



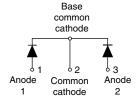
Vishay High Power Products

ROHS

Schottky Rectifier New Generation 3 D-61 Package, 2 x 55 A

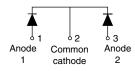
VS-113CNQ100APbF





VS-113CNQ100ASMPbF





D-61-8-SM

VS-113CNQ100ASLPbF





PRODUCT SUMMARY			
I _{F(AV)}	2 x 55 A		
V_{R}	100 V		

FEATURES

- 175 °C T_J operation
- Center tap module
- · 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
- New fully transfer-mold low profile, small footprint, high current package
- Compliant to RoHS directive 2002/95/EC
- Designed and qualified for industrial level

DESCRIPTION

The center tap Schottky rectifier module 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.

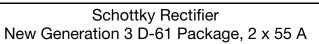
MAJOR RATINGS AND CHARACTERISTICS					
SYMBOL	CHARACTERISTICS	VALUES	UNITS		
I _{F(AV)}	Rectangular waveform	110	A		
V _{RRM}		100	V		
I _{FSM}	t _p = 5 µs sine	7000	Α		
V _F	55 Apk, T _J = 125 °C (per leg)	0.67	V		
T _J	Range	- 55 to 175	°C		

VOLTAGE RATINGS			
PARAMETER	SYMBOL	VS-113CNQ100APbF	UNITS
Maximum DC reverse voltage	V_{R}	100	V
Maximum working peak reverse voltage	V_{RWM}	100	V

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

VS-113CNQ100A PbF Series







ABSOLUTE MAXIMUM RATINGS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum average per le	· .	$F_{\text{(AV)}}$ 50 % duty cycle at T_{C} = 150 °C, rectangular waveform		55	Α
See fig. 5 per devic	P(AV)			110	ζ
Maximum peak one cycle		5 μs sine or 3 μs rect. pulse	Following any rated load condition and with	7000	Α
non-repetitive surge current per leg See fig. 7	IFSM	10 ms sine or 6 ms rect. pulse	rated V _{RRM} applied	720	
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	Α

ELECTRICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop per leg See fig. 1	V _{FM} ⁽¹⁾	55 A	T _J = 25 °C	0.81	V
		110 A		1.00	
		55 A	T _J = 125 °C	0.66	
		110 A		0.79	
Maximum reverse leakage current per leg See fig. 2	I _{RM} ⁽¹⁾	T _J = 25 °C	V _R = Rated V _R	1.0	- mA
		T _J = 125 °C		32	
Maximum junction capacitance per leg	C _T	V _R = 5 V _{DC} (test signal range 100 kHz to 1 MHz), 25 °C		1960	pF
Typical series inductance per leg	L _S	Measured lead to lead 5 mm from package body		5.5	nH
Maximum voltage rate of change	dV/dt	Rated V _R 10 000 V/		V/µs	

Note

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

THERMAL - MECHANICAL SPECIFICATIONS				
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction and storage temperature range	T _J , T _{Stg}		- 55 to 175	°C
Maximum thermal resistance, junction to case per leg	D	DC operation See fig. 4	0.5	
Maximum thermal resistance, junction to case per package	- R _{thJC}	DC operation	0.25	°C/W
Typical thermal resistance, case to heatsink (D-61-8 only)	R _{thCS}	Mounting surface, smooth and greased Device flatness < 5 mils	0.30	
Approximate weight			7.8	g
Approximate weight			0.28	OZ.
Mounting torque minimum		December and add beautiful and the control of the c	12 (10)	kgf · cm
(D-61-8 only) maximum		Recommended hardware 3M stainless screw	24 (20)	(lbf \cdot in)
		Case style D-61	113CN	Q100A
Marking device		Case style D-61-8-SM	113CNQ	100ASM
		Case style D-61-8-SL	113CNQ	100ASL

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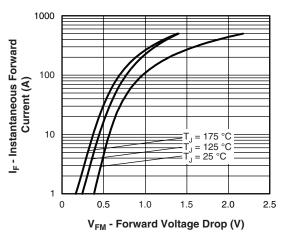


Fig. 1 - Maximum Forward Voltage Drop Characteristics (Per Leg)

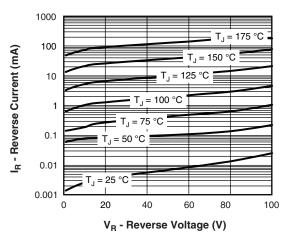


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage (Per Leg)

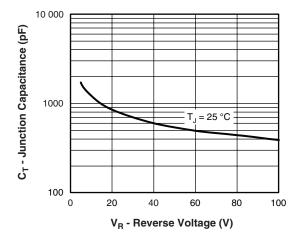


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage (Per Leg)

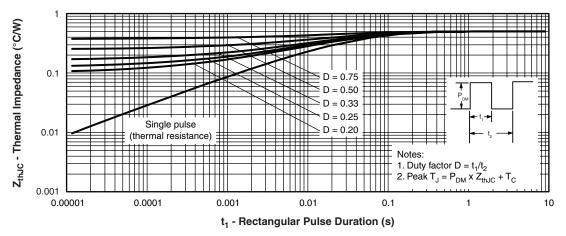


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics (Per Leg)

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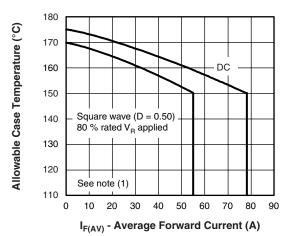


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current (Per Leg)

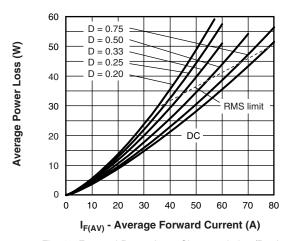


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

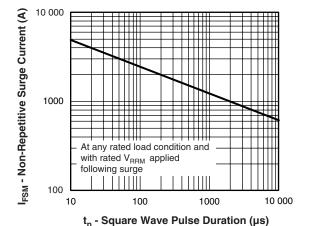


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

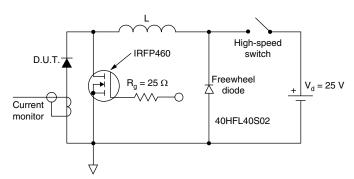


Fig. 8 - Unclamped Inductive Test Circuit

Note

 $^{(1)}$ Formula used: T_C = T_J - (Pd + Pd_{REV}) x R_{thJC}; 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

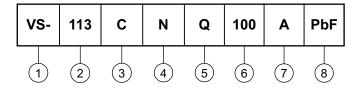


VS-113CNQ100A PbF Series

Schottky Rectifier Vishay High Power Products New Generation 3 D-61 Package, 2 x 55 A

ORDERING INFORMATION TABLE

Device code



1 - HPP product suffix

2 - Current rating (110 A)

3 - Circuit configuration:

C = Common cathode

4 - Package:

N = D-61

5 - Schottky "Q" series

6 - Voltage rating (100 = 100 V)

7 - Package style:

• A = D-61-8

• ASM = D-61-8-SM

• ASL = D-61-8-SL

8 - • None = Standard production

• PbF = Lead (Pb)-free

Standard pack quantity: A = 10 pieces; ASM/ASL = 20 pieces

LINKS TO RELATED DOCUMENTS				
Dimensions	www.vishay.com/doc?95354			
Part marking information	www.vishay.com/doc?95356			

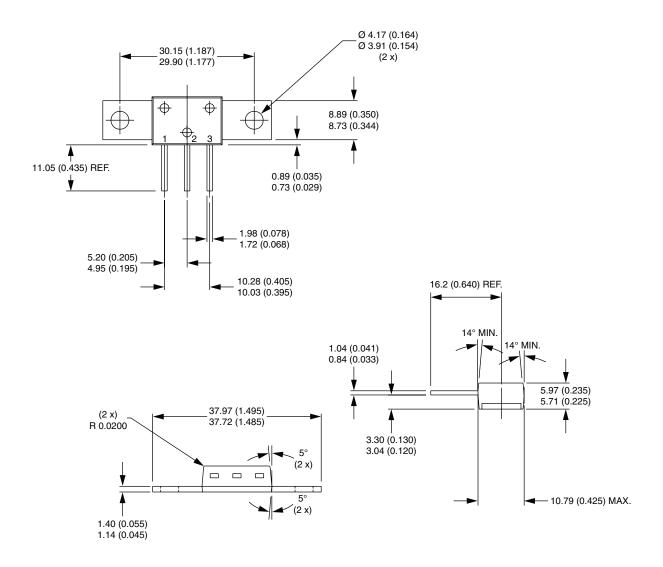
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Vishay High Power Products

D-61-8, D-61-8-SM, D-61-8-SL

DIMENSIONS FOR D-61-8 in millimeters (inches)



Vishay High Power Products

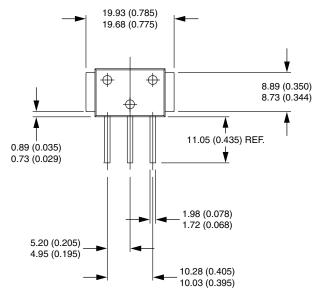
D-61-8, D-61-8-SM, D-61-8-SL

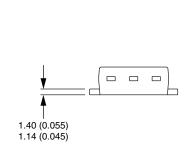


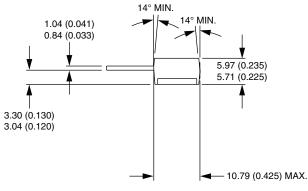
Document Number: 95354

Revision: 13-Aug-08

DIMENSIONS FOR D-61-8-SM in millimeters (inches)



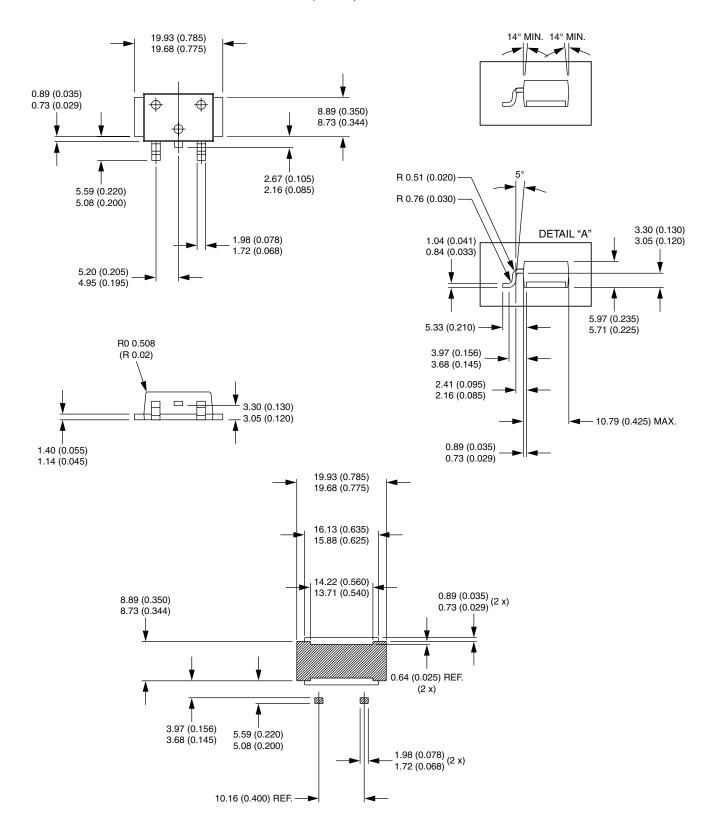






D-61-8, D-61-8-SM, D-61-8-SL Vishay High Power Products

DIMENSIONS FOR D 61-8-SL in millimeters (inches)







Vishay

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