

Major Ratings and Characteristics

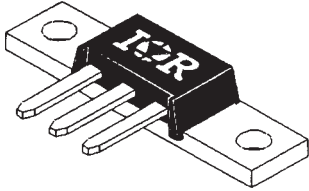
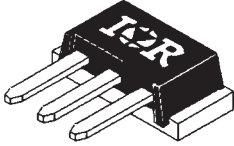
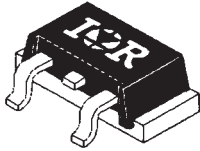
Characteristics	84CNQ...	Units
$I_{F(AV)}$ Rectangular waveform	80	A
V_{RRM} range	35 to 45	V
I_{FSM} @ tp=5 μ s sine	8000	A
V_F @ 40Apk, $T_J=100^\circ\text{C}$ (per leg)	0.44	V
T_J range	-55 to 125	$^\circ\text{C}$

Description/Features

The 84CNQ center tap Schottky rectifier module series has been optimized for extremely low forward voltage drop, with higher leakage. The proprietary barrier technology allows for reliable operation up to 125° C junction temperature. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

- 125° C T_J operation
- Center tap module
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Extremely low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- Low profile, small footprint, high current package

Case Styles

84CNQ...	84CNQ...SM	84CNQ...SL
		
D61-8	D61-8-SM	D61-8-SL

Voltage Ratings

Part number	84CNQ035	84CNQ040	84CNQ045
V_R Max. DC Reverse Voltage (V)	35	40	45
V_{RWM} Max. Working Peak Reverse Voltage (V)			

Absolute Maximum Ratings

Parameters	84CNQ	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current * See Fig. 5	80	A	50% duty cycle @ $T_C = 91^\circ\text{C}$, rectangular wave form
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) * See Fig. 7	8000	A	5 μ s Sine or 3 μ s Rect. pulse 10ms Sine or 6ms Rect. pulse Following any rated load condition and with rated V_{RRM} applied
	620		
E_{AS} Non-Repetitive Avalanche Energy (Per Leg)	54	mJ	$T_J = 25^\circ\text{C}$, $I_{AS} = 8$ Amps, $L = 1.7$ mH
I_{AR} Repetitive Avalanche Current (Per Leg)	8	A	Current decaying linearly to zero in 1 μ sec Frequency limited by T_J max. $V_A = 1.5 \times V_R$ typical

Electrical Specifications

Parameters	84CNQ	Units	Conditions
V_{FM} Max. Forward Voltage Drop (Per Leg) * See Fig. 1 (1)	0.49	V	@ 40A $T_J = 25^\circ\text{C}$
	0.62	V	@ 80A
	0.44	V	@ 40A $T_J = 100^\circ\text{C}$
	0.60	V	@ 80A
I_{RM} Max. Reverse Leakage Current (Per Leg) * See Fig. 2 (1)	5	mA	$T_J = 25^\circ\text{C}$ $V_R = \text{rated } V_R$
	600	mA	$T_J = 125^\circ\text{C}$
C_T Max. Junction Capacitance (Per Leg)	2600	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/ μ s	

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

Thermal-Mechanical Specifications

Parameters	84CNQ	Units	Conditions
T_J Max. Junction Temperature Range	-55 to 125	$^\circ\text{C}$	
T_{stg} Max. Storage Temperature Range	-55 to 125	$^\circ\text{C}$	
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
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)		

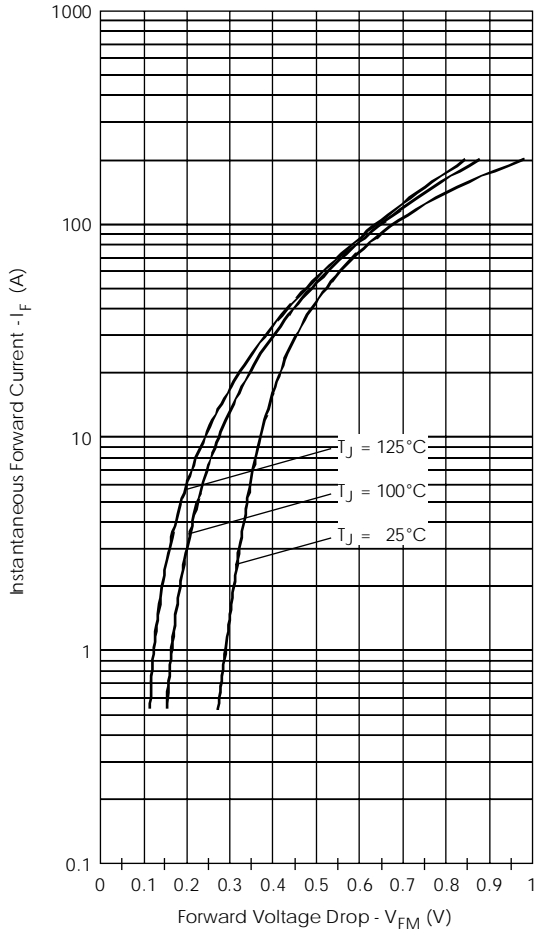


Fig. 1 - Max. Forward Voltage Drop Characteristics (PerLeg)

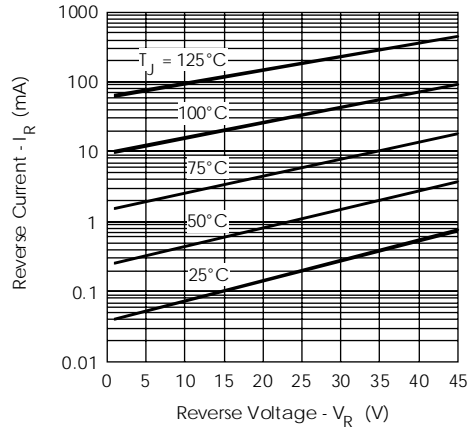


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

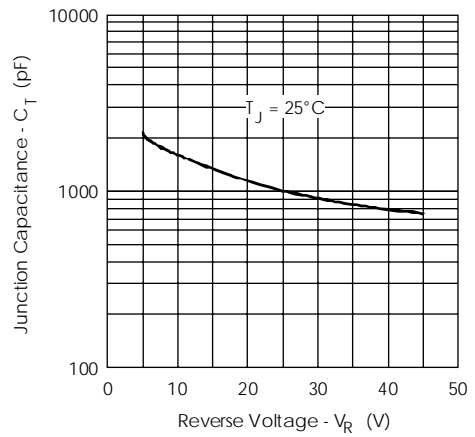


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

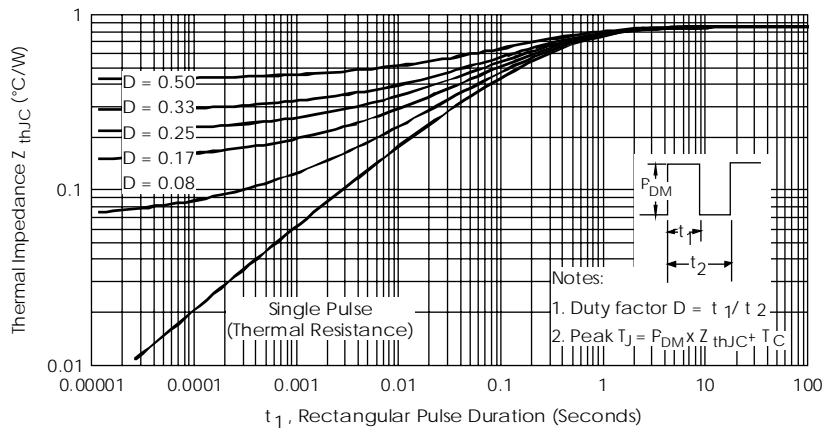


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

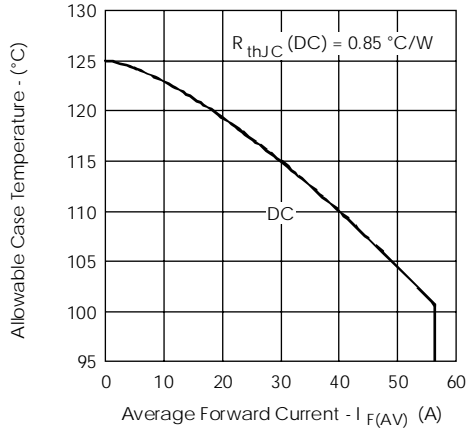


Fig.5-Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

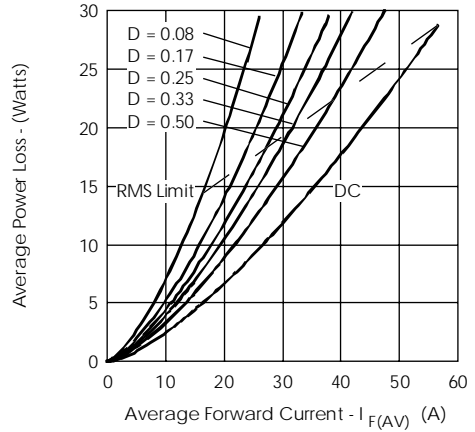


Fig.6- Forward Power Loss Characteristics (Per Leg)

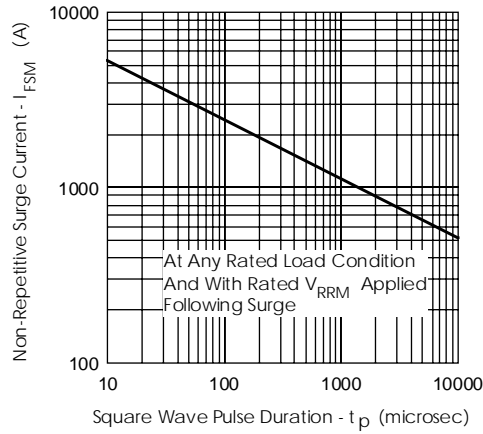


Fig.7- Max. Non-Repetitive Surge Current (Per Leg)

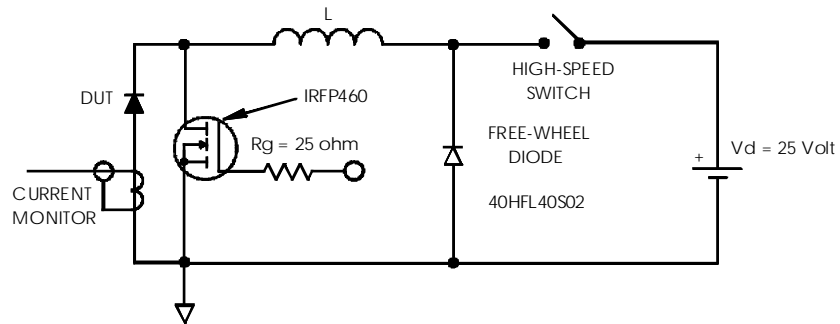
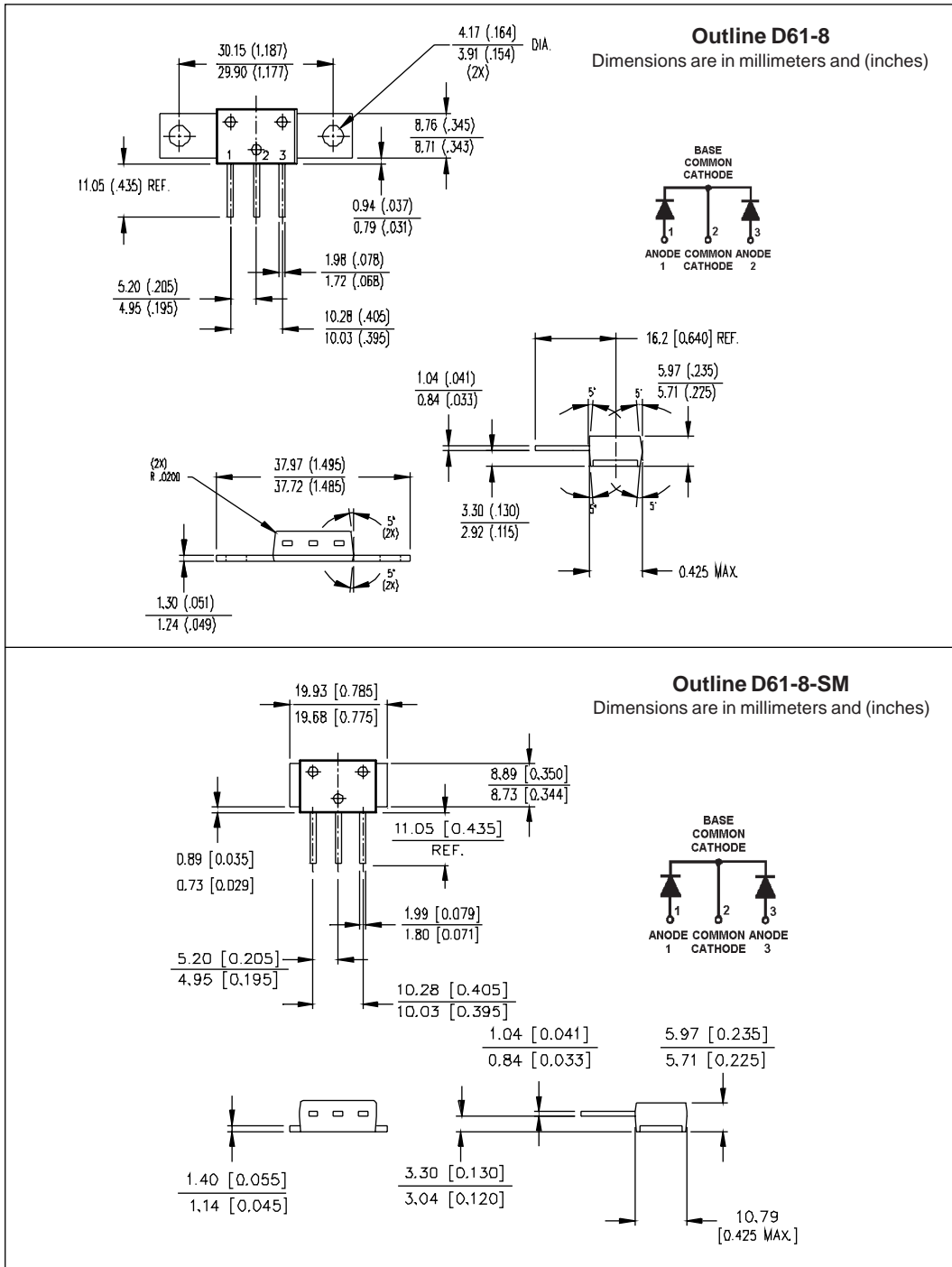


Fig.8- Unclamped Inductive Test Circuit

Outline Table



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