_J$	-65 to +150				°C
Operating storage temperature range	$T_{STG}$	-65 to +175				



ELECTRICAL CHARACTERISTICS (T <sub>C</sub> = 25 °C unless otherwise noted)								
PARAMETER	SYMBOL	TEST CONDITIONS		MBRB735	MBRB745	MBRB750	MBRB760	UNIT
Maximum instantaneous forward voltage	V <sub>F</sub> <sup>(1)</sup>	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 μs pulse width, 1 % duty cycle  
(2) Pulse test: pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T <sub>C</sub> = 25 °C unless otherwise noted)			
PARAMETER	SYMBOL	MBRB	UNIT
Typical thermal resistance from junction to case	R <sub>θJC</sub>	3.0	°C/W

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-263AB	MBRB745-E3/45	1.33	45	50/tube	Tube
TO-263AB	MBRB745-E3/81	1.33	81	800/reel	Tape and reel
TO-263AB	MBRB745HE3_A/P <sup>(1)(2)</sup>	1.33	P	50/tube	Tube
TO-263AB	MBRB745HE3_A/I <sup>(1)(2)</sup>	1.33	I	800/reel	Tape and reel

**Note**

- (1) AEC-Q101 qualified  
(2) 35 V and 50 V device available in AEC-Q101 qualified only

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

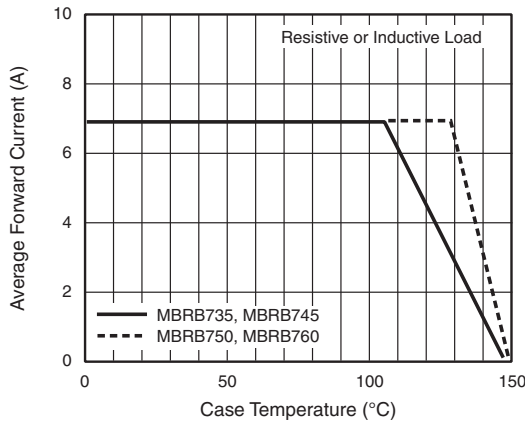


Fig. 1 - Forward Current Derating Curve

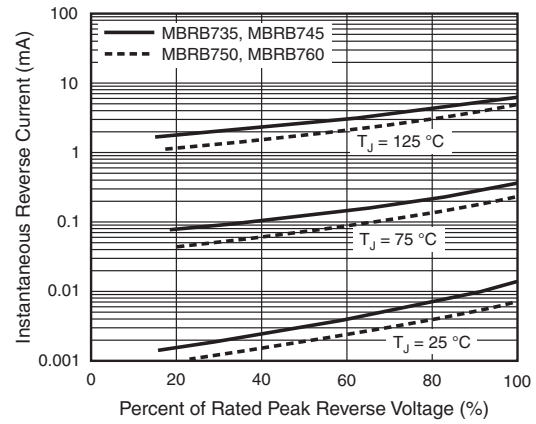


Fig. 4 - Typical Reverse Characteristics

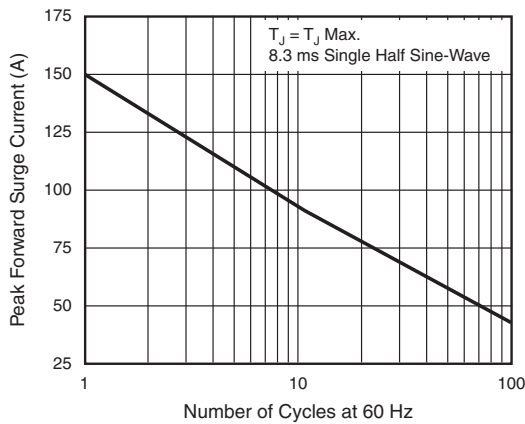


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

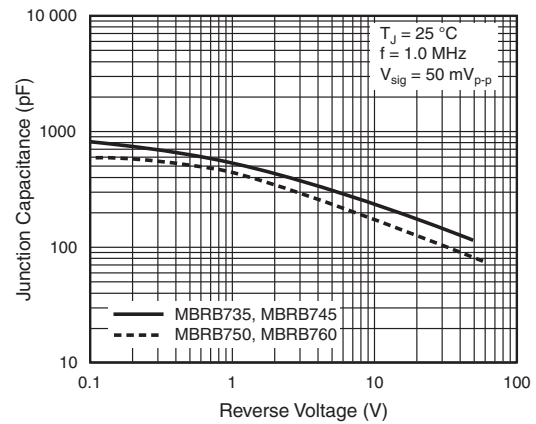


Fig. 5 - Typical Junction Capacitance

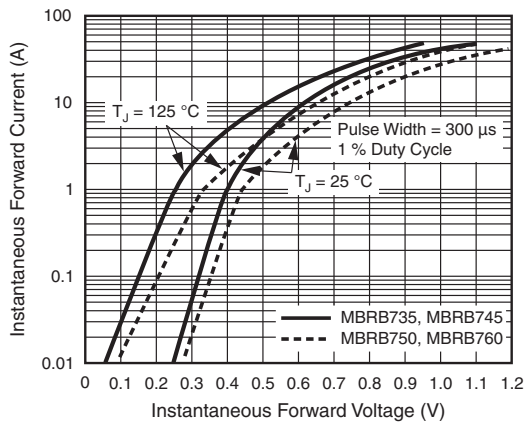


Fig. 3 - Typical Instantaneous Forward Characteristics

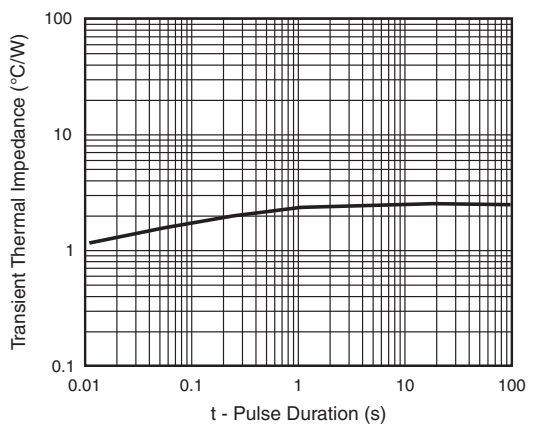
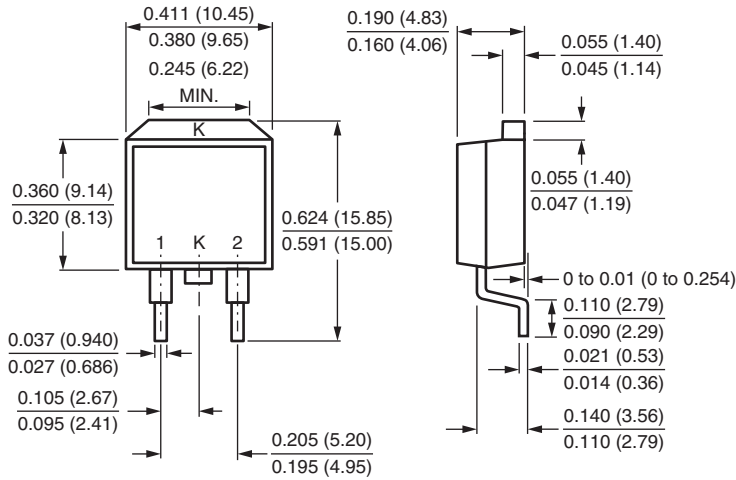


Fig. 6 - Typical Transient Thermal Impedance

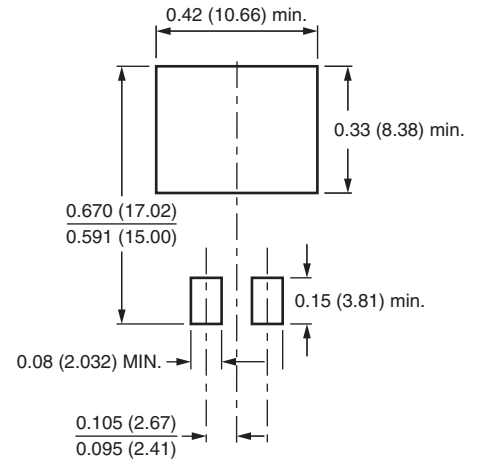


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

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



Mounting Pad Layout





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