

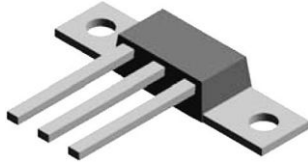


**THE DATASHEET OF  
VS-85CNQ015APBF**

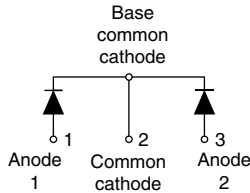


## Schottky Rectifier New Generation 3 D-61 Package, 2 x 40 A

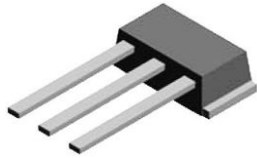
VS-85CNQ015APbF



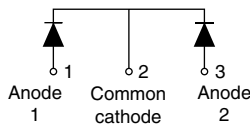
D-61-8



VS-85CNQ015ASMPbF



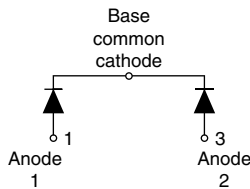
D-61-8-SM



VS-85CNQ015ASLPbF



D-61-8-SL



### FEATURES

- 125 °C  $T_J$  operation ( $V_R < 5$  V)
- Center tap module
- Optimized for OR-ing applications
- Ultra low 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
- Through-hole versions are currently available for use in lead (Pb)-free applications ("PbF" suffix)
- 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 40 A
$V_R$	15 V
$I_{RM}$	1000 mA at 100 °C

### MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNITS
$I_{F(AV)}$	Rectangular waveform	80	A
$V_{RRM}$		15	V
$I_{FSM}$	$t_p = 5 \mu s$ sine	5200	A
$V_F$	40 Apk, $T_J = 75$ °C (per leg)	0.32	V
$T_J$	Range	- 55 to 125	°C

### VOLTAGE RATINGS

PARAMETER	SYMBOL	VS-85CNQ015APbF	UNITS
Maximum DC reverse voltage	$V_R$	15	V
Maximum working peak reverse voltage	$V_{RWM}$	25	

\* 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 $T_C = 78\text{ }^\circ\text{C}$ , rectangular waveform		80	A
Maximum peak one cycle non-repetitive surge current per leg See fig. 7	$I_{FSM}$	5 $\mu\text{s}$ sine or 3 $\mu\text{s}$ rect. pulse	Following any rated load condition and with rated $V_{RRM}$ applied	5200	
		10 ms sine or 6 ms rect. pulse		850	
Non-repetitive avalanche energy per leg	$E_{AS}$	$T_J = 25\text{ }^\circ\text{C}$ , $I_{AS} = 2\text{ A}$ , $L = 4.5\text{ mH}$		9	mJ
Repetitive avalanche current per leg	$I_{AR}$	Current decaying linearly to zero in 1 $\mu\text{s}$ 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	$V_{FM}^{(1)}$	40 A	$T_J = 25\text{ }^\circ\text{C}$	0.36	V
		80 A		0.45	
		40 A	$T_J = 75\text{ }^\circ\text{C}$	0.32	
		80 A		0.42	
Maximum reverse leakage current per leg See fig. 2	$I_{RM}^{(1)}$	$T_J = 100\text{ }^\circ\text{C}$	$V_R = 12\text{ V}$	890	mA
			$V_R = 5\text{ V}$	540	
		$T_J = 25\text{ }^\circ\text{C}$	$V_R = \text{Rated } V_R$	20	
				$T_J = 100\text{ }^\circ\text{C}$	
Maximum junction capacitance per leg	$C_T$	$V_R = 5\text{ V}_{DC}$ (test signal range 100 kHz to 1 MHz) $25\text{ }^\circ\text{C}$		3600	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/ $\mu\text{s}$

**Note**

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

THERMAL - MECHANICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum junction and storage temperature range	$T_J, T_{Stg}$			- 55 to 125	$^\circ\text{C}$
Maximum thermal resistance, junction to case	$R_{thJC}$	DC operation (see fig. 4)		0.85	$^\circ\text{C/W}$
		DC operation		0.42	
Typical thermal resistance, case to heatsink	$R_{thCS}$	Mounting surface, smooth and greased Device flatness < 5 mils		0.30	
Approximate weight				7.8	g
				0.28	oz.
Mounting torque	minimum			40 (35)	kgf · cm
	maximum			58 (50)	(lbf · in)
Marking device		Case style D-61		85CNQ015A	
		Case style D-61-8-SM		85CNQ015ASM	
		Case style D-61-8-SL		85CNQ015ASL	



# VS-85CNQ015A PbF Series

Schottky Rectifier  
New Generation 3 D-61 Package, 2 x 40 A

Vishay High Power Products

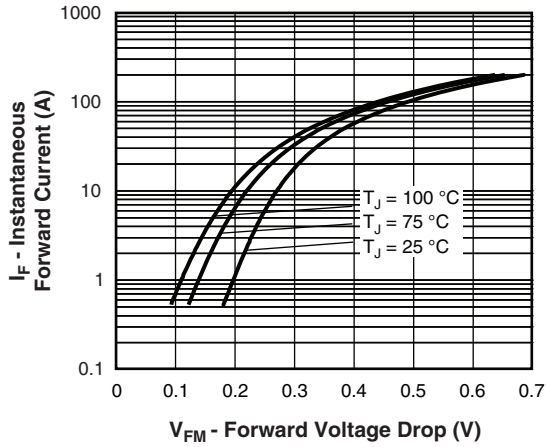


Fig. 1 - Maximum Forward Voltage Drop Characteristics (Per Leg)

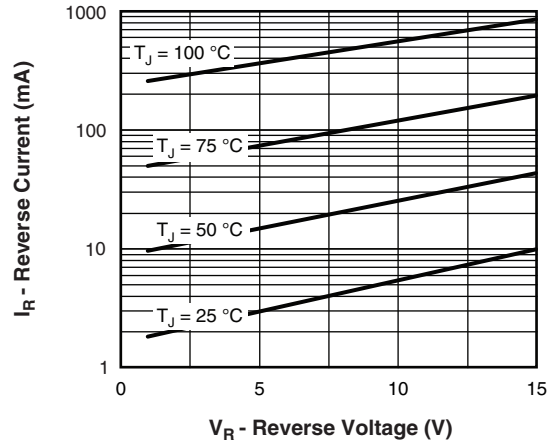


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage (Per Leg)

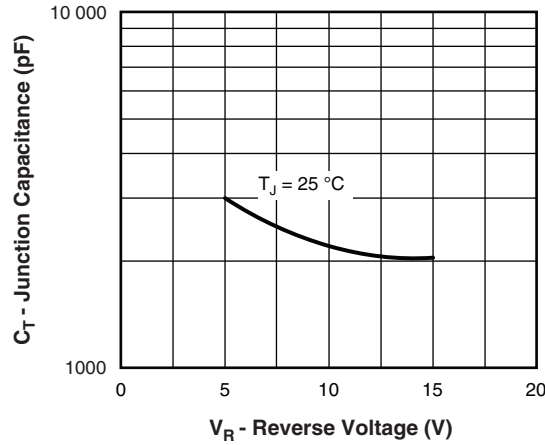


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage (Per Leg)

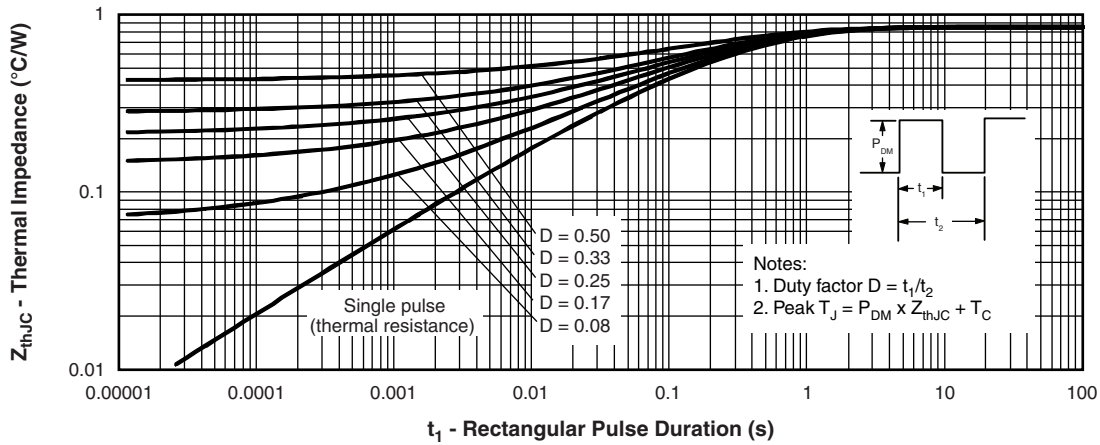


Fig. 4 - Maximum Thermal Impedance  $Z_{thJC}$  Characteristics (Per Leg)

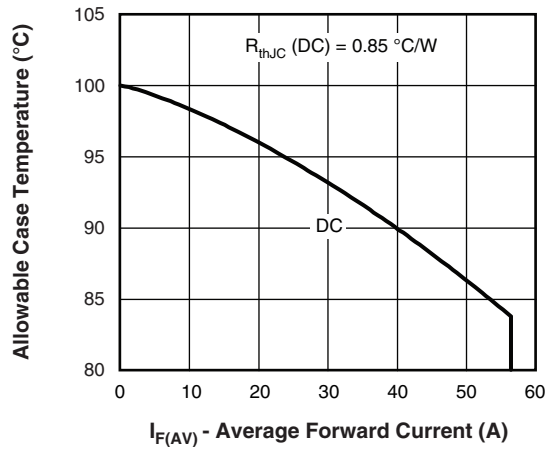


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current (Per Leg)

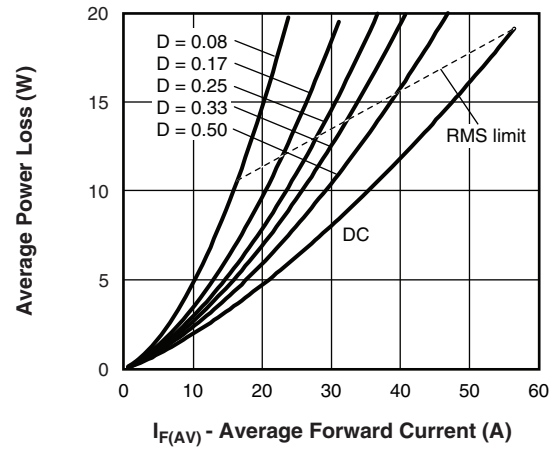


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

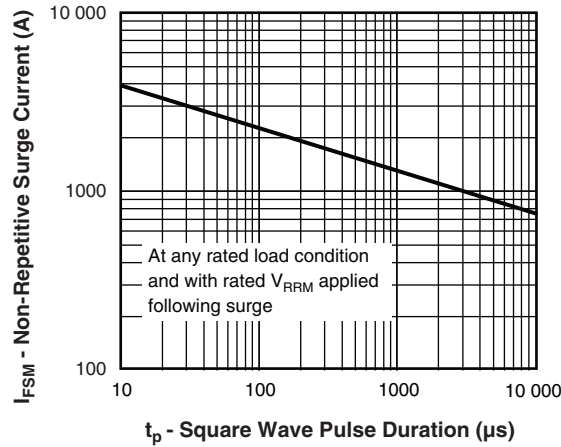


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

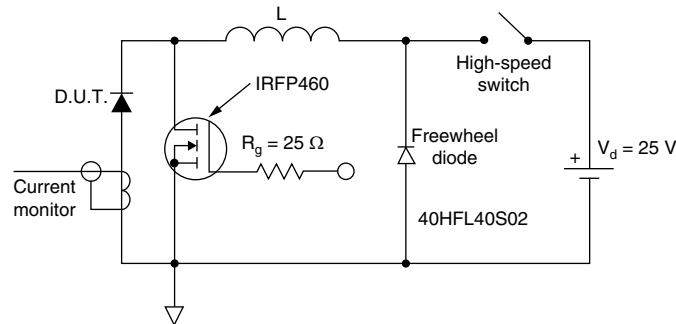


Fig. 8 - Unclamped Inductive Test Circuit



## ORDERING INFORMATION TABLE

Device code	<b>VS-</b>	<b>85</b>	<b>C</b>	<b>N</b>	<b>Q</b>	<b>015</b>	<b>A</b>	<b>PbF</b>
	①	②	③	④	⑤	⑥	⑦	⑧

- 1** - HPP product suffix
- 2** - Current rating (80 A)
- 3** - Circuit configuration:  
C = Common cathode
- 4** - Package:  
N = D-61
- 5** - Schottky "Q" series
- 6** - Voltage ratings (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

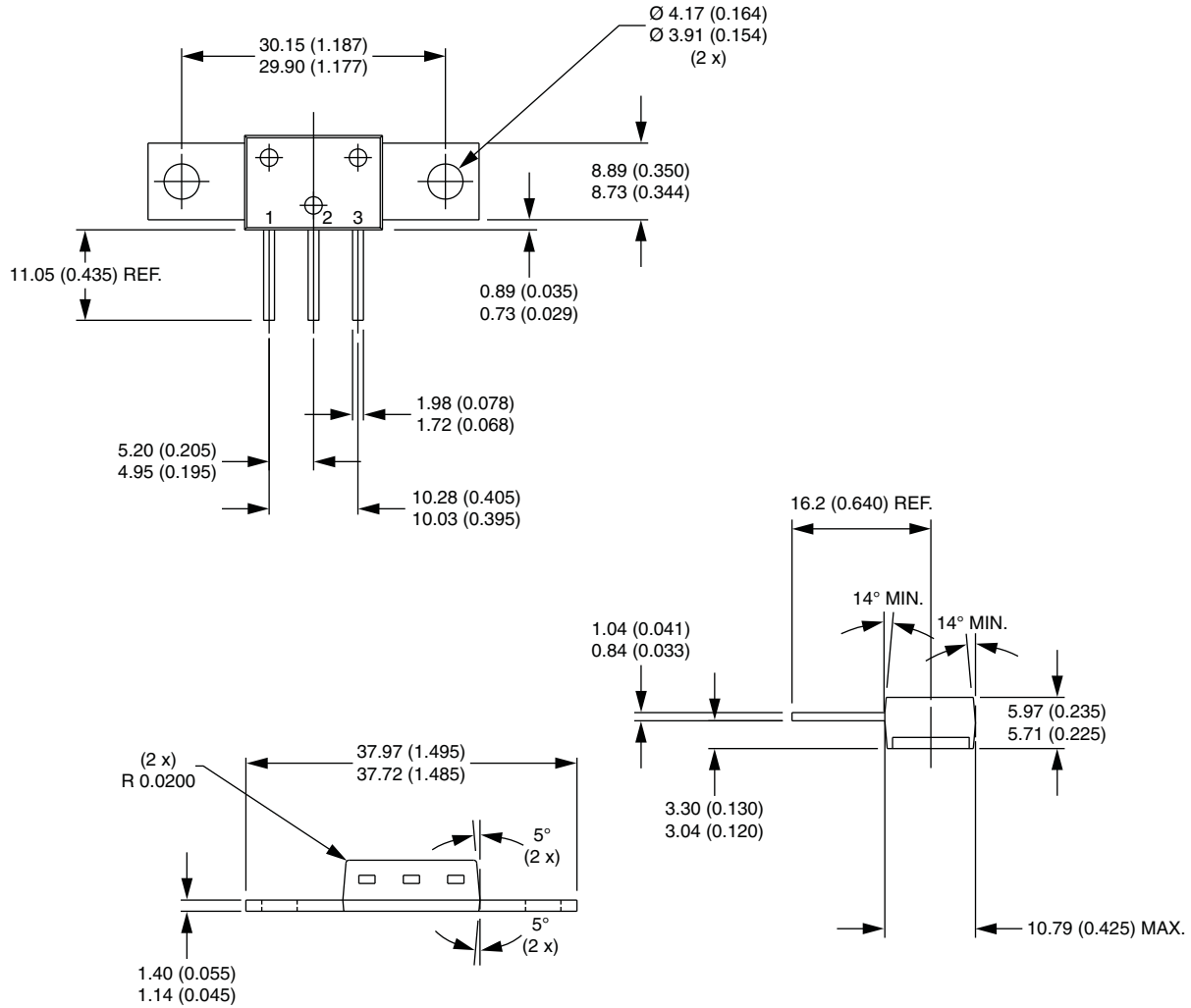
Standard pack quantity: A = 10 pieces; ASM/ASL = 20 pieces

LINKS TO RELATED DOCUMENTS	
Dimensions	<a href="http://www.vishay.com/doc?95354">www.vishay.com/doc?95354</a>
Part marking information	<a href="http://www.vishay.com/doc?95356">www.vishay.com/doc?95356</a>



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

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



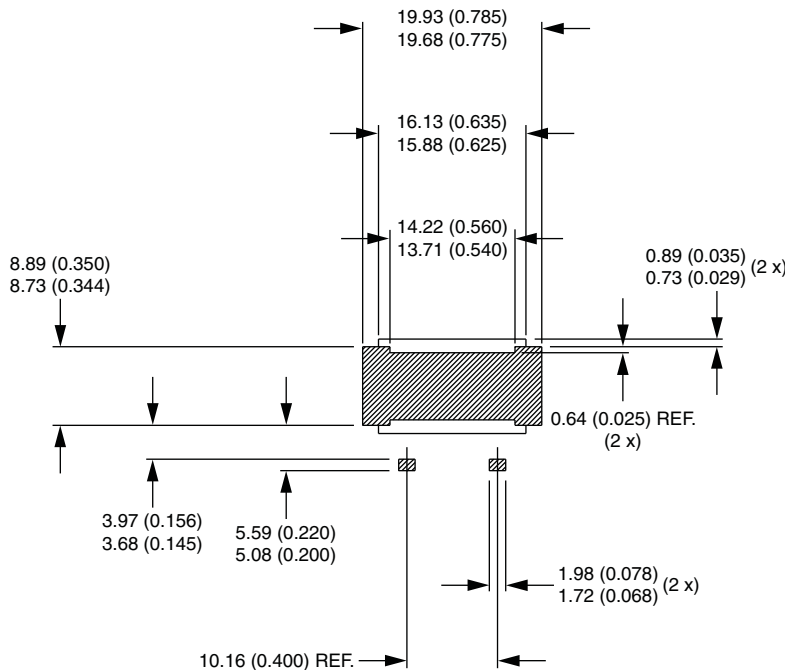
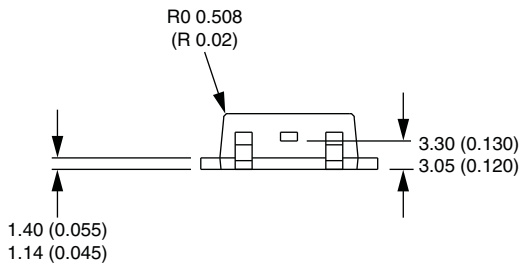
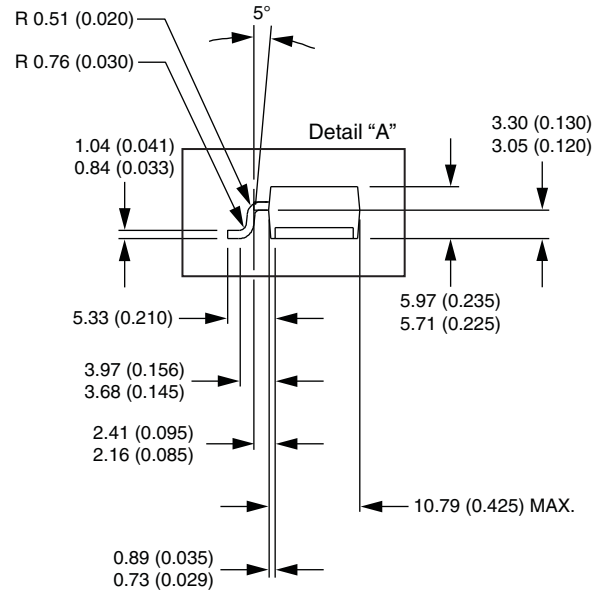


### DIMENSIONS - D-61-8-SM in millimeters (inches)





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





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