

SCHOTTKY RECTIFIER
New GenIII D-61 Package

80 Amp

Major Ratings and Characteristics

Characteristics	88CNQ...A	Units
$I_{F(AV)}$ Rectangular waveform	80	A
V_{RRM}	60	V
I_{FSM} @tp = 5 μ s sine	7000	A
V_F @40Apk, $T_J = 125^\circ\text{C}$ (perleg)	0.56	V
T_J range	-55 to 175	$^\circ\text{C}$

Description/Features

The 88CNQ060A 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 175 $^\circ\text{C}$ junction temperature. Typical applications are in switching power supplies, converters, free wheeling diodes, and reverse battery protection.

- 175 $^\circ\text{C}$ T_J operation
- Center tap module
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- *New fully transfer-mold low profile, small footprint, high current package*

Case Styles

88CNQ060A	88CNQ060ASM	88CNQ060ASL
		
D61-8	D61-8-SM	D61-8-SL

Voltage Ratings

Part number	88CNQ060A
V_R Max. DC Reverse Voltage (V)	60
V_{RWM} Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

Parameters	88CNQ	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current	80	A	50% duty cycle @ $T_C = 95^\circ\text{C}$, rectangular waveform
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg)	7000	A	Following any rated load condition and with rated V_R applied
	800		
E_{AS} Non-Repetitive Avalanche Energy (Per Leg)	75	mJ	$T_J = 25^\circ\text{C}$, $I_{AS} = 1$ Amps, $L = 0.57$ mH
I_{AR} Repetitive Avalanche Current (Per Leg)	1.0	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	88CNQ	Units	Conditions
V_{FM} Max. Forward Voltage Drop (Per Leg) (1)	0.58	V	@ 40A
	0.77	V	@ 80A
	0.56	V	@ 40A
	0.67	V	@ 80A
I_{RM} Typical Reverse Leakage Current (Per Leg) See Fig. 2 (1)	0.64	mA	$T_J = 25^\circ\text{C}$
	240	mA	$T_J = 125^\circ\text{C}$
C_T Max. Junction Capacitance (Per Leg)	5200	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)	10,000	V/ μs	

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

Thermal-Mechanical Specifications

Parameters	88CNQ	Units	Conditions
T_J Max. Junction Temperature Range	-55 to 175	$^\circ\text{C}$	
T_{stg} Max. Storage Temperature Range	-55 to 175	$^\circ\text{C}$	
R_{thJC} Max. Thermal Resistance Junction to Case (Per Leg)	0.85	$^\circ\text{C/W}$	DC operation
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
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)	

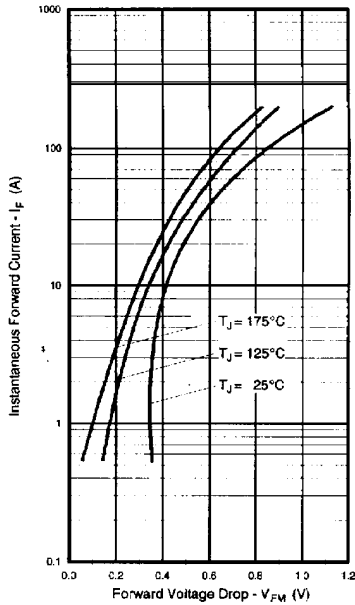


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

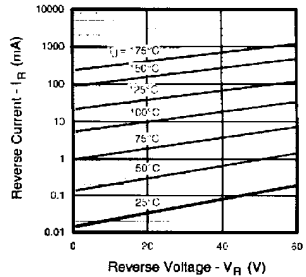


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage (Per Leg)

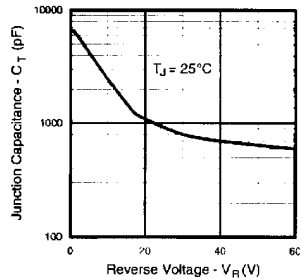
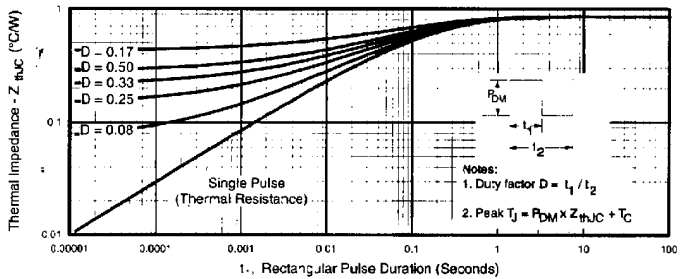


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)


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

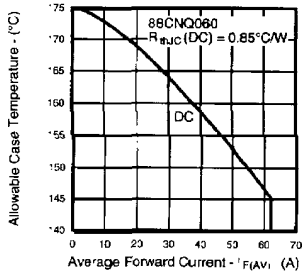


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

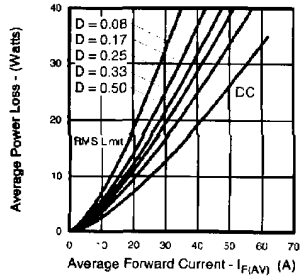


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

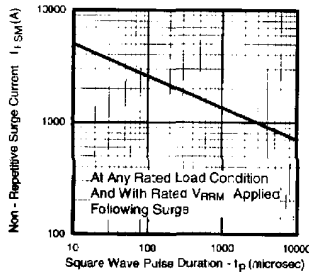


Fig.7 - Max. Non-Repetitive Surge Current (Per Leg)

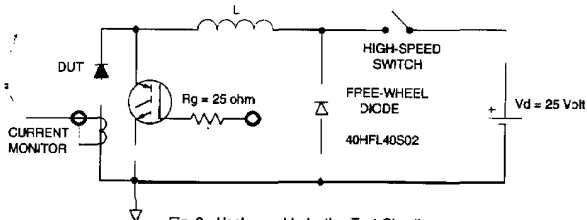
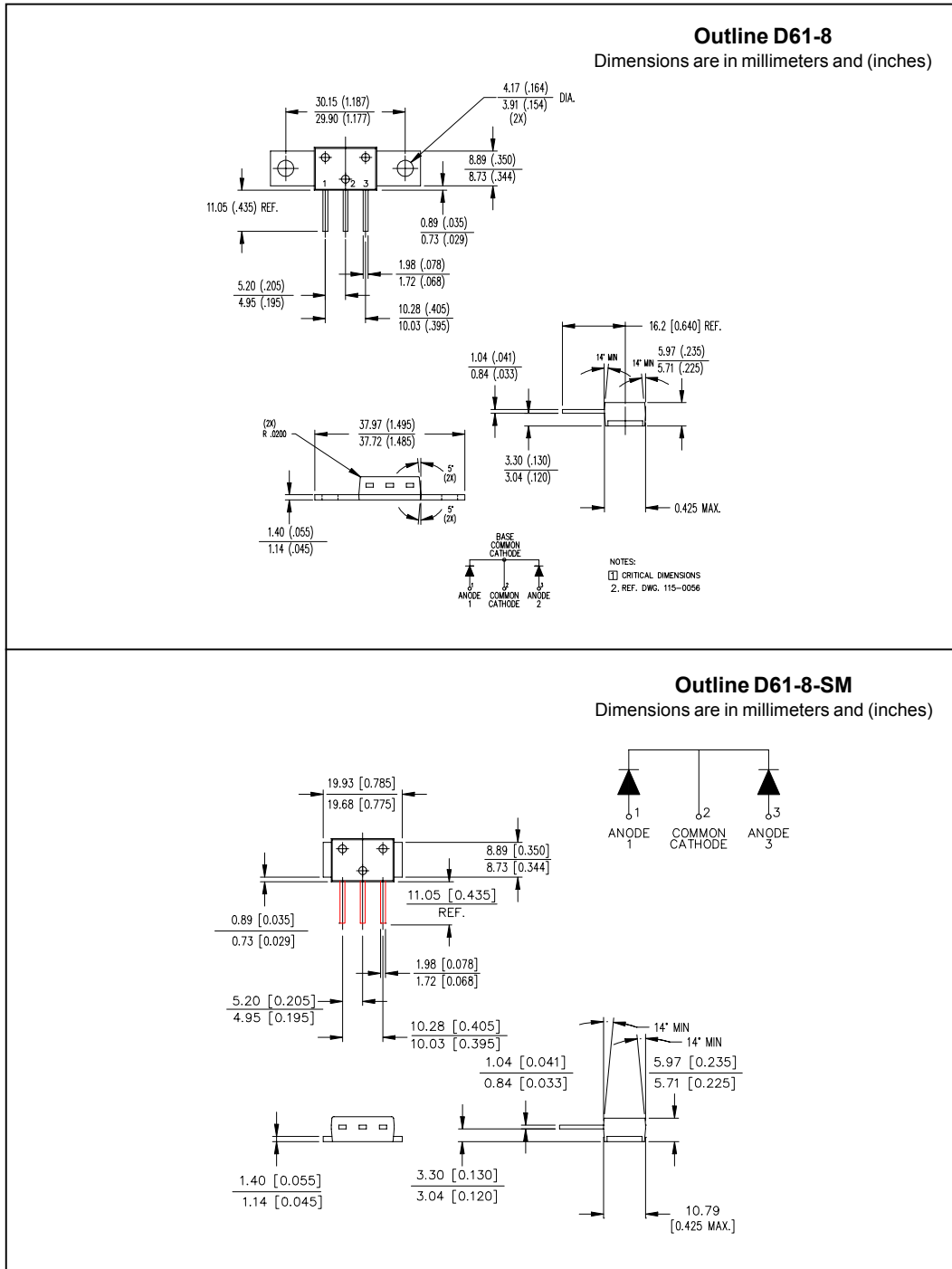


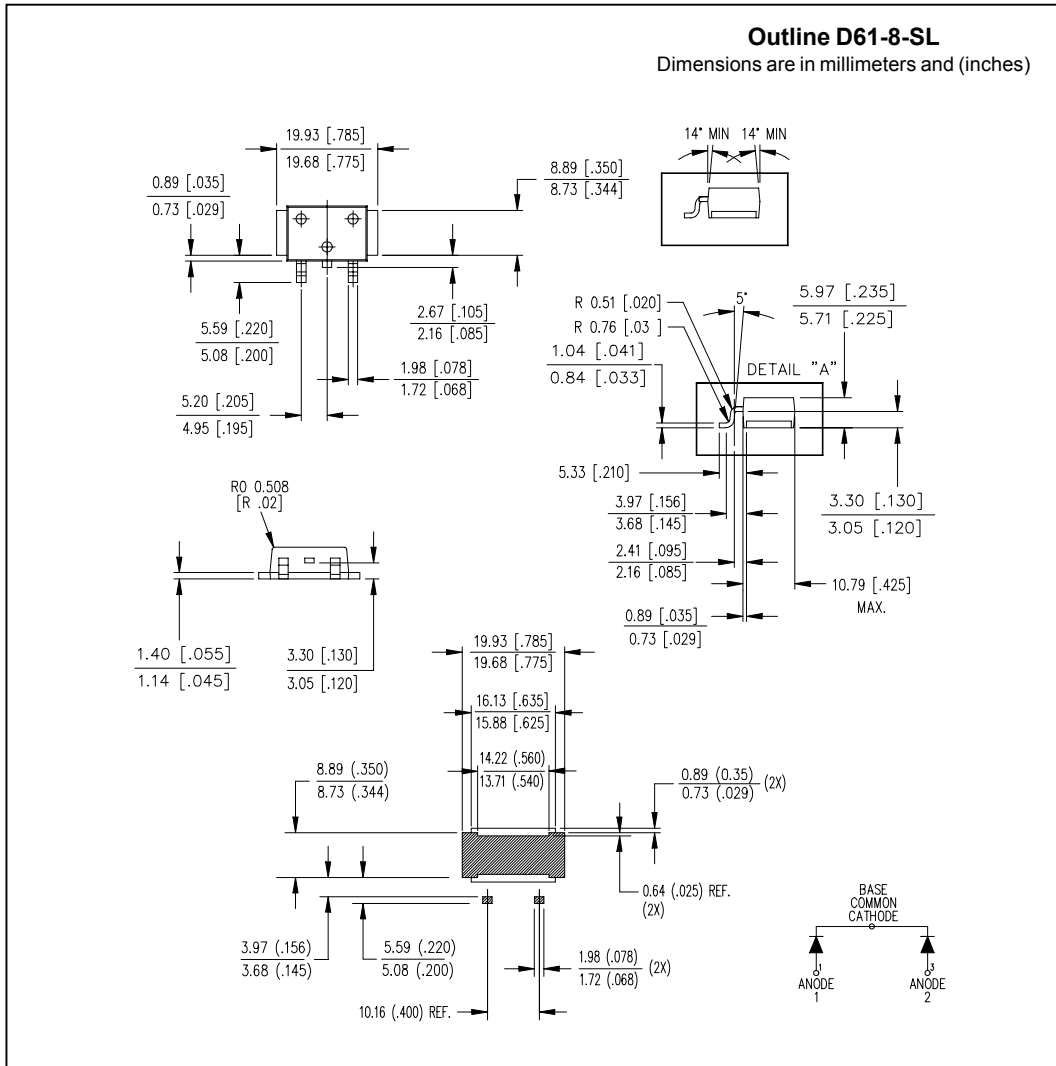
Fig. 8 - Unclamped Inductive Test Circuit

Outline Table



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

Outline Table



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.