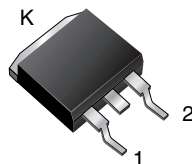


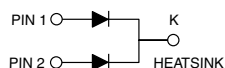
Dual Common Cathode Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance

D²PAK (TO-263AB)



MBRB30HxxCT



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/NHM3
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE

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: D²PAK (TO-263AB)

Molding compound meets UL 94 V-0 flammability rating
Base P/N-M3 - RoHS-compliant, halogen-free, commercial grade

Base P/NHM3 - RoHS-compliant, halogen-free, AEC-Q101 qualified

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 1A whisker test, HM3 suffix meets JESD 201 class 2 whisker test

Polarity: as marked

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 15 A
V_{RRM}	45 V, 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	D ² PAK (TO-263AB)
Circuit configuration	Common cathode

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	MBRB30H45CT	MBRB30H60CT	UNIT
Maximum repetitive peak reverse voltage	V _{RRM}	45	60	V
Working peak reverse voltage	V _{RWM}	45	60	V
Maximum DC blocking voltage	V _{DC}	45	60	V
Maximum average forward rectified current (fig. 1) total device per diode	I _{F(AV)}	30		A
		15		
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 μs, 1 kHz	I _{RRM}	1.0	0.5	A
Peak non-repetitive reverse energy (8/20 μs 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 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** ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	TEST CONDITIONS		SYMBOL	MBRB30H45CT		MBRB30H60CT		UNIT
				TYP.	MAX.	TYP.	MAX.	
Maximum instantaneous forward voltage per diode	I _F = 15 A	T _C = 25 °C	V _F ⁽¹⁾	-	0.62	-	0.68	V
	I _F = 15 A	T _C = 125 °C		0.49	0.56	0.55	0.59	
	I _F = 30 A	T _C = 25 °C		-	0.73	-	0.83	
	I _F = 30 A	T _C = 125 °C		0.62	0.67	0.68	0.71	
Maximum reverse current per diode at working peak reverse voltage		T _J = 25 °C	I _R ⁽²⁾	-	80	-	60	μA
		T _J = 125 °C		5.0	15	4.0	15	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	MBRB30H45CT	MBRB30H60CT	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
D ² PAK (TO-263AB)	MBRB30H45CT-M3/I	1.35	I	800/reel	Tape and reel
D ² PAK (TO-263AB)	MBRB30H45CTHM3/I ⁽¹⁾	1.35	I	800/reel	Tape and reel

Notes

(1) AEC-Q101 qualified

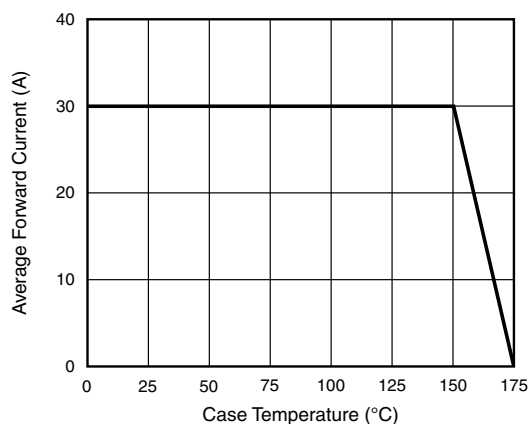
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)


Fig. 1 - Forward Derating Curve

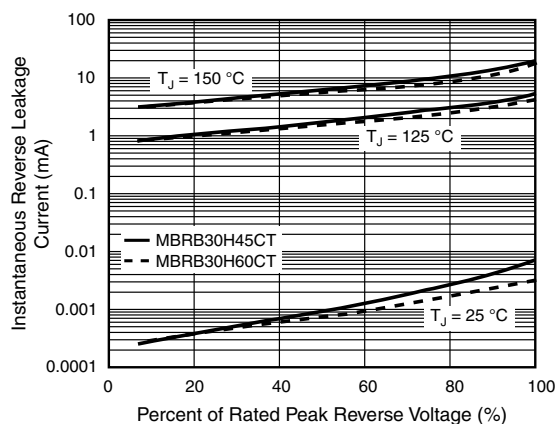


Fig. 4 - Typical Reverse Characteristics Per Diode

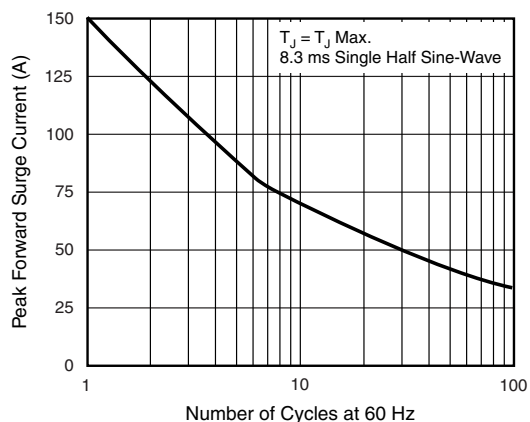


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

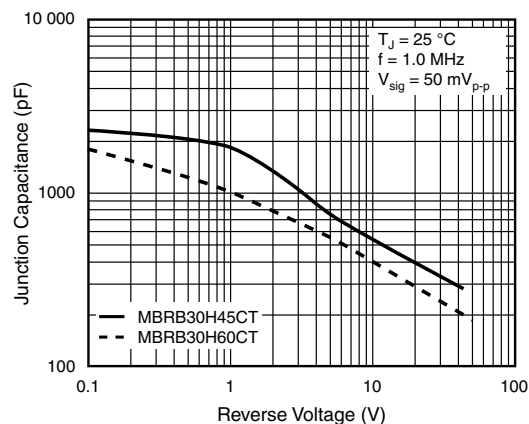


Fig. 5 - Typical Junction Capacitance Per Diode

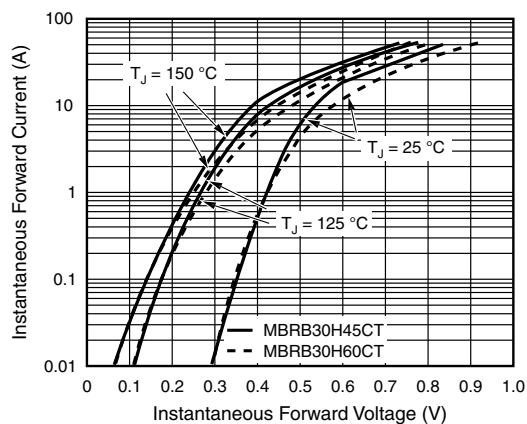


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

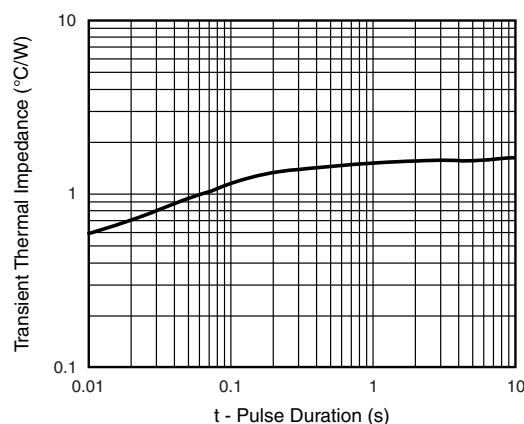
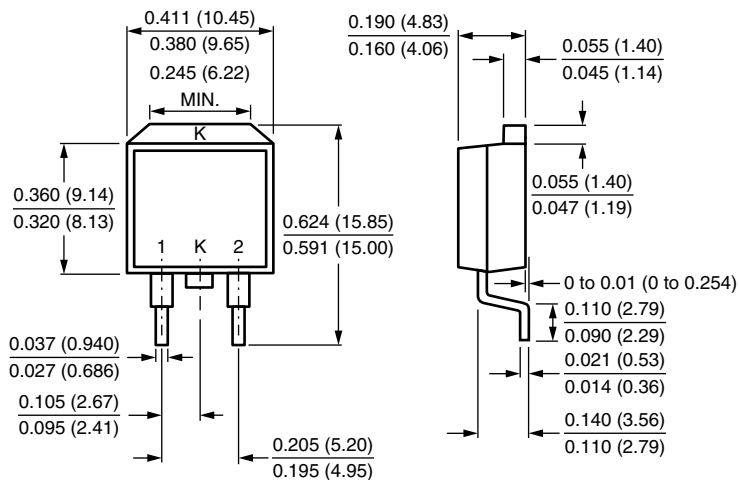


Fig. 6 - Typical Transient Thermal Impedance Per Diode

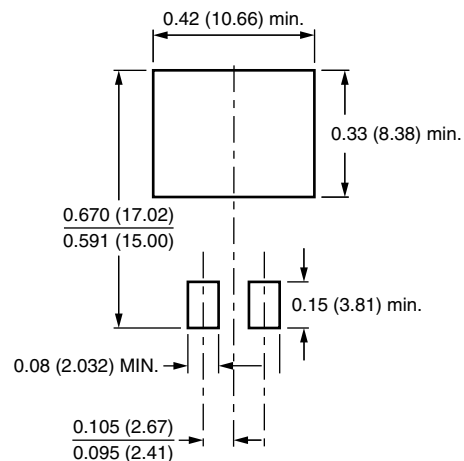


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

D²PAK (TO-263AB)



Mounting Pad Layout





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