

International
IR Rectifier

82CNQ030APbF
 82CNQ030ASMPbF

SCHOTTKY RECTIFIER
 New GenIII D-61 Package

80 Amp

Major Ratings and Characteristics

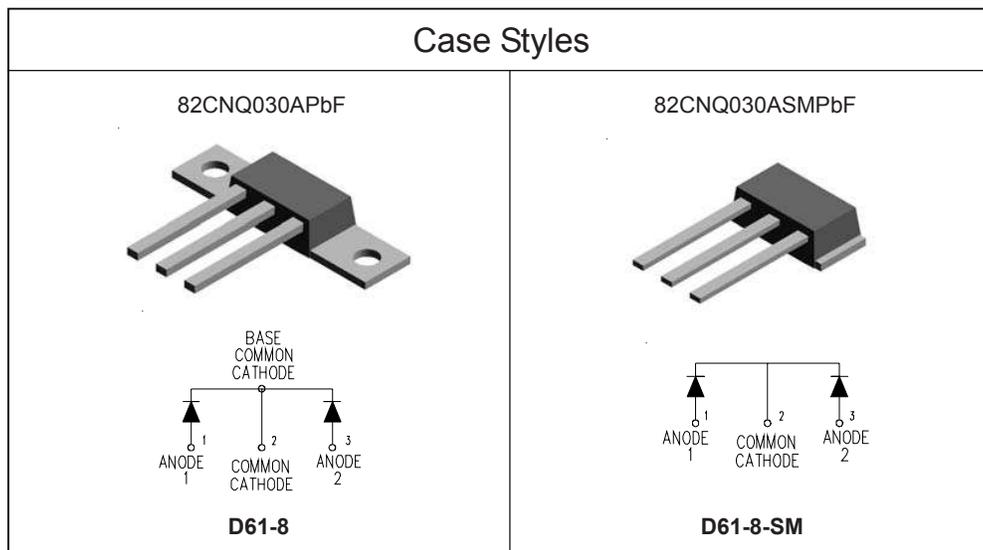
Characteristics	Values	Units
$I_{F(AV)}$ Rectangular waveform	80	A
V_{RRM}	30	V
I_{FSM} @tp = 5 μ s sine	5100	A
V_F @40 Apk, $T_J = 125^\circ\text{C}$ (per leg)	0.37	V
T_J range	-55 to 150	$^\circ\text{C}$

Description/ Features

The center tap Schottky rectifier module has been optimized for very low forward voltage drop, with moderate leakage. The proprietary barrier technology allows for reliable operation up to 150 $^\circ\text{C}$ junction temperature. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

- 150 $^\circ\text{C}$ T_J operation
- Dual center tap module
- Very low forward voltage drop
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- *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



Voltage Ratings

Part number	82CNQ030A..
V_R Max. DC Reverse Voltage (V)	30
V_{RWM} Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

Parameters	82CNQ	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current * See Fig. 5	80	A	50% duty cycle @ $T_C = 119^\circ\text{C}$, rectangular wave form
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) * See Fig. 7	5100	A	5 μs Sine or 3 μs Rect. pulse 10ms Sine or 6ms Rect. pulse
	880		
E_{AS} Non-Repetitive Avalanche Energy (Per Leg)	36	mJ	$T_J = 25^\circ\text{C}$, $I_{AS} = 8$ Amps, $L = 1.12$ mH
I_{AR} Repetitive Avalanche Current (Per Leg)	8	A	Current decaying linearly to zero in 1 μsec Frequency limited by T_J max. $V_A = 1.5 \times V_R$ typical

Electrical Specifications

Parameters	82CNQ	Units	Conditions
V_{FM} Max. Forward Voltage Drop (Per Leg) * See Fig. 1 (1)	0.47	V	@ 40A
	0.55	V	@ 80A
	0.37	V	@ 40A
	0.47	V	@ 80A
I_{RM} Max. Reverse Leakage Current (Per Leg) * See Fig. 2 (1)	5	mA	$T_J = 25^\circ\text{C}$
	280	mA	$T_J = 125^\circ\text{C}$
C_T Max. Junction Capacitance (Per Leg)	3700	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	82CNQ	Units	Conditions
T_J Max. Junction Temperature Range	-55 to 150	$^\circ\text{C}$	
T_{stg} Max. Storage Temperature Range	-55 to 150	$^\circ\text{C}$	
R_{thJC} Max. Thermal Resistance Junction to Case (Per Leg)	0.85	$^\circ\text{C}/\text{W}$	DC operation * See Fig. 4
R_{thJC} Max. Thermal Resistance Junction to Case (Per Package)	0.42	$^\circ\text{C}/\text{W}$	DC operation
R_{thCS} Typical Thermal Resistance, Case to Heatsink (D61-8 Only)	0.30	$^\circ\text{C}/\text{W}$	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) Max. 58 (50)	Kg-cm (lbf-in)	

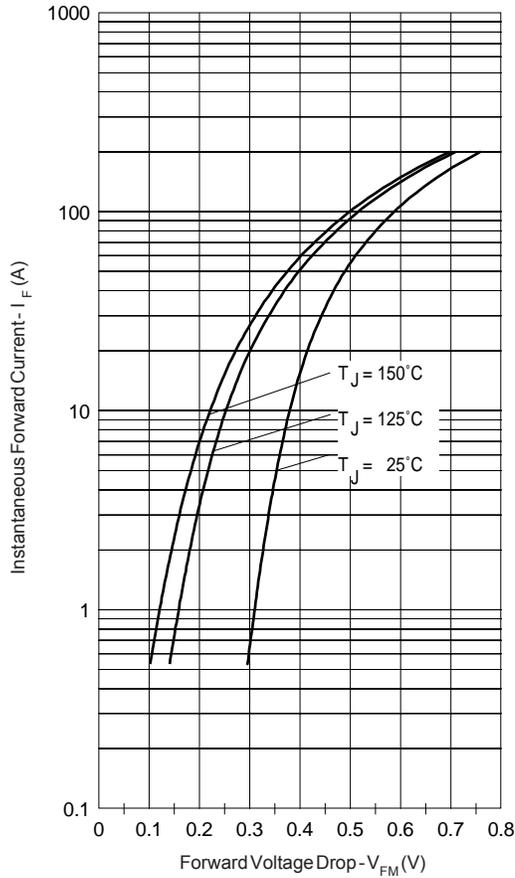


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

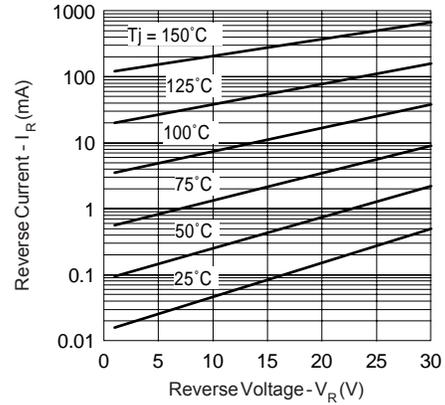


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

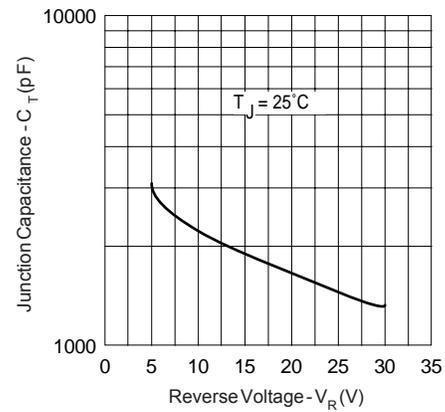


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

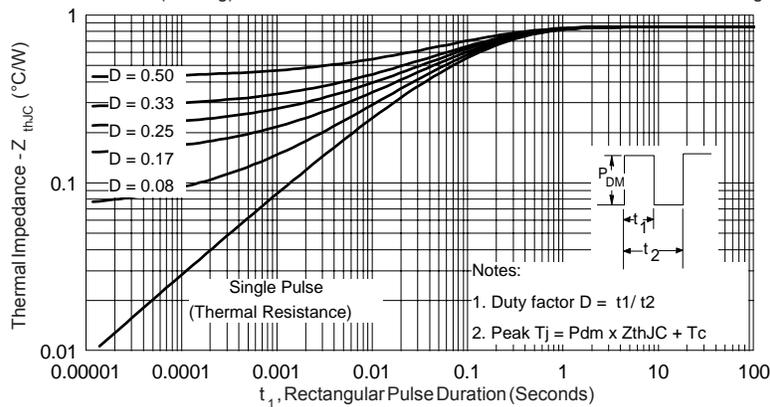


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

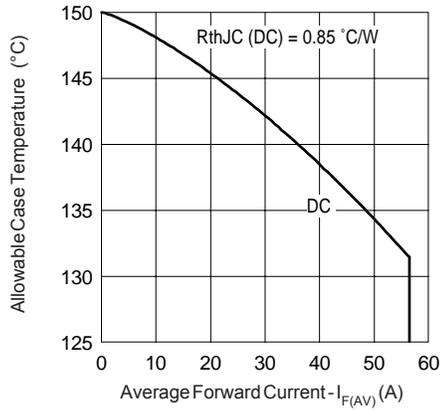


Fig. 5- Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

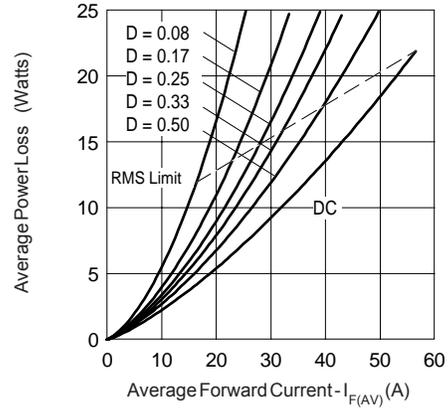


Fig. 6- Forward Power Loss Characteristics (Per Leg)

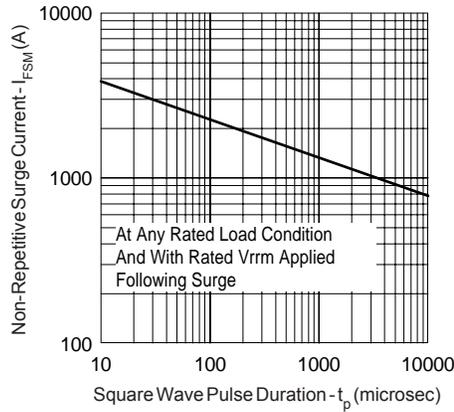


Fig. 7- Max. Non-Repetitive Surge Current (Per Leg)

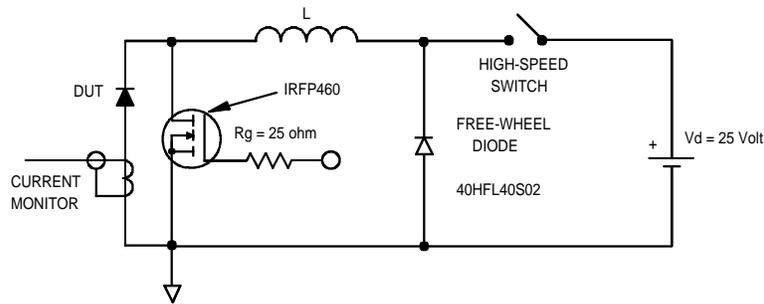
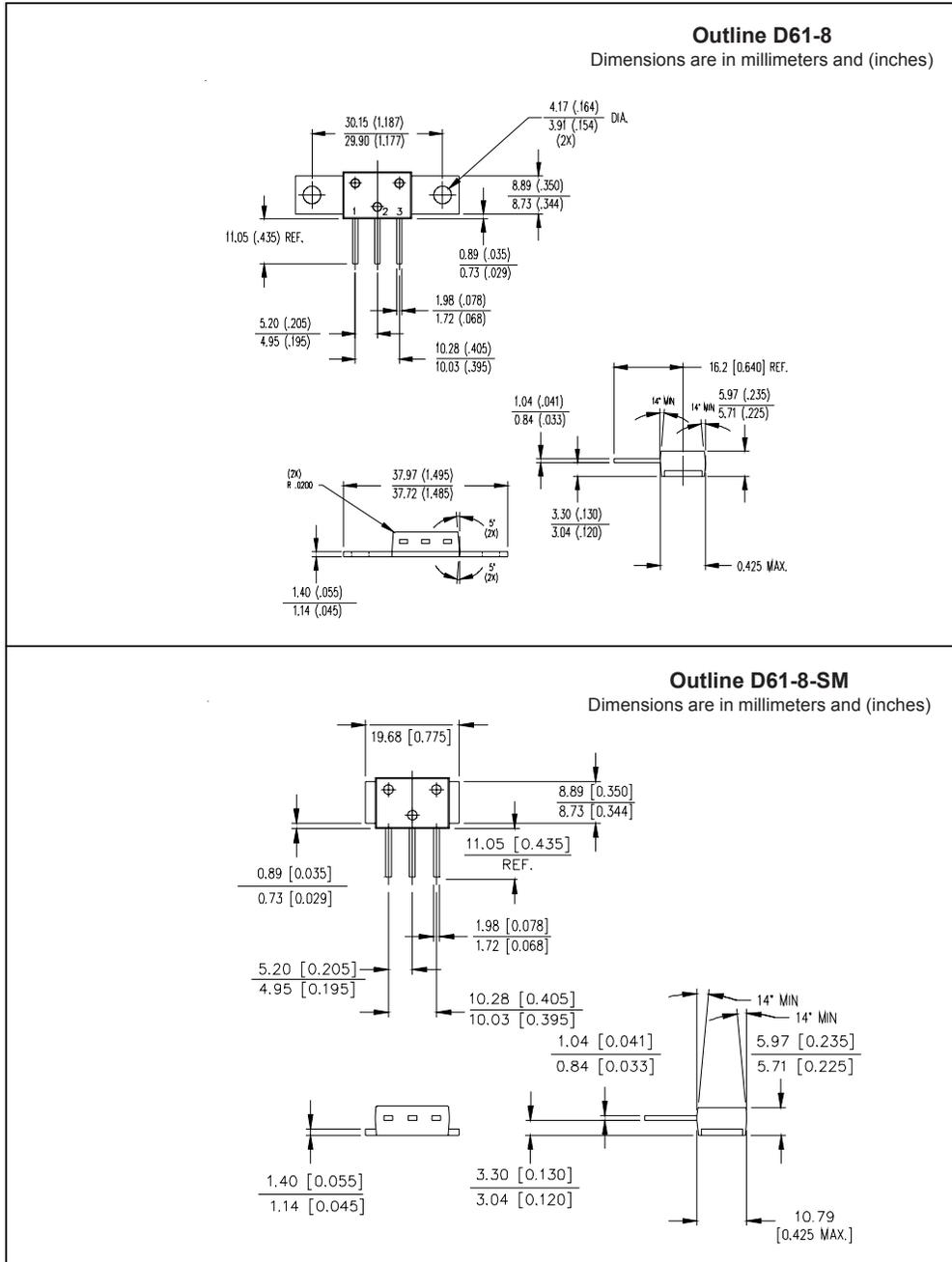


Fig. 8- Unclamped Inductive Test Circuit

Outline Table

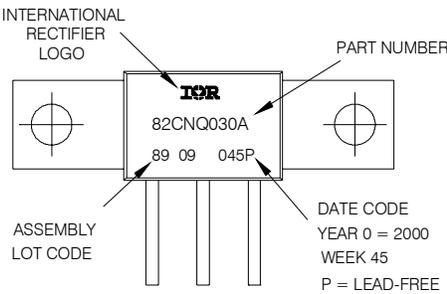


Part Marking Information

D61-8

EXAMPLE: THIS IS A 82CNQ030 WITH
LOT CODE 89 09
ASSEMBLED ON WW 45, 2000

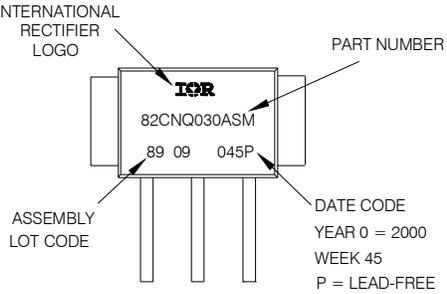
Note: "P" in assembly line
position indicates "Lead-Free"



D61-8-SM

EXAMPLE: THIS IS A 82CNQ030ASM WITH
LOT CODE 89 09
ASSEMBLED ON WW 45, 2000

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



Ordering Information Table

Device Code						
82	C	N	Q	030	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 (030 = 30V)					
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.