Bulletin PD-20044 rev. B 09/01

International
IOR Rectifier

85CNQ015A

SCHOTTKY RECTIFIER
New GenIII D-61 Package

80 Amp

Major Ratings and Characteristics

Characteristics	85CNQ015A	Units
$I_{F(AV)}$ Rectangular	80 waveform	A
V_{RRM}	15	V
I_{FSM} @ tp = 5 µs sine	5200	A
V_F @40Apk, T_J=75°C (per leg)	0.32	V
T_J range	-55 to 100	°C

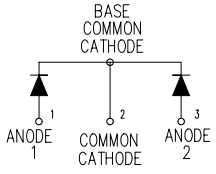
Description/Features

The 85CNQ015A 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.

- 125°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*

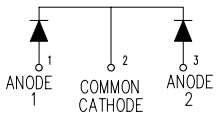
Case Styles

85CNQ...A



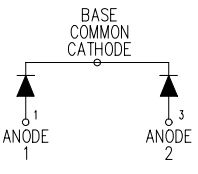
D61-8

85CNQ...ASM



D61-8-SM

85CNQ...ASL



D61-8-SL

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 °C, rectangular waveform	
I_{FSM}	Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) * See Fig. 7	5200	A	5µs Sine or 3µs 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 °C, I_{AS} = 2 Amps, L = 4.50 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 x 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 < 300µs, Duty Cycle <2%

Thermal-Mechanical Specifications

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

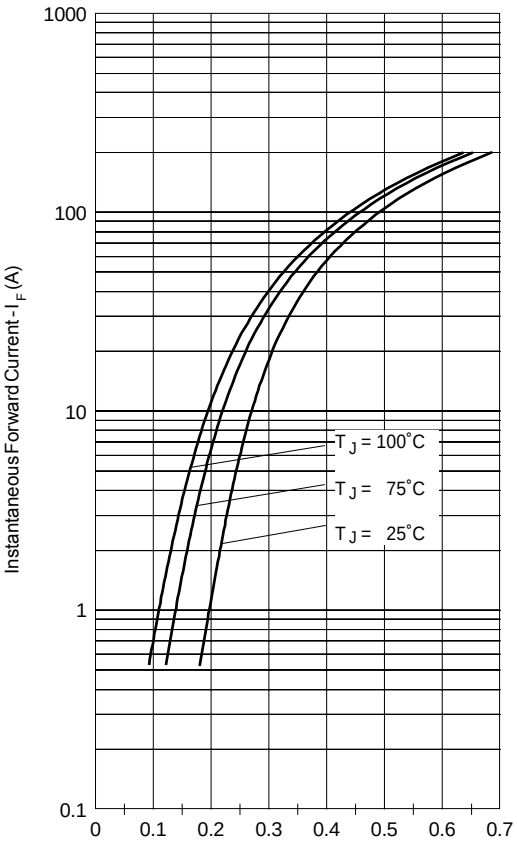


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

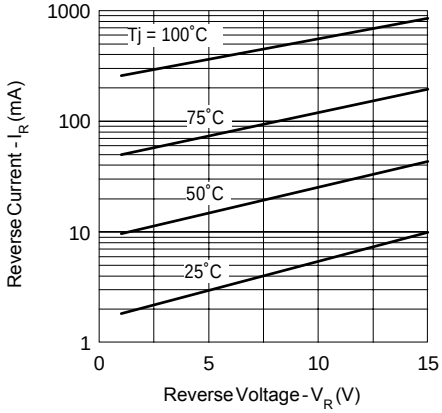


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

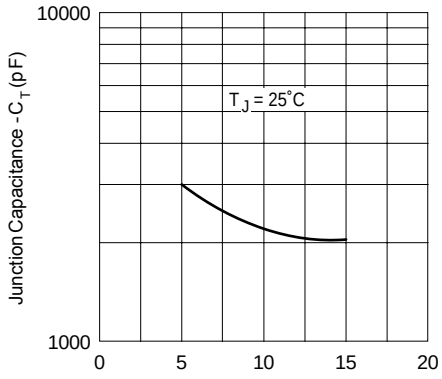


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

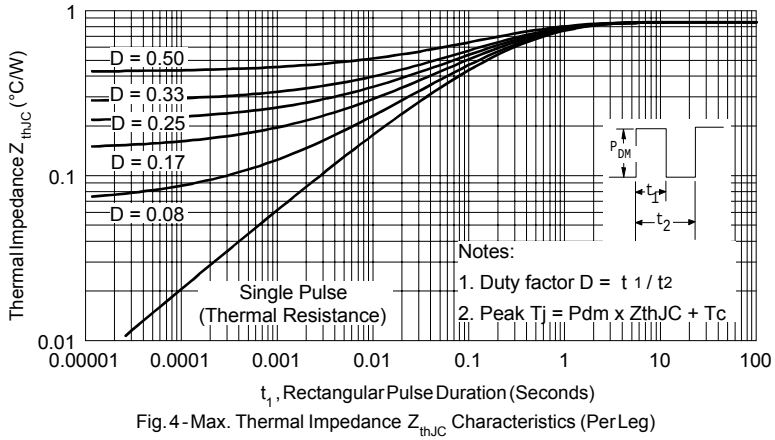


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

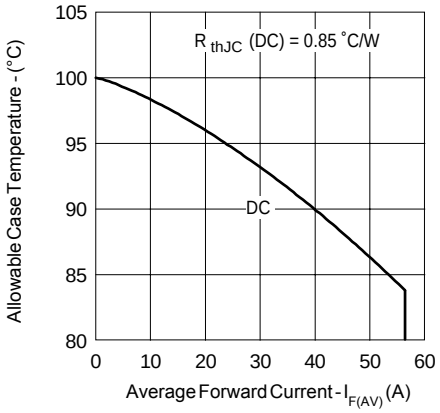


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

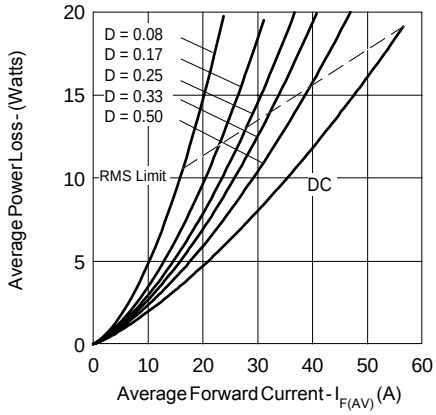


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

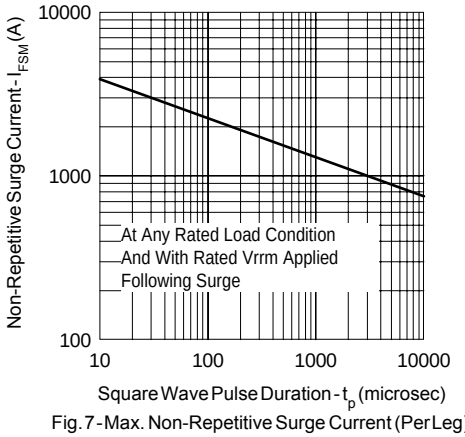


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

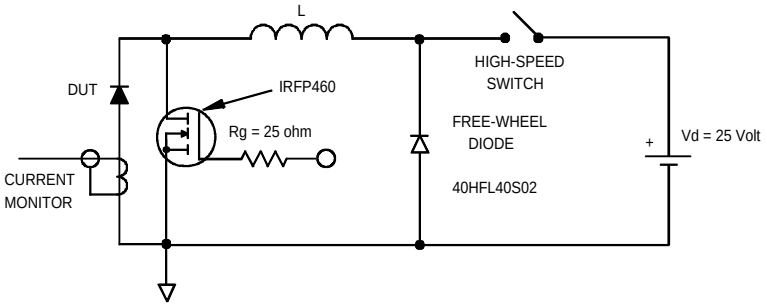
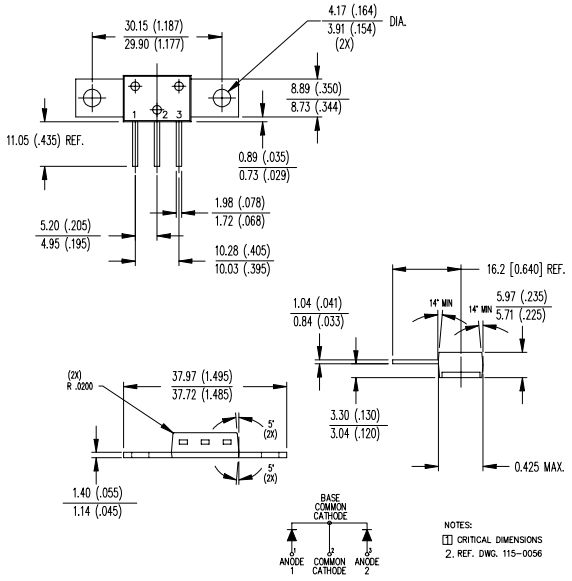


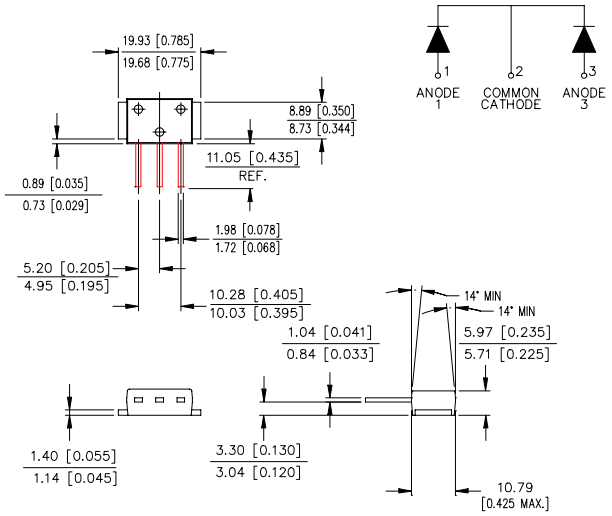
Fig. 8 - Unclamped Inductive Test Circuit

Outline Table

Outline D61-8
Dimensions are in millimeters and (inches)

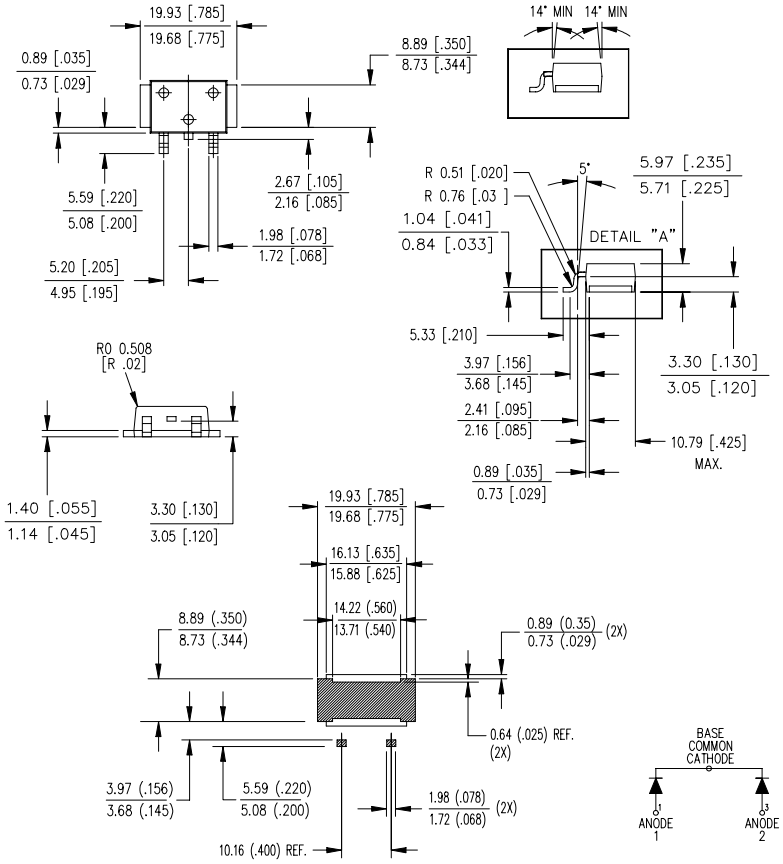


Outline D61-8-SM
Dimensions are in millimeters and (inches)



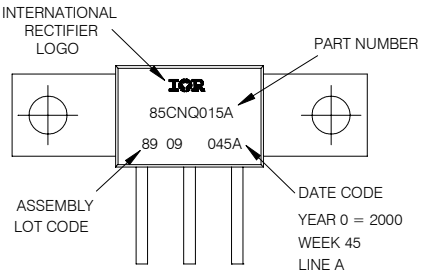
Outline Table

Outline D61-8-SL
Dimensions are in millimeters and (inches)



Part Marking Information

EXAMPLE: THIS IS A 85CNQ015A WITH
LOT CODE 89 09
ASSEMBLED ON WW 45, 2000
IN THE ASSEMBLY LINE "A"



D61-8

EXAMPLE: THIS IS A 85CNQ015ASM WITH
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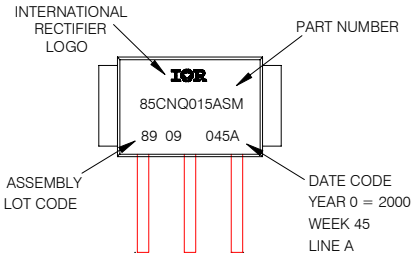

D61-8-SM

EXAMPLE: THIS IS A 85CNQ015ASL WITH
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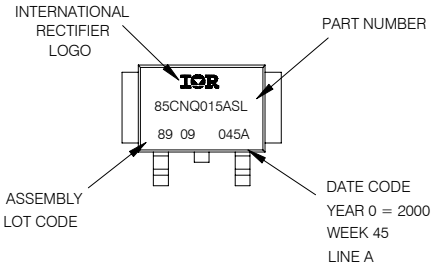

D61-8-SL

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

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