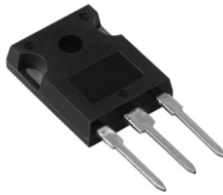
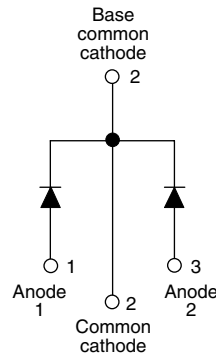


Schottky Rectifier, 2 x 15 A


TO-247AC


FEATURES

- 150 °C T_J operation
- Center tap TO-247 package
- Very 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
- Lead (Pb)-free ("PbF" suffix)
- Designed and qualified for industrial level


RoHS*
COMPLIANT

DESCRIPTION

The MBR30..WTPbF center tap Schottky rectifier has been optimized for very low forward voltage drop, with moderate leakage. 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 15 A
V _R	35/45 V
I _{RRM}	100 mA at 125 °C

MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNITS
I _{F(AV)}	Rectangular waveform (per device)	30	A
I _{FRM}	T _C = 125 °C (per leg)	30	
V _{RRM}		35/45	V
I _{FSM}	t _p = 5 μs sine	1020	A
V _F	20 Apk, T _J = 125 °C	0.60	V
T _J	Range	- 65 to 150	°C

VOLTAGE RATINGS

PARAMETER	SYMBOL	MBR3035WTPbF	MBR3045WTPbF	UNITS
Maximum DC reverse voltage	V _R	35	45	V
Maximum working peak reverse voltage	V _{RWM}			

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum average forward current <small>per leg</small> <small>per device</small>	I _{F(AV)}	T _C = 125 °C, rated V _R		15	A
				30	
Peak repetitive forward current per leg	I _{FRM}	Rated V _R , square wave, 20 kHz T _C = 125 °C		30	
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	1020	
		Surge applied at rated load conditions half wave, single phase, 60 Hz		200	
Peak repetitive reverse surge current	I _{RRM}	2.0 μs 1.0 kHz		2.0	

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

ELECTRICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop	$V_{FM}^{(1)}$	30 A	$T_J = 25\text{ }^\circ\text{C}$	0.76	V
		20 A	$T_J = 125\text{ }^\circ\text{C}$	0.60	
		30 A		0.72	
Maximum instantaneous reverse current	$I_{RM}^{(1)}$	$T_J = 25\text{ }^\circ\text{C}$	Rated DC voltage	1.0	mA
		$T_J = 125\text{ }^\circ\text{C}$		100	
Threshold voltage	$V_{F(TO)}$	$T_J = T_J$ maximum		0.29	V
Forward slope resistance	r_T			13.8	m Ω
Maximum junction capacitance	C_T	$V_R = 5\text{ }V_{DC}$ (test signal range 100 kHz to 1 MHz) 25 $^\circ\text{C}$		800	pF
Typical series inductance	L_S	Measured from top of terminal to mounting plane		7.5	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	$^\circ\text{C}$
Maximum storage temperature range	T_{Stg}			- 65 to 175	
Maximum thermal resistance, junction to case per leg	R_{thJC}	DC operation		1.40	$^\circ\text{C}/\text{W}$
Typical thermal resistance, case to heatsink	R_{thCS}	Mounting surface, smooth and greased		0.24	
Approximate weight				6	g
				0.21	oz.
Mounting torque	minimum			6 (5)	kgf · cm (lbf · in)
	maximum			12 (10)	
Marking device		Case style TO-247AC (JEDEC)		MBR3035WT	
				MBR3045WT	



MBR3035WTPbF/MBR3045WTPbF

Schottky Rectifier, 2 x 15 A Vishay High Power Products

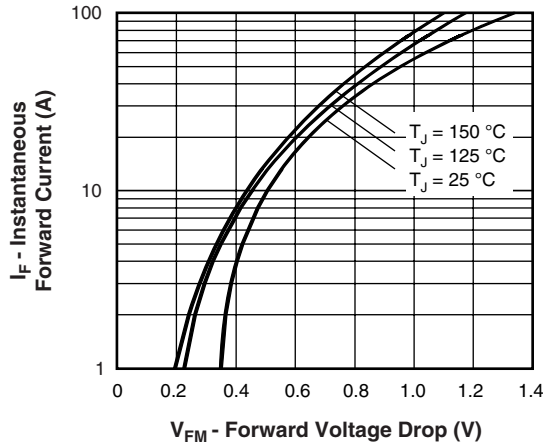


Fig. 1 - Maximum Forward Voltage Drop Characteristics (Per Leg)

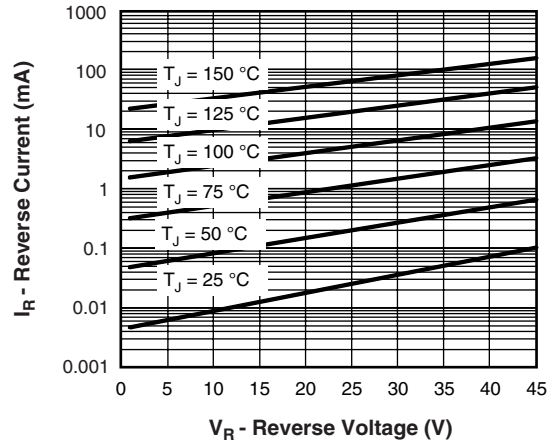


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage (Per Leg)

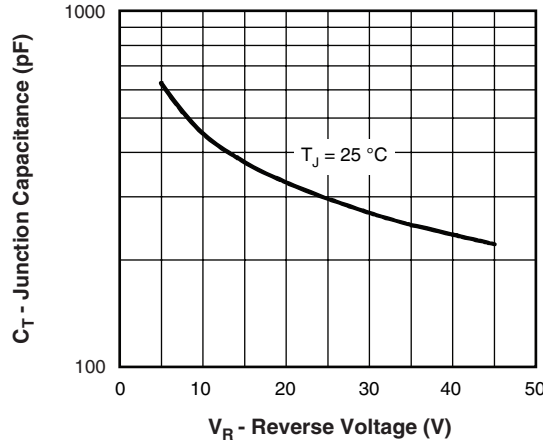


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage (Per Leg)

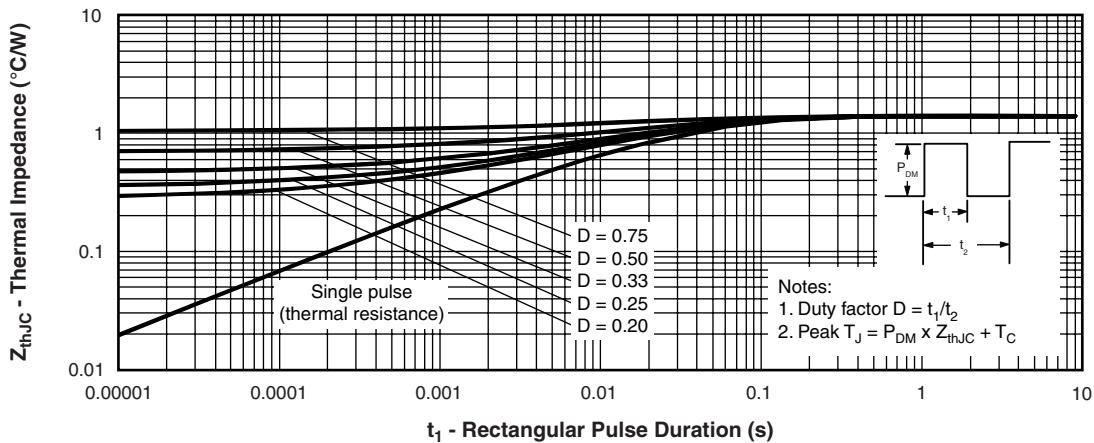


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics (Per Leg)

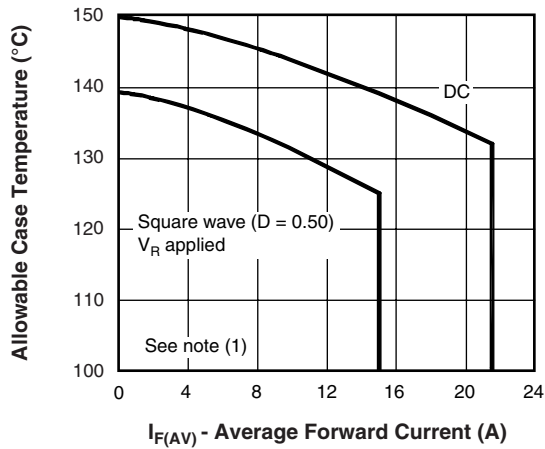


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current (Per Leg)

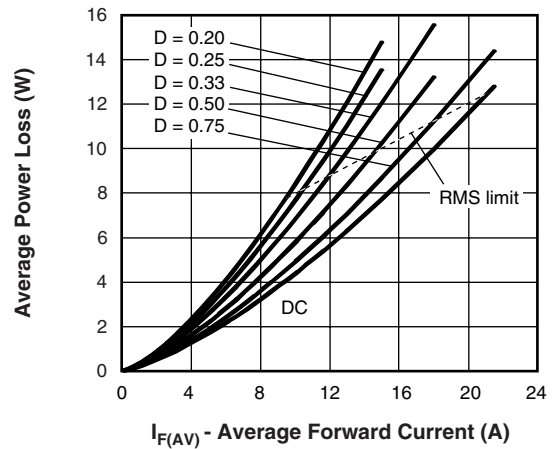


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

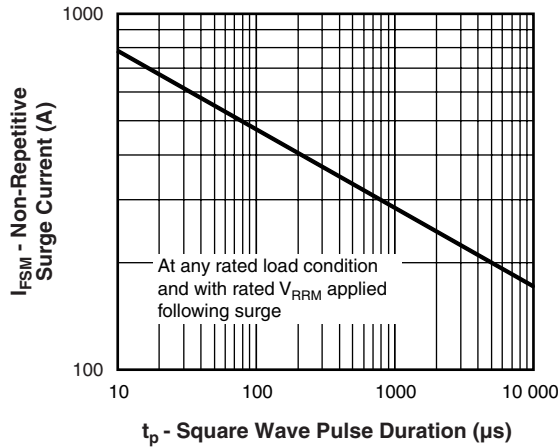


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)



Fig. 8 - Unclamped Inductive Test Circuit

Note

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



MBR3035WTPbF/MBR3045WTPbF

Schottky Rectifier, 2 x 15 A Vishay High Power Products

ORDERING INFORMATION TABLE

Device code	MBR	30	45	WT	PbF
	①	②	③	④	⑤
①	-	Schottky MBR series			
②	-	Current rating (30 = 30 A)			
③	-	Voltage ratings		35 = 35 V 45 = 45 V	
④	-	Circuit configuration: Center tap (dual) TO-247			
⑤	-	• None = Standard production • PbF = Lead (Pb)-free			

LINKS TO RELATED DOCUMENTS	
Dimensions	http://www.vishay.com/doc?95223
Part marking information	http://www.vishay.com/doc?95226



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