

Major Ratings and Characteristics

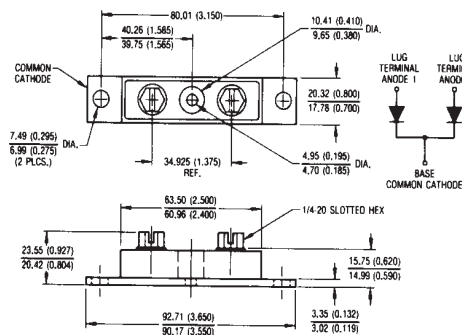
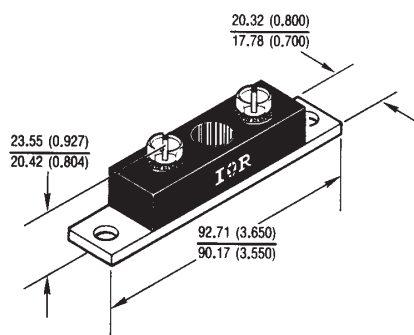
Characteristics	225CNQ015	Units
$I_{F(AV)}$ Rectangular waveform	220	A
V_{RRM}	15	V
I_{FSM} @ $t_p = 5 \mu s$ sine	10,800	A
V_F @ 110Apk, $T_J = 75^\circ C$ (per leg)	0.32	V
T_J range	-55 to 100	$^\circ C$

Description/Features

The 225CNQ015 high current, center tap Schottky modules have been optimized for ultra low forward voltage drop specifically for the OR'ing of parallel power supplies. The proprietary barrier technology allows for reliable operation up to $100^\circ C$ junction temperature. Typical applications are in parallel switching power supplies, converters, reverse battery protection, and redundant power subsystems.

- $100^\circ C$ T_J operation
- Center tap module
- Optimized for OR'ing applications
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Ultra low forward voltage drop
- High frequency operation
- Guard ring enhanced ruggedness and long term reliability

CASE STYLE AND DIMENSIONS



Modified JEDEC Outline TO - 244AB

Dimensions in millimeters and inches

225CNQ015 Series

PD-2.294 rev. A 12/97

International
IR Rectifier

Voltage Ratings

Part number	225CNQ015
V_R Max. DC Reverse Voltage (V)	15
V_{RWM} Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

Parameters	225CNQ	Units	Conditions		
I _{F(AV)} Max. Average Forward Current * See Fig. 5	220	A	50% duty cycle @ T _C = 74 °C, rectangular wave form		
I _{FSM} Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) * See Fig. 7	10,800	A	5μs Sine or 3μs Rect. pulse	Following any rated load condition and with rated V _{RRM} applied	
	1700		10ms Sine or 6ms Rect. pulse		
E _{AS} Non-Repetitive Avalanche Energy (Per Leg)	9	mJ	T _J = 25 °C, I _{AS} = 2 Amps, L = 4.5 mH		
I _{AR} Repetitive Avalanche Current (Per Leg)	2	A	Current decaying linearly to zero in 1μsec Frequency limited by T _J max. V _A = 3.0 × V _R typical		

Electrical Specifications

Parameters		225CNQ	Units	Conditions	
V _{FM}	Max. Forward Voltage Drop (Per Leg) * See Fig. 1 (1)	0.38	V	@ 110A	T _J = 25 °C
		0.49	V	@ 220A	
		0.32	V	@ 110A	T _J = 75 °C
		0.42	V	@ 220A	
I _{RM}	Max. Reverse Leakage Current (Per Leg) * See Fig. 2 (1)	40	mA	T _J = 25 °C	V _R = rated V _R
		2000	mA	T _J = 125 °C	
		1780	mA	T _J = 100 °C	V _R = 12 V
		1080	mA	T _J = 100 °C	V _R = 5 V
C _T	Max. Junction Capacitance (Per Leg)	7700	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	225CNQ	Units	Conditions
T_J Max. Junction Temperature Range	-55 to 100	$^\circ\text{C}$	
T_{stg} Max. Storage Temperature Range	-55 to 100	$^\circ\text{C}$	
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	Min.	40 (35)	Kg-cm (lbf-in)
	Max.	58 (50)	
	Typ.	17 (15)	
	Min.	58 (50)	
Terminal Torque	Max.	86 (75)	
Case Style	TO - 244AB		Modified JEDEC

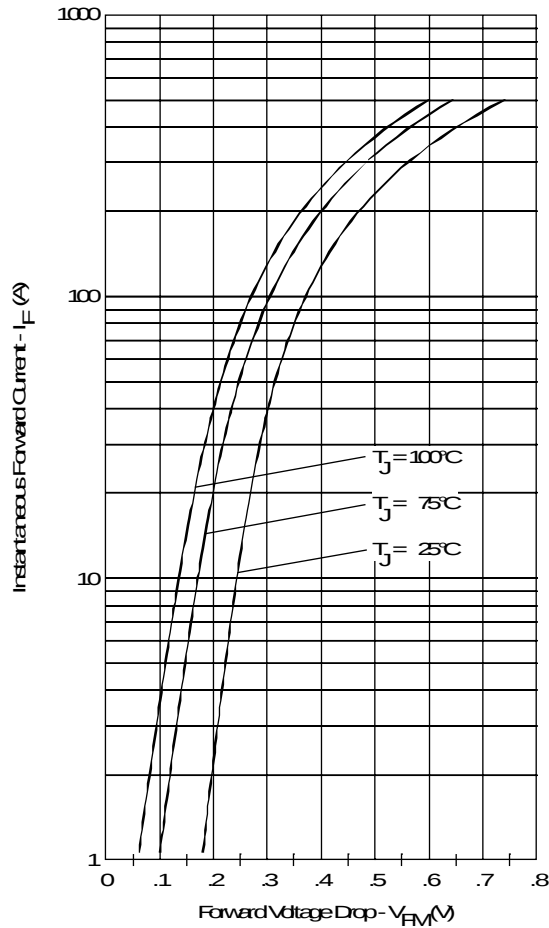


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

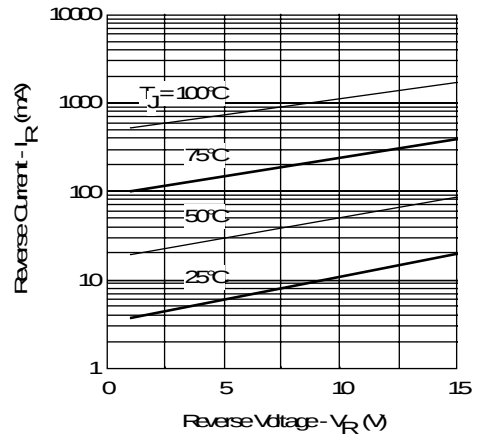


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

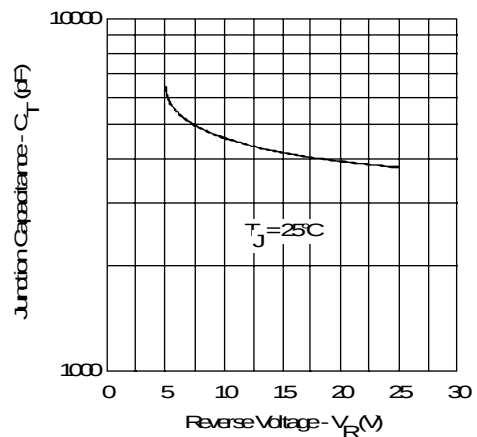


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

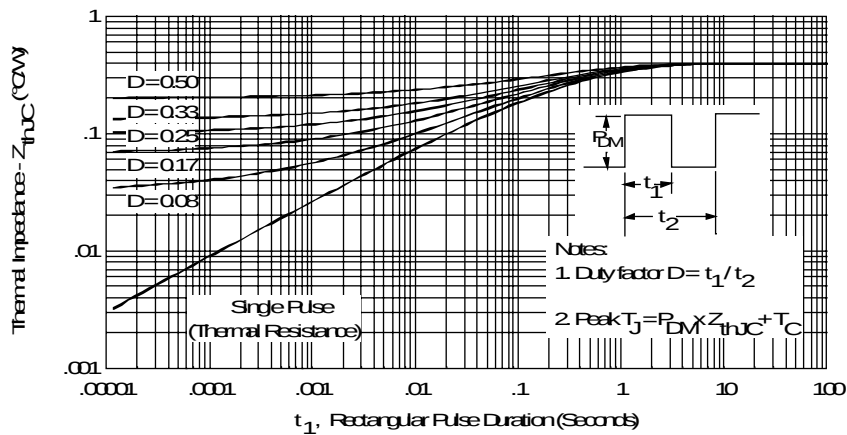


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

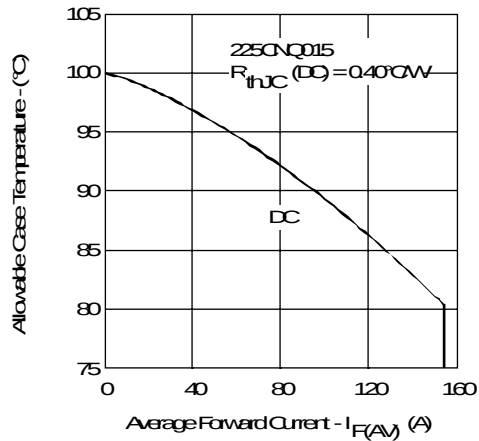


Fig. 5- Max. Allowable Case Temperature
Vs. Average Forward Current (Per Leg)

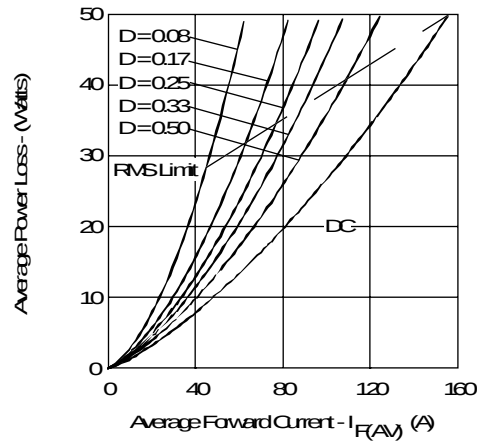


Fig. 6- Forward Power Loss Characteristics
(Per Leg)

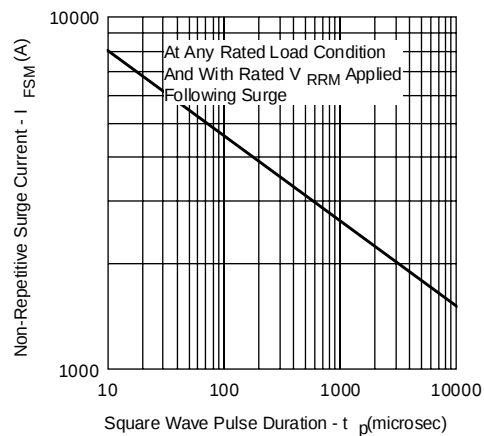


Fig. 7- Max. Non-Repetitive Surge Current (Per Leg)

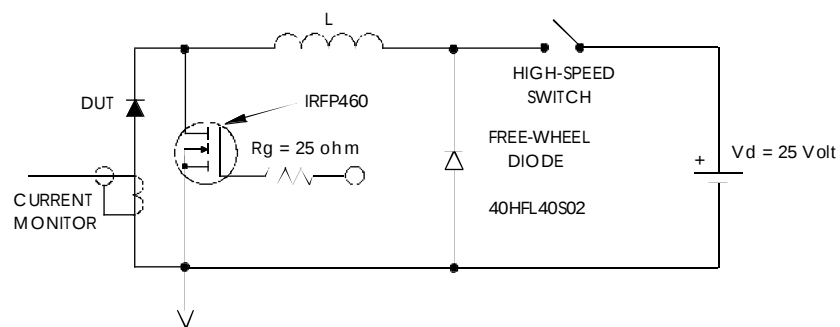


Fig. 8- Unclamped Inductive Test Circuit