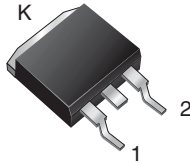
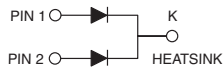


## Dual Common Cathode Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance

**D<sup>2</sup>PAK (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/NHE3\_A
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://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:** D<sup>2</sup>PAK (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
$V_{RRM}$	45 V, 60 V
$I_{FSM}$	150 A
$V_F$	0.56 V, 0.59 V
$I_R$	80 $\mu$ A, 60 $\mu$ A
$T_J$ max.	175 °C
Package	D <sup>2</sup> 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)	$I_{F(AV)}$	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 $t_p = 2$ $\mu$ s, 1 kHz	$I_{RRM}$	1.0	0.5	A
Peak non-repetitive reverse energy (8/20 $\mu$ 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 $\Omega$	$V_C$	25		kV
Voltage rate of change (rated $V_R$ )	dV/dt	10 000		V/ $\mu$ s
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
Maximum instantaneous forward voltage per diode	$I_F = 15\text{ A}$	$T_C = 25\text{ }^\circ\text{C}$	$V_F^{(1)}$	-	0.62	-	0.68
	$I_F = 15\text{ A}$	$T_C = 125\text{ }^\circ\text{C}$		0.49	0.56	0.55	0.59
	$I_F = 30\text{ A}$	$T_C = 25\text{ }^\circ\text{C}$		-	0.73	-	0.83
	$I_F = 30\text{ A}$	$T_C = 125\text{ }^\circ\text{C}$		0.62	0.67	0.68	0.71
Maximum reverse current per diode at working peak reverse voltage			$I_R^{(2)}$	-	80	-	60
				5.0	15	4.0	15

**Notes**(1) Pulse test: 300  $\mu\text{s}$  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	1.35	45	50/tube	Tube
TO-263AB	MBRB30H45CT-E3/81	1.35	81	800/reel	Tape and reel
TO-263AB	MBRB30H45CTHE3_B/P <sup>(1)</sup>	1.35	P	50/tube	Tube
TO-263AB	MBRB30H45CTHE3_B/I <sup>(1)</sup>	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)

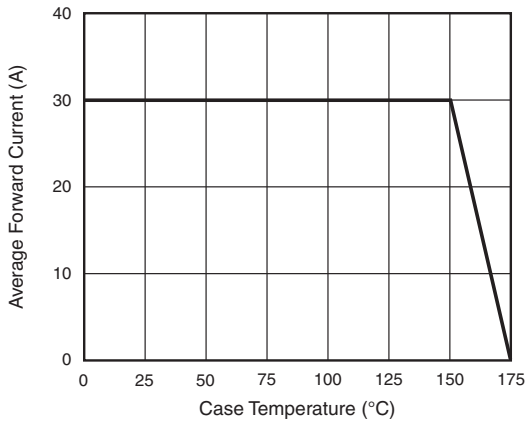


Fig. 1 - Forward Derating Curve

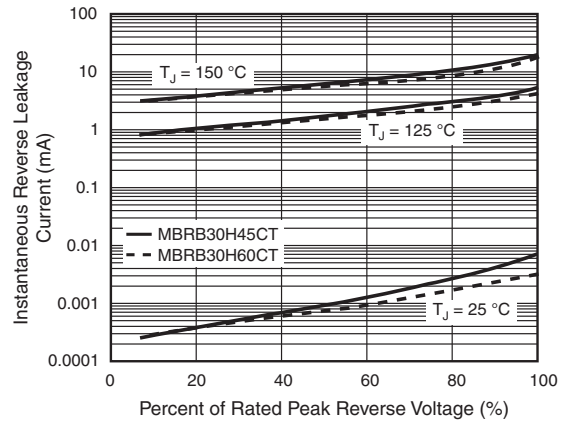


Fig. 4 - Typical Reverse Characteristics Per Diode

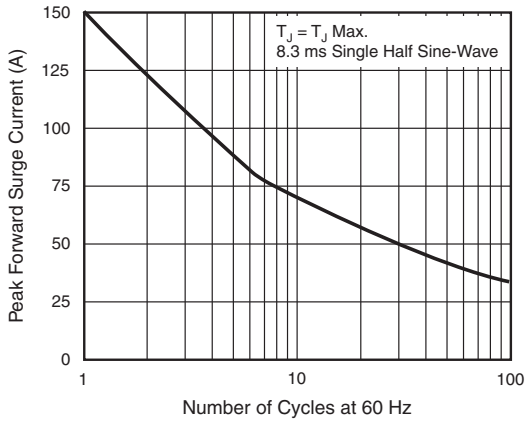


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

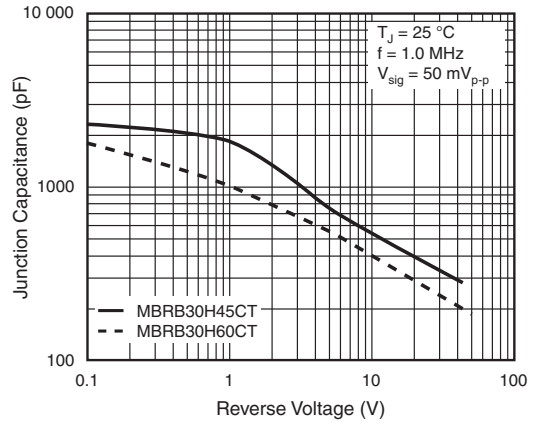


Fig. 5 - Typical Junction Capacitance Per Diode

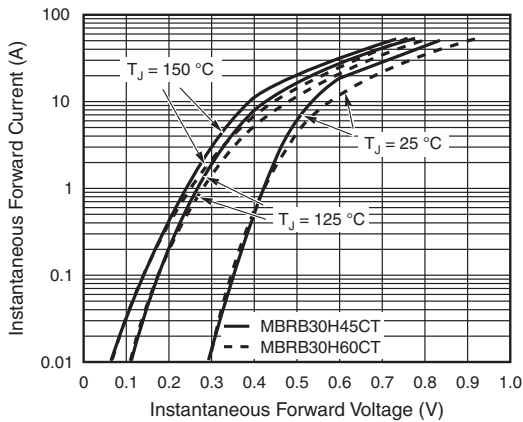


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

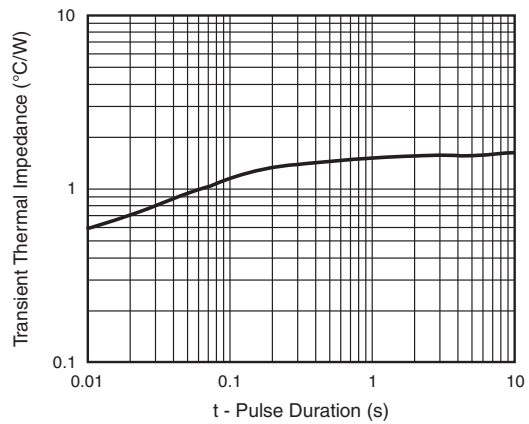
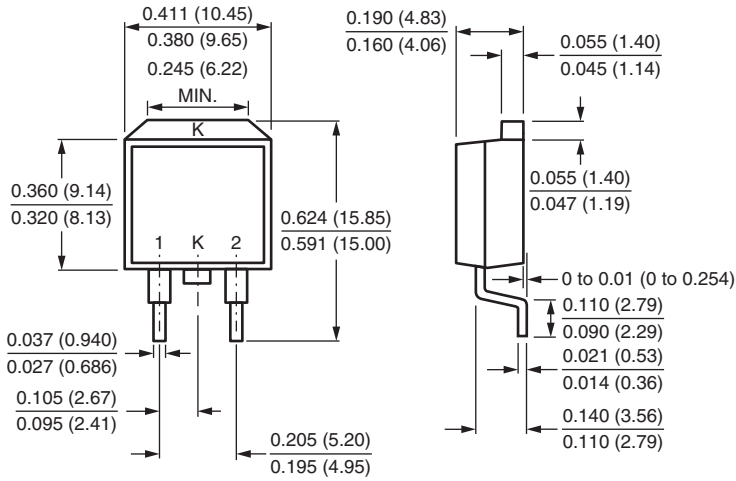


Fig. 6 - Typical Transient Thermal Impedance Per Diode

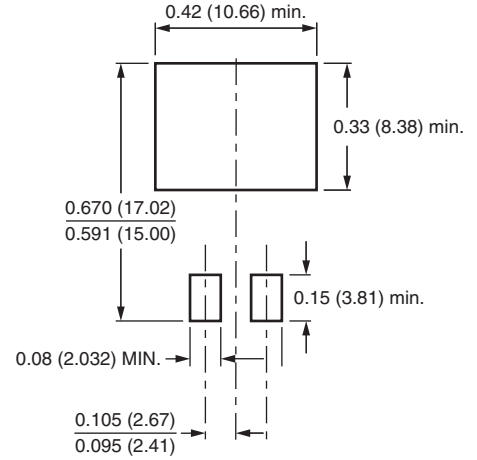


### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

#### D<sup>2</sup>PAK (TO-263AB)



#### Mounting Pad Layout





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