

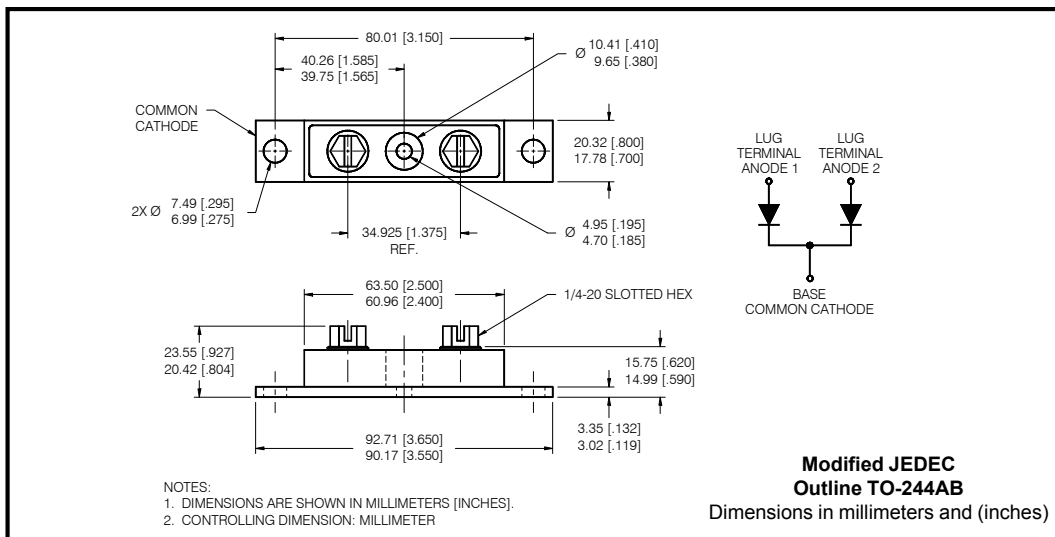
Major Ratings and Characteristics

Characteristics	225CNQ...	Units
$I_{F(AV)}$ Rectangular waveform	220	A
V_{RRM} range	15	V
I_{FSM} @tp = 5 μ s sine	10,800	A
V_F @110Apk, $T_J = 125^\circ\text{C}$ (per leg)	0.32	V
T_J range	-55 to 125	$^\circ\text{C}$

Description/Features

The 225CNQ center tap Schottky rectifier module has 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 125°C junction temperature. Typical applications are in parallel switching power supplies, converters, reverse battery protection, and redundant power subsystems.

- 125°C T_J operation ($V_R < 5\text{V}$)
- Center tap module
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance



225CNQ015 Series

Bulletin PD-2.294 rev. D 07/01

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 1 μsec Frequency limited by T _J max. V _A = 3.0 x 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 125	$^\circ\text{C}$	
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 Min.	24 (20)	Kg-cm (lbf-in)
	Base Max.	35 (30)	
	Center Hole Typ.	13.5 (12)	
	Terminal Torque Min.	35 (30)	
	Max.	46 (40)	
Case Style	TO-244AB	Modified JEDEC	

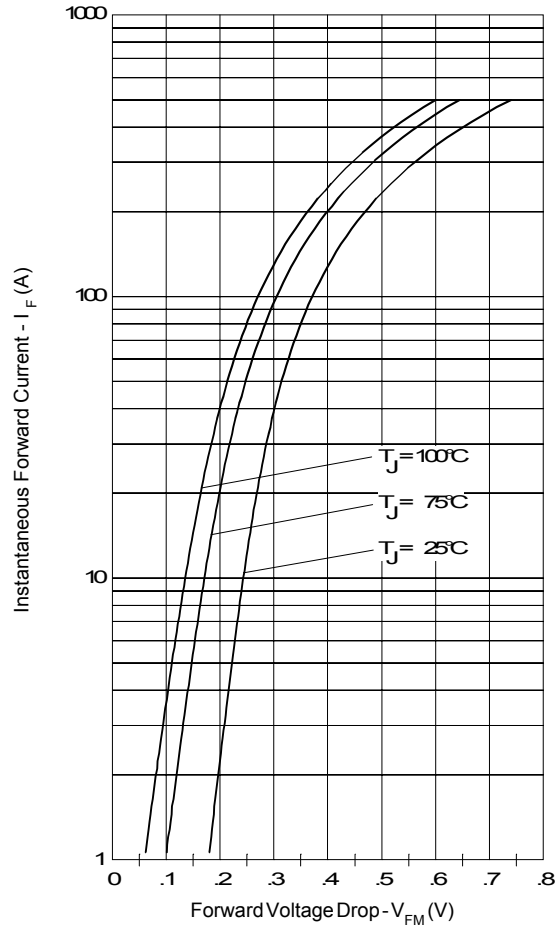


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

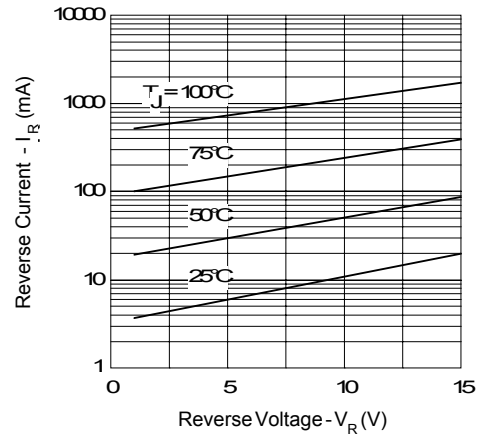


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

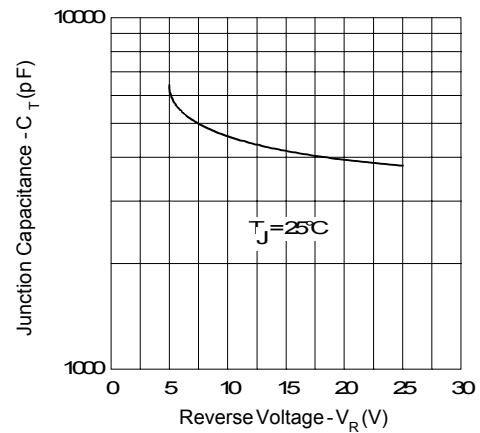


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

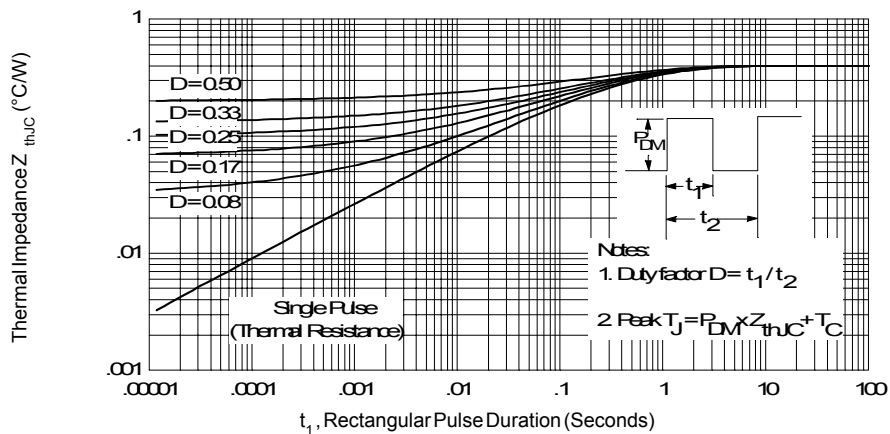


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

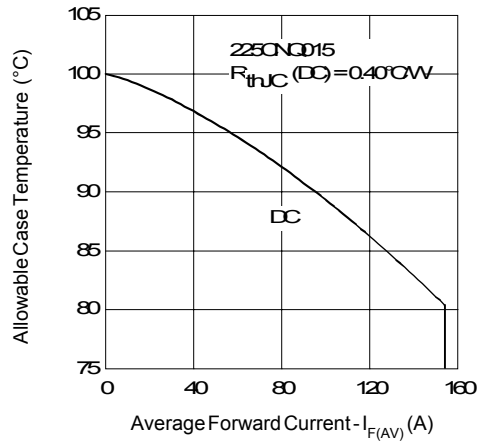


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

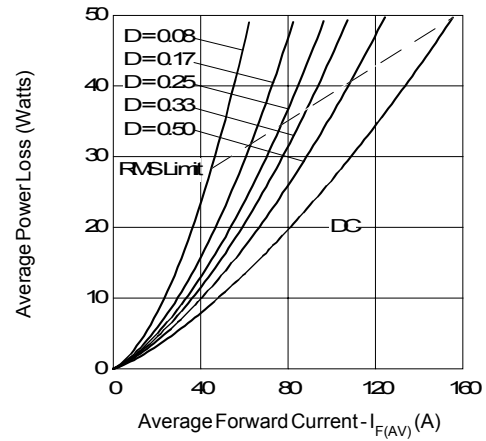


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

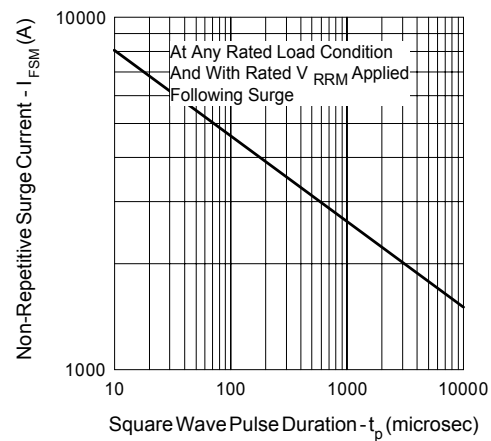


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

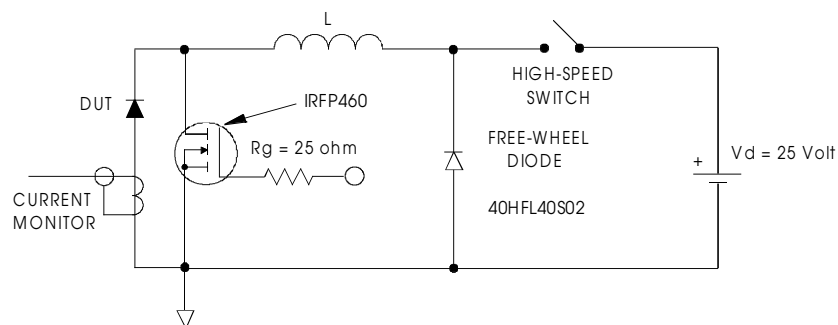


Fig. 8 - Unclamped Inductive Test Circuit

Data and specifications subject to change without notice.
This product has been designed and qualified for Industrial Level.
Qualification Standards can be found on IR's Web site.

International
IOR Rectifier

IR WORLD HEADQUARTERS: 233 Kansas St., El Segundo, California 90245, USA Tel: (310) 252-7105
TAC Fax: (310) 252-7309
Visit us at www.irf.com for sales contact information. 07/01