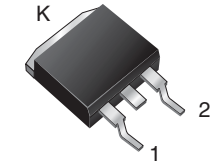
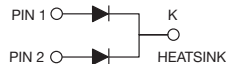


## Schottky Barrier Rectifier

High Barrier Technology for Improved High Temperature Performance

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

**MBRB16HXX**

**DESIGN SUPPORT TOOLS**
[click logo to get started](#)
**3D**  
Models  
Available

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	16 A
$V_{RRM}$	35 V, 45 V, 60 V
$I_{FSM}$	150 A
$V_F$	0.56 V, 0.62 V
$I_R$	100 $\mu$ A
$T_J$ max.	175 °C
Package	D <sup>2</sup> PAK (TO-263AB)
Circuit configuration	Single

**FEATURES**

- Power pack
- Guardring for overvoltage protection
- Low power loss, high efficiency
- Low forward voltage drop
- Low leakage current
- 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/NHE3\_A
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://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.

**MECHANICAL DATA**
**Case:** D<sup>2</sup>PAK (TO-263AB)

 Molding compound meets UL 94 V-0 flammability rating  
 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

HE3 suffix meets JESD 201 class 2 whisker test

**Polarity:** as marked

MAXIMUM RATINGS ( $T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	MBRB16H35	MBRB16H45	MBRB16H60	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	35	45	60	V
Working peak reverse voltage	$V_{RWM}$	35	45	60	
Maximum DC blocking voltage	$V_{DC}$	35	45	60	
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	16			A
Non-repetitive avalanche energy at 25 °C, $I_{AS} = 4\text{ A}$ , $L = 10\text{ mH}$	$E_{AS}$	80			mJ
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	150			A
Peak repetitive reverse surge current at $t_p = 2.0\text{ }\mu\text{s}$ , 1 kHz	$I_{RRM}$	1.0	1.0	0.5	
Peak non-repetitive reverse energy (8/20 $\mu\text{s}$ waveform)	$E_{RSM}$	20			mJ
Electrostatic discharge capacitor voltage Human body model: $C = 100\text{ pF}$ , $R = 1.5\text{ k}\Omega$	$V_C$	25			kV
Voltage rate of change (rated $V_R$ )	$dV/dt$	10 000			V/ $\mu\text{s}$
Operating junction and storage temperature range	$T_J, T_{STG}$	-65 to +175			°C



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)								
PARAMETER	SYMBOL	TEST CONDITIONS		MBRB16H35, MBRB16H45		MBRB16H60		UNIT
				TYP.	MAX.	TYP.	MAX.	
Maximum instantaneous forward voltage	$V_F^{(1)}$	$I_F = 16\text{ A}$	$T_J = 25\text{ }^\circ\text{C}$	-	0.66	-	0.73	V
			$T_J = 125\text{ }^\circ\text{C}$	0.52	0.56	0.58	0.62	
Maximum reverse current	$I_R^{(2)}$	Rated $V_R$	$T_J = 25\text{ }^\circ\text{C}$	-	100	-	100	$\mu\text{A}$
			$T_J = 125\text{ }^\circ\text{C}$	6.0	20	4.0	20	mA

**Notes**

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

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)				
PARAMETER	SYMBOL	MBRB16H35, MBRB16H45, MBRB16H60		UNIT
Typical thermal resistance, junction to case	$R_{\theta JC}$	1.5		$^\circ\text{C/W}$

<b>ORDERING INFORMATION</b> (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-263AB	MBRB16H60HE3_A/P <sup>(1)</sup>	1.33	P	50/tube	Tube
TO-263AB	MBRB16H60HE3_A/I <sup>(1)</sup>	1.33	I	800/reel	Tape and reel

**Note**

- (1) AEC-Q101 qualified

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

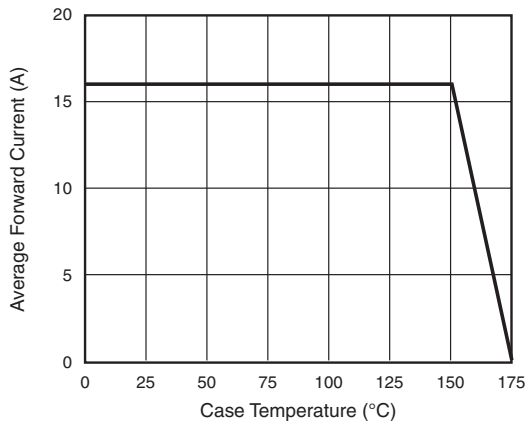


Fig. 1 - Forward Current Derating Curve

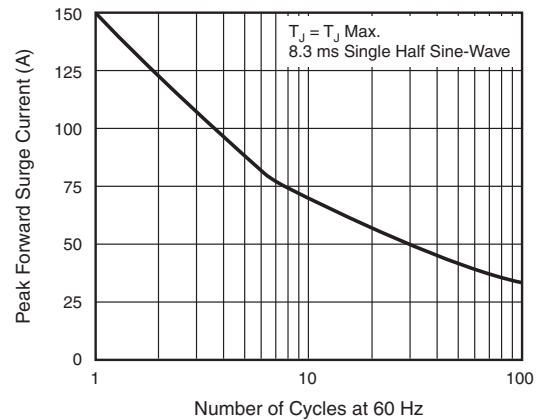


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

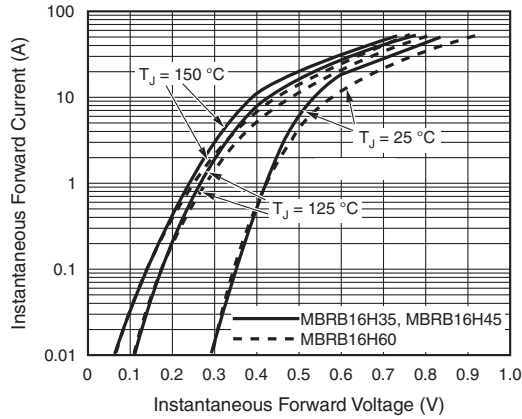


Fig. 3 - Typical Instantaneous Forward Characteristics

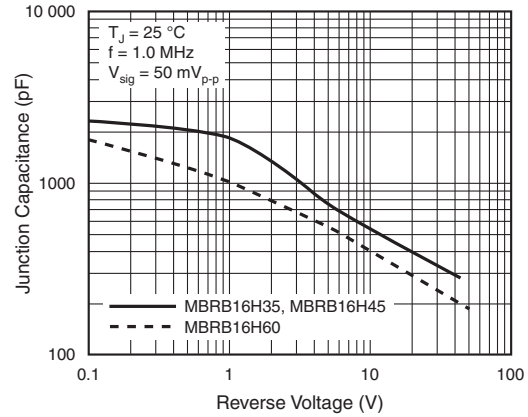


Fig. 5 - Typical Junction Capacitance

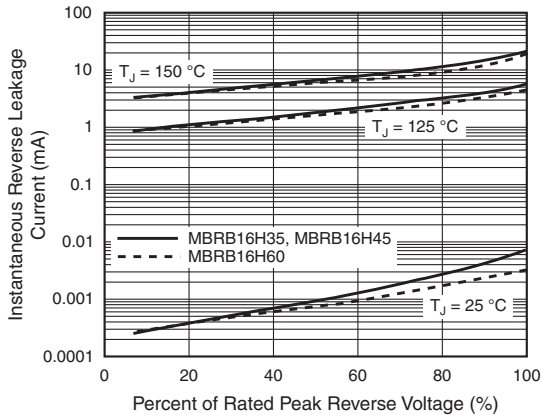


Fig. 4 - Typical Reverse Characteristics

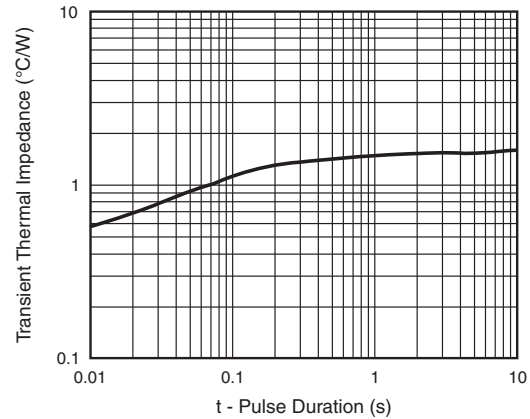
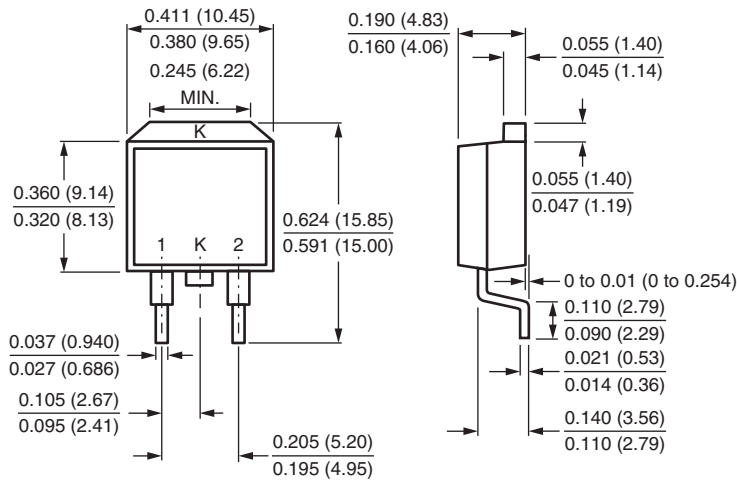


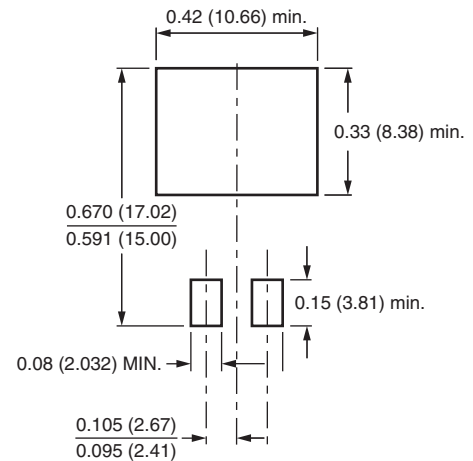
Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

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



### Mounting Pad Layout





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