

200CNQ... SERIES

SCHOTTKY RECTIFIER

200 Amp

Major Ratings and Characteristics

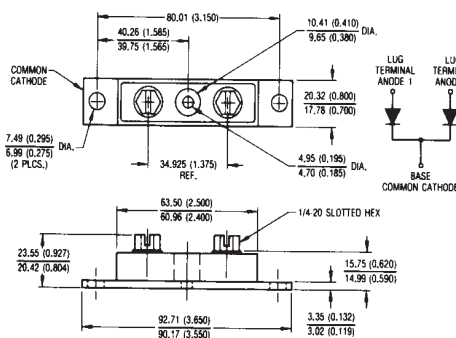
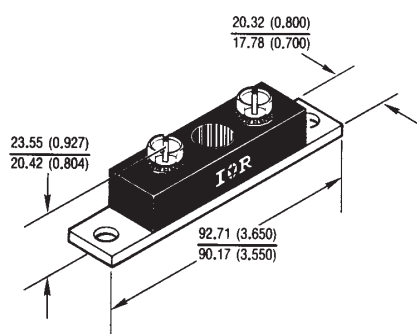
Characteristics	200CNQ...	Units
$I_{F(AV)}$ Rectangular waveform	200	A
V_{RRM} range	35 to 45	V
I_{FSM} @ $t_p = 5 \mu s$ sine	26,000	A
V_F @ 100Apk, $T_J = 125^\circ C$ (per leg)	0.49	V
T_J range	-55 to 150	$^\circ C$

Description/Features

The 200CNQ center tap, high current, 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
- 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

CASE STYLE AND DIMENSIONS



Modified JEDEC Outline TO - 244AB
Dimensions in millimeters and inches

Voltage Ratings

Part number	200CNQ035	200CNQ040	200CNQ045
V_R Max. DC Reverse Voltage (V)	35	40	45
V_{RWM} Max. Working Peak Reverse Voltage (V)			

Absolute Maximum Ratings

Parameters		200CNQ	Units	Conditions	
I _{F(AV)}	Max. Average Forward Current * See Fig. 5	200	A	50% duty cycle @ T _C = 108°C, rectangular wave form	
I _{FSM}	Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) * See Fig. 7	26,000	A	5μs Sine or 3μs Rect. pulse	Following any rated load condition and with rated V _{RRM} applied
		1550		10ms Sine or 6ms Rect. pulse	
E _{AS}	Non-Repetitive Avalanche Energy (Per Leg)	135	mJ	T _J = 25°C, I _{AS} = 20 Amps, L = 0.67 mH	
I _{AR}	Repetitive Avalanche Current (Per Leg)	20	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		200CNQ	Units	Conditions	
V _{FM}	Max. Forward Voltage Drop (Per Leg) * See Fig. 1 (1)	0.54	V	@ 100A	T _J = 25 °C
		0.68	V	@ 200A	
		0.49	V	@ 100A	T _J = 125 °C
		0.64	V	@ 200A	
I _{RM}	Max. Reverse Leakage Current (Per Leg) * See Fig. 2 (1)	10	mA	T _J = 25 °C	V _R = rated V _R
		400	mA	T _J = 125 °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)	7.0	nH	From top of terminal hole to mounting plane	
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	200CNQ	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)	0.40	$^\circ\text{C/W}$	DC operation * See Fig. 4
R_{thJC} Max. Thermal Resistance Junction to Case (Per Package)	0.20	$^\circ\text{C/W}$	DC operation
R_{thCS} Typical Thermal Resistance, Case to Heatsink	0.10	$^\circ\text{C/W}$	Mounting surface, smooth and greased
wt Approximate Weight	79 (2.80)	g (oz.)	
T Mounting Torque Base Mounting Torque Center Hole Terminal Torque	Min. 40 (35)	Kg-cm (lbf-in)	
	Max. 58 (50)		
	Typ. 17 (15)		
	Min. 58 (50)		
	Max. 86 (75)		
Case Style	TO - 244AB	Modified JEDEC	

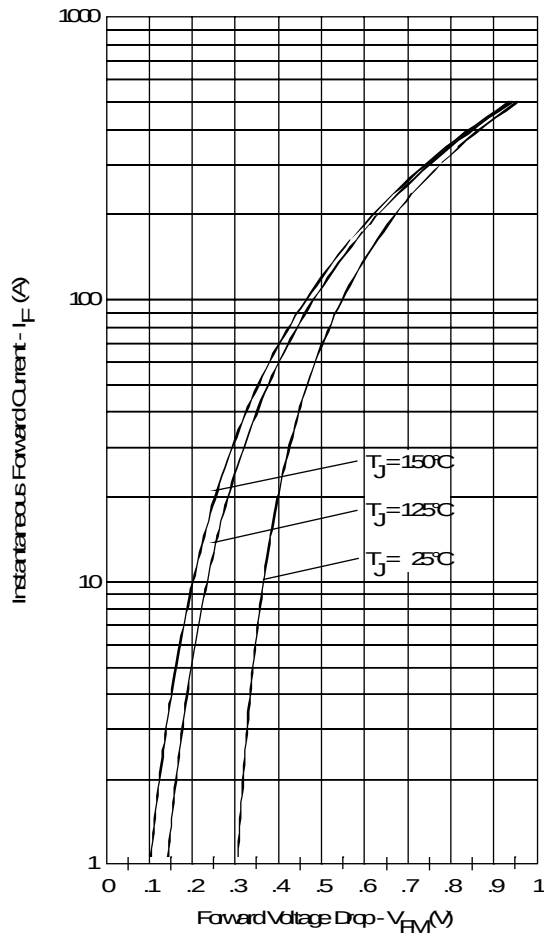


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

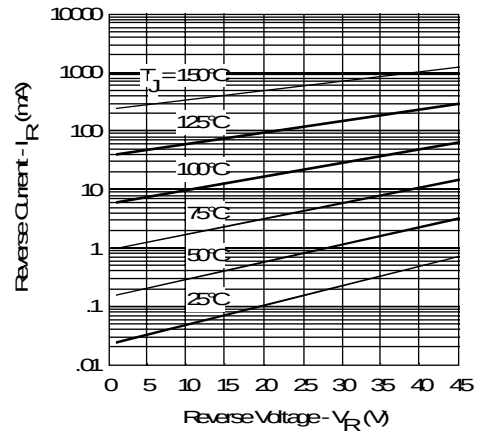


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

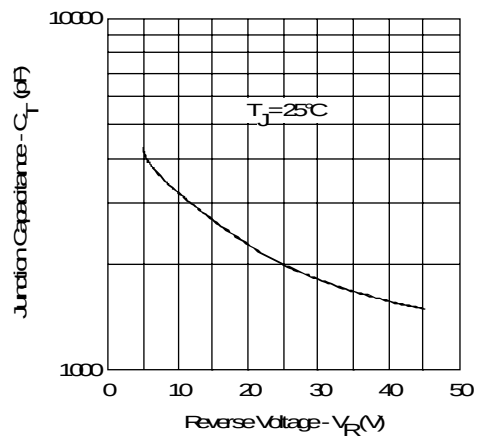


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

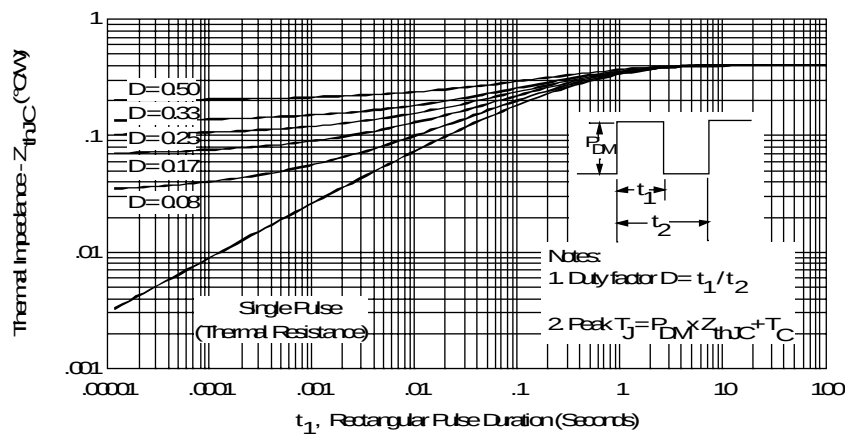


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

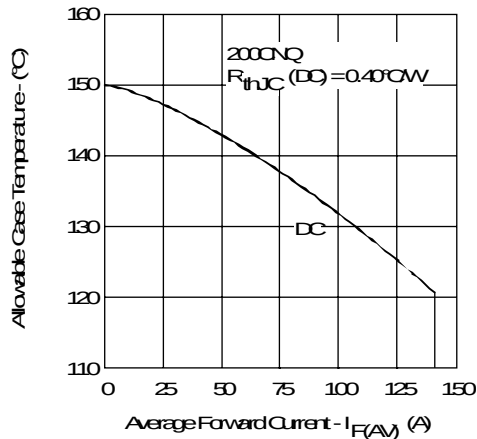


Fig. 5- Max. Allowable Case Temperature
Vs. Average Forward Current (Per Leg)

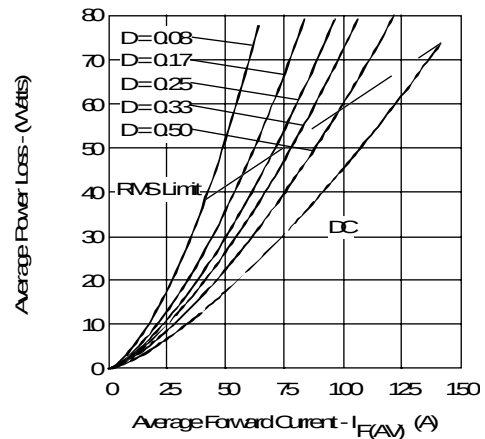


Fig. 6- Forward Power Loss Characteristics
(Per Leg)

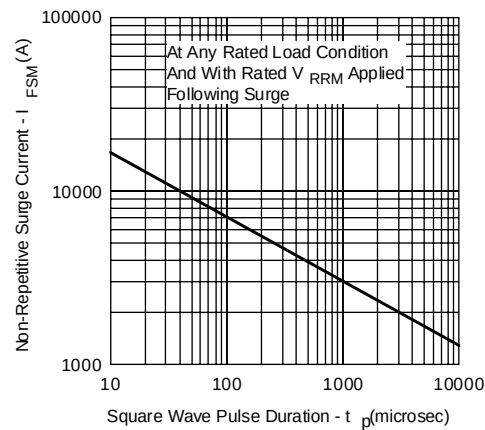


Fig. 7- Max. Non-Repetitive Surge Current (Per Leg)

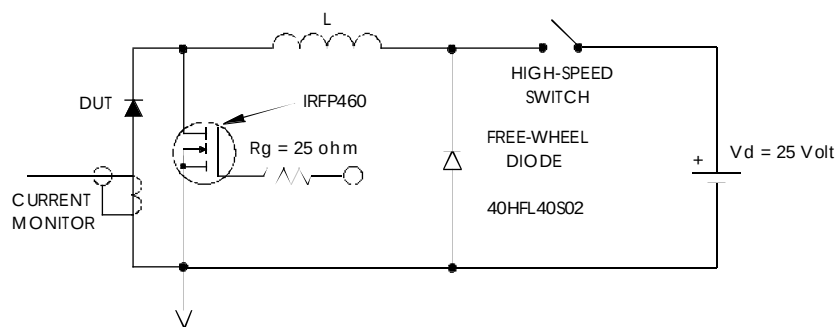


Fig. 8- Unclamped Inductive Test Circuit