

150CNQ... SERIES

SCHOTTKY RECTIFIER

150 Amp

Major Ratings and Characteristics

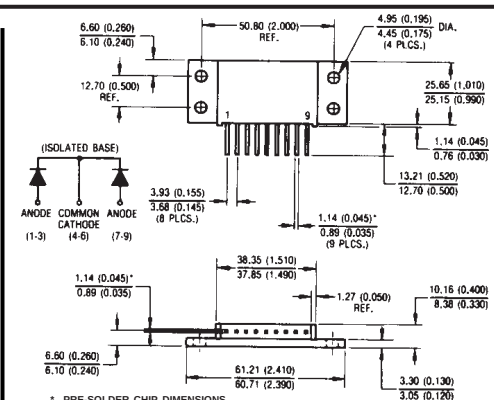
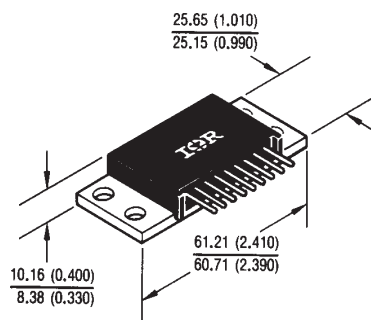
Characteristics	150CNQ...	Units
$I_{F(AV)}$ Rectangular waveform	150	A
V_{RRM} range	35 to 45	V
I_{FSM} @ $t_p = 5 \mu s$ sine	6600	A
V_F @ 75 Apk, $T_J = 125^\circ C$ (per leg)	0.60	V
T_J range	-55 to 150	$^\circ C$

Description/Features

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

- $150^\circ C$ T_J operation
- Center tap module
- Multiple leads per terminal for high frequency, high current PC board mounting
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Very low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- Low profile, high current package

CASE STYLE AND DIMENSIONS



Outline D-60 (Modified JEDEC TO-249AA)
Dimensions in millimeters and inches

Voltage Ratings

Part number	150CNQ035	150CNQ040	150CNQ045
V_R Max. DC Reverse Voltage (V)	35	40	45
V_{RWM} Max. Working Peak Reverse Voltage (V)			

Absolute Maximum Ratings

Parameters	150CNQ	Units	Conditions	
I _{F(AV)} Max. Average Forward Current * See Fig. 5	150	A	50% duty cycle @ T _C = 93 °C, rectangular wave form	
I _{FSM} Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) * See Fig. 7	6600	A	5μs Sine or 3μs Rect. pulse	Following any rated load condition and with rated V _{RRM} applied
	800		10ms Sine or 6ms Rect. pulse	
E _{AS} Non-Repetitive Avalanche Energy (Per Leg)	101	mJ	T _J = 25 °C, I _{AS} = 15 Amps, L = 0.9 mH	
I _{AR} Repetitive Avalanche Current (Per Leg)	15	A	Current decaying linearly to zero in 1μsec Frequency limited by T _J max. V _A = 1.5 x V _R typical	

Electrical Specifications

Parameters		150CNQ	Units	Conditions	
V _{FM}	Max. Forward Voltage Drop (Per Leg) * See Fig. 1 (1)	0.64	V	@ 75A	T _J = 25 °C
		0.87	V	@ 150A	
		0.60	V	@ 75A	T _J = 125 °C
		0.79	V	@ 150A	
I _{RM}	Max. Reverse Leakage Current (Per Leg) * See Fig. 2 (1)	5	mA	T _J = 25 °C	V _R = rated V _R
		200	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)	9.2	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		150CNQ	Units	Conditions
T _J	Max. Junction Temperature Range	-55 to 150	°C	
T _{stg}	Max. Storage Temperature Range	-55 to 150	°C	
R _{thJC}	Max. Thermal Resistance Junction to Case (Per Leg)	0.70	°C/W	DC operation * See Fig. 4
R _{thJC}	Max. Thermal Resistance Junction to Case (Per Package)	0.35	°C/W	DC operation
R _{thCS}	Typical Thermal Resistance, Case to Heatsink	0.10	°C/W	Mounting surface, smooth and greased
wt	Approximate Weight	56(2.0)	g(oz.)	
T	Mounting Torque	Min. 40(35)	Kg-cm (lbf-in)	
		Max. 58(50)		
Case Style		D-60(TO-249AA)		

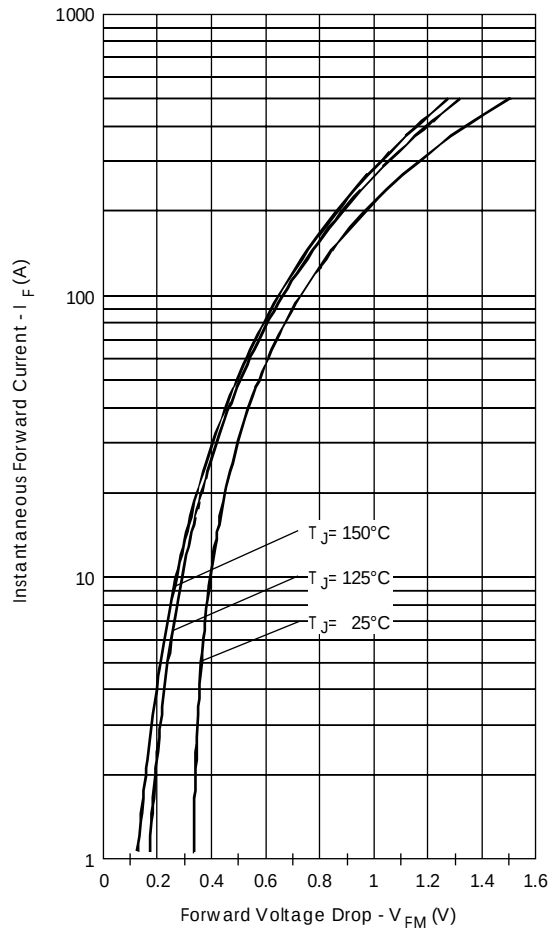


Fig. 1 - Max. Forward Voltage Drop Characteristics (PerLeg)

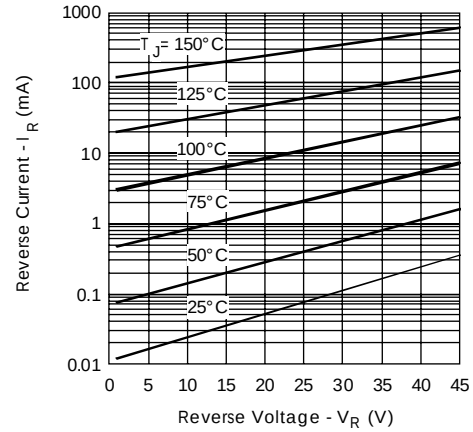


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

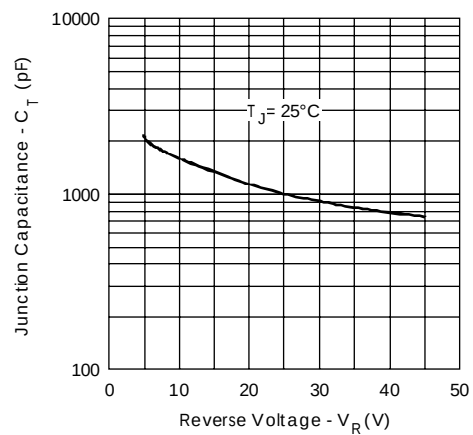


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

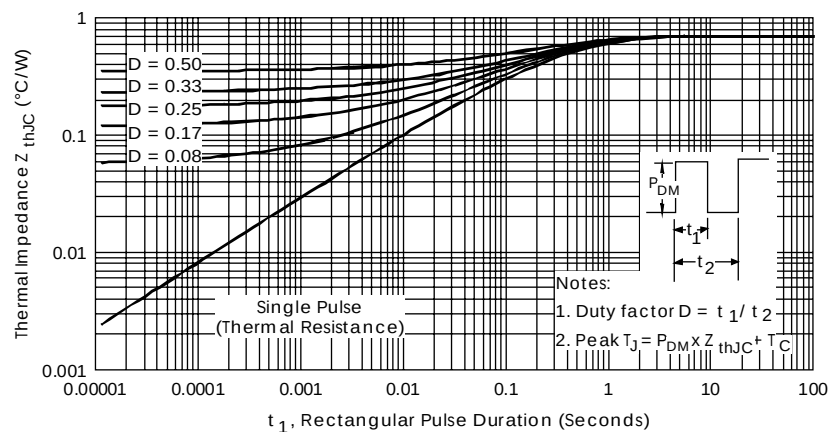


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

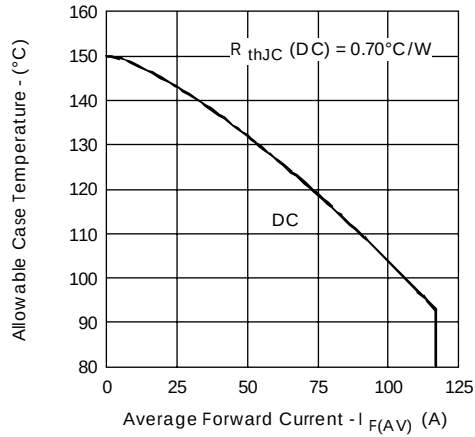


Fig. 5- Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

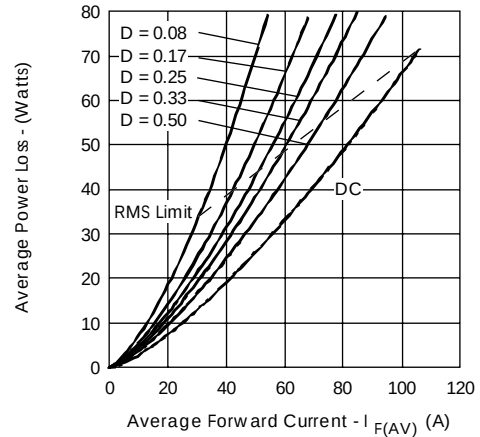


Fig. 6- Forward Power Loss Characteristics (Per Leg)

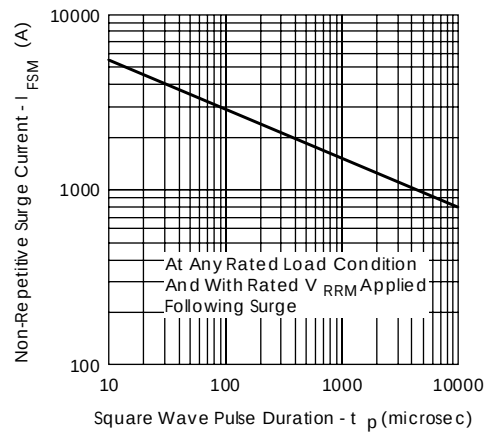


Fig. 7- Max. Non-Repetitive Surge Current (Per Leg)

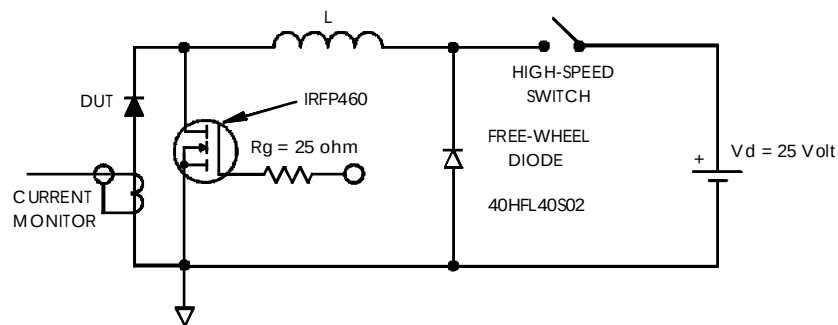


Fig. 8- Unclamped Inductive Test Circuit