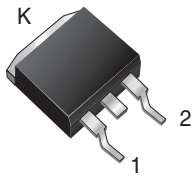
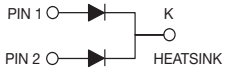
Dual Common Cathode Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance

D²PAK (TO-263AB)



MBRB15H45CT



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

DESIGN SUPPORT TOOLS

click logo to get started

3D Models Available

TYPICAL APPLICATIONS

For use in low voltage, high frequency rectifier of switching mode power supplies, freewheeling diodes, DC/DC converters, and polarity protection application.

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 7.5 A
V_{RRM}	45 V
I_{FSM}	150 A
V_F	0.55 V
I_R	50 µA
T_J max.	175 °C
Package	D²PAK (TO-263AB)
Circuit configuration	Common cathode

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 °C unless otherwise noted)				
PARAMETER		**SYMBOL**	**MBRB15H45CT**	**UNIT**
Maximum repetitive peak reverse voltage		V_{RRM}	45	V
Working peak reverse voltage		V_{RWM}	45	
Maximum DC blocking voltage		V_{DC}	45	
Maximum average forward rectified current (fig. 1)	total device	$I_{F(AV)}$	15	A
	per diode		7.5	
Non-repetitive avalanche energy at 25 °C, I_{AS} = 4 A, L = 10 mH per diode		E_{AS}	80	mJ
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode		I_{FSM}	150	A
Peak repetitive reverse surge current per diode at t_p = 2.0 µs, 1 kHz		I_{RRM}	1.0	
Peak non-repetitive reverse energy (8/20 µs waveform)		E_{RSM}	20	mJ
Electrostatic discharge capacitor voltage Human body model: C = 100 F, R = 1.5 kΩ		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 °C unless otherwise noted)						
PARAMETER	SYMBOL	TEST CONDITIONS		MBRB15H45CT		UNIT
				TYP.	MAX.	
Maximum instantaneous forward voltage per diode	V_F (1)	I_F = 7.5 A	T_J = 25 °C	-	0.63	V
		I_F = 7.5 A	T_J = 125 °C	0.50	0.55	
		I_F = 15 A	T_J = 25 °C	-	0.75	
		I_F = 15 A	T_J = 125 °C	0.61	0.66	
Maximum reverse current per diode	I_R (2)	Rated V_R	T_J = 25 °C	-	50	µA
			T_J = 125 °C	3.0	10	mA

Notes

(1) Pulse test: 300 µs pulse width, 1 % duty cycle

(2) Pulse test: pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T_C = 25 °C unless otherwise noted)			
PARAMETER	SYMBOL	MBRB15H45CT	UNIT
Maximum thermal resistance per diode	$R_{\theta JC}$	3.0	°C/W

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-263AB	MBRB15H45CTHE3_B/P (1)	1.35	P	50/tube	Tube
TO-263AB	MBRB15H45CTHE3_B/I (1)	1.35	I	800/reel	Tape and reel

Note

(1) AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES (T_C = 25 °C unless otherwise noted)

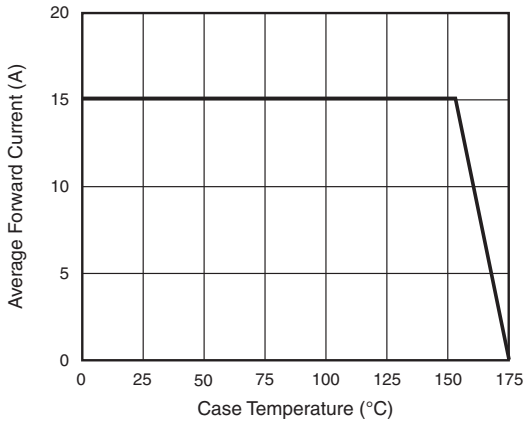


Fig. 1 - Forward Derating Curve Per Diode

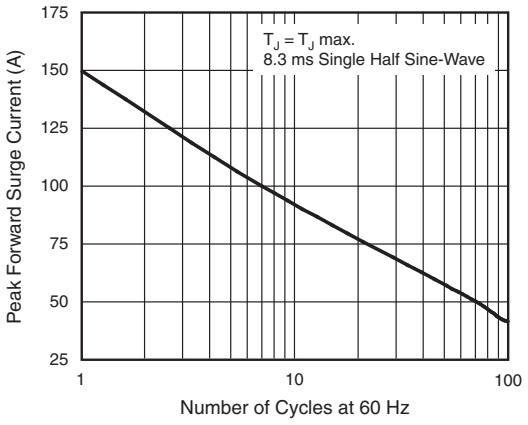


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

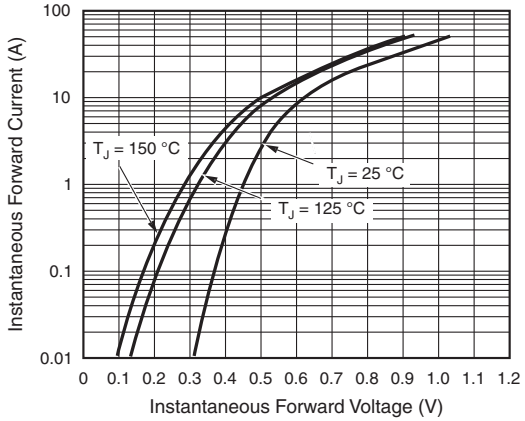


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

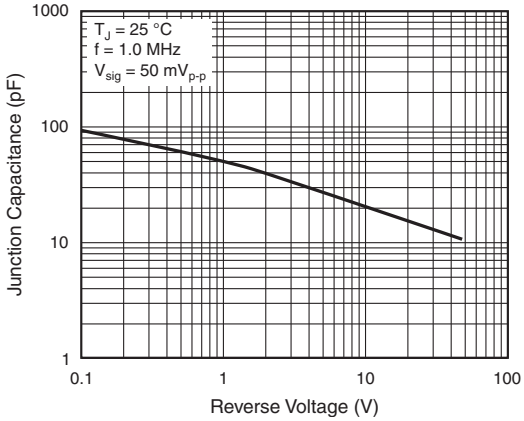


Fig. 5 - Typical Junction Capacitance Per Diode

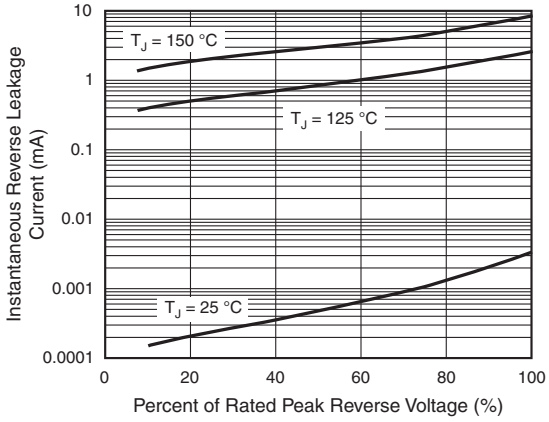


Fig. 4 - Typical Reverse Characteristics Per Diode

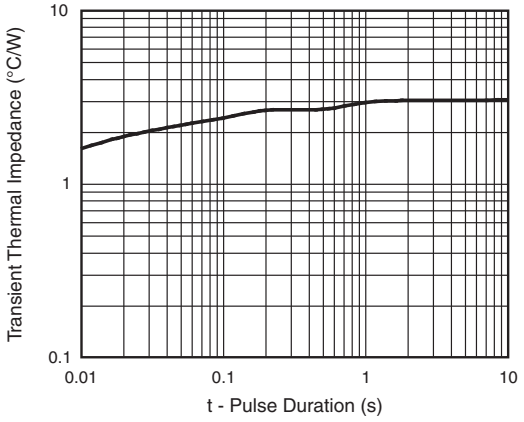
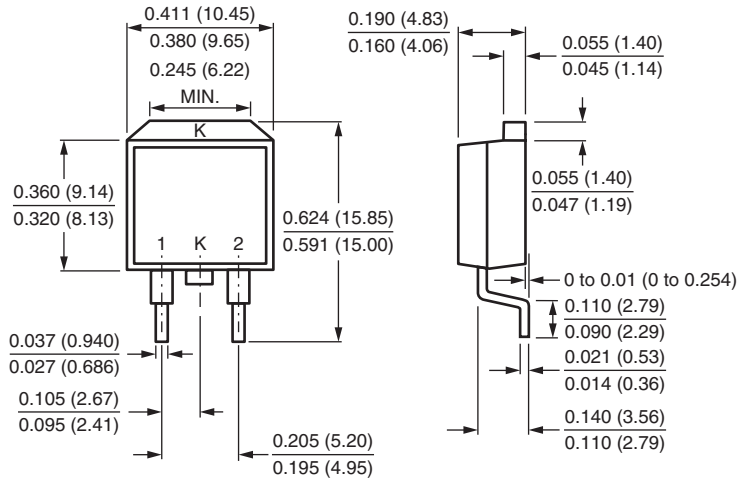


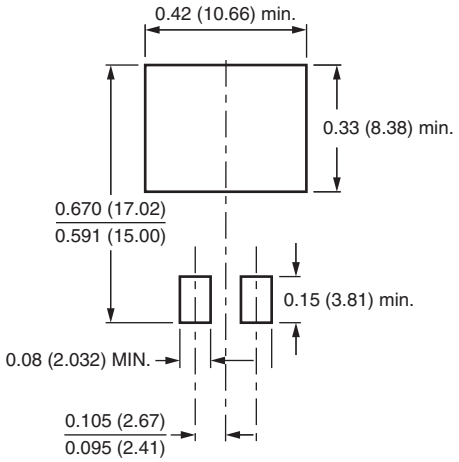
Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

D²PAK (TO-263AB)



Mounting Pad Layout



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