chanhvinh.com

MBR20H200CT, MBRF20H200CT, SB20H200CT-1

Dual Common-Cathode High-Voltage Schottky Rectifier

Low Leakage Current 5.0 µA

TO-220AB



MBR20H200CT

ITO-220AB



MBRF20H200CT

TO-262AA



SB20H200CT-1



FEATURES

- Guardring for overvoltage protection
- Low power loss, high efficiency
- Low forward voltage drop
- High frequency operation
- Solder dip 275 °C max., 10 s per JESD 22-B106
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

Pb e3 RoHS COMPLIANT

TYPICAL APPLICATIONS

For use in high frequency inverters, freewheeling, and polarity protection application.

MECHANICAL DATA

Case: TO-220AB, ITO-220AB, and TO-262AA
Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS-compliant and commercial grade

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
E3 suffix meets JESD 201 class 1A whisker test

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 10 A
V_{RRM}	200 V
I_{FSM}	290 A
V_F	0.75 V
T_J max.	175 °C

MAXIMUM RATINGS (T_C = 25 °C unless otherwise noted)

PARAMETER		SYMBOL	MBR20H200CT	UNIT
Maximum repetitive peak reverse voltage		V_{RRM}	200	V
Working peak reverse voltage		V_{RWM}	200	V
Maximum DC blocking voltage		V_{DC}	200	V
Maximum average forward rectified current	total device	$I_{F(AV)}$	20	A
	per diode		10	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode		I_{FSM}	290	A
Peak repetitive reverse current per diode at t_p = 2 µs, 1 kHz		I_{RRM}	1.0	A
Peak non-repetitive reverse surge energy per diode (8/20 µs waveform)		E_{RSM}	20	mJ
Non-repetitive avalanche energy per diode at 25 °C, I_{AS} = 2.0 A, L = 10 mH		E_{AS}	20	mJ
Electrostatic discharge capacitor voltage human body model air discharge: 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
Isolation voltage (ITO-220AB only) from terminals to heatsink t = 1 min		V_{AC}	1500	V

For technical questions within your region: DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

chanhvinh.com

ELECTRICAL CHARACTERISTICS (T_C = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Maximum instantaneous forward voltage per diode	I_F = 10 A	T_C = 25 °C	V_F (1)	0.81	0.88	V
	I_F = 10 A	T_C = 125 °C		0.65	0.75	
	I_F = 20 A	T_C = 25 °C		0.87	0.97	
	I_F = 20 A	T_C = 125 °C		0.74	0.85	
Maximum reverse current per diode at working peak reverse voltage		T_J = 25 °C	I_R (1)	5.0		µA
		T_J = 125 °C		1.0		mA
Typical junction capacitance	4.0 V, 1 MHz		C_J	250		pF

Notes

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

THERMAL CHARACTERISTICS (T_C = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	MBR	MBRF	SB	UNIT
Typical thermal resistance per diode	$R_{\theta JC}$	2.0	4.0	2.0	°C/W

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	MBR20H200CT-E3/45	2.06	45	50/tube	Tube
ITO-220AB	MBRF20H200CT-E3/45	2.20	45	50/tube	Tube
TO-262AA	SB20H200CT-1E3/45	1.58	45	50/tube	Tube

Note

(1) AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

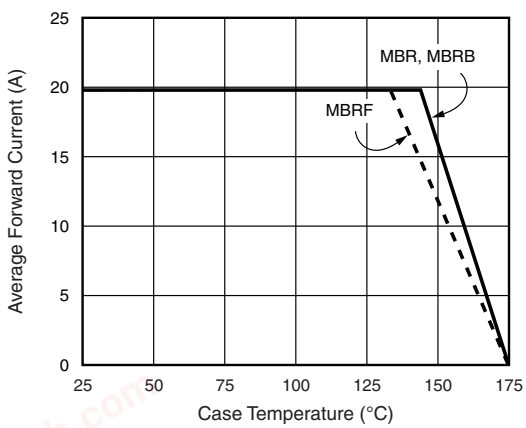


Fig. 1 - Forward Derating Curve (Total)

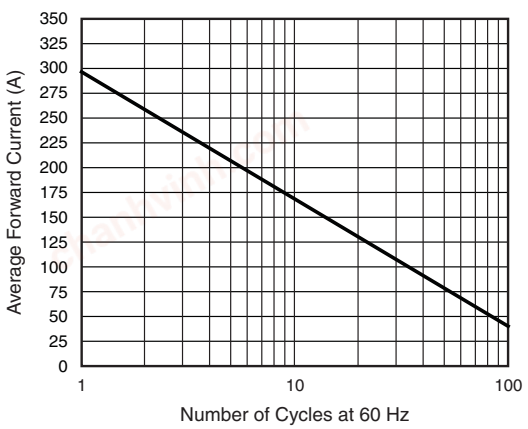


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

For technical questions within your region: DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

chanhvinh.com

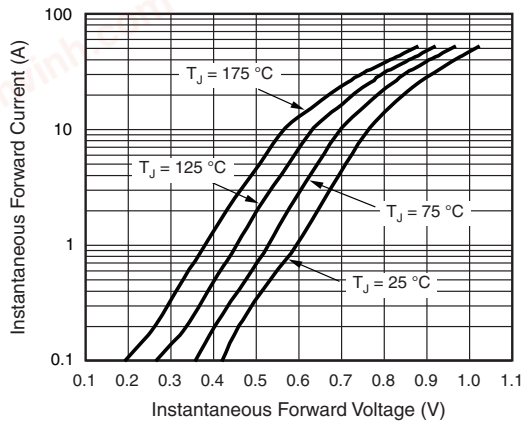


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

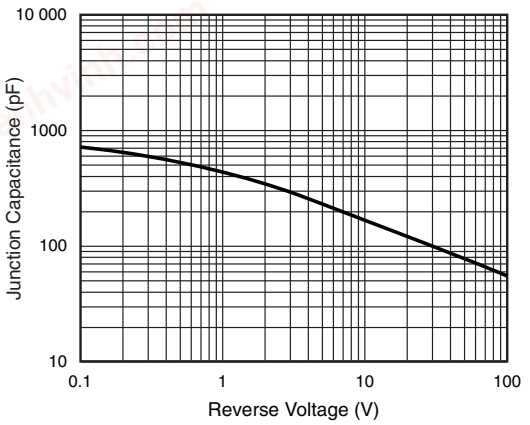


Fig. 5 - Typical Junction Capacitance Per Diode

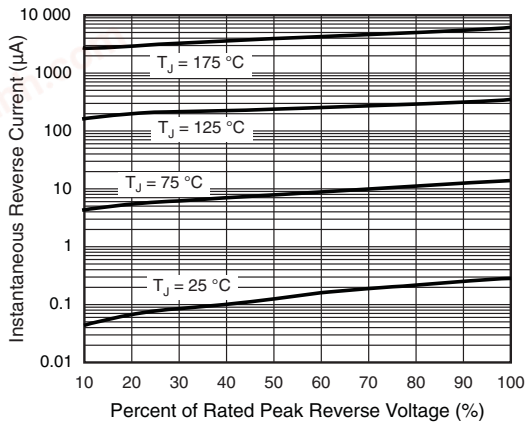


Fig. 4 - Typical Reverse Characteristics Per Diode

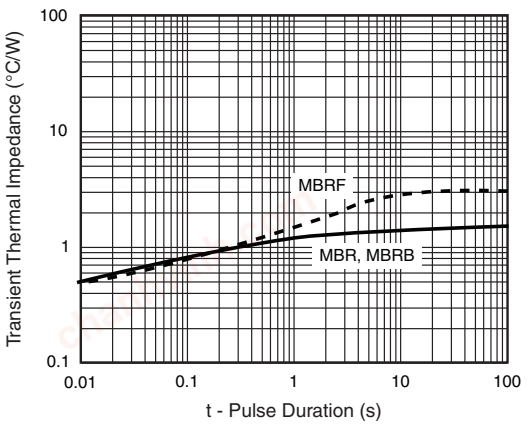


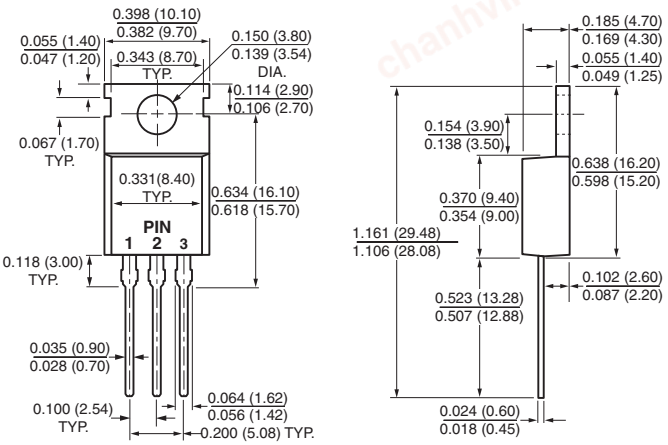
Fig. 6 - Typical Transient Thermal Impedance Per Diode

For technical questions within your region: DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

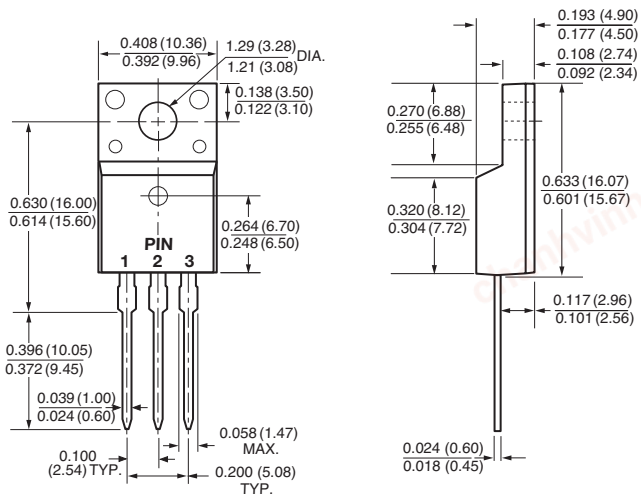
chanhvinh.com

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

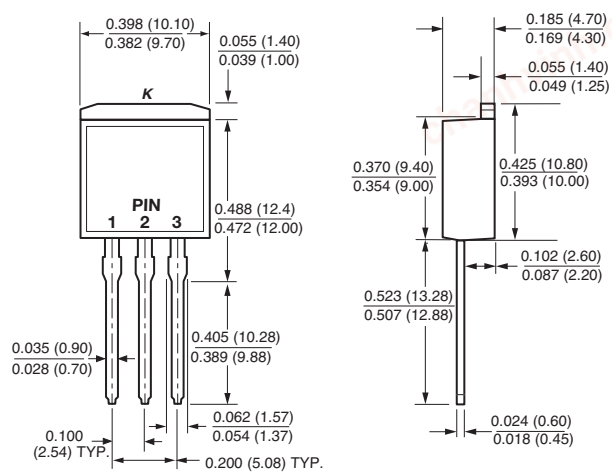
TO-220AB



ITO-220AB



TO-262AA



For technical questions within your region: DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

chanhvinh.com

Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Vishay”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay’s knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer’s responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer’s technical experts. Product specifications do not expand or otherwise modify Vishay’s terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

Material Category Policy

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.