

International
IOR Rectifier

85CNQ015APbF
85CNQ015ASMPbF

SCHOTTKY RECTIFIER
New GenIII D-61 Package

80 Amp

Major Ratings and Characteristics

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, $T_J = 75^\circ C$ (per leg)	0.32	V
T_J range	-55 to 100	$^\circ C$

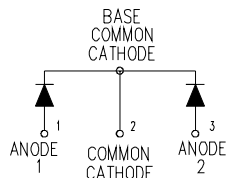
Description/ Features

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 $125^\circ C$ junction temperature. Typical applications are in parallel switching power supplies, converters, reverse battery protection, and redundant power subsystems.

- $125^\circ C$ T_J operation ($V_R < 5V$)
- 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-Free applications ("PbF" suffix)

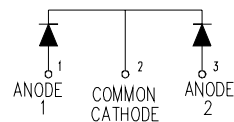
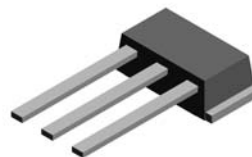
Case Styles

85CNQ015APbF



D61-8

85CNQ015ASMPbF



D61-8-SM

Voltage Ratings

Part number	85CNQ015A..
V_R Max. DC Reverse Voltage (V)	15
V_{RWM} Max. Working Peak Reverse Voltage (V)	25

Absolute Maximum Ratings

Parameters		85CNQ	Units	Conditions		
$I_{F(AV)}$	Max. Average Forward Current * See Fig. 5	80	A	50% duty cycle @ $T_C = 78^\circ\text{C}$, rectangular wave form		
I_{FSM}	Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) * See Fig. 7	5200	A	5 μs Sine or 3 μs Rect. pulse	Following any rated load condition and with rated V_{RRM} applied	
		850		10ms Sine or 6ms Rect. pulse		
E_{AS}	Non-Repetitive Avalanche Energy (Per Leg)	9	mJ	$T_J = 25^\circ\text{C}$, $I_{AS} = 2\text{ Amps}$, $L = 4.50\text{ mH}$		
I_{AR}	Repetitive Avalanche Current (Per Leg)	2	A	Current decaying linearly to zero in 1 μsec Frequency limited by T_J max. $V_A = 3 \times V_R$ typical		

Electrical Specifications

Parameters		85CNQ	Units	Conditions	
V _{FM}	Max. Forward Voltage Drop (Per Leg) * See Fig. 1 (1)	0.36	V	@ 40A	T _J = 25 °C
		0.45	V	@ 80A	
		0.32	V	@ 40A	T _J = 75 °C
		0.42	V	@ 80A	
I _{RM}	Max. Reverse Leakage Current (Per Leg) * See Fig. 2 (1)	20	mA	T _J = 25 °C	V _R = rated V _R
		1000	mA	T _J = 100 °C	
		890	mA	T _J = 100 °C	V _R = 12V
		540	mA	T _J = 100 °C	V _R = 5V
C _T	Max. Junction Capacitance (Per Leg)	3600	pF	V _R = 5V _{DC} , (test signal range 100Khz to 1Mhz) 25°C	
L _S	Typical Series Inductance (Per Leg)	5.5	nH	Measured lead to lead 5mm from package body	
dv/dt	Max. Voltage Rate of Change (Rated V _R)	10000	V/ μs		

(1) Pulse Width < 300 μs , Duty Cycle < 2%

Thermal-Mechanical Specifications

Parameters	85CNQ	Units	Conditions
T_J Max. Junction Temperature Range	-55 to 125	$^\circ\text{C}$	
T_{stg} Max. Storage Temperature Range	-55 to 150	$^\circ\text{C}$	
R_{thJC} Max. Thermal Resistance Junction to Case (Per Leg)	0.85	$^\circ\text{C/W}$	DC operation * See Fig. 4
R_{thJC} Max. Thermal Resistance Junction to Case (Per Package)	0.42	$^\circ\text{C/W}$	DC operation
R_{thCS} Typical Thermal Resistance, Case to Heatsink (D61-8 Only)	0.30	$^\circ\text{C/W}$	Mounting surface, smooth and greased Device flatness < 5 mils
wt Approximate Weight	7.8 (0.28)	g (oz.)	
T Mounting Torque (D61-8 Only)	Min.	40 (35)	Kg-cm (lbf-in)
	Max.	58 (50)	

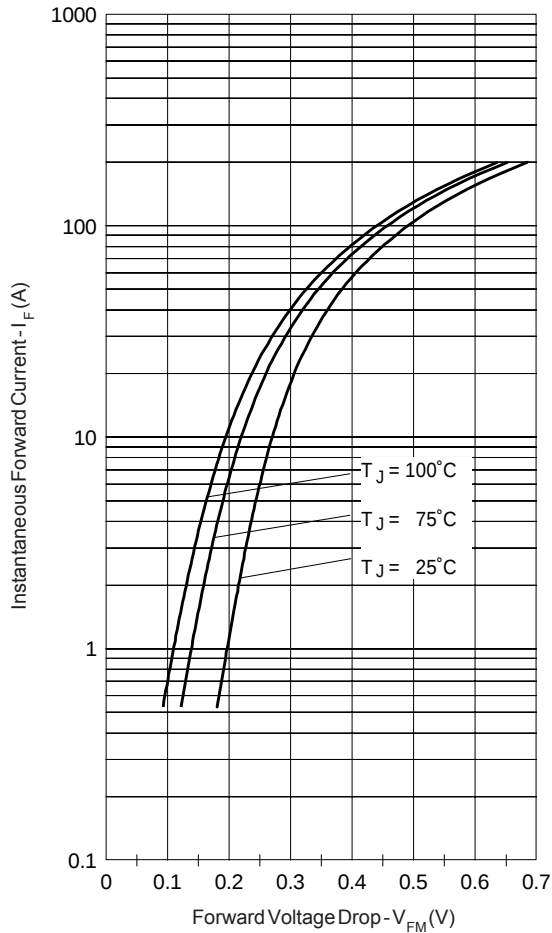


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

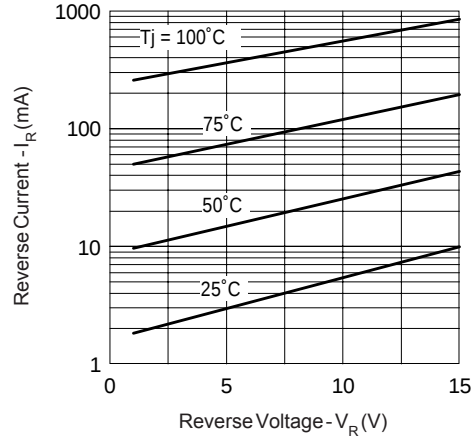


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

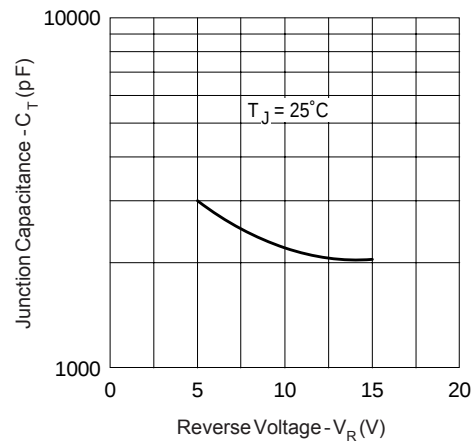


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

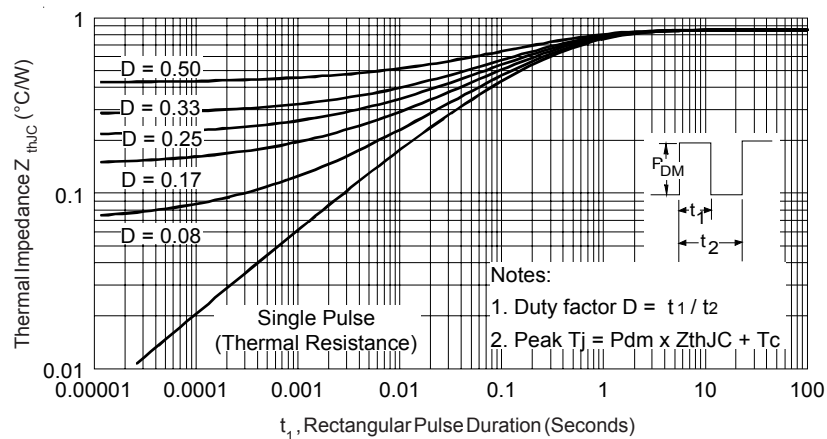


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

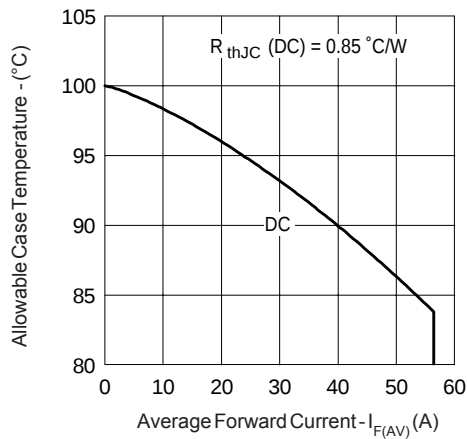


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

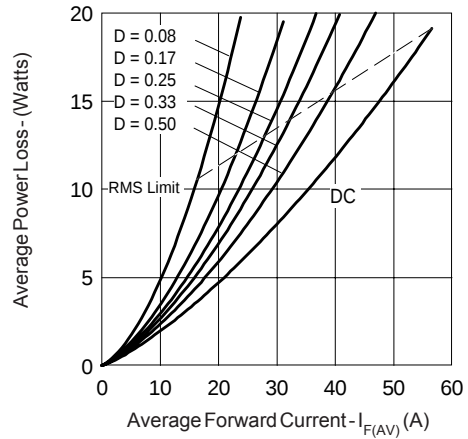


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

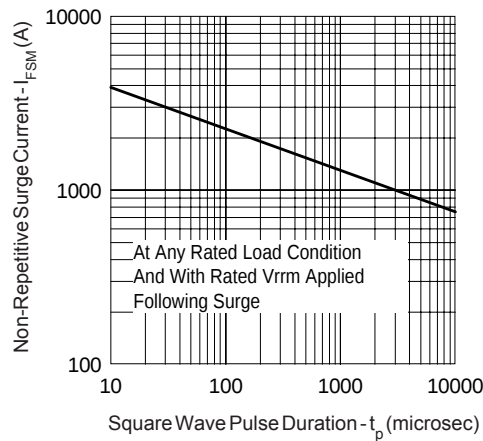


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

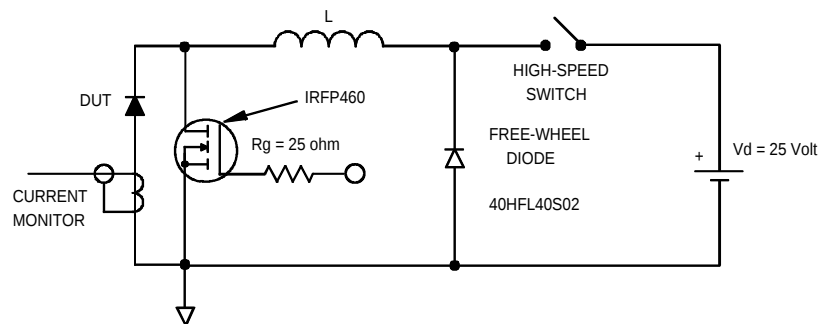
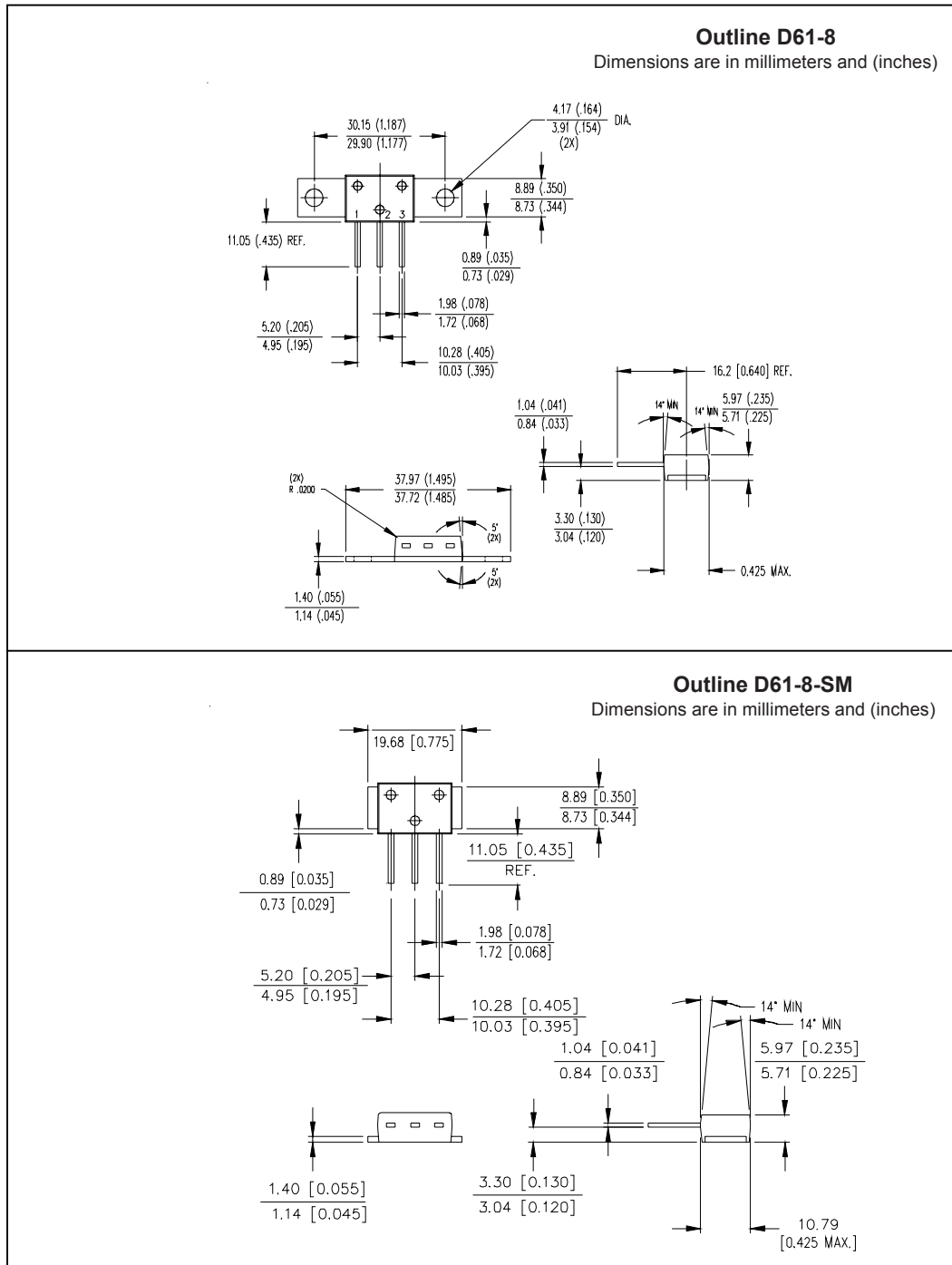


Fig. 8 - Unclamped Inductive Test Circuit

Outline Table

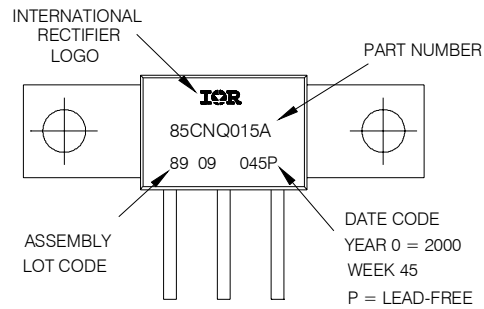


Marking Information

Outline D61-8

EXAMPLE: THIS IS A 85CNQ015 WITH
LOT CODE 89 09
ASSEMBLED ON WW 45, 2000

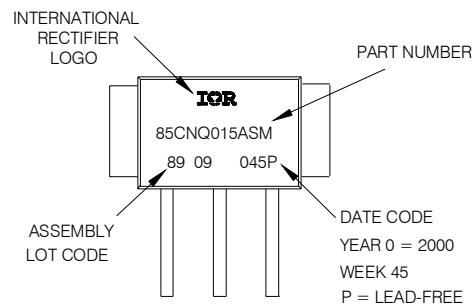
Note: "P" in assembly line
position indicates "Lead-Free"



Outline D61-8-SM

EXAMPLE: THIS IS A 85CNQ015ASM WITH
LOT CODE 89 09
ASSEMBLED ON WW 45, 2000

Note: "P" in assembly line
position indicates "Lead-Free"



Ordering Information Table

Device Code

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

1	-	Current Rating (80A)
2	-	Circuit Configuration
		C = Common Cathode
3	-	Package
		N = D-61
4	-	Schottky "Q" Series
5	-	Voltage Rating (015 = 15V)
6	-	- A = D-61-8 package style - ASM = D-61-8-SM package style
7	-	- none = Standard Production - PbF = Lead-Free

Standard pack quantity: A = 10 pieces

ASM = 20 pieces

Data and specifications subject to change without notice.
This product has been designed and qualified for Industrial Level and Lead-Free.
Qualification Standards can be found on IR's Web site.

International
IR Rectifier

IR WORLD HEADQUARTERS: 233 Kansas St., El Segundo, California 90245, USA Tel: (310) 252-7105

TAC Fax: (310) 252-7309

Visit us at www.irf.com for sales contact information. 01/05