

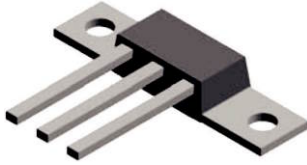


**THE DATASHEET OF
VS-115CNQ015APBF**

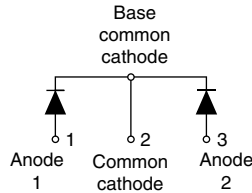


Schottky Rectifier New Generation 3 D-61 Package, 2 x 55 A

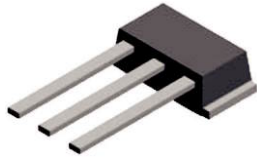
VS-115CNQ015APbF



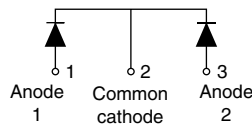
D-61-8



VS-115CNQ015ASMPbF



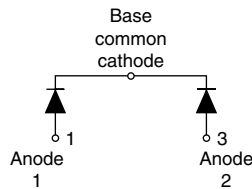
D-61-8-SM



VS-115CNQ015ASLPbF



D-61-8-SL



FEATURES

- 125 °C T_J operation ($V_R < 5$ V)
- Center tap module
- Optimized for OR-ing applications
- Ultralow forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- New fully transfer-mold low profile, small footprint, high current package
- Compliant to RoHS directive 2002/95/EC
- Designed and qualified for industrial level



Available
RoHS*
COMPLIANT

DESCRIPTION

The center tap Schottky rectifier module has been optimized for ultra low forward voltage drop specifically for the OR-ing of parallel power supplies. The proprietary barrier technology allows for reliable operation up to 125 °C junction temperature. Typical applications are in parallel switching power supplies, converters, reverse battery protection, and redundant power subsystems.

PRODUCT SUMMARY

$I_{F(AV)}$	2 x 55 A
V_R at $T_J = 100$ °C	15 V

MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNITS
$I_{F(AV)}$	Rectangular waveform	110	A
V_{RRM}		15	V
I_{FSM}	$t_p = 5$ μ s sine	5050	A
V_F	55 Apk, $T_J = 75$ °C (per leg)	0.33	V
T_J	Range	- 55 to 125	°C

VOLTAGE RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS	VS-115CNQ015APbF	UNITS
Maximum DC reverse voltage	V_R	$T_J = 100$ °C	15	V
Maximum working peak reverse voltage	V_{RWM}	$T_J = 125$ °C	5	

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

ABSOLUTE MAXIMUM RATINGS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum average forward current See fig. 5	$I_{F(AV)}$	50 % duty cycle at $T_C = 112\text{ }^\circ\text{C}$, rectangular waveform		55	A
				110	
Maximum peak one cycle non-repetitive surge current per leg See fig. 7	I_{FSM}	5 μs sine or 3 μs rect. pulse	Following any rated load condition and with rated V_{RRM}	5050	A
		10 ms sine or 6 ms rect. pulse		830	
Non-repetitive avalanche energy per leg	E_{AS}	$T_J = 25\text{ }^\circ\text{C}$, $I_{AS} = 2\text{ A}$, $L = 4.5\text{ mH}$		54	mJ
Repetitive avalanche current per leg	I_{AR}	Current decaying linearly to zero in 1 μs Frequency limited by T_J maximum $V_A = 3 \times V_R$ typical		2	A

ELECTRICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop per leg See fig. 1	$V_{FM}^{(1)}$	55 A	$T_J = 25\text{ }^\circ\text{C}$	0.37	V
		110 A		0.46	
		55 A	$T_J = 75\text{ }^\circ\text{C}$	0.33	
		110 A		0.43	
Maximum reverse leakage current per leg See fig. 2	$I_{RM}^{(1)}$	$T_J = 25\text{ }^\circ\text{C}$	$V_R = \text{Rated } V_R$	20	mA
		$T_J = 100\text{ }^\circ\text{C}$		1200	
		$T_J = 100\text{ }^\circ\text{C}$	$V_R = 12\text{ V}$	900	
		$T_J = 100\text{ }^\circ\text{C}$	$V_R = 5\text{ V}$	540	
Maximum junction capacitance per leg	C_T	$V_R = 5\text{ V}_{DC}$ (test signal range 100 kHz to 1 MHz), $25\text{ }^\circ\text{C}$		5500	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/ 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			- 55 to 125	$^\circ\text{C}$
Maximum storage temperature range	T_{Stg}			- 55 to 150	
Maximum thermal resistance, junction to case per leg	R_{thJC}	DC operation See fig. 4		0.5	$^\circ\text{C/W}$
Maximum thermal resistance, junction to case per package		DC operation		0.25	
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
				0.28	oz.
Mounting torque (D-61-8 only)	minimum			40 (35)	kgf · cm (lbf · in)
	maximum			58 (50)	
Marking device		Case style D-61		115CNQ015A	
		Case style D-61-8-SM		115CNQ015ASM	
		Case style D-61-8-SL		115CNQ015ASL	

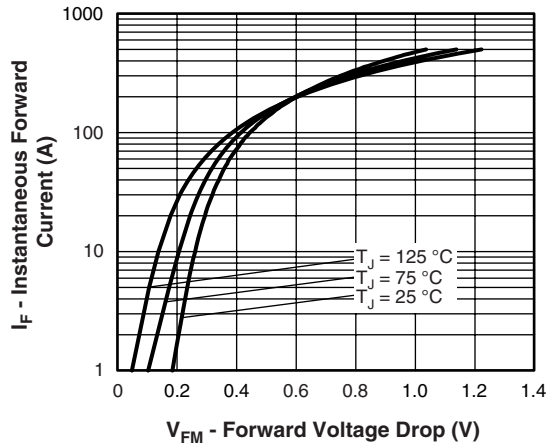


Fig. 1 - Maximum Forward Voltage Drop Characteristics (Per Leg)

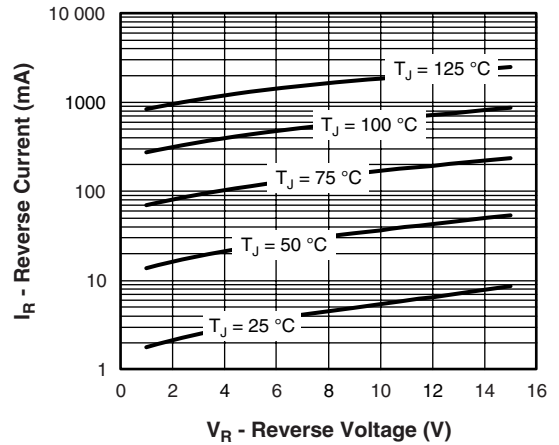


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage (Per Leg)

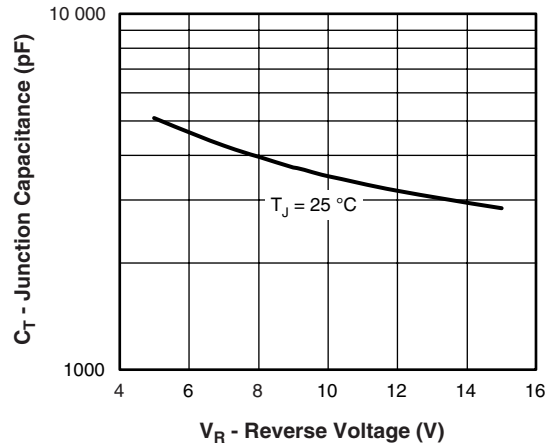


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage (Per Leg)

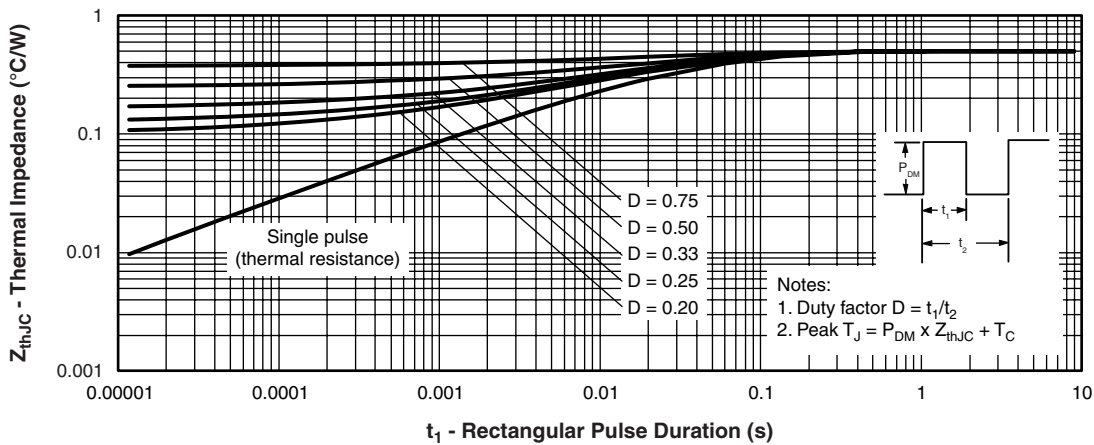


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics (Per Leg)

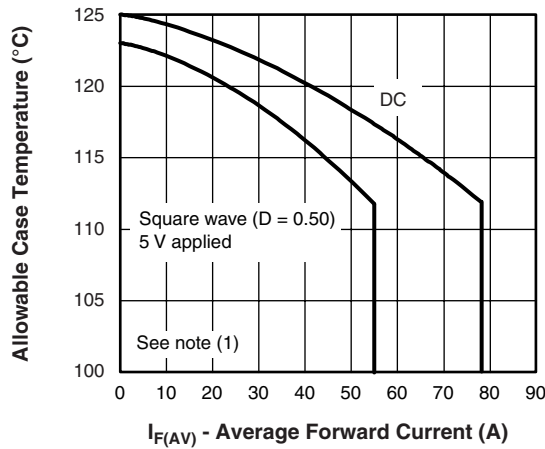


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current (Per Leg)

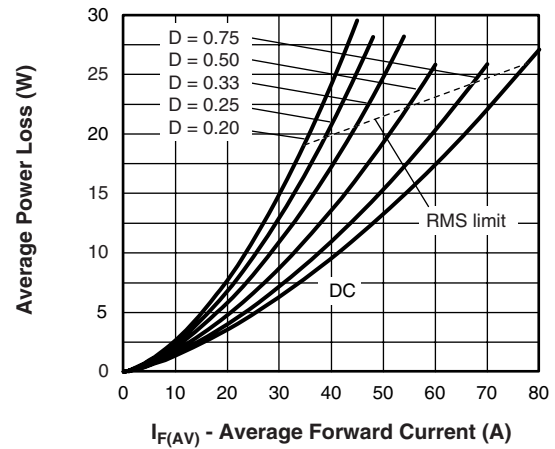


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

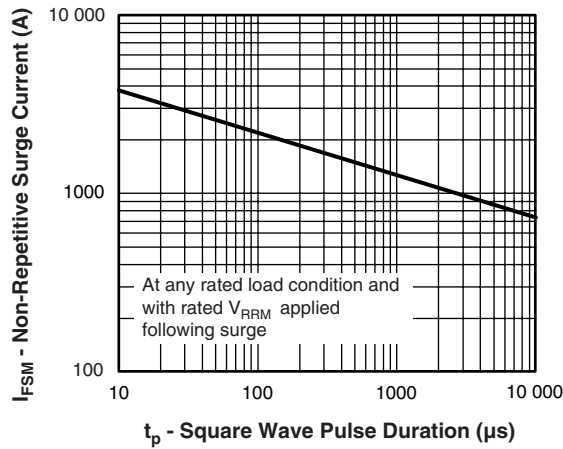


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

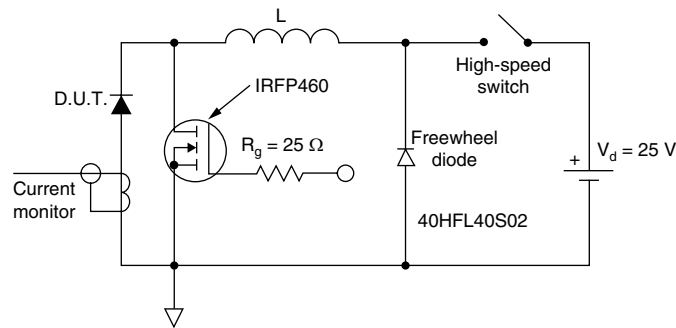


Fig. 8 - Unclamped Inductive Test Circuit

Note

- (1) Formula used: $T_C = T_J - (P_d + P_{d_{REV}}) \times R_{thJC}$;
 P_d = 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 $V_{R1} = 5$ V



VS-115CNQ015A PbF Series

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

Vishay High Power Products

ORDERING INFORMATION TABLE

Device code	VS-	115	C	N	Q	015	A	PbF
	①	②	③	④	⑤	⑥	⑦	⑧

- 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 (015 = 15 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

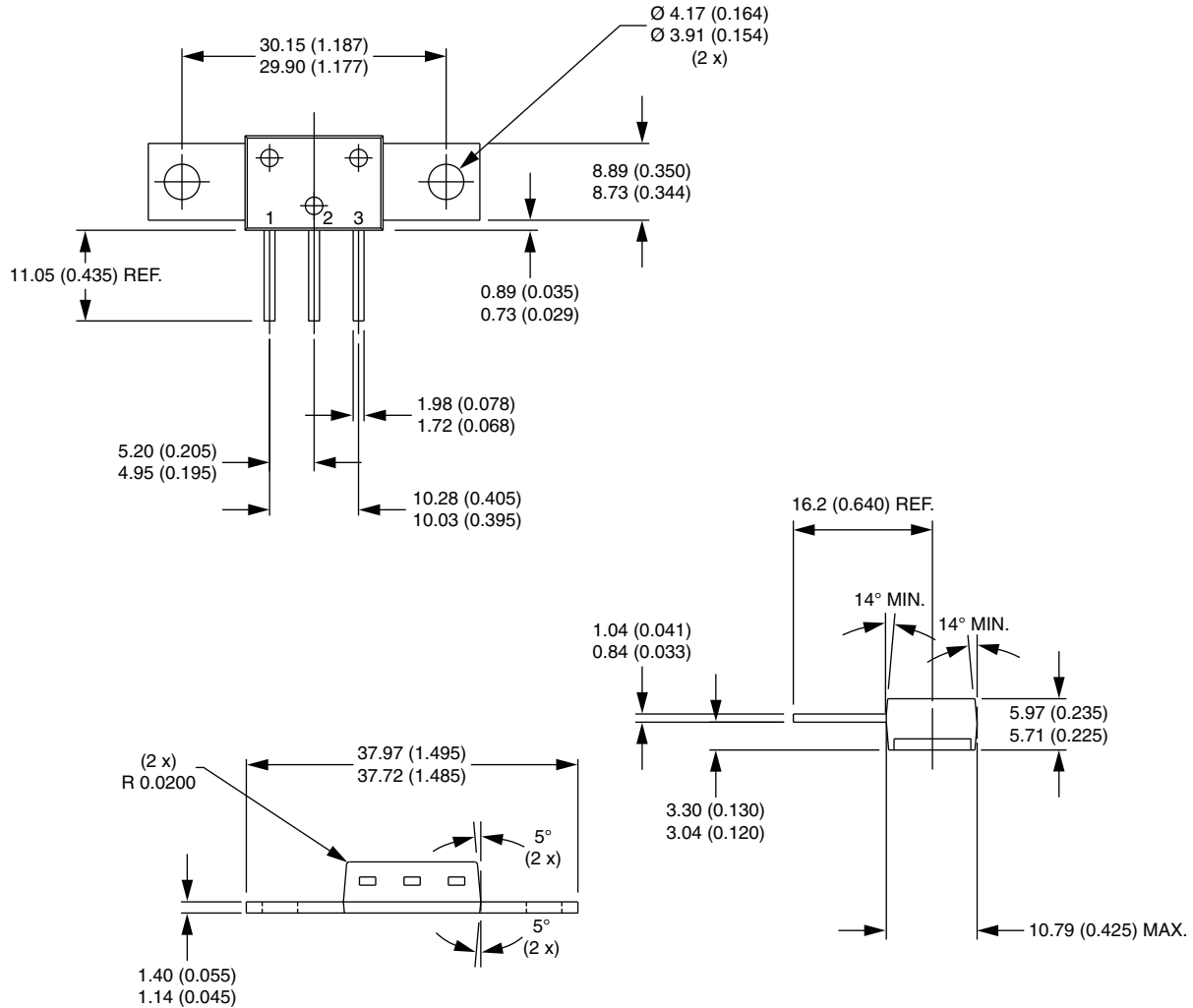
Standard pack quantity: A = 10 pieces; ASM/ASL = 20 pieces

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



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

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



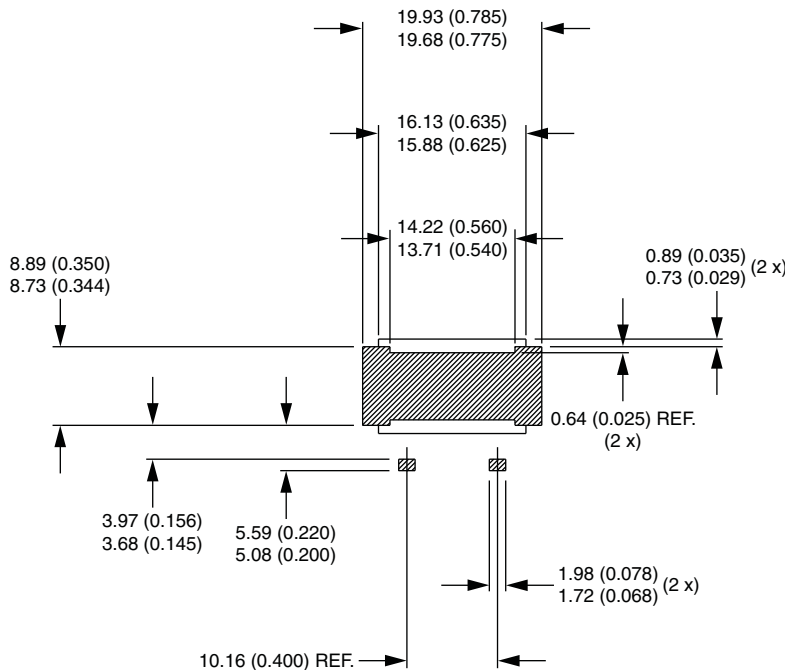
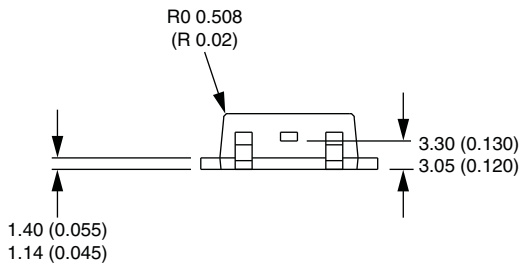
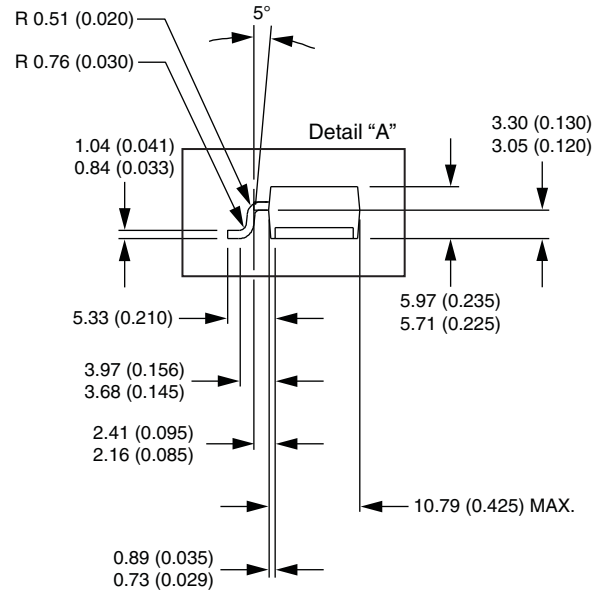


DIMENSIONS - D-61-8-SM in millimeters (inches)





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





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