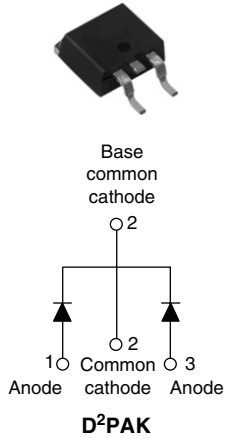
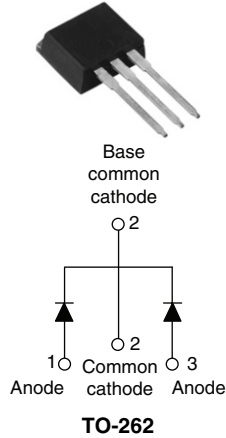


Schottky Rectifier, 2 x 10 A

MBRB20...CTGPbF



MBR20...CTG-1PbF



FEATURES

- 150 °C T_J operation
- Center tap D²PAK 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 enhanced ruggedness and long term reliability
- Lead (Pb)-free ("PbF" suffix)
- Designed and qualified for AEC Q101 level



RoHS*
COMPLIANT

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

I _{F(AV)}	2 x 10 A
V _R	80 to 100 V

MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNITS
I _{FRM}	T _C = 133 °C (per leg)	20	A
V _{RRM}		80 to 100	V
I _{FSM}	t _p = 5 μs sine	850	A
V _F	10 Apk, T _J = 125 °C	0.70	V
T _J	Range	- 65 to 150	°C

VOLTAGE RATINGS

PARAMETER	SYMBOL	MBRB2080CTGPbF MBR2080CTG-1PbF	MBRB2090CTGPbF MBR2090CTG-1PbF	MBRB20100CTGPbF MBR20100CTG-1PbF	UNITS
Maximum DC reverse voltage	V _R	80	90	100	V
Maximum working peak reverse voltage	V _{RWM}				

* Pb containing terminations are not RoHS compliant, exemptions may apply

MBRB20...CTGPbF/MBR20...CTG-1PbF

Vishay High Power Products

Schottky Rectifier,
2 x 10 A



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 half wave, 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	$T_J = 25\text{ }^{\circ}\text{C}$	0.80	V
		20 A		0.95	
		10 A	$T_J = 125\text{ }^{\circ}\text{C}$	0.70	
		20 A		0.85	
Maximum instantaneous reverse current	$I_{RM}^{(1)}$	$T_J = 25\text{ }^{\circ}\text{C}$	$V_R = \text{Rated } V_R$	0.10	mA
		$T_J = 125\text{ }^{\circ}\text{C}$		6	
Threshold voltage	$V_{F(TO)}$	$T_J = T_J \text{ maximum}$		0.433	V
Forward slope resistance	r_t			15.8	mΩ
Maximum junction capacitance	C_T	$V_R = 5\text{ }V_{DC}$ (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 %



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Schottky Rectifier,
2 x 10 A

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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
Maximum thermal resistance junction to ambient		R _{thJA}		50	
Approximate weight				2	g
				0.07	oz.
Mounting torque	minimum		Non-lubricated threads	6 (5)	kgf · cm (lbf · in)
	maximum			12 (10)	
Marking device		Case style D ² PAK		MBRB2080CTG	
				MBRB2090CTG	
				MBRB20100CTG	
		Case style TO-262		MBR2080CTG-1	
				MBR2090CTG-1	
				MBR20100CTG-1	

MBRB20...CTGPbF/MBR20...CTG-1PbF

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Schottky Rectifier,
2 x 10 A

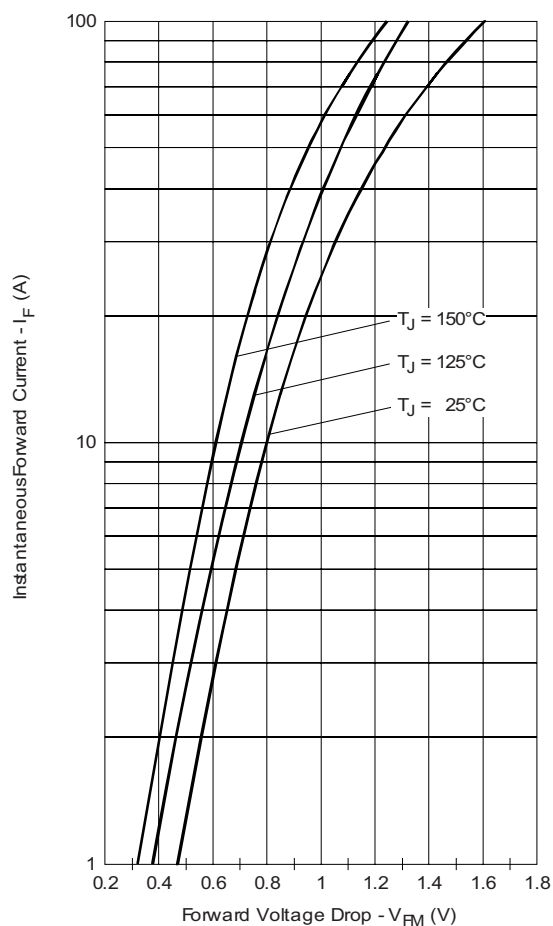


Fig. 1 - Maximum Forward Voltage Drop Characteristics (Per Leg)

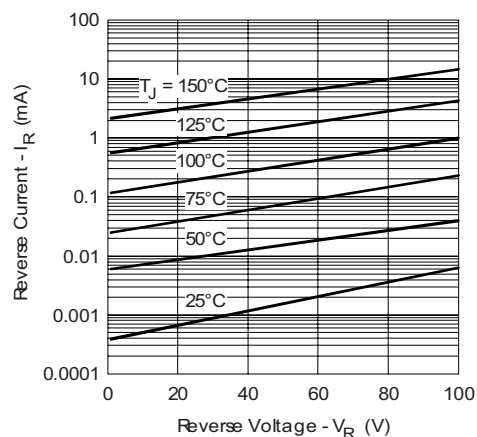


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage (Per Leg)

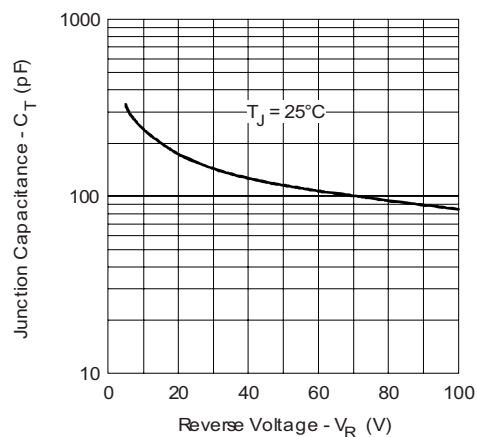


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage (Per Leg)

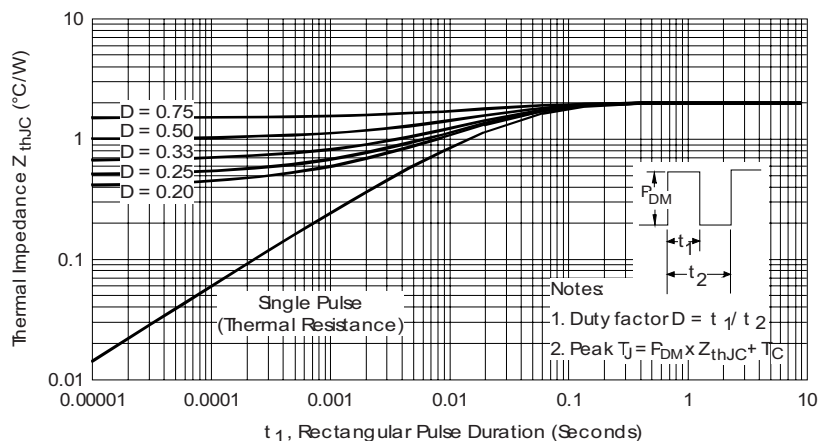


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics (Per Leg)



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Schottky Rectifier,
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Vishay High Power Products

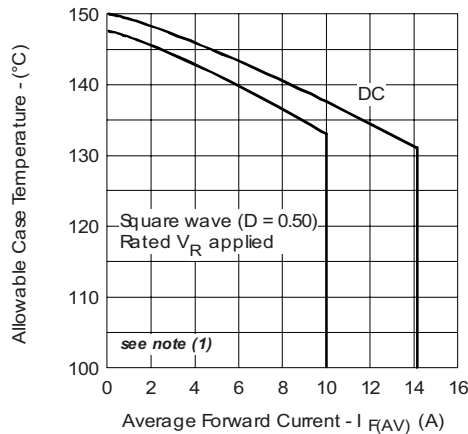


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current (Per Leg)

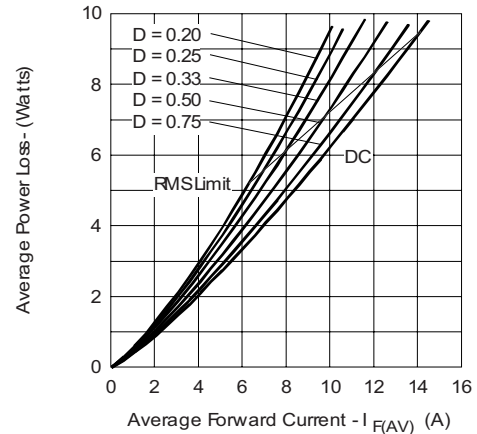


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

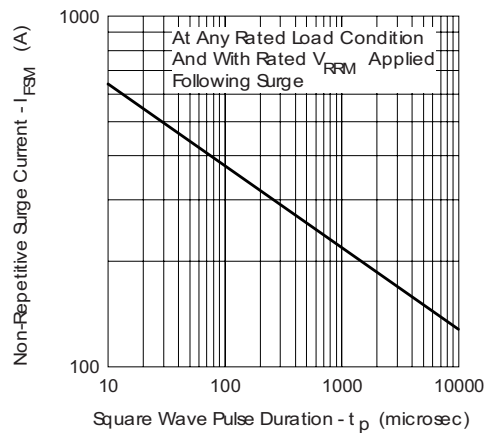


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

Note

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

MBRB20...CTGPbF/MBR20...CTG-1PbF

Vishay High Power Products

Schottky Rectifier,
2 x 10 A



ORDERING INFORMATION TABLE

Device code	MBR	B	20	100	CT	G	-1	TL	PbF
	①	②	③	④	⑤	⑥	⑦	⑧	⑨

- | | | | |
|----------|---|--|---------------------------------------|
| 1 | - | Essential part number | |
| 2 | - | • B = D ² PAK
• None = TO-262 | |
| 3 | - | Current rating (20 = 20 A) | |
| 4 | - | Voltage ratings | 80 = 80 V
90 = 90 V
100 = 100 V |
| 5 | - | CT = Essential part number | |
| 6 | - | G = Schottky generation | |
| 7 | - | • None = D ² PAK
• -1 = TO-262 | |
| 8 | - | • None = Tube (50 pieces)
• TL = Tape and reel (left oriented - for D ² PAK only)
• TR = Tape and reel (right oriented - for D ² PAK only) | |
| 9 | - | • None = Standard production
• PbF = Lead (Pb)-free (D ² PAK tube)
• P = Lead (Pb)-free (for D ² PAK TR and TL, and TO-262) | |

LINKS TO RELATED DOCUMENTS	
Dimensions	http://www.vishay.com/doc?95014
Part marking information	http://www.vishay.com/doc?95008
Packaging information	http://www.vishay.com/doc?95032



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