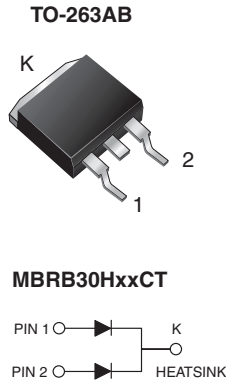


Dual Common Cathode Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance



FEATURES

- Power pack
- Guardring for overvoltage protection
- Lower power losses, 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, or polarity protection application.

MECHANICAL DATA

Case: 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 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

Polarity: as marked

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 15 A
V_{RRM}	35 V to 60 V
I_{FSM}	150 A
V_F	0.56 V, 0.59 V
I_R	80 μ A, 60 μ A
T_J max.	175 °C
Package	TO-263AB
Circuit configuration	Common cathode

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)						
PARAMETER	SYMBOL	MBRB30H35CT	MBRB30H45CT	MBRB30H50CT	MBRB30H60CT	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	35	45	50	60	V
Working peak reverse voltage	V_{RWM}	35	45	50	60	V
Maximum DC blocking voltage	V_{DC}	35	45	50	60	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	total device				A
		per diode				
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 $t_p = 2$ μ s, 1 kHz	I_{RRM}	1.0		0.5		A
Peak non-repetitive reverse energy (8/20 μ s waveform)	E_{RSM}	25		20		mJ
Non-repetitive avalanche energy per diode at 25 °C, $I_{AS} = 4$ A, $L = 10$ mH	E_{AS}	80				mJ
Electrostatic discharge capacitor voltage human body model: $C = 100$ pF, $R = 1.5$ k Ω	V_C	25				kV
Voltage rate of change (rated V_R)	dV/dt	10 000				V/ μ s



MAXIMUM RATINGS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	SYMBOL	MBRB30H35CT	MBRB30H45CT	MBRB30H50CT	MBRB30H60CT	UNIT
Operating junction and storage temperature range	T_J, T_{STG}	-65 to +175				$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	MBRB30H35CT MBRB30H45CT	MBRB30H50CT MBRB30H60CT	UNIT
Maximum instantaneous forward voltage per diode	$I_F = 15\text{ A}$	$T_C = 25\text{ }^\circ\text{C}$	$V_F^{(1)}$	-	0.62	V
	$I_F = 15\text{ A}$	$T_C = 125\text{ }^\circ\text{C}$		0.49	0.56	
	$I_F = 30\text{ A}$	$T_C = 25\text{ }^\circ\text{C}$		-	0.73	
	$I_F = 30\text{ A}$	$T_C = 125\text{ }^\circ\text{C}$		0.62	0.67	
Maximum reverse current per diode at working peak reverse voltage			$I_R^{(2)}$	-	80	μA
				5.0	15	4.0

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	MBRB	UNIT
Typical thermal resistance junction to case per diode	$R_{\theta JC}$	1.5	$^\circ\text{C/W}$

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-263AB	MBRB30H45CT-E3/45 ⁽²⁾	1.35	45	50/tube	Tube
TO-263AB	MBRB30H45CT-E3/81 ⁽²⁾	1.35	81	800/teel	Tape and reel
TO-263AB	MBRB30H45CTHE3_A/P ⁽¹⁾	1.35	P	50/tube	Tube
TO-263AB	MBRB30H45CTHE3_A/I ⁽¹⁾	1.35	I	800/teel	Tape and reel

Notes

- (1) AEC-Q101 qualified
(2) E3 only for 45 V and 60 V



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

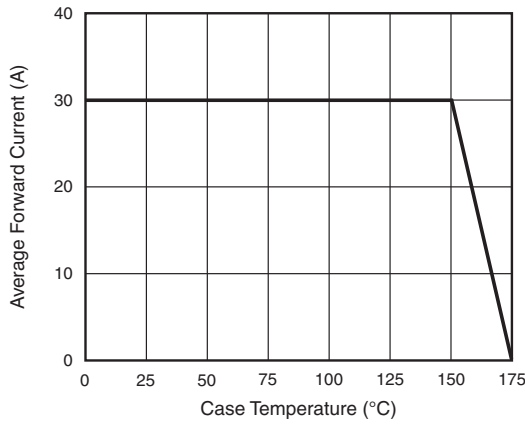


Fig. 1 - Forward Derating Curve

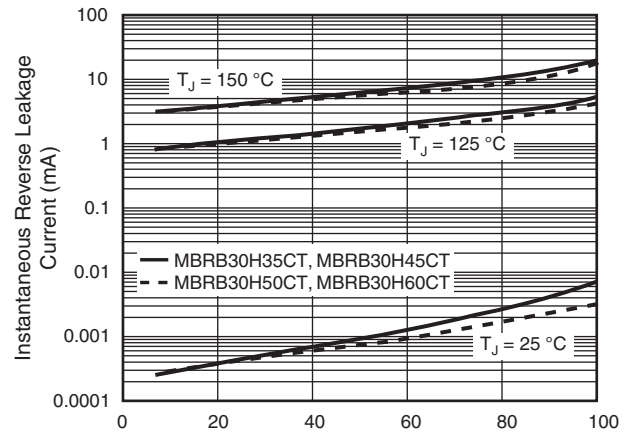


Fig. 4 - Typical Reverse Characteristics Per Diode

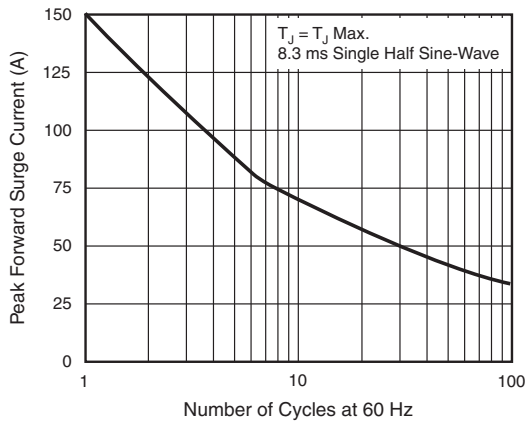


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

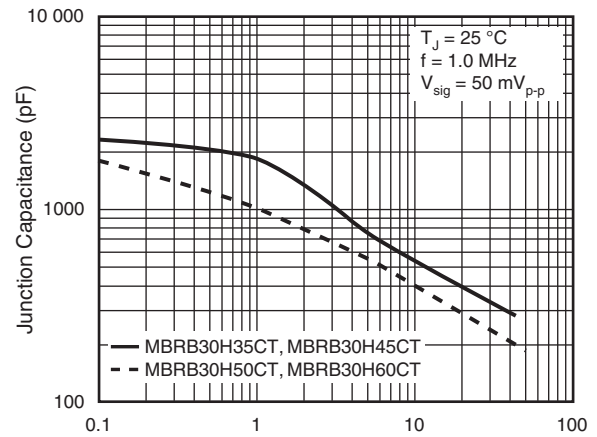


Fig. 5 - Typical Junction Capacitance Per Diode

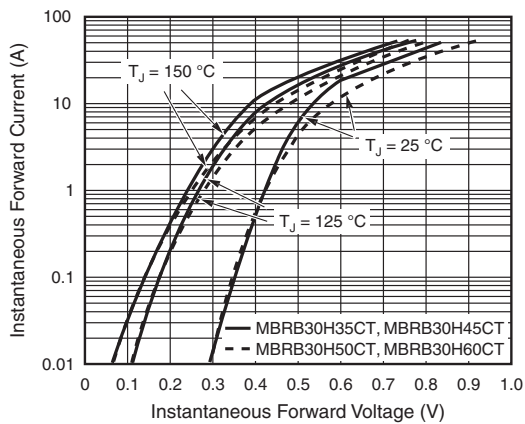


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

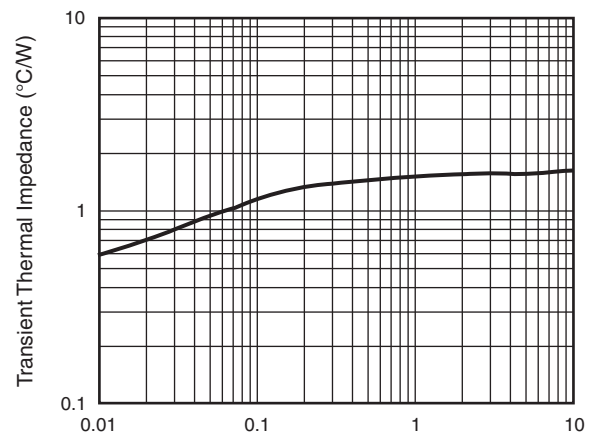
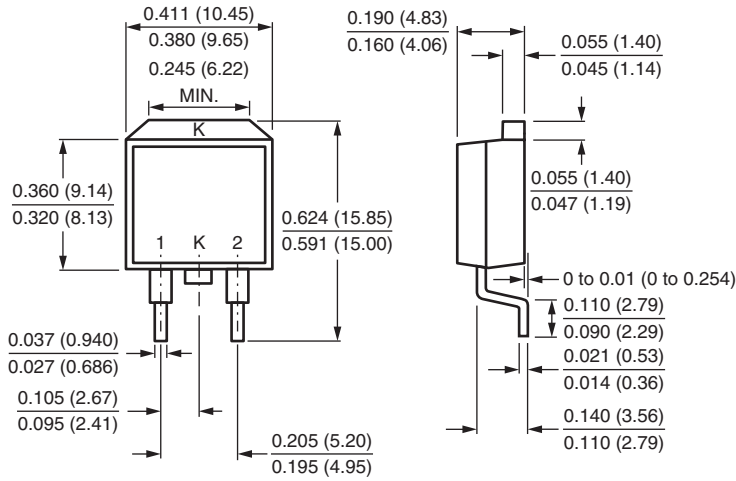


Fig. 6 - Typical Transient Thermal Impedance Per Diode

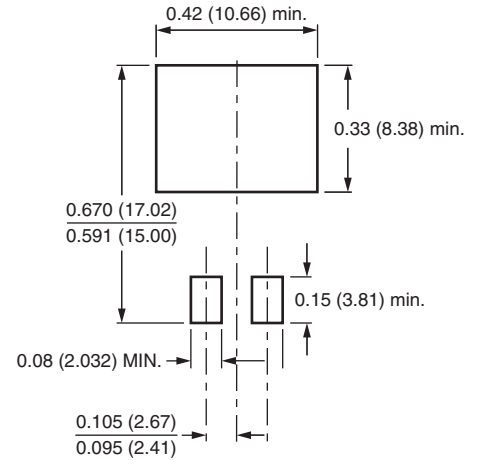


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

D²PAK (TO-263AB)



Mounting Pad Layout





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