

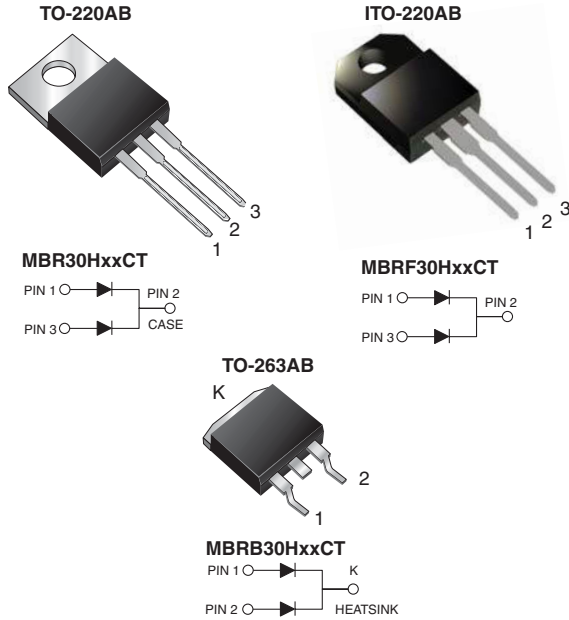


MBR(F,B)30H35CT thru MBR(F,B)30H60CT

New Product Vishay General Semiconductor

Dual Common-Cathode Schottky Rectifier

High Barrier Technology for improved high temperature performance



FEATURES

- 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-020C, LF max peak of 245 °C (for TO-263AB package)
- Solder Dip 260 °C, 40 seconds (for TO-220AB & ITO-220AB package)
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



TYPICAL APPLICATIONS

For use in low voltage, high frequency rectifier of switching mode power supplies, free-wheeling diodes, dc-to-dc converters or polarity protection application.

MECHANICAL DATA

Case: TO-220AB, ITO-220AB, TO-263AB

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D

E3 suffix for commercial grade, HE3 suffix for high reliability grade (AEC Q101 qualified)

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

MAJOR RATINGS AND CHARACTERISTICS

$I_{F(AV)}$	15 A x 2
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
$T_j \text{ max}$	175 °C

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

PARAMETER	SYMBOL	MBR30H35CT	MBR30H45CT	MBR30H50CT	MBR30H60CT	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
Max. average forward rectified current (see Fig. 1)	$I_{F(AV)}$	Total device per diode		30		A
			15			
Non-repetitive avalanche energy per diode at 25 °C, $I_{AS} = 4 \text{ A}$, $L = 10 \text{ mH}$	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 $t_p = 2.0 \text{ } \mu\text{s}$, 1 kHz	I_{RRM}	1.0		0.5		A
Peak non-repetitive reverse energy (8/20 μs waveform)	E_{RSM}	25		20		mJ

MBR(F,B)30H35CT thru MBR(F,B)30H60CT



Vishay General Semiconductor

MAXIMUM RATINGS ($T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	SYMBOL	MBR30H35CT	MBR30H45CT	MBR30H50CT	MBR30H60CT	UNIT
Electrostatic discharge capacitor voltage Human body model: $C = 100\text{ pF}$, $R = 1.5\text{ k}\Omega$	V_C	25				kV
Voltage rate of change (rated V_R)	dv/dt	10000				V/ μs
Operating junction temperature range	T_J	- 65 to + 175				$^\circ\text{C}$
Storage temperature range	T_{STG}	- 65 to + 175				$^\circ\text{C}$
Isolation voltage (ITO-220AB only) From terminal to heatsink $t = 1\text{ minute}$	V_{AC}	1500				V

ELECTRICAL CHARACTERISTICS ($T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)							
PARAMETER	TEST CONDITIONS	SYMBOL	MBR30H35CT MBR30H45CT		MBR30H50CT MBR30H60CT		UNIT
			TYP	MAX	TYP	MAX	
Maximum instantaneous forward voltage per diode ⁽¹⁾	at $I_F = 15\text{ A}$ $T_J = 25\text{ }^\circ\text{C}$	V_F	-	0.62	-	0.68	V
	at $I_F = 15\text{ A}$ $T_J = 125\text{ }^\circ\text{C}$		0.49	0.56	0.55	0.59	
	at $I_F = 30\text{ A}$ $T_J = 25\text{ }^\circ\text{C}$		-	0.73	-	0.83	
	at $I_F = 30\text{ A}$ $T_J = 125\text{ }^\circ\text{C}$		0.62	0.67	0.68	0.71	
Maximum instantaneous reverse current at rated DC blocking voltage per diode ⁽¹⁾	$T_J = 25\text{ }^\circ\text{C}$	I_R	-	80	-	60	μA mA
	$T_J = 125\text{ }^\circ\text{C}$		5.0	15	4.0	15	

Note:

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

THERMAL CHARACTERISTICS ($T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	SYMBOL	MBR	MBRF	MBRB	UNIT	
Thermal resistance from junction to case per diode	$R_{\theta JC}$	1.5	4.5	1.5	$^\circ\text{C/W}$	

ORDERING INFORMATION					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	MBR30H45CT-E3/45	1.85	45	50/Tube	Tube
ITO-220AB	MBRF30H45CT-E3/45	1.99	45	50/Tube	Tube
TO-263AB	MBRB30H45CT-E3/45	1.35	45	50/Tube	Tube
TO-263AB	MBRB30H45CT-E3/81	1.35	81	800/Reel	Tape Reel



RATINGS AND CHARACTERISTICS CURVES

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

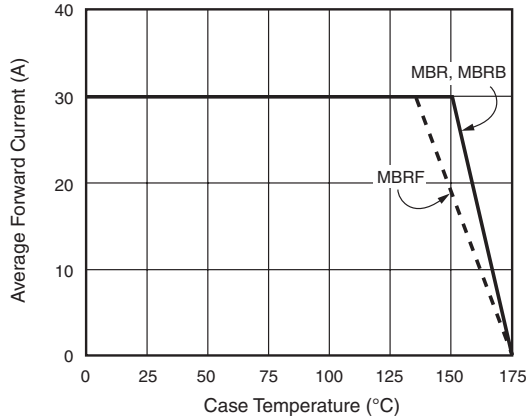


Figure 1. Forward Derating Curve

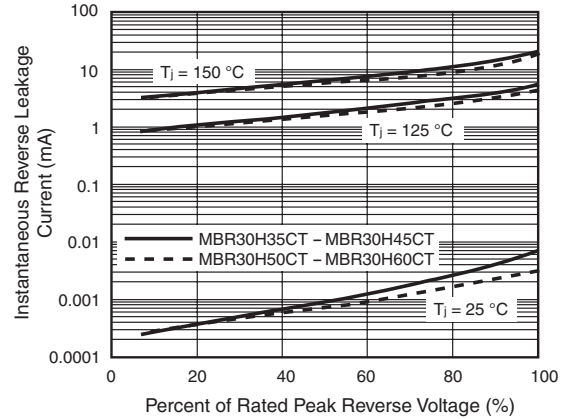


Figure 4. Typical Reverse Characteristics Per Diode

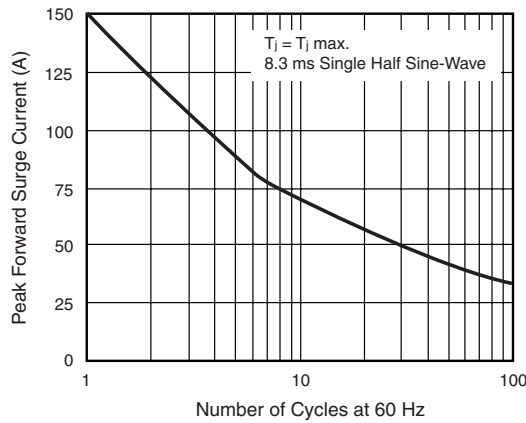


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

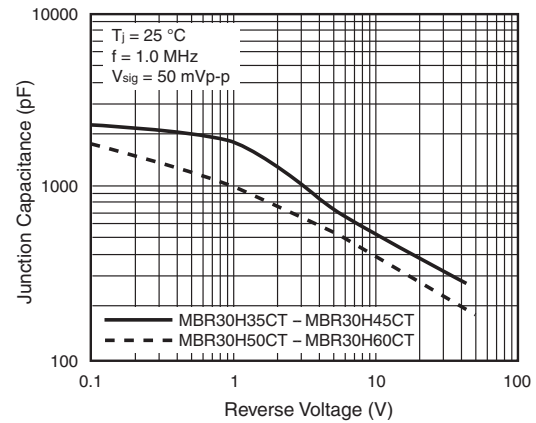


Figure 5. Typical Junction Capacitance Per Diode

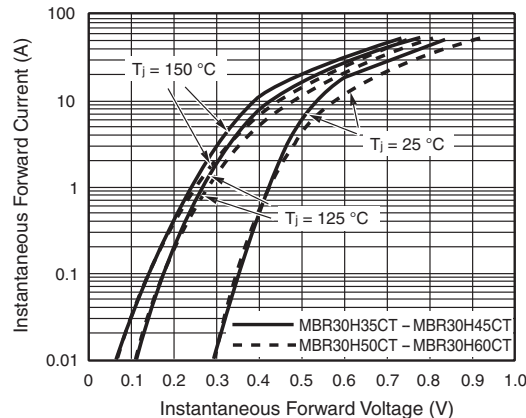


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

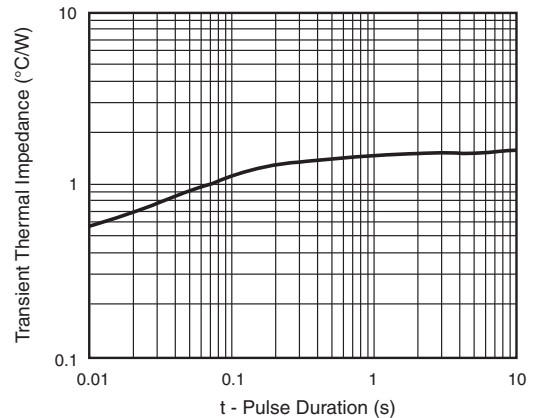


Figure 6. Typical Transient Thermal Impedance Per Diode

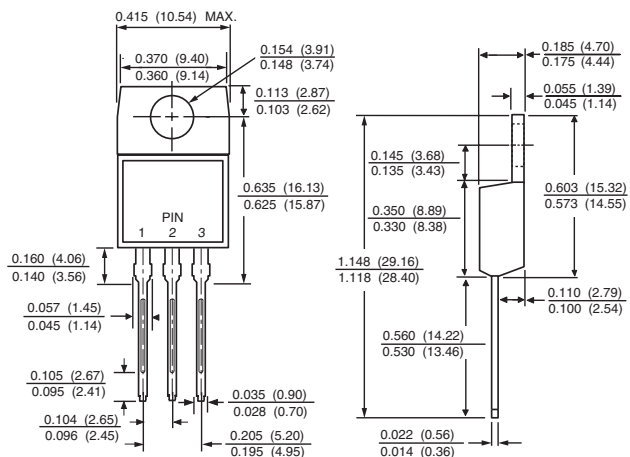
MBR(F,B)30H35CT thru MBR(F,B)30H60CT

Vishay General Semiconductor

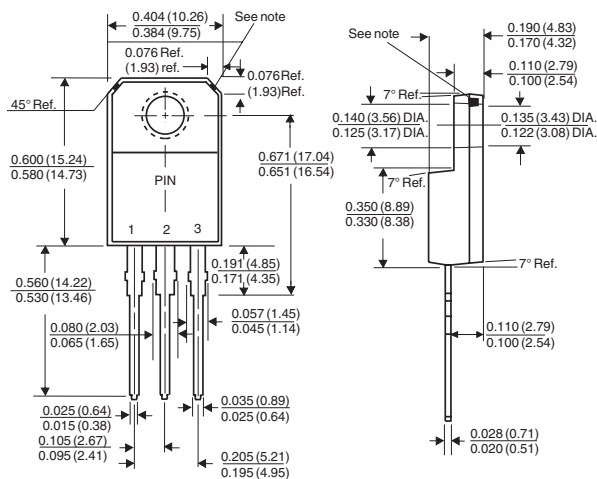


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB

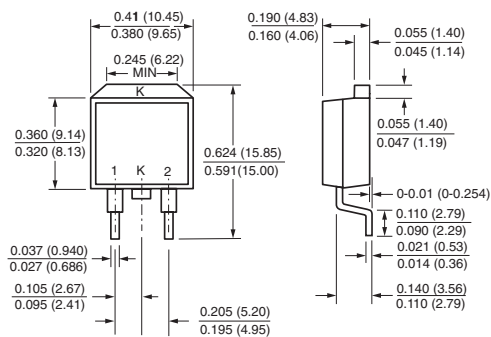


ITO-220AB

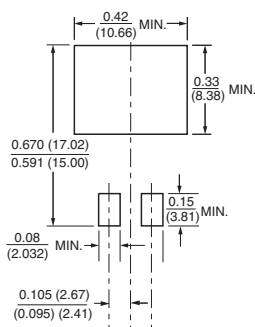


Note: Copper exposure is allowable for 0.005 (0.13) Max. from the body

TO-263AB



Mounting Pad Layout





Notice

Specifications of the products displayed herein are subject to change without notice. Vishay Intertechnology, Inc., or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Vishay's terms and conditions of sale for such products, Vishay assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of Vishay products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Vishay for any damages resulting from such improper use or sale.