

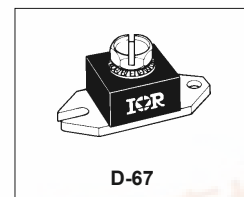
Bulletin PD-2.296 rev. B 02/01

# International IOR Rectifier

## 245NQ015(R)

SCHOTTKY RECTIFIER

240 Amp



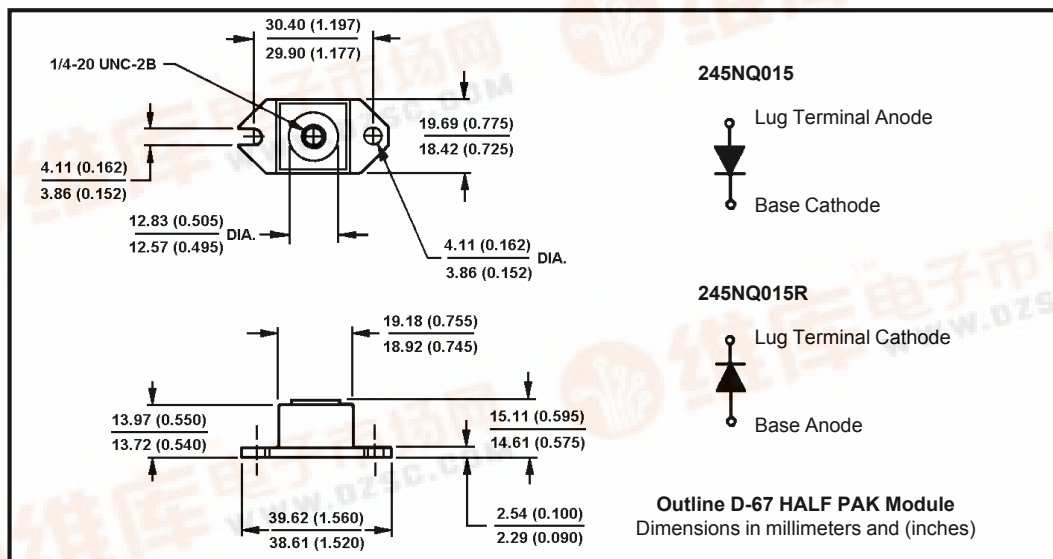
### Major Ratings and Characteristics

Characteristics	245NQ015(R)	Units
$I_{F(AV)}$ Rectangular waveform	240	A
$V_{RRM}$	15	V
$I_{FSM}$ @ $t_p = 5 \mu s$ sine	20,000	A
$V_F$ @ 240 Apk, $T_J = 75^\circ C$	0.34	V
$T_J$ range	-55 to 125	$^\circ C$

### Description/Features

The 245NQ015(R) high current 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  $^\circ C$  junction temperature. Typical applications are in parallel switching power supplies, converters, reverse battery protection, and redundant power subsystems.

- 125 $^\circ C$   $T_J$  operation ( $V_r < 5V$ )
- Unique high power, Half-Pak module
- Optimized for OR-ing applications
- Ultra 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



245NQ015

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Voltage Ratings

Part number	245NQ015
V <sub>R</sub> Max. DC Reverse Voltage (V)	15
V <sub>RWM</sub> Max. Working Peak Reverse Voltage (V)	25

Absolute Maximum Ratings

Parameters	245NQ	Units	Conditions
I <sub>F(AV)</sub> Max. Average Forward Current * See Fig. 5	240	A	50% duty cycle @ T <sub>C</sub> = 70 °C, rectangular wave form
I <sub>FSM</sub> Max. Peak One Cycle Non-Repetitive Surge Current * See Fig. 7	20,000	A	5µs Sine or 3µs Rect. pulse
	3000		10ms Sine or 6ms Rect. pulse
E <sub>AS</sub> Non-Repetitive Avalanche Energy	9	mJ	T <sub>J</sub> = 25 °C, I <sub>AS</sub> = 2 Amps, L = 4.5 mH
I <sub>AR</sub> Repetitive Avalanche Current	2	A	Current decaying linearly to zero in 1 µsec Frequency limited by T <sub>J</sub> max. V <sub>A</sub> = 3 x V <sub>R</sub> typical

Electrical Specifications

Parameters	245NQ	Units	Conditions
V <sub>FM</sub> Max. Forward Voltage Drop (1) * See Fig. 1	0.40	V	@ 240A
	0.51	V	@ 480A
	0.34	V	@ 240A
	0.44	V	@ 480A
I <sub>RM</sub> Max. Reverse Leakage Current (1) * See Fig. 2	80	mA	T <sub>J</sub> = 25 °C
	4000	mA	T <sub>J</sub> = 100 °C
	3560	mA	T <sub>J</sub> = 100 °C
	2160	mA	T <sub>J</sub> = 100 °C
C <sub>T</sub> Max. Junction Capacitance	15,800	pF	V <sub>R</sub> = 5V <sub>DC</sub> , (test signal range 100Khz to 1Mhz) 25 °C
L <sub>S</sub> Typical Series Inductance	5.0	nH	From top of terminal hole to mounting plane
dv/dt Max. Voltage Rate of Change (Rated V <sub>R</sub> )	10,000	V/ µs	

(1) Pulse Width < 300µs, Duty Cycle < 2%

Thermal-Mechanical Specifications

Parameters	245NQ	Units	Conditions	
T <sub>J</sub> Max. Junction Temperature Range	-55 to 125	°C		
T <sub>stg</sub> Max. Storage Temperature Range	-55 to 150	°C		
R <sub>thJC</sub> Max. Thermal Resistance Junction to Case	0.20	°C/W	DC operation * See Fig. 4	
R <sub>thCS</sub> Typical Thermal Resistance, Case to Heatsink	0.15	°C/W	Mounting surface, smooth and greased	
wt Approximate Weight	25.6 (0.9)	g (oz.)		
T Mounting Torque	Min.	40 (35)	Non-lubricated threads	
	Max.	58 (50)		
	Terminal Torque	Min.		58 (50)
		Max.		86 (75)
Case Style	HALF PAK Module			

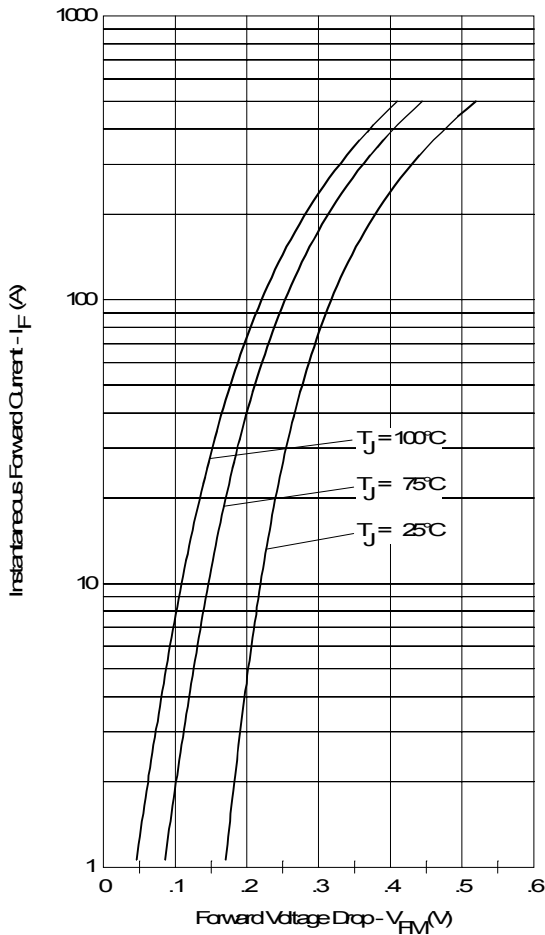


Fig. 1 - Maximum Forward Voltage Drop Characteristics

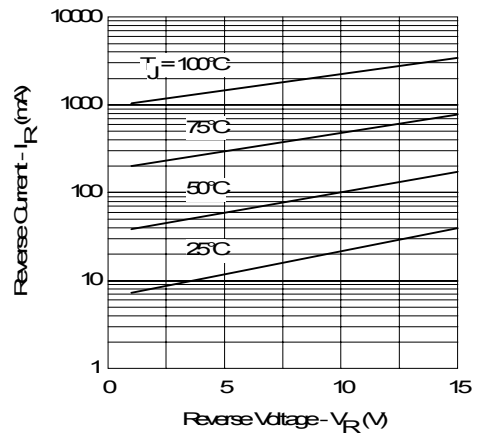


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

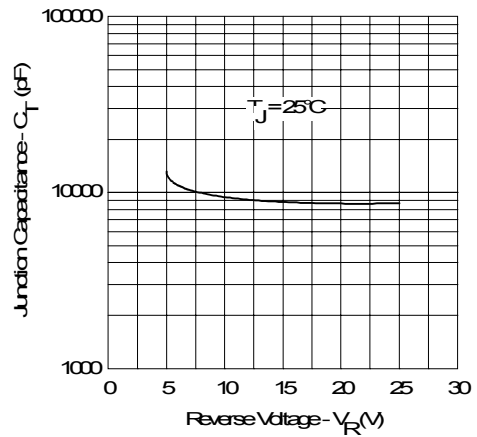


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

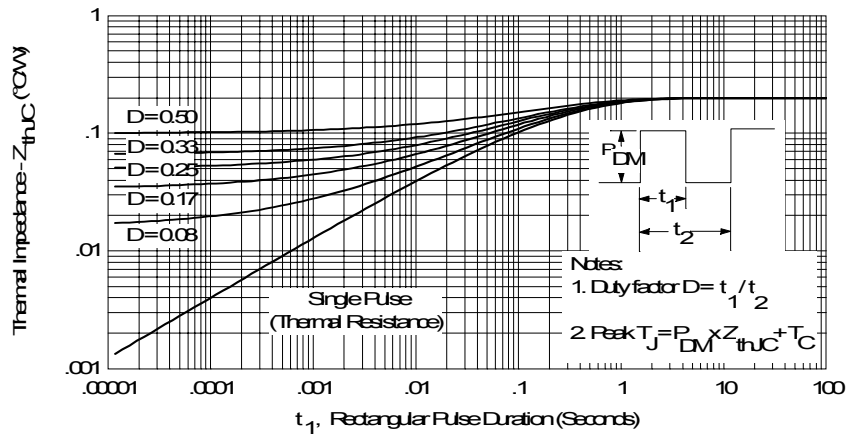


Fig. 4 - Maximum Thermal Impedance  $Z_{thJC}$  Characteristics

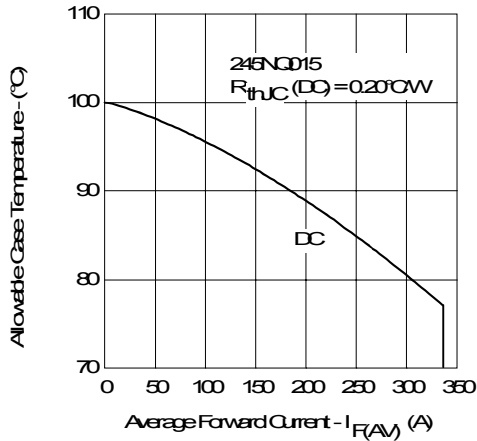


Fig. 5 - Maximum Allowable Case Temperature Vs. Average Forward Current

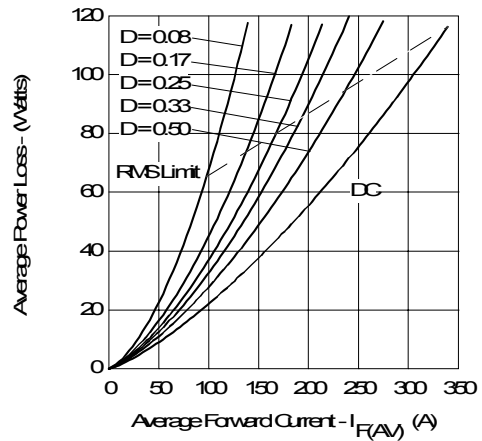


Fig. 6 - Forward Power Loss Characteristics

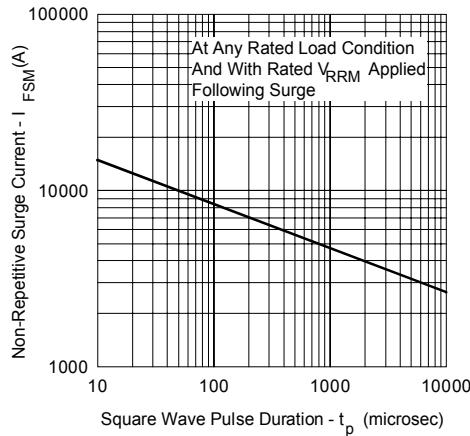


Fig. 7 - Maximum Non-Repetitive Surge Current

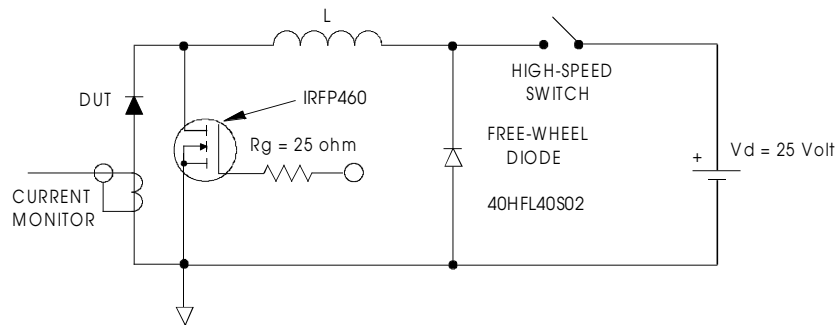


Fig. 8 - Unclamped Inductive Test Circuit