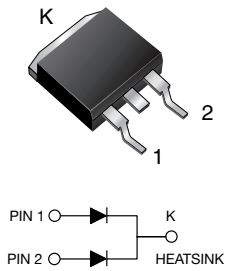
Dual Common Cathode Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance

D²PAK (TO-263AB)



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

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 7.5 A
V_{RRM}	60 V
I_{FSM}	150 A
V_F	0.61 V
I_R	50 µA
T_J max.	175 °C
Package	D²PAK (TO-263AB)
Circuit configuration	Common cathode

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

Mounting Torque: 10 in-lbs maximum

MAXIMUM RATINGS (T_C = 25 °C unless otherwise noted)				
PARAMETER		**SYMBOL**	**MBRB15H60CT**	**UNIT**
Maximum repetitive peak reverse voltage		V_{RRM}	60	V
Working peak reverse voltage		V_{RWM}	60	
Maximum DC blocking voltage		V_{DC}	60	
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}	0.5	
Peak non-repetitive reverse energy (8/20 µs waveform)		E_{RSM}	10	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
Isolation voltage from terminal to heatsink t = 1 min		V_{AC}	1500	V

ELECTRICAL CHARACTERISTICS (T_C = 25 °C unless otherwise noted)						
PARAMETER	**SYMBOL**	**TEST CONDITIONS**		**MBRB15H60CT**		**UNIT**
				TYP.	**MAX.**	
Maximum instantaneous forward voltage per diode	V_F (1)	I_F = 7.5 A	T_J = 25 °C	-	0.73	V
		I_F = 7.5 A	T_J = 125 °C	0.58	0.61	
		I_F = 15 A	T_J = 25 °C	-	0.87	
		I_F = 15 A	T_J = 125 °C	0.68	0.72	
Maximum reverse current per diode	I_R (2)	Rated V_R	T_J = 25 °C	-	50	µA
			T_J = 125 °C	2.0	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**	**MBRB15H60CT**	**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	MBRB15H60CTHE3_A/P (1)	1.35	P	50/tube	Tube
TO-263AB	MBRB15H60CTHE3_A/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)

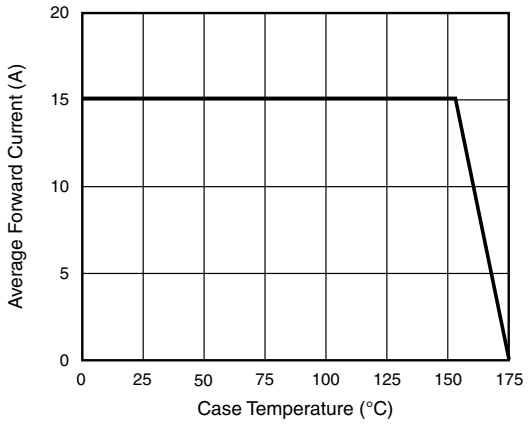


Fig. 1 - Forward Derating Curve Per Diode

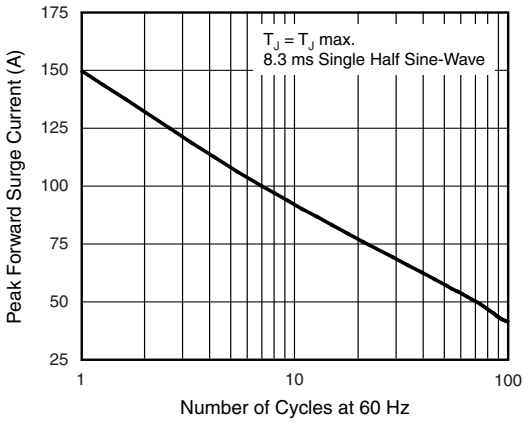


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

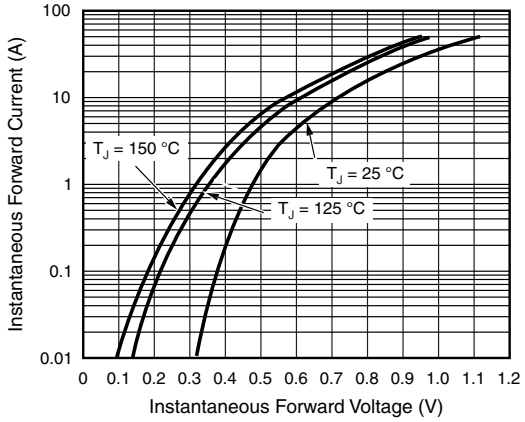


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

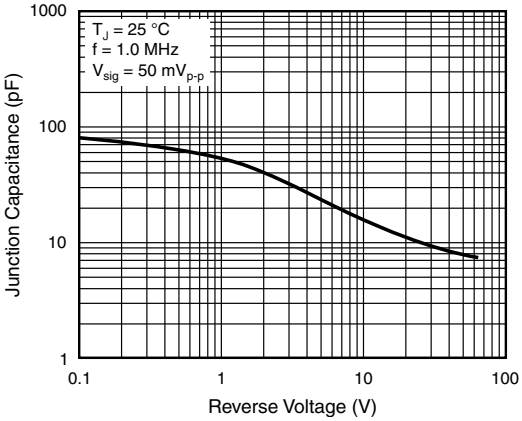


Fig. 5 - Typical Junction Capacitance Per Diode

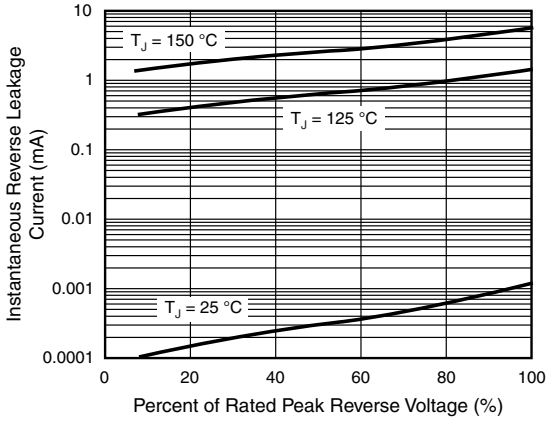


Fig. 4 - Typical Reverse Characteristics Per Diode

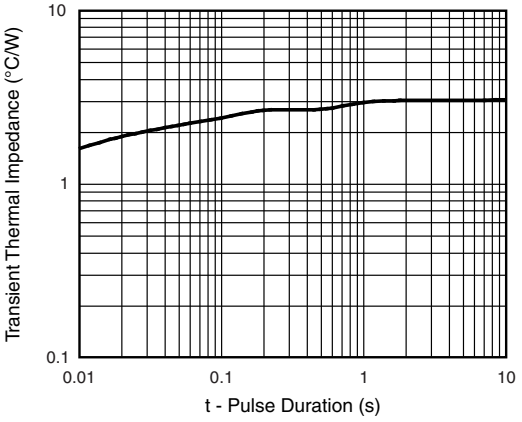
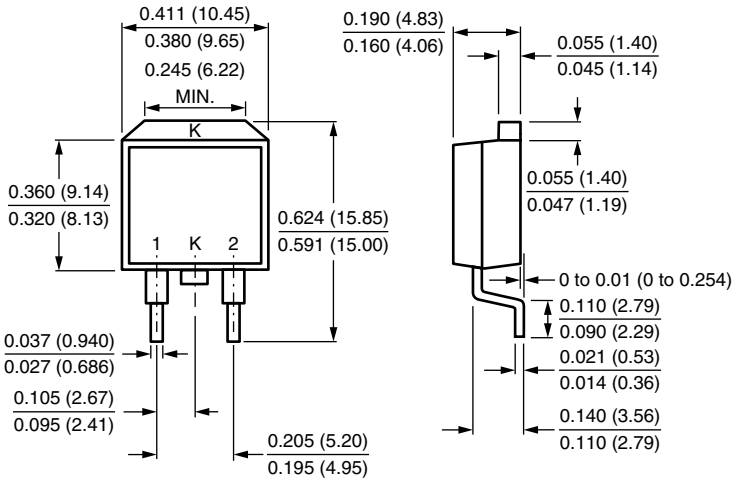


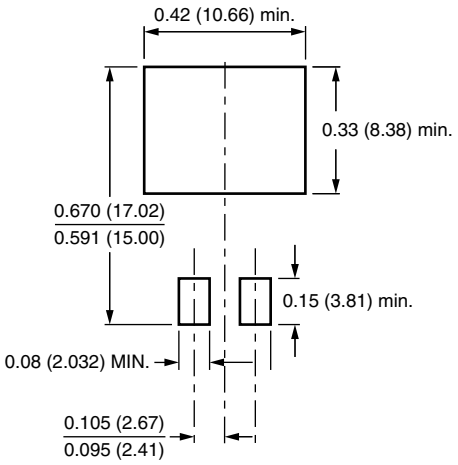
Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

D²PAK (TO-263AB)



Mounting Pad Layout



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