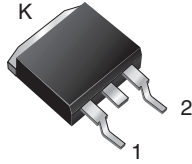


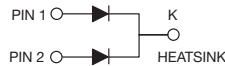
Schottky Barrier Rectifier

High Barrier Technology for Improved High Temperature Performance

D²PAK (TO-263AB)



MBRB16HXX



DESIGN SUPPORT TOOLS

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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 μ A
T_J max.	175 °C
Package	D ² 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



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: D²PAK (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 μs 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/ μs
Operating junction and storage temperature range	T_J, T_{STG}	-65 to +175			°C



ELECTRICAL CHARACTERISTICS ($T_C = 25\text{ }^\circ\text{C}$ 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	
		$I_F = 16\text{ A}$ $T_J = 125\text{ }^\circ\text{C}$	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	μA
			$T_J = 125\text{ }^\circ\text{C}$	6.0	20	4.0	20	mA

Notes

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

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

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-263AB	MBRB16H60HE3_A/P ⁽¹⁾	1.33	P	50/tube	Tube
TO-263AB	MBRB16H60HE3_A/I ⁽¹⁾	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)

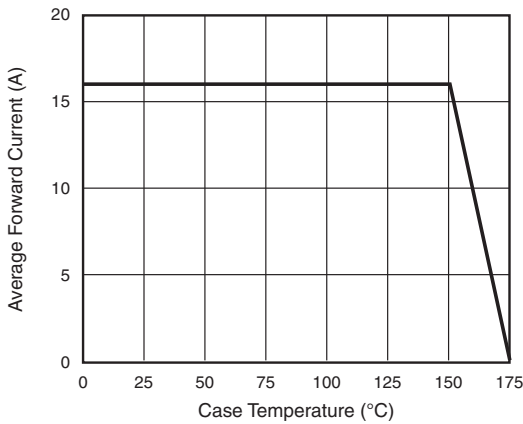


Fig. 1 - Forward Current Derating Curve

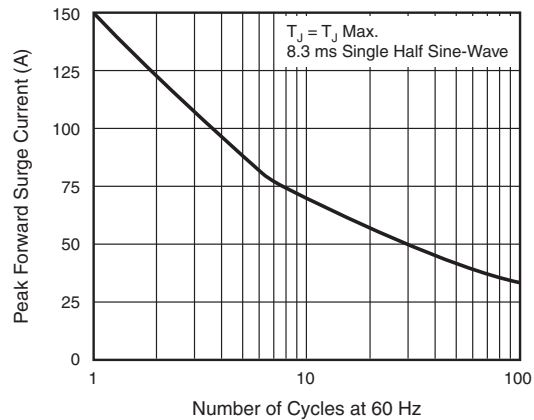


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

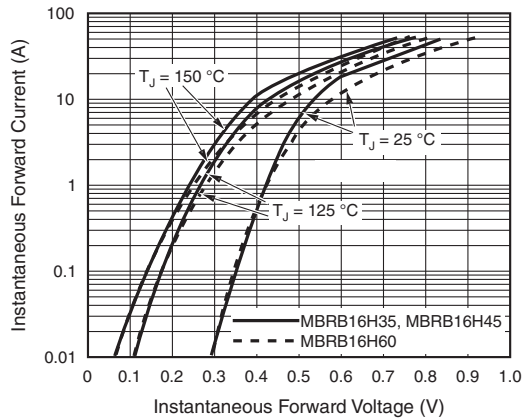


Fig. 3 - Typical Instantaneous Forward Characteristics

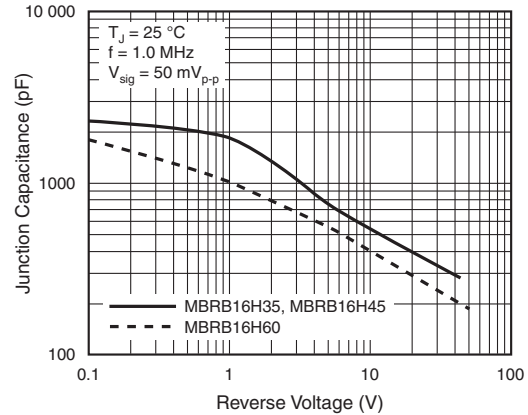


Fig. 5 - Typical Junction Capacitance

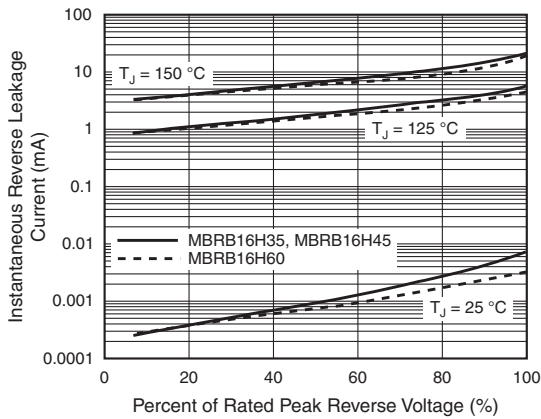


Fig. 4 - Typical Reverse Characteristics

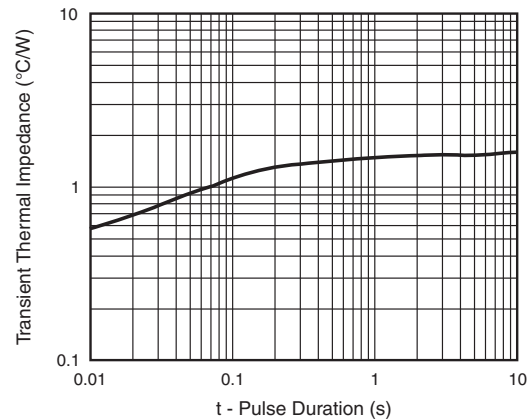
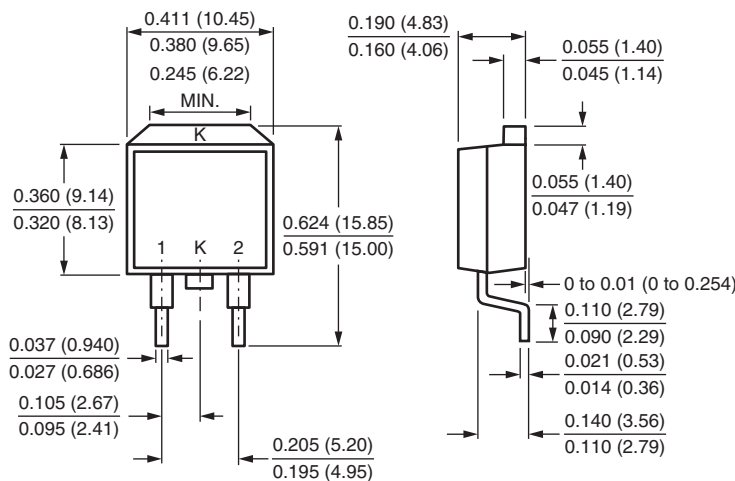


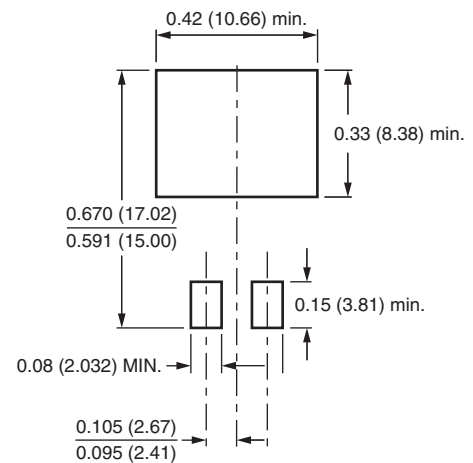
Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

D²PAK (TO-263AB)



Mounting Pad Layout





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