PD-2.248 rev. A 12/97

International
IOR Rectifier

61CNQ... SERIES

SCHOTTKY RECTIFIER 60 Amp

Major Ratings and Characteristics

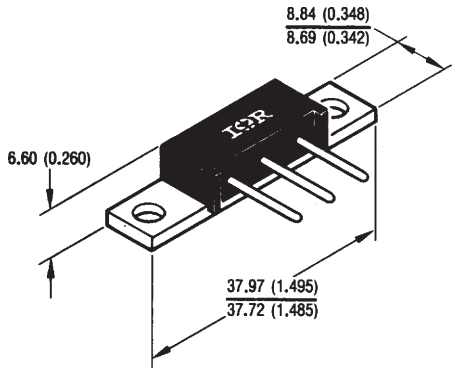
Characteristics		61CNQ...	Units
$I_{F(AV)}$	Rectangular waveform	60	A
V_{RRM}		35 to 45	V
I_{FSM}	@ tp = 5 µs sine	6300	A
V_F	@ 30 Apk, T_J = 125°C (per leg)	0.49	V
T_J		-55 to 175	°C

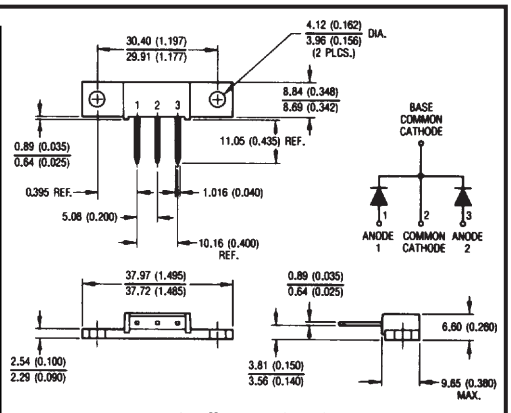
Description/Features

The 61CNQ center tap Schottky rectifier module series has been optimized for low reverse leakage at high temperature. The proprietary barrier technology allows for reliable operation up to 175° C junction temperature. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

- 175° 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
- Low profile, small footprint, high current package

CASE STYLE AND DIMENSIONS





Outline D - 61 - 6

Dimensions in millimeters and inches

Voltage Ratings

Part number		61CNQ035	61CNQ040	61CNQ045
V_R	Max. DC Reverse Voltage (V)	35	40	45
V_{RWM}	Max. Working Peak Reverse Voltage (V)			

Absolute Maximum Ratings

Parameters		61CNQ	Units	Conditions	
$I_{F(AV)}$	Max. Average Forward Current *See Fig. 5	60	A	50% duty cycle @ T_C = 149 °C, rectangular wave form	
I_{FSM}	Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) *See Fig. 7	6300	A	5µs Sine or 3µs Rect. pulse	Following any rated load condition and with rated V_{RRM} applied
		820		10ms Sine or 6ms Rect. pulse	
E_{AS}	Non-Repetitive Avalanche Energy (Per Leg)	40	mJ	T_J = 25 °C, I_{AS} = 6 Amps, L = 2.2 mH	
I_{AR}	Repetitive Avalanche Current (Per Leg)	6	A	Current decaying linearly to zero in 1 µsec Frequency limited by T_J max. V_A = 1.5 x V_R typical	

Electrical Specifications

Parameters		61CNQ	Units	Conditions	
V_{FM}	Max. Forward Voltage Drop (Per Leg) * See Fig. 1 (1)	0.56	V	@ 30A	T_J = 25 °C
		0.68	V	@ 60A	
		0.49	V	@ 30A	T_J = 125 °C
		0.60	V	@ 60A	
I_{RM}	Max. Reverse Leakage Current (Per Leg) * See Fig. 2 (1)	5	mA	T_J = 25 °C	V_R = rated V_R
		45	mA	T_J = 125 °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)	6.0	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 < 300µs, Duty Cycle <2%

Thermal-Mechanical Specifications

Parameters			61CNQ	Units	Conditions
T_J	Max. Junction Temperature Range		-55 to 175	°C	
T_{stg}	Max. Storage Temperature Range		-55 to 175	°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		0.30	°C/W	Mounting surface, smooth and greased
wt	Approximate Weight		7.8 (0.28)	g (oz.)	
T	Mounting Torque	Min.	40 (35)	Kg-cm (lbf-in)	
		Max.	58 (50)		
	Case Style		D - 61 - 6		

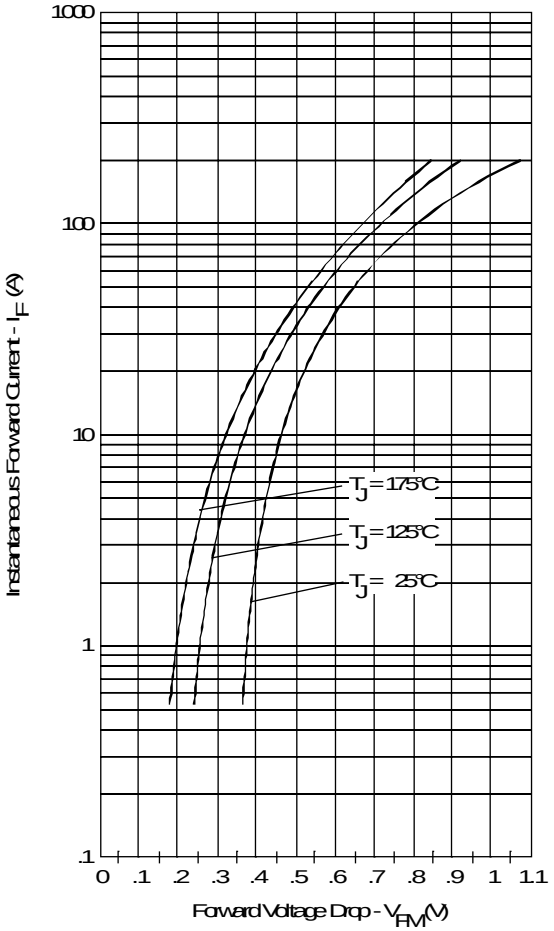


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

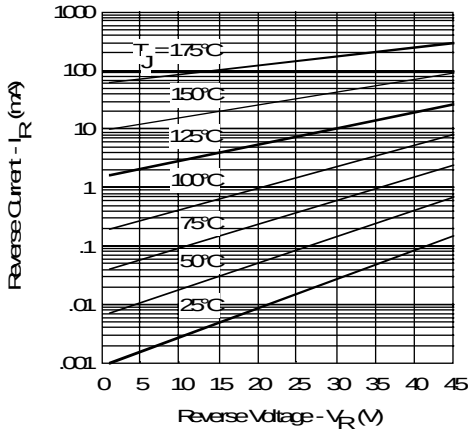


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

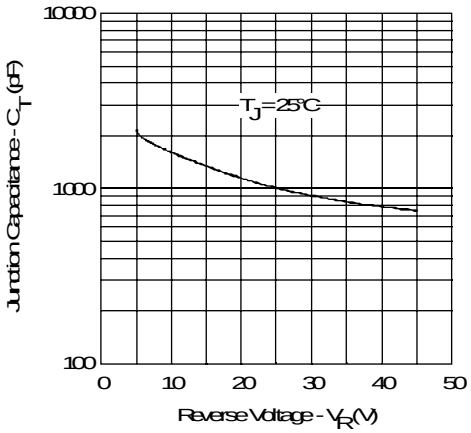


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

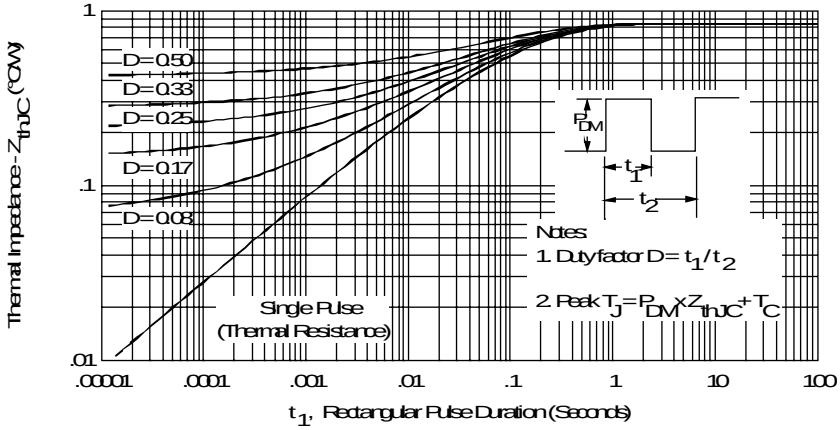


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

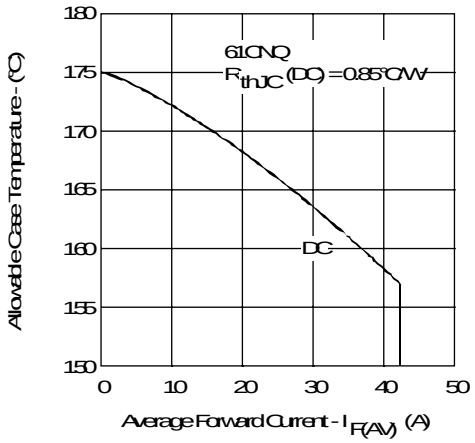


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

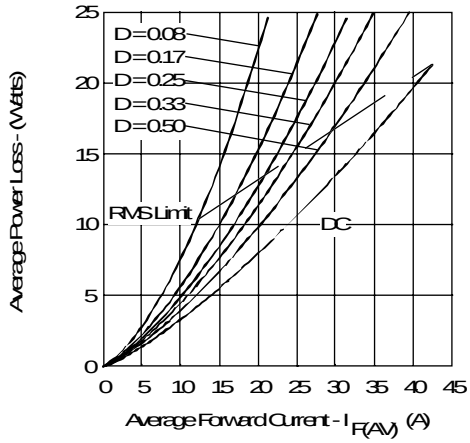


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

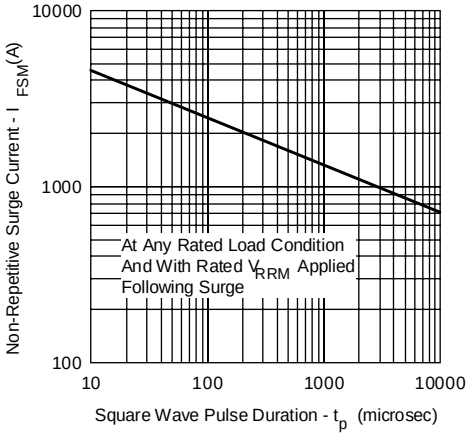


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

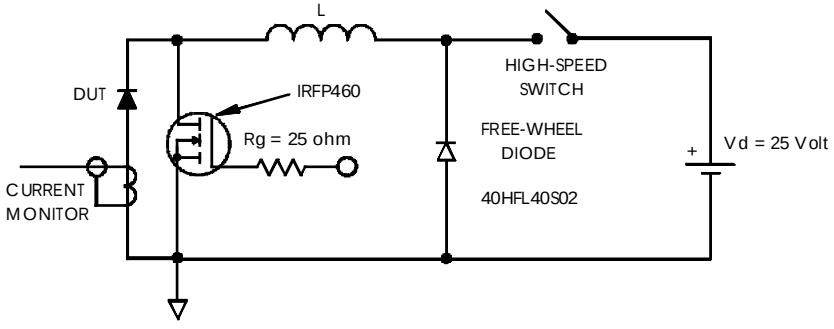


Fig. 8 - Unclamped Inductive Test Circuit