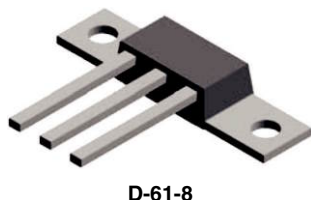


Schottky Rectifier New Generation 3 D-61 Package, 2 x 55 A

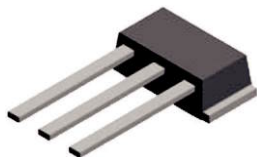
VS-115CNQ015APbF



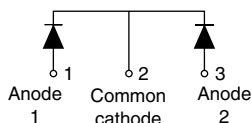
D-61-8



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 °C	0.37	V	
		110 A		0.46		
		55 A	T _J = 75 °C	0.33		
		110 A		0.43		
Maximum reverse leakage current per leg See fig. 2	I _{RM} ⁽¹⁾	T _J = 25 °C	V _R = Rated V _R	20	mA	
		T _J = 100 °C		1200		
		T _J = 100 °C	V _R = 12 V	900		
		T _J = 100 °C	V _R = 5 V	540		
Maximum junction capacitance per leg	C _T	V _R = 5 V _{DC} (test signal range 100 kHz to 1 MHz), 25 °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	°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	°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	

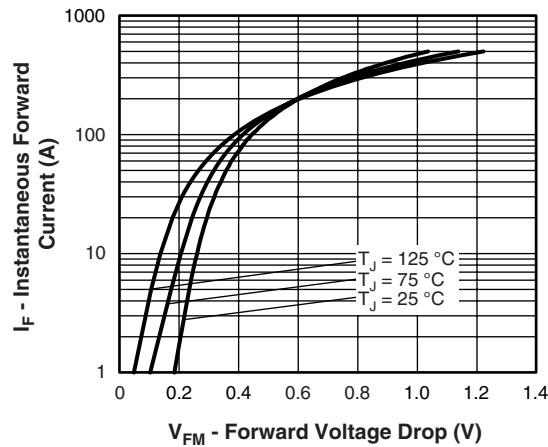


Fig. 1 - Maximum Forward Voltage Drop Characteristics (Per Leg)

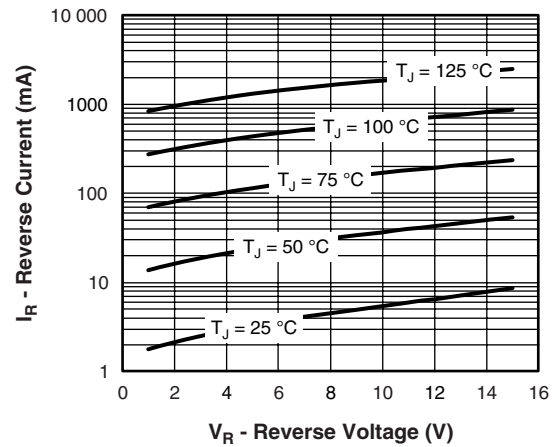


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage (Per Leg)

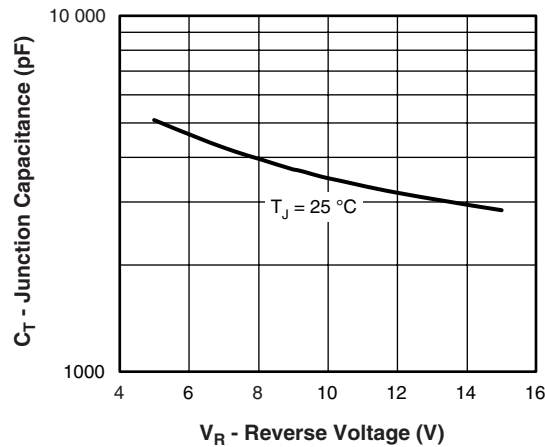


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage (Per Leg)

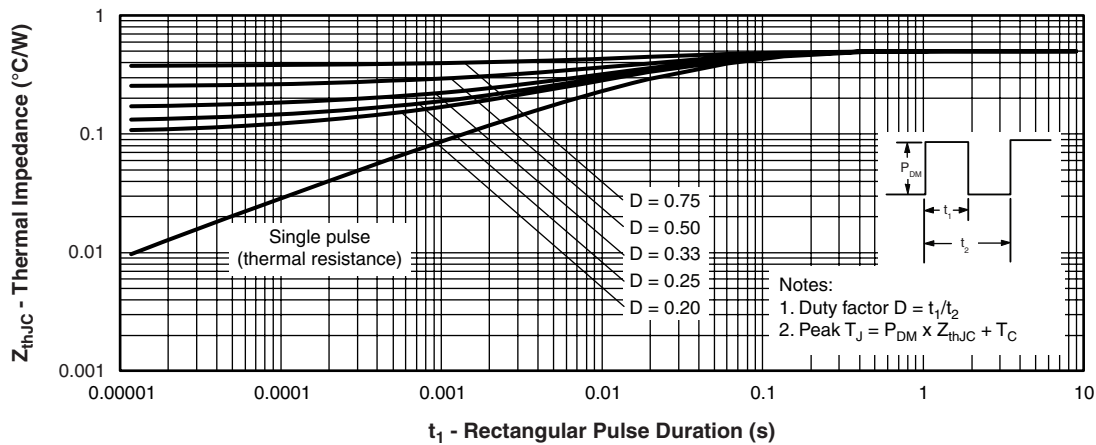


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics (Per Leg)

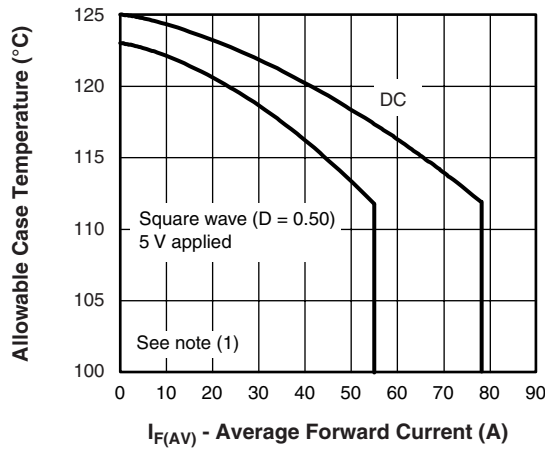


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current (Per Leg)

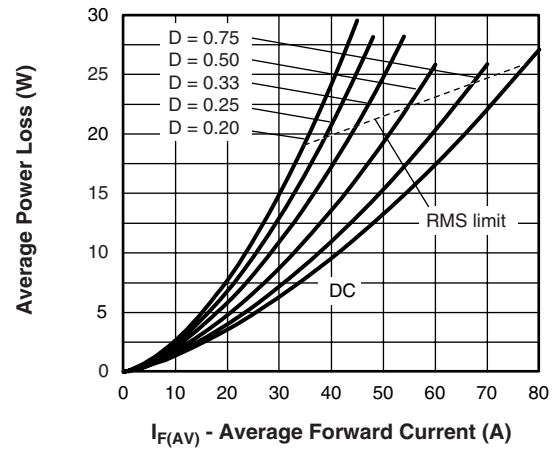


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

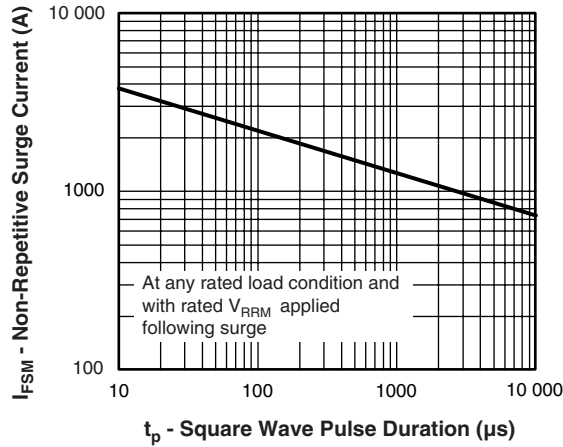


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

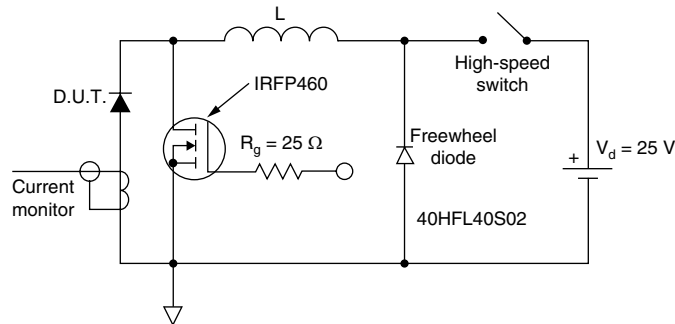


Fig. 8 - Unclamped Inductive Test Circuit

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: <ul style="list-style-type: none">• A = D-61-8• ASM = D-61-8-SM• ASL = D-61-8-SL |
| 8 | - | <ul style="list-style-type: none">• 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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