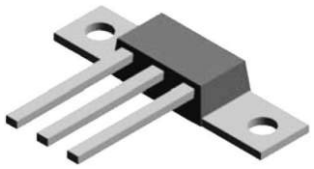
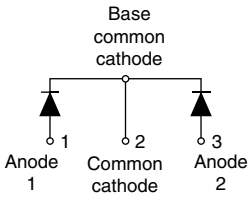
Schottky Rectifier
New Generation 3 D-61 Package, 2 x 40 A





D-61-8

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)
- Lead (Pb)-free
- 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 µs 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	85CNQ015APbF	UNITS
Maximum DC reverse voltage	V_R	15	V
Maximum working peak reverse voltage	V_{RWM}	25	

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 °C, rectangular waveform		80	A
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} applied	5200	
		10 ms sine or 6 ms rect. pulse		850	
Non-repetitive avalanche energy per leg	E_{AS}	T_J = 25 °C, I_{AS} = 2 A, L = 4.5 mH		9	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 x V_R typical		2	A

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

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 °C	0.36	V
		80 A		0.45	
		40 A	T_J = 75 °C	0.32	
		80 A		0.42	
Maximum reverse leakage current per leg See fig. 2	I_{RM} (1)	T_J = 100 °C	V_R = 12 V	890	mA
			V_R = 5 V	540	
		T_J = 25 °C	V_R = Rated V_R	20	
		T_J = 100 °C		1000	
Maximum junction capacitance per leg	C_T	V_R = 5 V_{DC} (test signal range 100 kHz to 1 MHz) 25 °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/µs

Note

(1) Pulse width < 300 µs, 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	°C
Maximum thermal resistance, junction to case	per leg	R_{thJC}	DC operation	See fig. 4	0.85	°C/W
	per package		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 (lbf · in)
	maximum				58 (50)	
Marking device			Case style D-61		85CNQ015A	

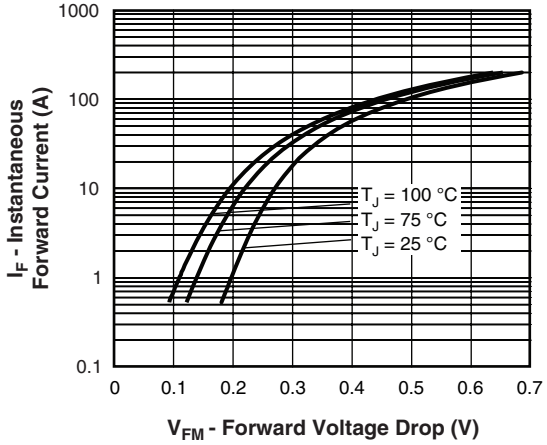


Fig. 1 - Maximum Forward Voltage Drop Characteristics (Per Leg)

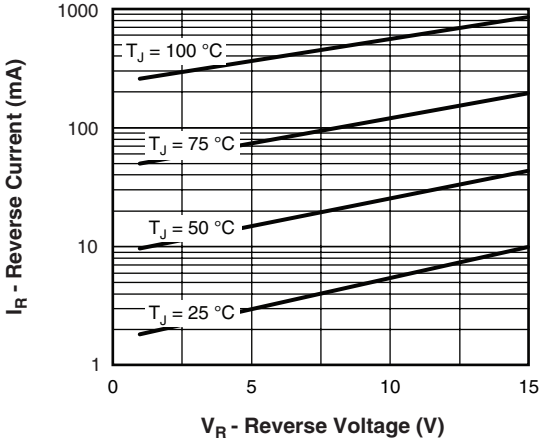


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage (Per Leg)

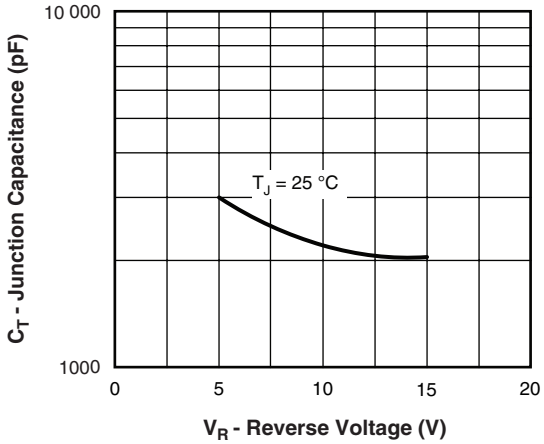


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage (Per Leg)

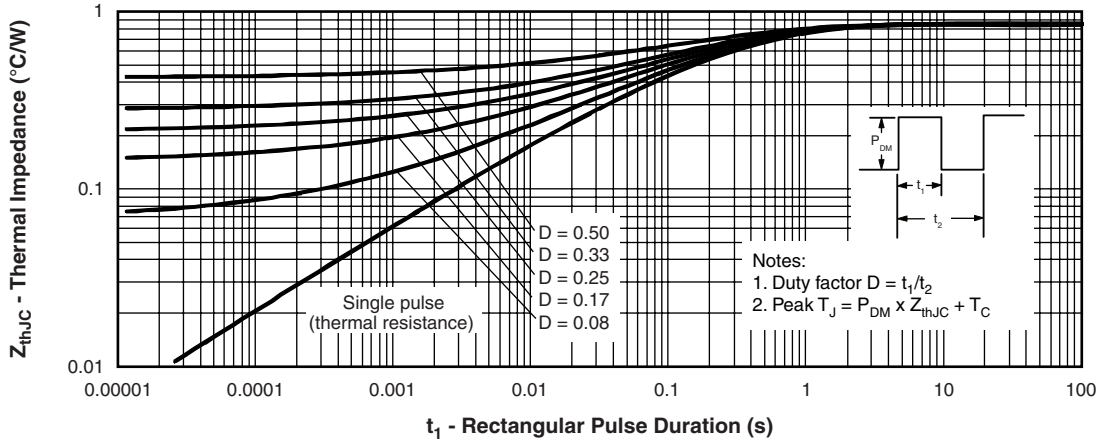


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics (Per Leg)

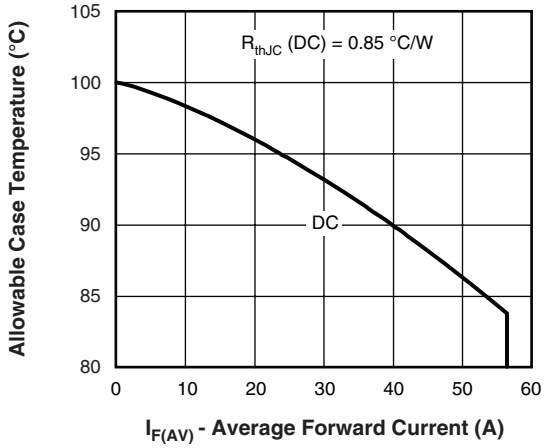


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current (Per Leg)

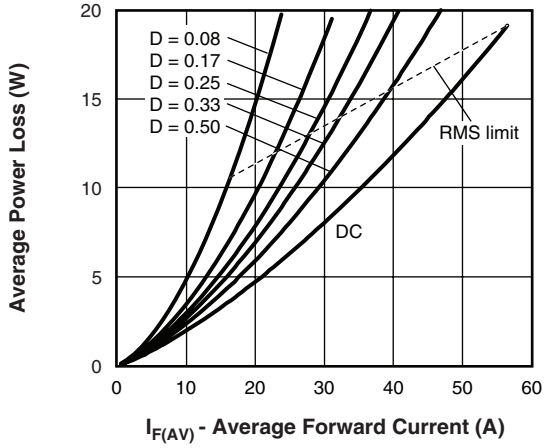


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

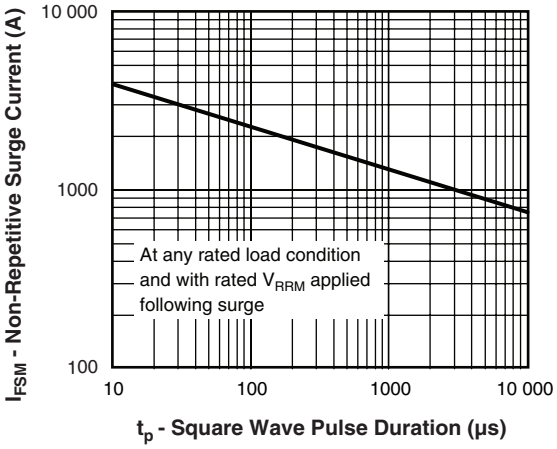


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

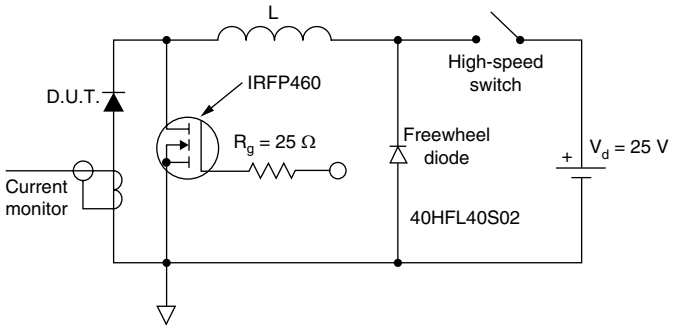


Fig. 8 - Unclamped Inductive Test Circuit

ORDERING INFORMATION TABLE

Device code

85	C	N	Q	015	A	PbF
1	2	3	4	5	6	7

1 - Current rating (80 A)

2 - Circuit configuration:
C = Common cathode

3 - Package:
N = D-61

4 - Schottky "Q" series

5 - Voltage rating (015 = 15 V)

6 - A = D-61-8 package style

7 - • None = Standard production
• PbF = Lead (Pb)-free

Standard pack quantity: A = 10 pieces

LINKS TO RELATED DOCUMENTS	
Dimensions	http://www.vishay.com/doc?95019
Part marking information	http://www.vishay.com/doc?95030

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.