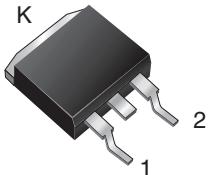


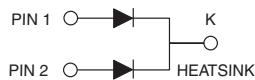
Dual Common Cathode Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance

D²PAK (TO-263AB)



MBRB25HxxCT



DESIGN SUPPORT TOOLS



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

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/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

PRIMARY CHARACTERISTICS	
I _{F(AV)}	2 x 15 A
V _{RRM}	35 V, 45 V, 60 V
I _{FSM}	150 A
V _F	0.54 V, 0.60 V
I _R	100 µA
T _J max.	175 °C
Package	D ² PAK (TO-263AB)
Circuit configuration	Common cathode

MAXIMUM RATINGS (T _C = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	MBRB25H35CT	MBRB25H45CT	MBRB25H60CT	UNIT
Maximum repetitive peak reverse voltage	V _{RRM}	35	45	60	V
Working peak reverse voltage	V _{RWM}	35	45	60	
Maximum DC blocking voltage	V _{DC}	35	45	60	
Max. average forward rectified current (fig. 1) <small>total device per diode</small>	I _{F(AV)}	30	15		A
Non-repetitive avalanche energy per diode at 25 °C, I _{AS} = 4 A, L = 10 mH	E _{AS}	80			
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	1.0	0.5	A
Peak non-repetitive reverse energy (8/20 µs waveform)	E _{RSR}	25	25	20	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 ($T_C = 25^\circ\text{C}$ unless otherwise noted)								
PARAMETER	SYMBOL	TEST CONDITIONS		MBRB25H35CT MBRB25H45CT		MBRB25H60CT		UNIT
		TYP.	MAX.	TYP.	MAX.	TYP.	MAX.	
Maximum instantaneous forward voltage per diode	V_F ⁽¹⁾	$I_F = 15\text{ A}$	$T_J = 25^\circ\text{C}$	-	0.64	-	0.70	V
		$I_F = 15\text{ A}$	$T_J = 125^\circ\text{C}$	0.50	0.54	0.56	0.60	
	$I_F = 30\text{ A}$	$T_J = 25^\circ\text{C}$	-	0.74	-	0.85		
		$T_J = 125^\circ\text{C}$	0.63	0.67	0.68	0.72		
Maximum reverse current per diode	I_R ⁽²⁾	Rated V_R	$T_J = 25^\circ\text{C}$	-	100	-	100	μA
			$T_J = 125^\circ\text{C}$	6.0	20	4.0	20	mA

Notes

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

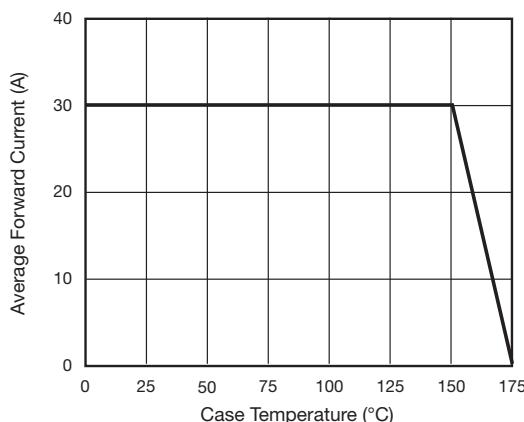
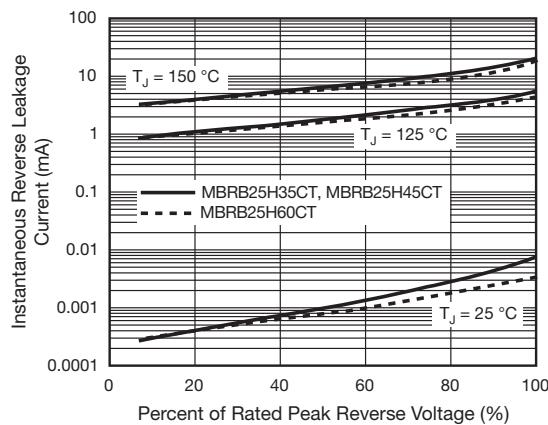
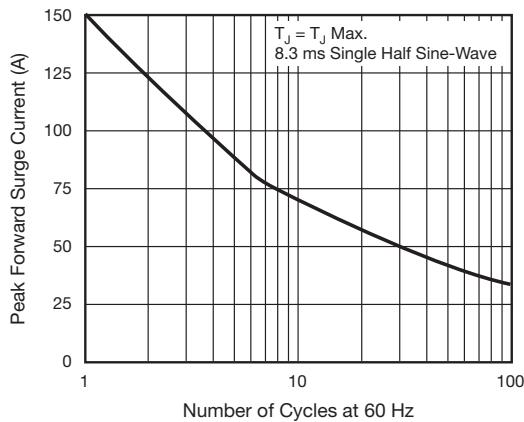
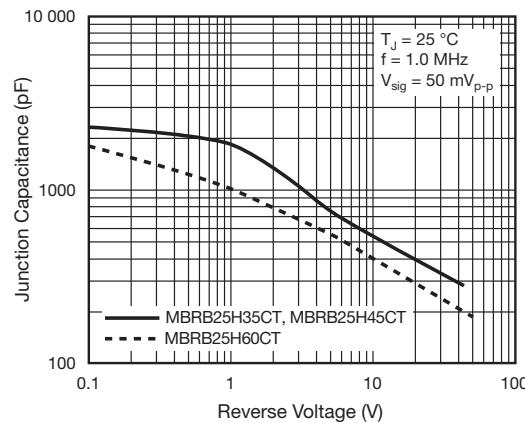
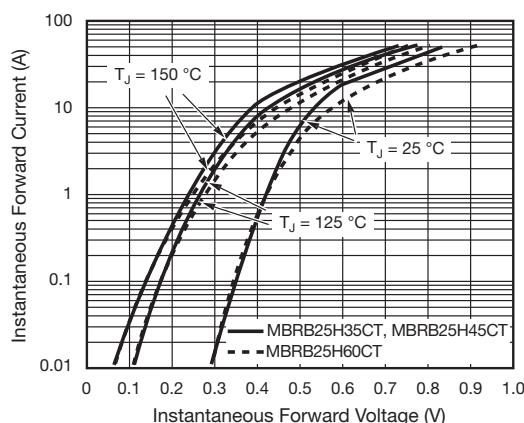
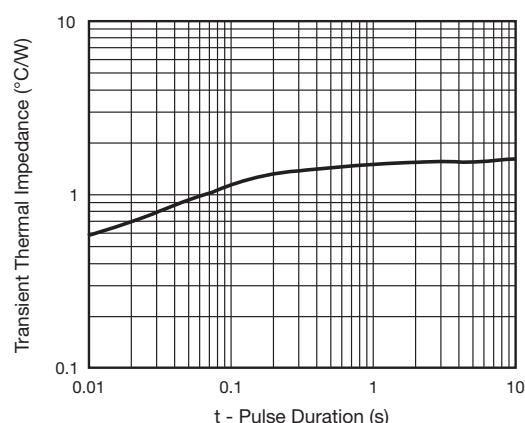
(2) Pulse test: pulse width $\leq 40\text{ ms}$

THERMAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	MBRB			UNIT
Thermal resistance, junction to case per diode	$R_{\theta\text{JC}}$	1.5			$^\circ\text{C/W}$

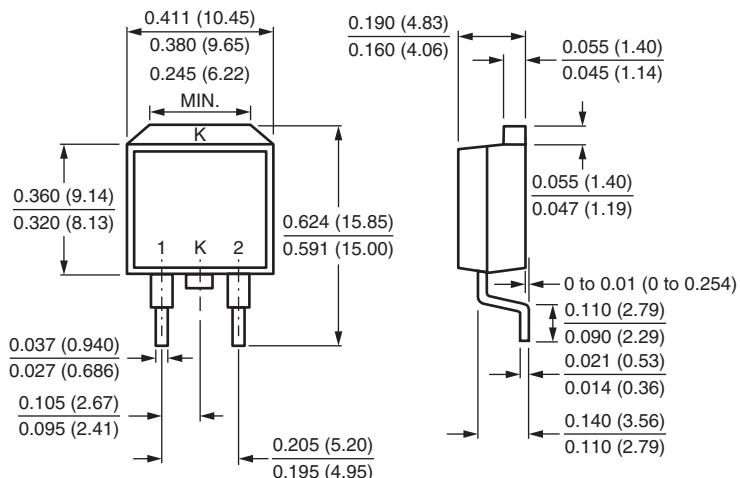
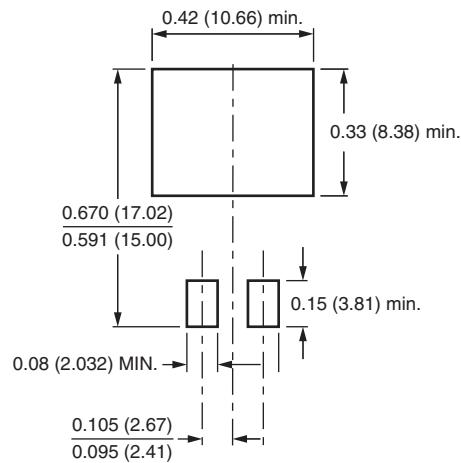
ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-263AB	MBRB25H60CTHE3_B/P ⁽¹⁾	1.35	P	50/tube	Tube
TO-263AB	MBRB25H60CTHE3_B/I ⁽¹⁾	1.35	I	800/reel	Tape and reel

Note

(1) AEC-Q101 qualified

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

Fig. 1 - Forward Derating Curve (Total)

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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