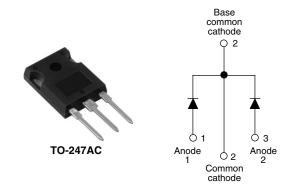


Vishay High Power Products

Schottky Rectifier, 2 x 30 A



PRODUCT SUMMARY			
I _{F(AV)} 2 x 30 A			
V _R 100 V			

FEATURES

- 175 °C T_J operation
- Center tap TO-247 package
- · 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 for industrial level

DESCRIPTION

The 63CPQ100G center tap Schottky rectifier series has been optimized for low reverse leakage at high temperature. The proprietary barrier technology allows for reliable operation up to 175 °C junction temperature. Typical applications are in switching power supplies, converters, freewheeling diodes, and reverse battery protection.

MAJOR RATINGS AND CHARACTERISTICS				
SYMBOL	CHARACTERISTICS	VALUES	UNITS	
I _{F(AV)}	Rectangular waveform	60	Α	
V _{RRM}		100	V	
I _{FSM}	t _p = 5 μs sine	2200	Α	
V _F	30 Apk, T _J = 125 °C (per leg)	0.64	V	
T _J	Range	- 55 to 175	°C	

VOLTAGE RATINGS				
PARAMETER	SYMBOL	63CPQ100G	UNITS	
Maximum DC reverse voltage	V _R	100 V		
Maximum working peak reverse voltage	V _{RWM}	V		

ABSOLUTE MAXIMUM RATINGS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum average per leg		50 % duty cycle at T _C = 153 °C, rectangular waveform		30	
See fig. 5 per device	I _{F(AV)}			60	Α
Maximum peak one cycle non-repetitive surge current per leg		5 μs sine or 3 μs rect. pulse	Following any rated load condition and with rated V _{RRM} applied	2200	
See fig. 7	IFSM	10 ms sine or 6 ms rect. pulse		410	
Non-repetitive avalanche energy per leg	E _{AS}	$T_J = 25 ^{\circ}\text{C}, I_{AS} = 1 \text{A}, L = 30 \text{mH}$		15	mJ
Repetitive avalanche current per leg	I _{AR}	Current decaying linearly to zero in 1 μ s Frequency limited by T _J maximum V _A = 1.5 x V _R typical		1	А

Document Number: 93379 Revision: 21-Aug-08

63CPQ100G

Vishay High Power Products Schottky Rectifier, 2 x 30 A



ELECTRICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop per leg See fig. 1	V _{FM} ⁽¹⁾	30 A	T _J = 25 °C	0.77	V
		60 A		0.92	
		30 A	T _J = 125 °C	0.64	
		60 A		0.76	
Maximum reverse leakage current per leg	I _{RM} ⁽¹⁾	T _J = 25 °C	V _R = Rated V _R	0.3	mA
See fig. 2	IRM ('')	T _J = 125 °C		25	
Threshold voltage	V _{F(TO)}	T _J = T _J maximum		0.38	V
Forward slope resistance	r _t			5.75	mΩ
Maximum junction capacitance per leg	C _T	V _R = 5 V _{DC} (test signal range 100 kHz to 1 MHz) 25 °C		1300	pF
Typical series inductance per leg	L _S	Measured lead to lead 5 mm from package body 7.5		7.5	nΗ
Maximum voltage rate of change	dV/dt	Rated V _R 10 000		V/µs	

Note

 $^{^{(1)}\,}$ Pulse width < 300 $\mu s,$ duty cycle < 2 %

THERMAL - MECHANICAL SPECIFICATIONS						
PARAMETER		SYMBOL	TEST CONDITIONS	VALUES	UNITS	
Maximum junction and storag temperature range	е	T _J , T _{Stg}		- 55 to 175	°C	
Maximum thermal resistance, junction to case per leg		D	DC operation See fig. 4	0.8	i	
Maximum thermal resistance, junction to case per package		R_{thJC}	DC operation	0.4	°C/W	
Typical thermal resistance, case to heatsink		R _{thCS}	R _{thCS} Mounting surface, smooth and greased			
Approximate weight				6	g	
			0.21	OZ.		
Mounting torque —	minimum			6 (5)	kgf · cm	
	maximum			12 (10)	$(lbf \cdot in)$	
Marking device			Case style TO-247AC (JEDEC)	63CPC	Q100G	



Schottky Rectifier, 2 x 30 A Vishay High Power Products

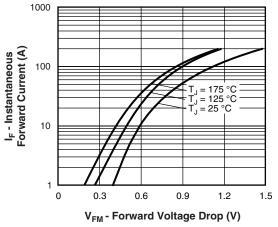


Fig. 1 - Maximum Forward Voltage Drop Characteristics

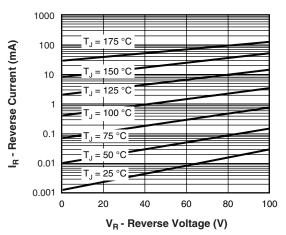


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

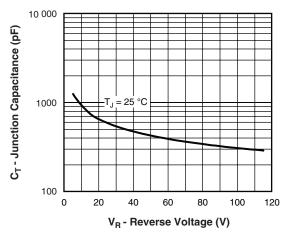


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

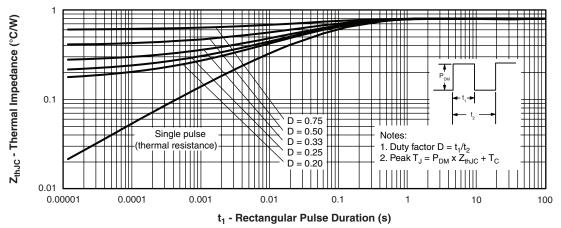
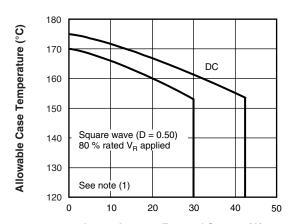


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

Vishay High Power Products Schottky Rectifier, 2 x 30 A





I_{F(AV)} - Average Forward Current (A)
Fig. 5 - Maximum Allowable Case Temperature vs.
Average Forward Current

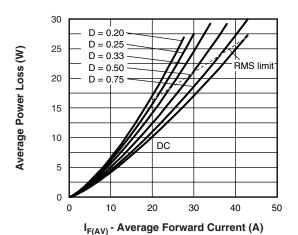


Fig. 6 - Forward Power Loss Characteristics

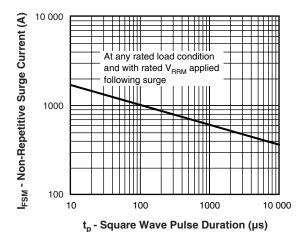


Fig. 7 - Maximum Non-Repetitive Surge Current

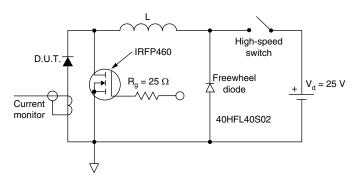


Fig. 8 - Unclamped Inductive Test Circuit

Note

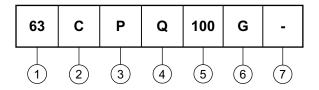
 $^{(1)}$ Formula used: T_C = T_J - (Pd + Pd_{REV}) x R_{th,JC}; Pd = Forward power loss = I_{F(AV)} x V_{FM} at (I_{F(AV)}/D) (see fig. 6); Pd_{REV} = Inverse power loss = V_{R1} x I_R (1 - D); I_R at V_{R1} = 80 % rated V_R



Schottky Rectifier, 2 x 30 A Vishay High Power Products

ORDERING INFORMATION TABLE

Device code



- 1 Current rating (60 A)
- 2 Circuit configuration:

C = Common cathode

3 - Package:

P = TO-247

- 4 Schottky "Q" series
- 5 Voltage rating (100 V)
- 6 G = Schottky generation
- 7 • None = Standard production
 - PbF = Lead (Pb)-free

Tube standard pack quantity: 25 pieces

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

Document Number: 93379 Revision: 21-Aug-08



Vishay

Disclaimer

All product specifications and data are subject to change without notice.

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 herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

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.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.

Revision: 18-Jul-08

Document Number: 91000 www.vishay.com