

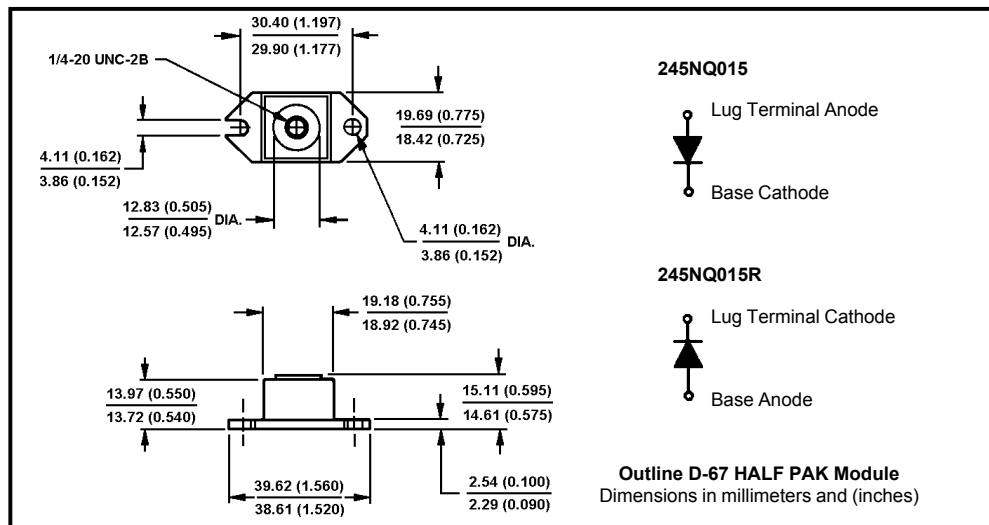
**Major Ratings and Characteristics**

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
$V_F$ @ 240Apk, $T_J = 75^\circ C$	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 °C junction temperature. Typical applications are in parallel switching power supplies, converters, reverse battery protection, and redundant power subsystems.

- 125°C  $T_J$  operation ( $V_R < 5V$ )
- 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

Bulletin PD-2.296 rev. B 02/01

International  
IR Rectifier

### Voltage Ratings

Part number	245NQ015
$V_R$ Max. DC Reverse Voltage (V)	15
$V_{RWM}$ Max. Working Peak Reverse Voltage (V)	25

### Absolute Maximum Ratings

Parameters	245NQ	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current * See Fig. 5	240	A	50% duty cycle @ $T_C = 70^\circ\text{C}$ , rectangular wave form
$I_{FSM}$ Max. Peak One Cycle Non-Repetitive Surge Current * See Fig. 7	20,000	A	5 $\mu\text{s}$ Sine or 3 $\mu\text{s}$ Rect. pulse
	3000		10ms Sine or 6ms Rect. pulse
$E_{AS}$ Non-Repetitive Avalanche Energy	9	mJ	$T_J = 25^\circ\text{C}$ , $I_{AS} = 2\text{Amps}$ , $L = 4.5\text{mH}$
$I_{AR}$ Repetitive Avalanche Current	2	A	Current decaying linearly to zero in 1 $\mu\text{sec}$ Frequency limited by $T_J$ max. $V_A = 3 \times V_R$ typical

### Electrical Specifications

Parameters	245NQ	Units	Conditions
$V_{FM}$ Max. Forward Voltage Drop (1) * See Fig. 1	0.40	V	@ 240A
	0.51	V	@ 480A
	0.34	V	@ 240A
	0.44	V	@ 480A
$I_{RM}$ Max. Reverse Leakage Current (1) * See Fig. 2	80	mA	$T_J = 25^\circ\text{C}$
	4000	mA	$T_J = 100^\circ\text{C}$
	3560	mA	$T_J = 100^\circ\text{C}$
	2160	mA	$T_J = 100^\circ\text{C}$
$C_T$ Max. Junction Capacitance	15,800	pF	$V_R = 5V_{DC}$ , (test signal range 100Khz to 1Mhz) $25^\circ\text{C}$
$L_S$ Typical Series Inductance	5.0	nH	From top of terminal hole to mounting plane
$dv/dt$ Max. Voltage Rate of Change (Rated $V_R$ )	10,000	V/ $\mu\text{s}$	

(1) Pulse Width < 300 $\mu\text{s}$ , Duty Cycle < 2%

### Thermal-Mechanical Specifications

Parameters	245NQ	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	0.20	$^\circ\text{C}/\text{W}$	DC operation * See Fig. 4	
$R_{thCS}$ Typical Thermal Resistance, Case to Heatsink	0.15	$^\circ\text{C}/\text{W}$	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			

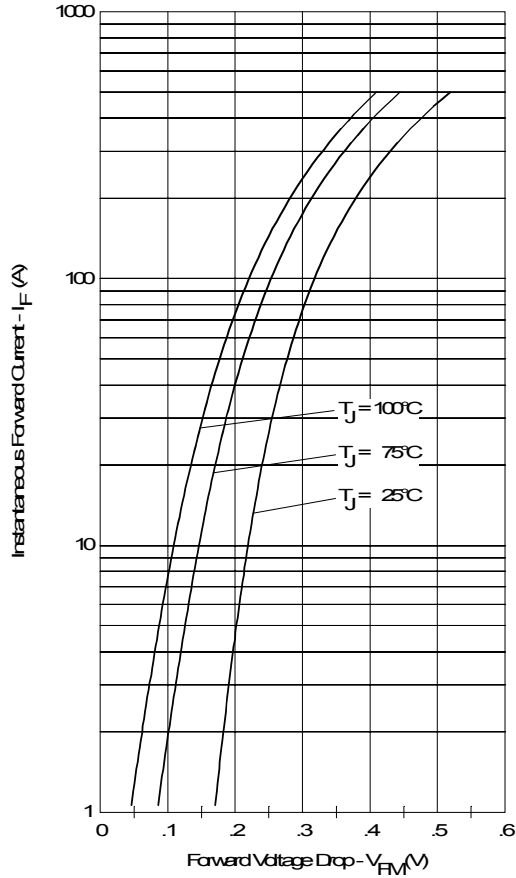


Fig. 1 - Maximum Forward Voltage Drop Characteristics

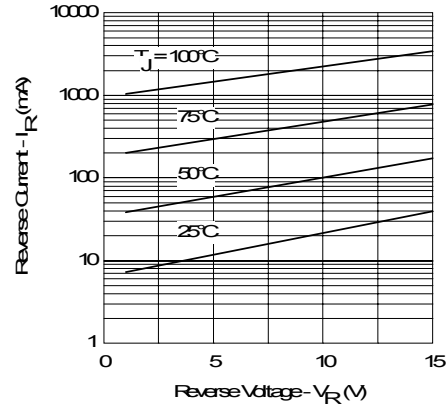


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

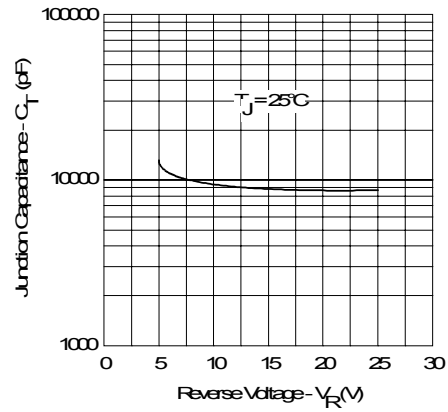


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

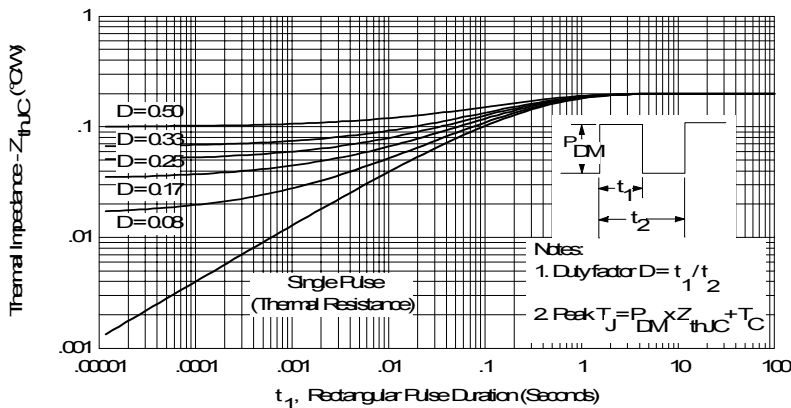


Fig. 4 - Maximum Thermal Impedance  $Z_{thJC}$  Characteristics

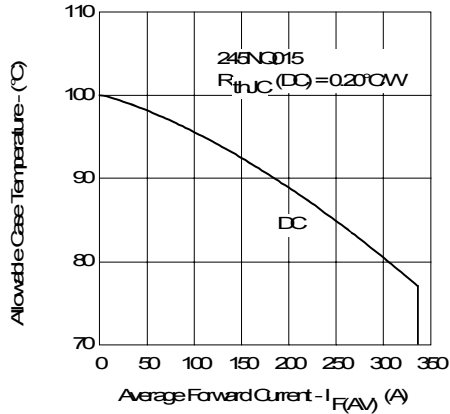


Fig. 5 - Maximum Allowable Case Temperature Vs. Average Forward Current

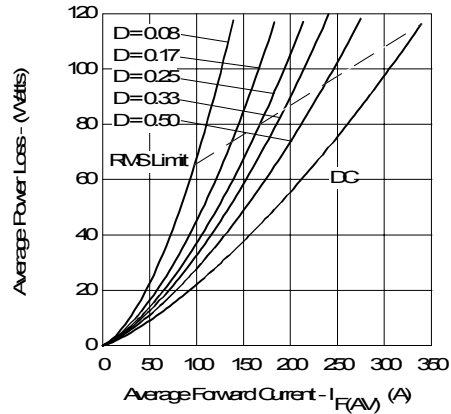


Fig. 6 - Forward Power Loss Characteristics

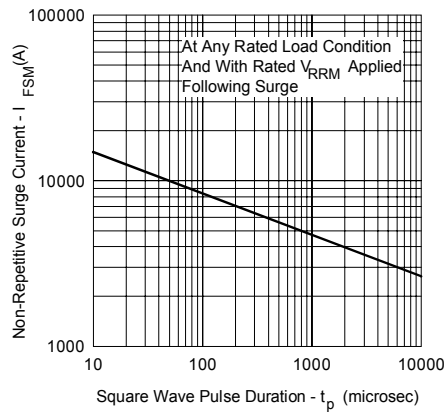


Fig. 7 - Maximum Non-Repetitive Surge Current

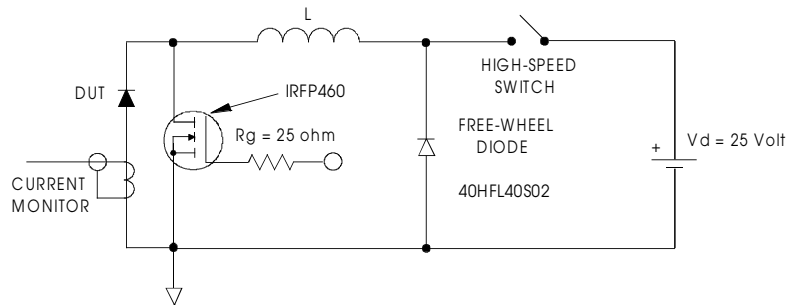


Fig. 8 - Unclamped Inductive Test Circuit