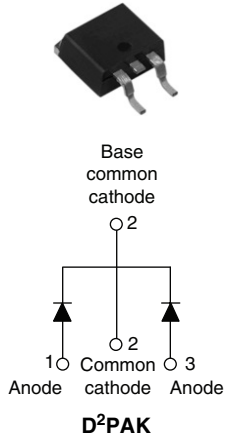
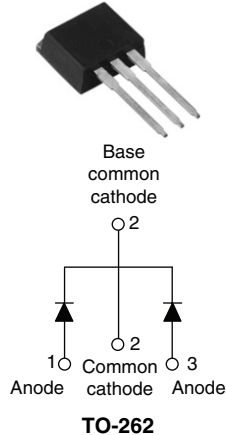


Schottky Rectifier, 2 x 10 A

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



Available
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 _R RM		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	$I_{F(AV)}$	$T_C = 133\text{ }^\circ\text{C}$, rated V_R	per leg	10	A
			per device	20	
Peak repetitive forward current per leg	I_{FRM}	Rated V_R , square wave, 20 kHz $T_C = 133\text{ }^\circ\text{C}$		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}	$T_J = 25\text{ }^\circ\text{C}$, $I_{AS} = 2\text{ A}$, $L = 12\text{ mH}$		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	m Ω
Maximum junction capacitance	C_T	$V_R = 5\text{ }V_{DC}$ (test signal range 100 kHz to 1 MHz) $25\text{ }^\circ\text{C}$		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	

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Schottky Rectifier,
2 x 10 A

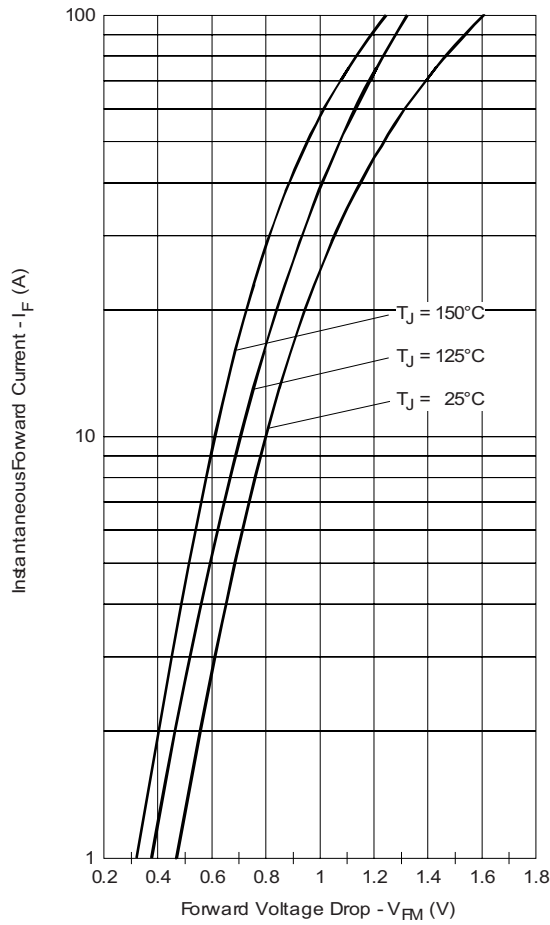


Fig. 1 - Maximum Forward Voltage Drop Characteristics (Per Leg)

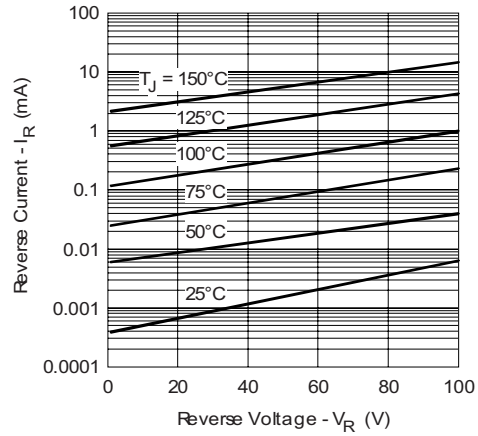


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage (Per Leg)

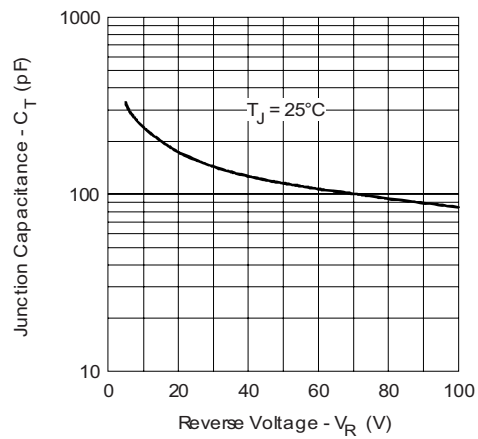


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage (Per Leg)

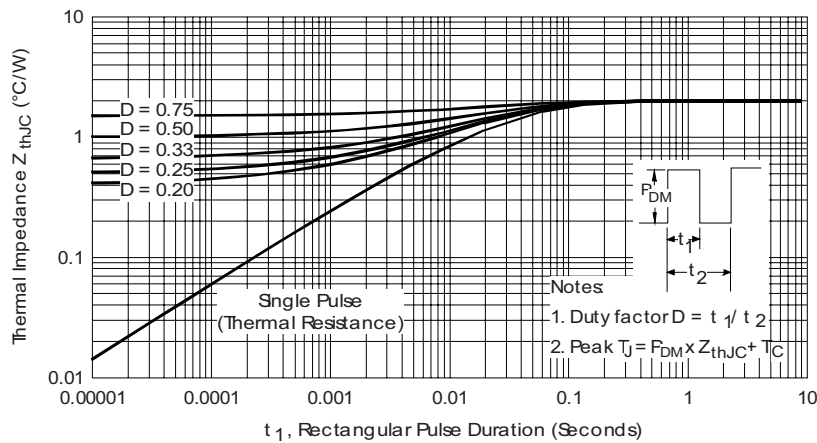


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics (Per Leg)



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Schottky Rectifier,
2 x 10 A

Vishay High Power Products

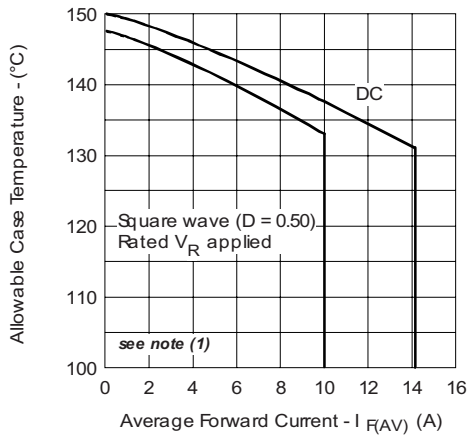


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current (Per Leg)

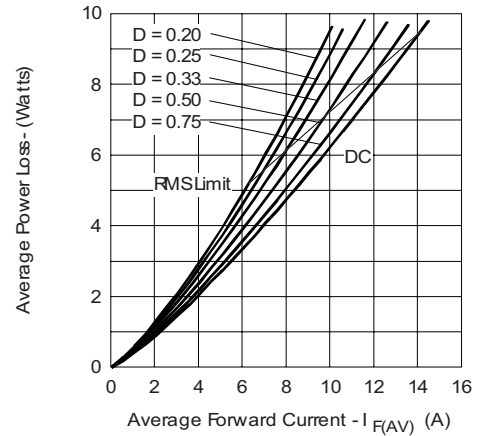


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

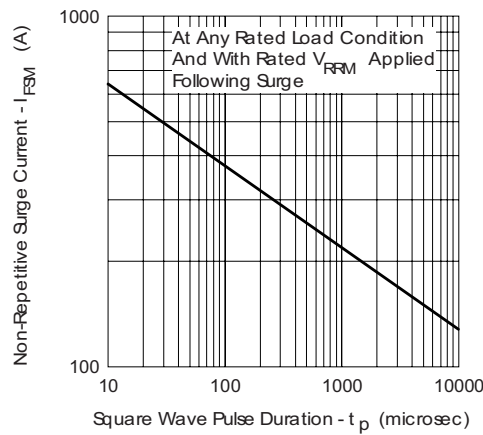


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

Note

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

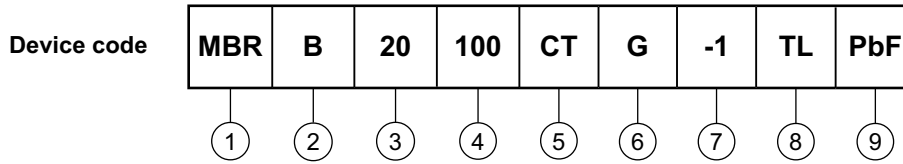
MBRB20...CTGPbF/MBR20...CTG-1PbF



Vishay High Power Products

Schottky Rectifier,
2 x 10 A

ORDERING INFORMATION TABLE



- 1** - Essential part number
- 2** -
 - B = D²PAK
 - 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 = D²PAK
 - -1 = TO-262
- 8** -
 - None = Tube (50 pieces)
 - TL = Tape and reel (left oriented - for D²PAK only)
 - TR = Tape and reel (right oriented - for D²PAK only)
- 9** -
 - None = Standard production
 - PbF = Lead (Pb)-free (D²PAK tube)
 - P = Lead (Pb)-free (for D²PAK 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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