ДИОДЫ ШОТТКИ СЕРИИ MBR

Отличительные особенности:

- платиновый барьер;
- низкое прямое падение напряжения;
- высокое быстродействие;
- фактическое отсутствие заряда обратного восстановления.

Предпочтительным является использование диодов Шоттки в мощных выпрямителях с низким напряжением на высоких частотах переключения. Диоды могут успешно применяться в импульсных источниках питания, конверторах, устройствах заряда батарей и т.п.

Основные электрические параметры (на вывод)

Тип прибора	V_R, V	Max $I_{F(AV)}$, A	Max V_F@I_F T_C=25¦ C, V (1)	Max V_F@I_F T_C =125¦ C, V (1)	Max I_R@V_R T_C =25¦ C, mA (1)	Max I_R@V_R T_C =125¦ C, mA (1)	Тип корпуса
MBR 735	35	7.5	0.84 @ 15 A	0.72 @ 15 A	0.1	15.0	TO-220AC
MBR 745	45	7.5	0.84 @ 15 A	0.72 @ 15 A	0.1	15.0	TO-220AC
MBR 750	50	7.5	0.75 @ 7.5 A	0.65 @ 7.5 A	1.0	50.0	TO-220AC
MBR 760	60	7.5	0.75 @	0.65 @	1.0	50.0	TO-

			7.5 A	7.5 A			220AC
MBR 1035	35	10	0.84 @ 20 A	0.72 @ 20 A	0.1	15.0	TO-220AC
MBR 1045	45	10	0.84 @ 20 A	0.72 @ 20 A	0.1	15.0	TO-220AC
MBR 1050	50	10	0.8 @ 10 A	0.7 @ 10 A	0.1	15.0	TO-220AC
MBR 1060	60	10	0.8 @ 10 A	0.7 @ 10 A	0.1	6.0	TO-220AC
MBR 1070	70	10	0.8 @ 10 A	0.7 @ 10 A	0.1	6.0	TO-220AC
MBR 1080	80	10	0.8 @ 10 A	0.7 @ 10 A	0.1	6.0	TO-220AC
MBR 1090	90	10	0.8 @ 10 A	0.7 @ 10 A	0.1	6.0	TO-220AC
MBR 10100	100	100	0.8 @ 10 A	0.7 @ 10 A	0.1	6.0	TO-220AC
MBR 1635	35	35	0.63 @ 16 A	0.57 @ 16 A	0.2	40.0	TO-220AC
MBR 1645	45	45	0.63 @ 16 A	0.57 @ 16 A	0.2	40.0	TO-220AC
MBR 1650	50	50	0.75 @ 16 A	0.65 @ 16 A	1.0	50.0	TO-220AC
MBR 1660	60	60	0.75 @ 16 A	0.65 @ 16 A	1.0	50.0	TO-220AC

MBR 1535CT	35	7.5 на вывод 15 на прибор	0.84 @ 15 A	0.72 @ 15 A	0.1	15.0	TO-220AB
MBR 1545CT	45	7.5 на вывод 15 на прибор	0.84 @ 15 A	0.72 @ 15 A	0.1	15.0	TO-220AB
MBR 1550CT	50	7.5 на вывод 15 на прибор	0.75 @ 7.5 A	0.65 @ 7.5 A	1.0	50.0	TO-220AB
MBR 1560CT	60	7.5 на вывод 15 на прибор	0.75 @ 7.5 A	0.65 @ 7.5 A	1.0	50.0	TO-220AB
MBR 2035CT	35	10 на вывод 20 на прибор	0.84 @ 20 A	0.72 @ 20 A	0.1	15.0	TO-220AB
MBR 2045CT	45	10 на вывод 20 на прибор	0.84 @ 20 A	0.72 @ 20 A	0.1	15.0	TO-220AB
MBR 2050CT	50	10 на вывод 20 на	0.95 @ 20 A	0.85 @ 20 A	0.1	15.0	TO-220AB

		прибор					
MBR 2060CT	60	10 на вывод 20 на прибор	0.95 @ 20 A	0.85 @ 20 A	0.1	6.0	TO-220AB
MBR 2070CT	70	10 на вывод 20 на прибор	0.95 @ 20 A	0.85 @ 20 A	0.1	6.0	TO-220AB
MBR 2080CT	80	10 на вывод 20 на прибор	0.95 @ 20 A	0.85 @ 20 A	0.1	6.0	TO-220AB
MBR 2090CT	90	10 на вывод 20 на прибор	0.95 @ 20 A	0.85 @ 20 A	0.1	6.0	TO-220AB
MBR 20100CT	100	10 на вывод 20 на прибор	0.95 @ 20 A	0.85 @ 20 A	0.1	6.0	TO-220AB
MBR 20200CT	200	10 на вывод 20 на прибор	1.0 @ 20 A	0.9 @ 20 A	1.0	50.0	TO-220AB

(1) - Параметры импульса: $\tau_{имп}$=300 мкс, рабочий цикл 2 %.

ДИОДЫ ШОТТКИ

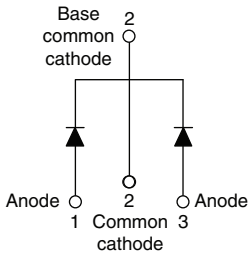
Тип	Основные параметры	Корпус
КД238АС-ВС	$I_{F(AV)}$=7.5 А, V_{RRM}=25/35/45 В, V_F=0.65/0.65/0.65 В	TO-220AB
КД268А-Е, АС-ЕС	$I_{F(AV)}$=5 А, V_{RRM}=25/50/75/100/150/200 В, V_F=0.65/0.75/0.82/0.85/0.95/1.0 В	TO-220AC/TO-220AB
КД269А-Е, АС-ЕС	$I_{F(AV)}$=5 А, V_{RRM}=25/50/75/100/150/200 В, V_F=0.65/0.75/0.82/0.85/0.95/1.0 В	TO-220AC/TO-220AB
КД270А-Е, АС-ЕС	$I_{F(AV)}$=7.5 А, V_{RRM}=25/50/75/100/150/200 В, V_F=0.65/0.75/0.82/0.85/0.95/1.0 В	TO-220AC/TO-220AB
КД271А-Е, АС-ЕС	$I_{F(AV)}$=10 А, V_{RRM}=25/50/75/100/150/200 В, V_F=0.65/0.75/0.85/0.9/0.95/1.0 В	TO-220AC/TO-220AB
КД271 К КД271 Л КД271 М	$I_{F(AV)}$=10 А, V_{RM}=400/500/600 В, V_{FM}=1.05/1.15/1.3 В	TO-220AC
КД271 КС КД271 ЛС КД271 МС	$I_{F(AV)}$=10 А, V_{RM}=400/500/600 В, V_{FM}=1.05/1.15/1.3 В	TO-220AB
КД271 К1 КД271 Л1 КД271 М1	$I_{F(AV)}$=10 А, V_{RM}=400/500/600 В, V_{FM}=1.05/1.15/1.3 В	КТ-32
КД272А-Е, АС-ЕС	$I_{F(AV)}$=15 А, V_{RRM}=25/50/75/100/150/200 В, V_F=0.65/0.75/0.85/0.9/1.0/1.05 В	TO-220AC/TO-220AB
КД272 К КД272 Л	$I_{F(AV)}$=15 А, V_{RM}=400/500/600 В,	TO-220AC

КД272 М	V_{FM}=1.05/1.15/1.3 В	
КД272 КС КД272 ЛС КД272 МС	$I_{F(AV)}$=15 А, V_{RM}=400/500/600 В, V_{FM}=1.05/1.15/1.3 В	TO-220AB
КД272 К1 КД272 Л1 КД272 М1	$I_{F(AV)}$=15 А, V_{RM}=250/300/400/500/600 В, V_{FM}=1.1/1.2/1.05/1.15/1.3 В	КТ-32
КД273А-Е, АС-ЕС	$I_{F(AV)}$=20 А, V_{RRM}=25/50/75/100/150/200 В, V_F=0.65/0.75/0.85/0.9/1.0/1.05 В	TO-220AC/TO-220AB
КД273 К КД273 Л КД273 М	$I_{F(AV)}$=20 А, V_{RM}=400/500/600 В, V_{FM}=1.05/1.15/1.3 В	TO-220AC
КД273 КС КД273 ЛС КД273 МС	$I_{F(AV)}$=20 А, V_{RM}=400/500/600 В, V_{FM}=1.05/1.15/1.3 В	TO-220AB
КД273 К1 КД273 Л1 КД273 М1	$I_{F(AV)}$=20 А, V_{RM}=400/500/600 В, V_{FM}=1.05/1.15/1.3 В	КТ-32
КД293	$I_{F(AV)}$=1(1x2) А, V_R=20÷100 В, V_F=0.5÷0.79 В	SOT-82
КД294	$I_{F(AV)}$=2(2x2) А, V_R=20÷100 В, V_F=0.5÷0.79 В	SOT-82
КД295	$I_{F(AV)}$=3(3x2) А, V_R=20÷100 В, V_F=0.55÷0.79 В	SOT-82
КД296	$I_{F(AV)}$=5(5x2) А, V_R=20÷100 В, V_F=0.55÷0.79 В	TO-220AC/TO-220AB
КД640А-Е, АС-ЕС	$I_{F(AV)}$=8 А, V_{RM}=400/500/600/700/550 В, V_{FM}=1.6/1.7/1.7/1.9/1.7 В	TO-220AC/TO-220AB
	$I_{F(AV)}$=15 А, V_{RM}=400/500/600/700/550	

КД641А-Е, АС-ЕС	В, V_{FM}=1.6/1.7/1.7/1.9/1.7 В	ТО-220АС/ТО-220АВ
КД641А1-Е1	$I_{F(AV)}$=15 А, V_{RM}=400/500/600/700/550 В, V_{FM}=1.6/1.7/1.7/1.9/1.7 В	КТ-32
Серия MBR		ТО-220АС/ТО-220АВ

Schottky Rectifier, 2 x 10 A

TO-220AB



FEATURES

- 150 °C T_J operation
- Low forward voltage drop
- High frequency operation
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Guard ring for enhanced ruggedness and long term reliability
- Designed and qualified according to JEDEC®-JESD47
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

Pb-free

e3

RoHS COMPLIANT

HALOGEN FREE Available

DESCRIPTION

This center tap Schottky rectifier has been optimized for low reverse leakage at high temperature. The proprietary barrier technology allows for reliable operation up to 150 °C junction temperature. Typical applications are in switching power supplies, converters, freewheeling diodes, and reverse battery protection.

PRODUCT SUMMARY	
Package	TO-220AB
$I_{F(AV)}$	2 x 10 A
V_R	80 V, 90 V, 100 V
V_F at I_F	0.70 V
I_{RM} max.	6 mA at 125 °C
T_J max.	150 °C
Diode variation	Common cathode
E_{AS}	24 mJ

MAJOR RATINGS AND CHARACTERISTICS			
SYMBOL	CHARACTERISTICS	VALUES	UNITS
$I_{F(AV)}$	Rectangular waveform (per device)	20	A
I_{FRM}	T_C = 133 °C per leg	20	A
V_{RRM}		80/100	V
I_{FSM}	t_p = 5 µs sine	850	A
V_F	10 A_{pk}, T_J = 125 °C	0.70	V
T_J	Range	- 65 to + 150	°C

VOLTAGE RATINGS								
PARAMETER	SYMBOL	MBR2080CT PbF	MBR2080CT -N3	MBR2090CT PbF	MBR2090CT -N3	MBR20100CT PbF	MBR20100CT -N3	UNITS
Maximum DC reverse voltage	V_R	80		90		100		V
Maximum working peak reverse voltage	V_{RWM}							

ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum average forward current	per leg	$I_{F(AV)}$	T_C = 133 °C, rated V_R		10	A
	per device				20	
Peak repetitive forward current per leg		I_{FRM}	Rated V_R, square wave, 20 kHz, T_C = 133 °C		20	
Non-repetitive peak surge current		I_{FSM}	5 µs sine or 3 µs rect. pulse	Following any rated load condition and with rated V_{RRM} applied	850	
			Surge applied at rated load conditions halfwave, single phase, 60 Hz		150	
Peak repetitive reverse surge current		I_{RRM}	2.0 µs, 1.0 kHz		0.5	
Non-repetitive avalanche energy per leg		E_{AS}	T_J = 25 °C, I_{AS} = 2 A, L = 12 mH		24	mJ

ELECTRICAL SPECIFICATIONS

PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop	V_{FM} (1)	10 A	T_J = 25 °C	0.80	V
		20 A		0.95	
		10 A	T_J = 125 °C	0.70	
		20 A		0.85	
Maximum instantaneous reverse current	I_{RM} (1)	T_J = 25 °C	Rated DC voltage	0.10	mA
		T_J = 125 °C		6	
Threshold voltage	$V_{F(TO)}$	T_J = T_J maximum		0.433	V
Forward slope resistance	r_t			15.8	mΩ
Maximum junction capacitance	C_T	V_R = 5 V_{DC} (test signal range 100 kHz to 1 MHz) 25 °C		400	pF
Typical series inductance	L_S	Measured from top of terminal to mounting plane		8.0	nH
Maximum voltage rate of change	dV/dt	Rated V_R		10 000	V/µs

Note

(1) Pulse width < 300 µs, duty cycle < 2 %

THERMAL - MECHANICAL SPECIFICATIONS

PARAMETER		SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction temperature range		T_J		- 65 to 150	°C
Maximum storage temperature range		T_{Stg}		- 65 to 175	
Maximum thermal resistance, junction to case per leg		R_{thJC}	DC operation	2.0	°C/W
Typical thermal resistance, case to heatsink		R_{thCS}	Mounting surface, smooth and greased (Only for TO-220)	0.50	
Maximum thermal resistance, junction to ambient		R_{thJA}	DC operation (For D^2PAK and TO-262)	50	
Approximate weight				2	g
				0.07	oz.
Mounting torque	minimum			6 (5)	kg· cm (lbf · in)
	maximum			12 (10)	
Marking device				MBR2080CT MBR2090CT MBR20100CT	

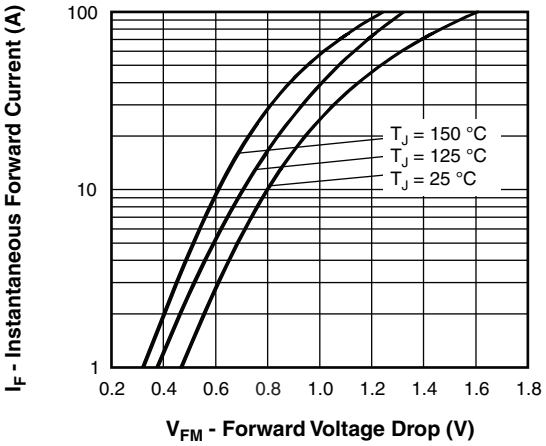


Fig. 1 - Maximum Forward Voltage Drop Characteristics (Per Leg)

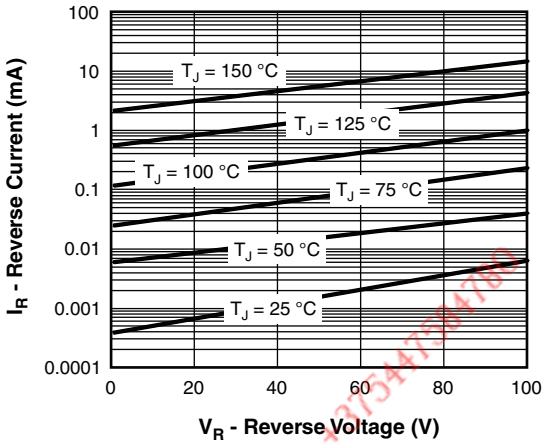


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage (Per Leg)

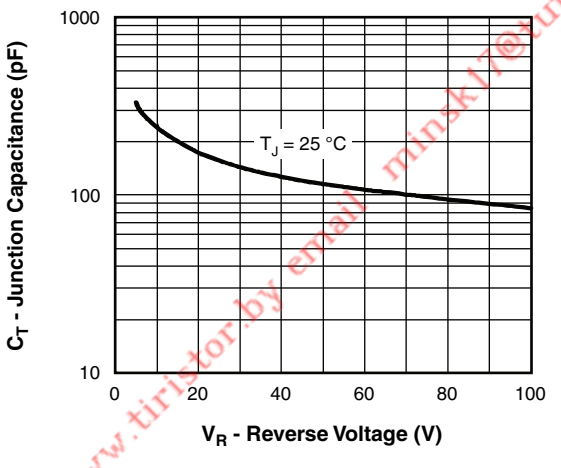


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage (Per Leg)

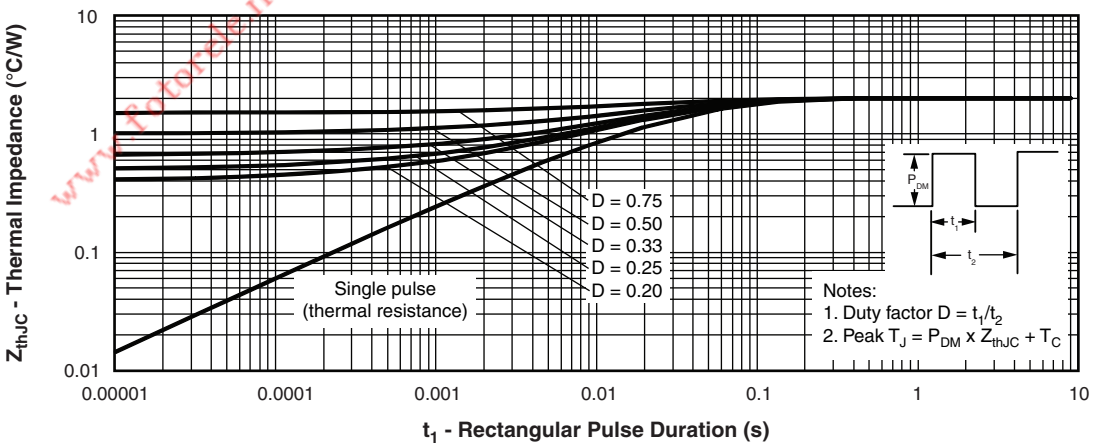


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics (Per Leg)

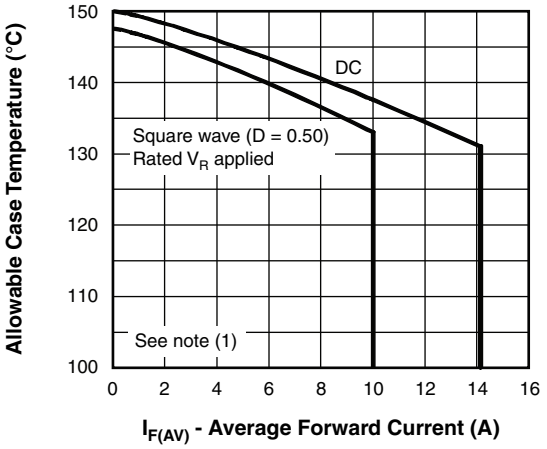


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current (Per Leg)

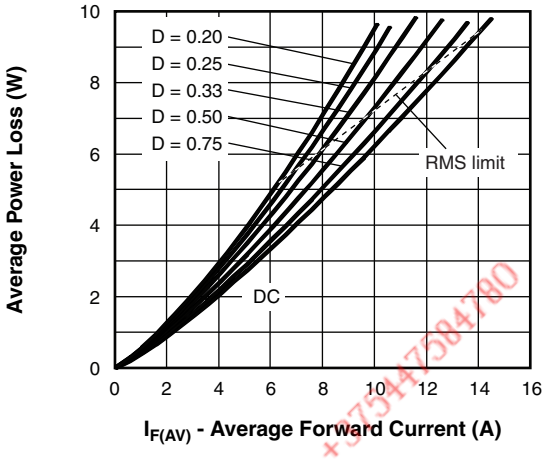


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

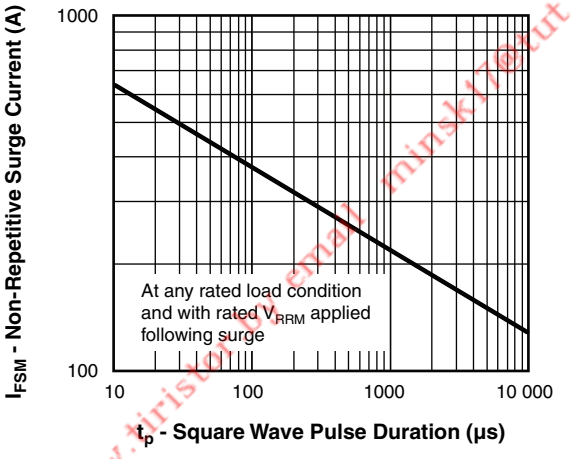


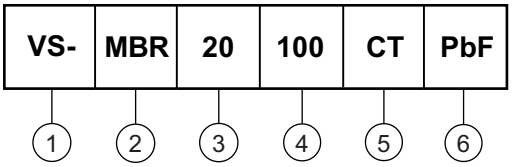
Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

Note

(1) Formula used: $T_C = T_J - (Pd + Pd_{REV}) \times R_{thJC}$;
Pd = Forward power loss = $I_{F(AV)} \times V_{FM}$ at ($I_{F(AV)}$/D) (see fig. 6);
Pd_{REV} = Inverse power loss = $V_{R1} \times I_R (1 - D)$; I_R at V_{R1} = Rated V_R

ORDERING INFORMATION TABLE

Device code



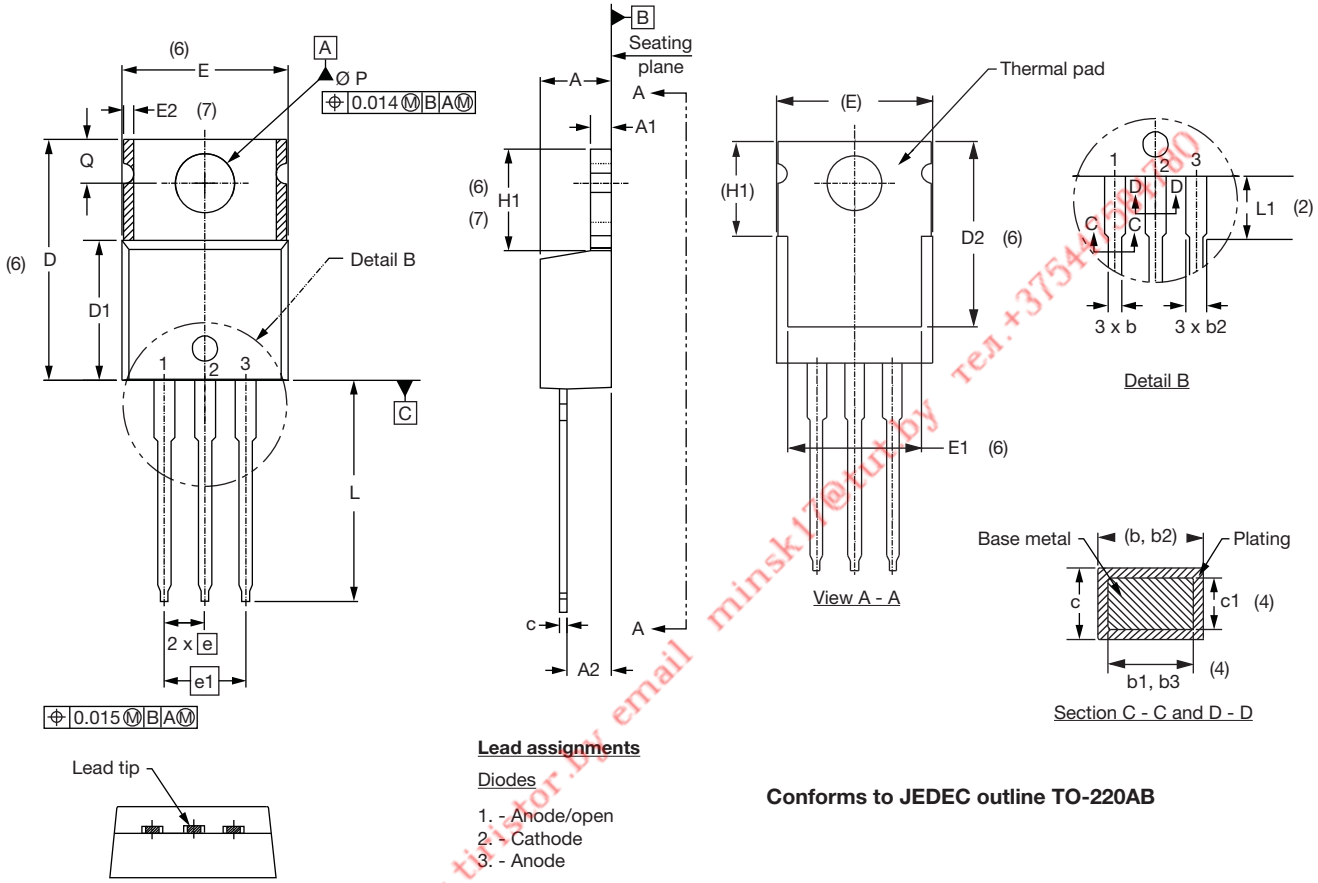
1 - Vishay Semiconductors product
2 - Schottky MBR series
3 - Current rating (20 = 20 A)
4 - Voltage ratings (080 = 80 V, 090 = 90 V, 100 = 100 V)
5 - CT = Essential part number
6 - • PbF = Lead (Pb)-free
• -N3 = Halogen-free, RoHS compliant, and totally lead (Pb)-free

ORDERING INFORMATION (Example)			
PREFERRED P/N	**QUANTITY PER T/R**	**MINIMUM ORDER QUANTITY**	**PACKAGING DESCRIPTION**
VS-MBR2080CTPbF	50	1000	Antistatic plastic tube
VS-MBR2080CT-N3	50	1000	Antistatic plastic tube
VS-MBR2090CTPbF	50	1000	Antistatic plastic tube
VS-MBR2090CT-N3	50	1000	Antistatic plastic tube
VS-MBR20100CTPbF	50	1000	Antistatic plastic tube
VS-MBR20100CT-N3	50	1000	Antistatic plastic tube

LINKS TO RELATED DOCUMENTS		
Dimensions		www.vishay.com/doc?95222
Part marking information	TO-220AB PbF	www.vishay.com/doc?95225
	TO-220AB -N3	www.vishay.com/doc?95028

TO-220AB

DIMENSIONS in millimeters and inches



Lead assignments

Diodes

1. - Anode/open
2. - Cathode
3. - Anode

Conforms to JEDEC outline TO-220AB

SYMBOL	MILLIMETERS		INCHES		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	4.25	4.65	0.167	0.183	
A1	1.14	1.40	0.045	0.055	
A2	2.56	2.92	0.101	0.115	
b	0.69	1.01	0.027	0.040	
b1	0.38	0.97	0.015	0.038	4
b2	1.20	1.73	0.047	0.068	
b3	1.14	1.73	0.045	0.068	4
c	0.36	0.61	0.014	0.024	
c1	0.36	0.56	0.014	0.022	4
D	14.85	15.25	0.585	0.600	3
D1	8.38	9.02	0.330	0.355	
D2	11.68	12.88	0.460	0.507	6

SYMBOL	MILLIMETERS		INCHES		NOTES
	MIN.	MAX.	MIN.	MAX.	
E	10.11	10.51	0.398	0.414	3, 6
E1	6.86	8.89	0.270	0.350	6
E2	-	0.76	-	0.030	7
e	2.41	2.67	0.095	0.105	
e1	4.88	5.28	0.192	0.208	
H1	6.09	6.48	0.240	0.255	6, 7
L	13.52	14.02	0.532	0.552	
L1	3.32	3.82	0.131	0.150	2
Ø P	3.54	3.73	0.139	0.147	
Q	2.60	3.00	0.102	0.118	
θ	90° to 93°		90° to 93°		

Notes

(1) Dimensioning and tolerancing as per ASME Y14.5M-1994
(2) Lead dimension and finish uncontrolled in L1
(3) Dimension D, D1 and E do not include mold flash. Mold flash shall not exceed 0.127 mm (0.005") per side. These dimensions are measured at the outermost extremes of the plastic body
(4) Dimension b1, b3 and c1 apply to base metal only
(5) Controlling dimensions: inches
(6) Thermal pad contour optional within dimensions E, H1, D2 and E1
(7) Dimensions E2 x H1 define a zone where stamping and singulation irregularities are allowed
(8) Outline conforms to JEDEC TO-220, except A2 (maximum) and D2 (minimum) where dimensions are derived from the actual package outline

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.

Bulletin PD-2.321 rev. L 07/06

International
IOR Rectifier

MBRB20...CT
MBR20...CT-1

SCHOTTKY RECTIFIER

20 Amp

$I_{F(AV)}$ = 20Amp
V_R = 80/ 100V

Major Ratings and Characteristics

Characteristics	Values	Units
$I_{F(AV)}$ Rectangular waveform (Per Device)	20	A
I_{FRM} @ T_C = 133°C (Per Leg)	20	A
V_{RRM}	80/100	V
I_{FSM} @ tp = 5 μs sine	850	A
V_F @ 10 Apk, T_J = 125°C	0.70	V
T_J range	- 65 to 150	°C

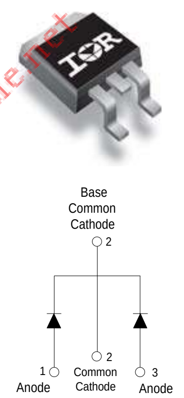
Description/ Features

This center tap Schottky rectifier has been optimized for low reverse leakage at high temperature. The proprietary barrier technology allows for reliable operation up to 150° C junction temperature. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

- 150° C T_J operation
- Center tap D^2Pak and TO-262 packages
- Low forward voltage drop
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability

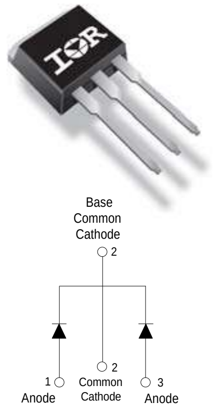
Case Styles

MBR20... S



D^2PAK

MBR20... -1



TO-262

Voltage Ratings

	Parameters	MBRB2080CT MBR2080CT-1	MBRB2090CT MBR2090CT-1	MBRB20100CT MBR20100CT-1
V_R	Max. DC Reverse Voltage (V)	80	90	100
V_{RWM}	Max. Working Peak Reverse Voltage (V)			

Absolute Maximum Ratings

	Parameters	Values	Units	Conditions
$I_{F(AV)}$	Max. Average Forward (Per Leg) Current (Per Device)	10 20	A	@ T_C = 133° C, (Rated V_R)
I_{FRM}	Peak Repetitive Forward Current (Per Leg)	20	A	Rated V_R, square wave, 20kHz T_C = 133° C
I_{FSM}	Non Repetitive Peak Surge Current	850 150	A	5µs Sine or 3µs Rect. pulse — Following any rated load condition and with rated V_{RRM} applied Surge applied at rated load conditions halfwave, single phase, 60Hz
I_{RRM}	Peak Repetitive Reverse Surge Current	0.5	A	2.0 µsec 1.0 KHz
E_{AS}	Non-Repetitive Avalanche Energy (Per Leg)	24	mJ	T_J = 25 °C, I_{AS} = 2 Amps, L = 12 mH

Electrical Specifications

	Parameters	Values	Units	Conditions	
V_{FM}	Max. Forward Voltage Drop (1)	0.80	V	@ 10A	T_J = 25 °C
		0.95	V	@ 20A	
		0.70	V	@ 10A	T_J = 125 °C
		0.85	V	@ 20A	
I_{RM}	Max. Instantaneus Reverse Current (1)	0.10	mA	T_J = 25 °C	Rated DC voltage
		6	mA	T_J = 125 °C	
$V_{F(TO)}$	Threshold Voltage	0.433	V	T_J = T_J max.	
r_t	Forward Slope Resistance	15.8	mΩ		
C_T	Max. Junction Capacitance	400	pF	V_R = 5V_{DC} (test signal range 100Khz to 1Mhz) 25°C	
L_S	Typical Series Inductance	8.0	nH	Measured from top of terminal to mounting plane	
dv/dt	Max. Voltage Rate of Change (Rated V_R)	10000	V/ µs		

(1) Pulse Width < 300µs, Duty Cycle <2%

Thermal-Mechanical Specifications

	Parameters		Values	Units	Conditions
T_J	Max. Junction Temperature Range		-65 to 150	°C	
T_{stg}	Max. Storage Temperature Range		-65 to 175	°C	
R_{thJC}	Max. Thermal Resistance Junction to Case (Per Leg)		2.0	°C/W	DC operation
R_{thJA}	Max. Thermal Resistance Junction to Ambient		50	°C/W	DC operation For D²Pak and TO-262
wt	Approximate Weight		2 (0.07)	g (oz.)	
T	Mounting Torque	Min.	6 (5)	Kg-cm (lbf-in)	Non-lubricated threads
		Max.	12 (10)		
	Marking Device		MBRB20100CT		D²Pak
			MBR20100CT-1		TO-262

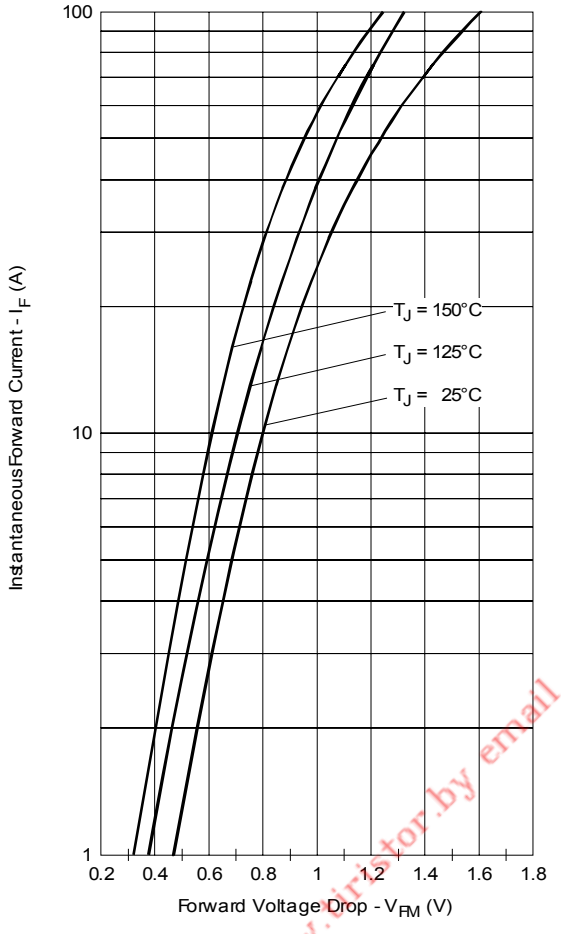


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

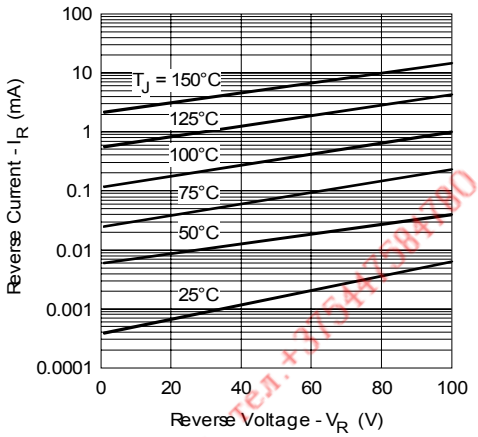


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

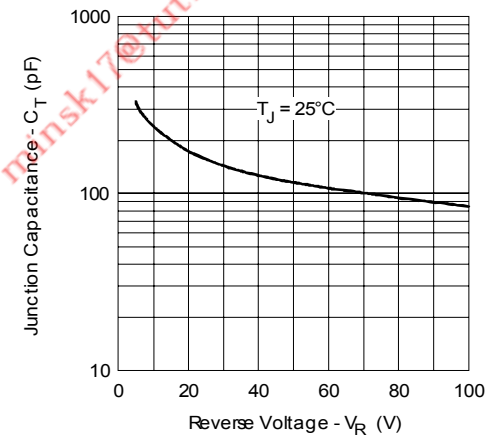


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

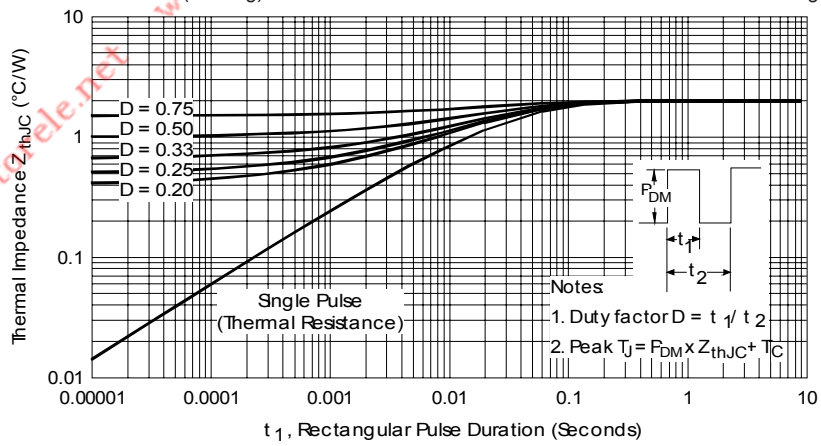


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

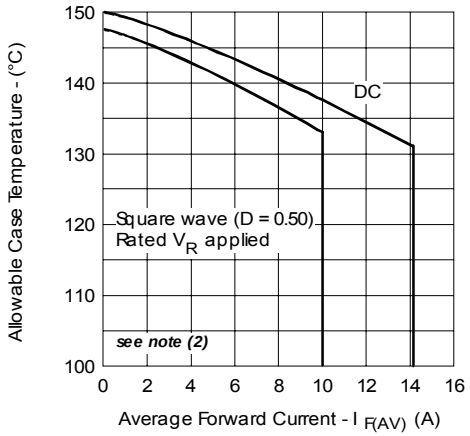


Fig. 5 - Max. Allowable Case Temperature
Vs. Average Forward Current (Per Leg)

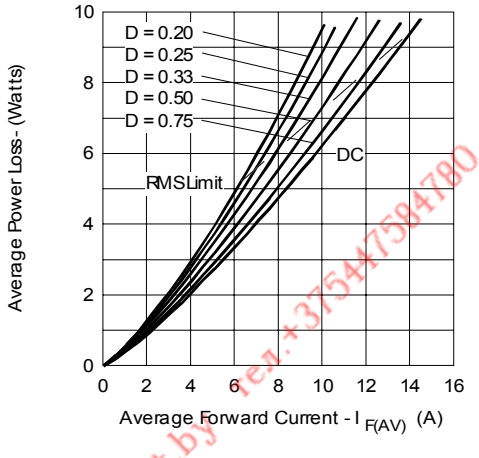


Fig. 6 - Forward Power Loss Characteristics
(Per Leg)

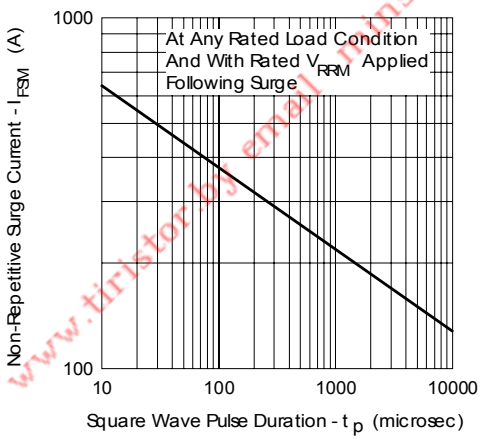
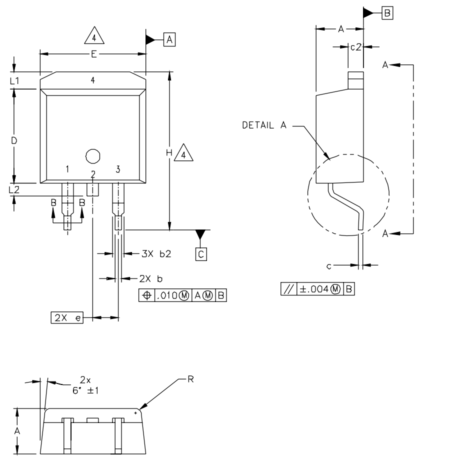


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

(2) Formula used: $T_C = T_J - (Pd + Pd_{REV}) \times R_{thJC}$;
Pd = Forward Power Loss = $I_{F(AV)} \times V_{FM} @ (I_{F(AV)} / D)$ (see Fig. 6);
Pd_{REV} = Inverse Power Loss = $V_{R1} \times I_R (1 - D)$; $I_R @ V_{R1}$ = rated V_R

Outline Table



NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994
2. DIMENSIONS ARE SHOWN IN MILLIMETERS [INCHES].
3. DIMENSION D & E DO NOT INCLUDE MOLD FLASH. MOLD FLASH SHALL NOT EXCEED 0.127 [.005"] PER SIDE. THESE DIMENSIONS ARE MEASURED AT THE OUTMOST EXTREMES OF THE PLASTIC BODY.
4. DIMENSION b1 AND c1 APPLY TO BASE METAL ONLY.
5. CONTROLLING DIMENSION: INCH.

SYMBOL	DIMENSIONS				NOTES
	MILLIMETERS		INCHES		
	MIN.	MAX.	MIN.	MAX.	
A	4.06	4.83	.160	.190	
A1	0.00	0.254	.000	.010	
b	0.51	0.99	.020	.039	
b1	0.51	0.89	.020	.035	4
b2	1.14	1.78	.045	.070	
c	0.38	0.74	.015	.029	
c1	0.38	0.58	.015	.023	4
c2	1.14	1.65	.045	.065	
D	8.51	9.65	.335	.380	3
D1	6.86		.270		
E	9.65	10.67	.380	.420	3
E1	6.22		.245		
e	2.54 BSC		.100 BSC		
H	14.61	15.88	.575	.625	
L	1.78	2.79	.070	.110	
L1		1.65		.065	
L2	1.27	1.78	.050	.070	
L3	0.25 BSC		.010 BSC		
L4	4.78	5.28	.188	.208	
m	17.78		.700		
m1	8.89		.350		
n	11.43		.450		
o	2.08		.082		
p	3.81		.150		
R	0.51	0.71	.020	.028	
θ	90°	93°	90°	93°	

LEAD ASSIGNMENTS

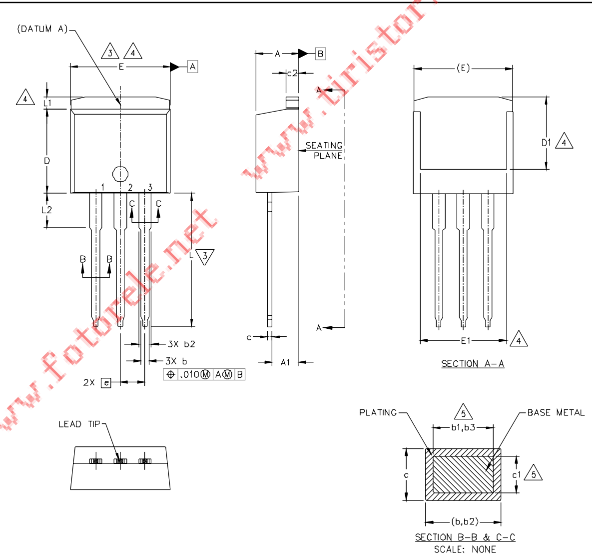
HEXFET
1.- GATE
2, 4.- DRAIN
3.- SOURCE

IGBTs, CoPACK
1.- GATE
2, 4.- COLLECTOR
3.- EMITTER

DIODES
1.- ANODE *
2, 4.- CATHODE
3.- ANODE

* PART DEPENDENT.

Conform to JEDEC outline D^{2}Pak (SMD-220)
Dimensions in millimeters and (inches)



NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994
2. DIMENSIONS ARE SHOWN IN MILLIMETERS [INCHES].
3. DIMENSION D & E DO NOT INCLUDE MOLD FLASH. MOLD FLASH SHALL NOT EXCEED 0.127 [.005"] PER SIDE. THESE DIMENSIONS ARE MEASURED AT THE OUTMOST EXTREMES OF THE PLASTIC BODY.
4. THERMAL PAD CONTOUR OPTIONAL WITHIN DIMENSION E, L1, D1 & E1.
5. DIMENSION b1 AND c1 APPLY TO BASE METAL ONLY.
6. CONTROLLING DIMENSION: INCH.
7.- OUTLINE CONFORM TO JEDEC TO-262 EXCEPT A1(max.), b(min.) AND D1(min.) WHERE DIMENSIONS DERIVED THE ACTUAL PACKAGE OUTLINE.

SYMBOL	DIMENSIONS				NOTES
	MILLIMETERS		INCHES		
	MIN.	MAX.	MIN.	MAX.	
A	4.06	4.83	.160	.190	
A1	2.03	3.02	.080	.119	
b	0.51	0.99	.020	.039	
b1	0.51	0.89	.020	.035	5
b2	1.14	1.78	.045	.070	
b3	1.14	1.73	.045	.068	5
c	0.38	0.74	.015	.029	
c1	0.38	0.58	.015	.023	5
c2	1.14	1.65	.045	.065	
D	8.38	9.65	.330	.380	3
D1	6.86	–	.270	–	4
E	9.65	10.67	.380	.420	3,4
E1	6.22	–	.245		4
e	2.54 BSC		.100 BSC		
L	13.46	14.10	.530	.555	
L1	–	1.65	–	.065	4
L2	3.56	3.71	.140	.146	

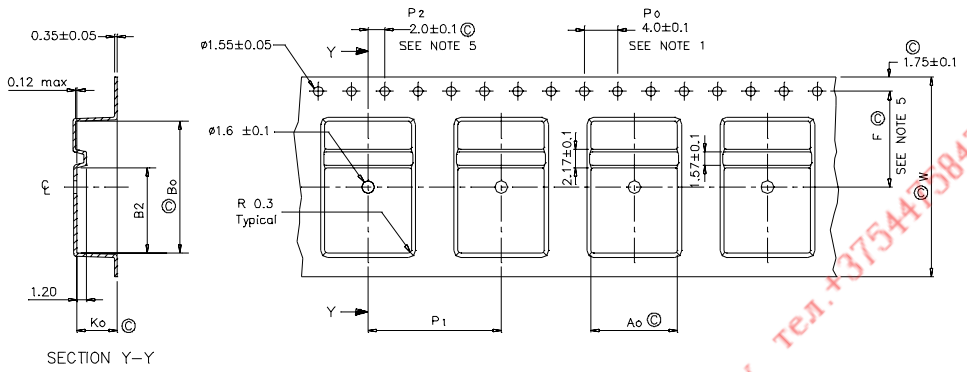
LEAD ASSIGNMENTS

HEXFET
1.- GATE
2.- DRAIN
3.- SOURCE
4.- DRAIN

IGBTs, CoPACK
1.- GATE
2.- COLLECTOR
3.- EMITTER
4.- COLLECTOR

Modified JEDEC outline TO-262
Dimensions in millimeters and (inches)

Tape & Reel Information



Ao	10.50 +/– 0.1
Bo	15.80 +/– 0.1
B2	10.25 +/– 0.1
Ko	4.90 +/– 0.1
F	11.50 +/– 0.1
P1	16.00 +/– 0.1
W	24.00 +/– 0.3

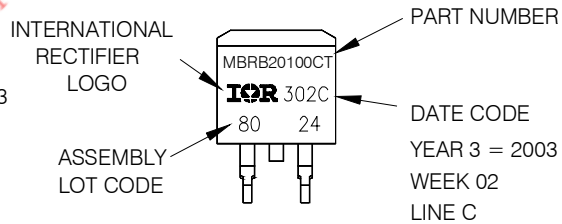
NOTES:
1.0 10 SPROCKET HOLE PITH CUMULATIVE TOLERANCE ±.02
2.0 CAMBER NOT TO EXCEED 1mm in 100mm
3.0 MATERIAL: CONDUCTIVE BLACK STYRENIC ALLOY
4.0 Ko MEASURED FROM A PLANE ON THE INSIDE BOTTOM OF THE POCKET TO THE TOP SURFACE OF THE CARRIER
5.0 MEASURED FROM CENTRELINE OF SPROCKET HOLE TO CENTRELINE OF POCKET
6.0 VENDOR: (OPTIONAL)
7.0 MUST ALSO MEET REQUIREMENTS OF EIA STANDAR #EIA-481A TAPING OF SURFACE MOUNT COMPONENTS FOR AUTOMATIC PLACEMENT
8.0 SURFACE RESISTIVITY OF MOLDED MATL. MUST MEASURE LESS OR EQUAL TO 10^6 OHMS PER SQUARE. MEASURED IN ACCORDANCE TO PROCEDURE GIVEN IN ASTM D-257 & ASTM D-991
9.0 TOTAL LENGTH PER REEL MUST BE 45 METERS
10.0 © CRITICAL

Dimensions in millimeters and (inches)

Part Marking Information

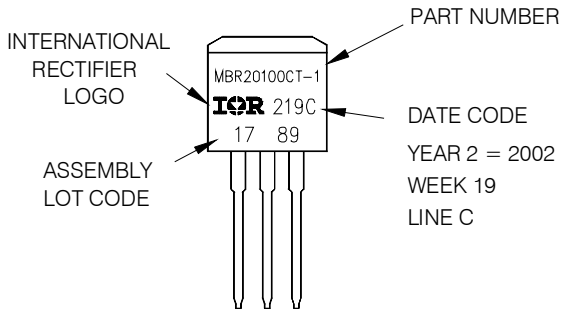
D^2PAK

EXAMPLE: THIS IS A MBRB20100CT
LOT CODE 8024
ASSEMBLED ON WW 02, 2003
IN ASSEMBLY LINE "C"



TO-262

EXAMPLE: THIS IS A MBR3030CT-1
LOT CODE 1789
ASSEMBLED ON WW 19, 2002
IN ASSEMBLY LINE "C"



Ordering Information Table

Device Code

MBR	B	20	100	CT	-1	TRL	-
①	②	③	④	⑤	⑥	⑦	⑧

1 - Essential Part Number

2 - • B = D^2Pak **6** none
• none = TO-262 **6** = -1

3 - Current Rating (20 = 20A)

4 - Voltage Ratings
- 80 = 80V
- 90 = 90V
- 100 = 100V

5 - CT = Essential Part Number

6 • none = D^2Pak **2** = B
• -1 = TO-262 **2** none

7 - • none = Tube (50 pieces)
• TRL = Tape & Reel (Left Oriented - for D^2Pak only)
• TRR = Tape & Reel (Right Oriented - for D^2Pak only)

8 - • none = Standard Production
• PbF = Lead-Free (for TO-262 and D^2Pak tube)
• P = Lead-Free (for D^2Pak TRR and TRL)

Data and specifications subject to change without notice.
This product has been designed and qualified for Industrial Level.
Qualification Standards can be found on IR's Web site.

International
IOR Rectifier

IR WORLD HEADQUARTERS: 233 Kansas St., El Segundo, California 90245, USA Tel: (310) 252-7105
TAC Fax: (310) 252-7309
Visit us at www.irf.com for sales contact information. 01/07

MBRF20100CTG

Switch-mode Schottky Power Rectifier

The Switch−mode Power Rectifier employs the Schottky Barrier principle in a large area metal−to−silicon power diode. State−of−the−art geometry features epitaxial construction with oxide passivation and metal overlay contact. Ideally suited for use as rectifiers in very low−voltage, high−frequency switching power supplies, free wheeling diodes and polarity protection diodes.

Features

- Highly Stable Oxide Passivated Junction
- Very Low Forward Voltage Drop
- Matched Dual Die Construction
- High Junction Temperature Capability
- High dv/dt Capability
- Excellent Ability to Withstand Reverse Avalanche Energy Transients
- Guardring for Stress Protection
- Epoxy Meets UL 94 V−0 @ 0.125 in
- Electrically Isolated. No Isolation Hardware Required.
- These are Pb−Free Devices

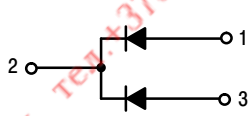
Mechanical Characteristics:

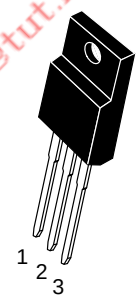
- Case: Epoxy, Molded
- Weight: 1.9 Grams (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds

ON Semiconductor®

www.onsemi.com

SCHOTTKY BARRIER RECTIFIER 20 AMPERES, 100 VOLTS





TO−220 FULLPAK™
CASE 221AH

ORDERING AND MARKING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 3 of this data sheet.

MAXIMUM RATINGS (Per Leg)

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	100	V
Average Rectified Forward Current (Rated V_R), T_C = 133°C Total Device	$I_{F(AV)}$	10 20	A
Peak Repetitive Forward Current (Rated V_R, Square Wave, 20 kHz), T_C = 133°C	I_{FRM}	20	A
Non−repetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I_{FSM}	150	A
Peak Repetitive Reverse Surge Current (2.0 μs, 1.0 kHz)	I_{RRM}	0.5	A
Operating Junction and Storage Temperature Range (Note 1)	T_J, T_{stg}	− 65 to +175	°C
Voltage Rate of Change (Rated V_R)	dv/dt	10000	V/μs
RMS Isolation Voltage (t = 0.3 second, R.H. ≤ 30%, T_A = 25°C) (Note 2)	V_{iso1}	4500	V

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS (Per Leg)

Rating	Symbol	Value	Unit
Maximum Thermal Resistance, Junction to Case	$R_{\theta JC}$	3.5	°C/W
Lead Temperature for Soldering Purposes: 1/8″ from Case for 5 Seconds	T_L	260	°C

ELECTRICAL CHARACTERISTICS (Per Leg)

Characteristic	Symbol	Max	Unit
Maximum Instantaneous Forward Voltage (Note 3) (i_F = 10 Amp, T_C = 25°C) (i_F = 10 Amp, T_C = 125°C) (i_F = 20 Amp, T_C = 25°C) (i_F = 20 Amp, T_C = 125°C)	v_F	 0.85 0.75 0.95 0.85	V
Maximum Instantaneous Reverse Current (Note 3) (Rated DC Voltage, T_C = 25°C) (Rated DC Voltage, T_C = 125°C)	i_R	 0.15 150	mA

1. The heat generated must be less than the thermal conductivity from Junction−to−Ambient: $dP_D/dT_J < 1/R_{\theta JA}$.
2. Proper strike and creepage distance must be provided.
3. Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.

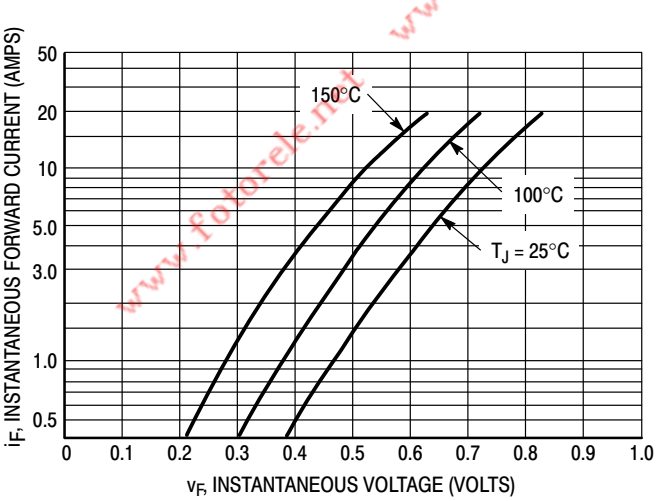


Figure 1. Typical Forward Voltage Per Diode

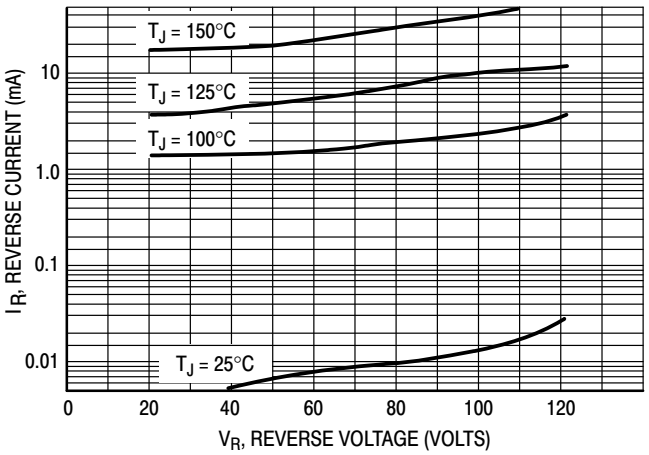
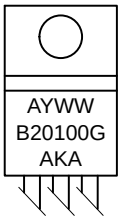


Figure 2. Typical Reverse Current Per Diode

MARKING DIAGRAMS



TO−220

B20100 = Device Code
A = Assembly Location
Y = Year
WW = Work Week
G = Pb−Free Package
AKA = Polarity Designator

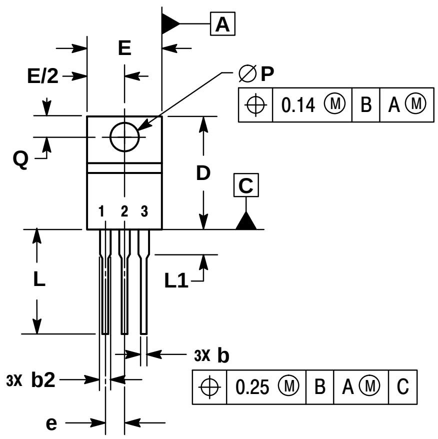
ORDERING INFORMATION

Device	Package	Shipping†
MBRF20100CTG	TO−220 (Pb−Free)	50 Units / Rail

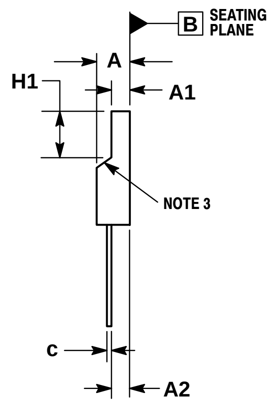
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

PACKAGE DIMENSIONS

TO−220 FULLPACK, 3−LEAD
CASE 221AH
ISSUE F



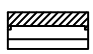
FRONT VIEW



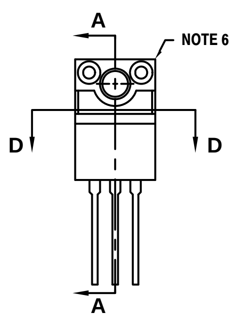
SIDE VIEW

NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. CONTOUR UNCONTROLLED IN THIS AREA.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH AND GATE PROTRUSIONS. MOLD FLASH AND GATE PROTRUSIONS NOT TO EXCEED 0.13 PER SIDE. THESE DIMENSIONS ARE TO BE MEASURED AT OUTERMOST EXTREME OF THE PLASTIC BODY.
5. DIMENSION b2 DOES NOT INCLUDE DAMBAR PROTRUSION. LEAD WIDTH INCLUDING PROTRUSION SHALL NOT EXCEED 2.00.
6. CONTOURS AND FEATURES OF THE MOLDED PACKAGE BODY MAY VARY WITHIN THE ENVELOP DEFINED BY DIMENSIONS A1 AND H1 FOR MANUFACTURING PURPOSES.

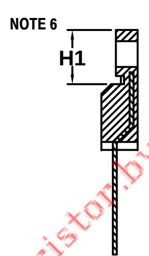
	MILLIMETERS	
DIM	MIN	MAX
A	4.30	4.70
A1	2.50	2.90
A2	2.50	2.90
b	0.54	0.84
b2	1.10	1.40
c	0.49	0.79
D	14.70	15.30
E	9.70	10.30
e	2.54 BSC	
H1	6.60	7.10
L	12.50	14.73
L1	---	2.80
P	3.00	3.40
Q	2.80	3.20



SECTION D−D



ALTERNATE CONSTRUCTION



SECTION A−A

FULLPAK is a trademark of Semiconductor Components Industries, LLC.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
Phone: 303−675−2175 or 800−344−3860 Toll Free USA/Canada
Fax: 303−675−2176 or 800−344−3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800−282−9855 Toll Free USA/Canada
Europe, Middle East and Africa Technical Support:
Phone: 421 33 790 2910
Japan Customer Focus Center
Phone: 81−3−5817−1050

ON Semiconductor Website: **www.onsemi.com**

Order Literature: http://www.onsemi.com/orderlit

For additional information, please contact your local Sales Representative