

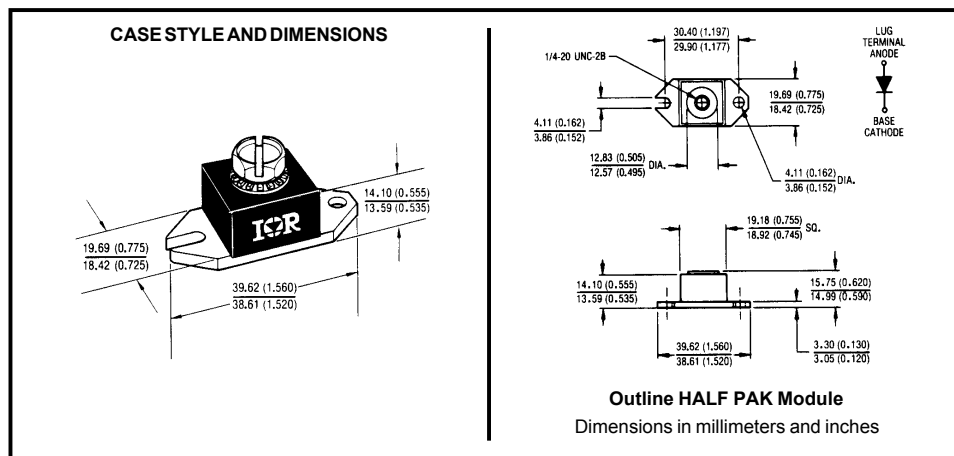
Major Ratings and Characteristics

Characteristics	185NQ015	Units
$I_{F(AV)}$ Rectangular waveform	180	A
V_{RRM}	15	V
I_{FSM} @tp = 5 μ s sine	15,000	A
V_F @180Apk, $T_J = 75^\circ\text{C}$	0.34	V
T_J range	-55 to 125	$^\circ\text{C}$

Description/Features

The 185NQ015 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 $^\circ\text{C}$ junction temperature. Typical applications are in parallel switching power supplies, converters, reverse battery protection, and redundant power subsystems.

- 125 $^\circ\text{C}$ T_J operation ($V_R < 5\text{V}$)
- 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



185NQ015

Bulletin PD-2.279 rev. B 02/01

International
IRF Rectifier

Voltage Ratings

Part number	185NQ015
V_R Max. DC Reverse Voltage (V)	15
V_{RMM} Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

Parameters	185NQ	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current * See Fig. 5	180	A	50% duty cycle @ $T_C = 66^\circ\text{C}$, rectangular waveform
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current * See Fig. 7	15,000	A	Following any rated load condition and with rated V_{RMM} applied
	2250		
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 μsec Frequency limited by T_J max. $V_A = 3 \times V_R$ typical

Electrical Specifications

Parameters	185NQ	Units	Conditions
V_{FM} Max. Forward Voltage Drop (1) * See Fig. 1	0.40	V	@ 180A $T_J = 25^\circ\text{C}$
	0.51	V	@ 360A
	0.34	V	@ 180A $T_J = 75^\circ\text{C}$
	0.45	V	@ 360A
I_{RM} Max. Reverse Leakage Current (1) * See Fig. 2	60	mA	$T_J = 25^\circ\text{C}$ $V_R = \text{rated } V_R$
	3000	mA	$T_J = 100^\circ\text{C}$
	2670	mA	$T_J = 100^\circ\text{C}$ $V_R = 12\text{V}$
	1620	mA	$T_J = 100^\circ\text{C}$ $V_R = 5\text{V}$
C_T Max. Junction Capacitance	12,300	pF	$V_R = 5V_{DC}$, (test signal range 100Khz to 1Mhz) 25°C
L_S Typical Series Inductance	6.0	nH	From top of terminal hole to mounting plane
dv/dt Max. Voltage Rate of Change (Rated V_R)	10,000	V/ μs	

Thermal-Mechanical Specifications

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

Parameters	185NQ	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	0.30	$^\circ\text{C/W}$	DC Operation * See Fig. 4	
R_{thCS} Typical Thermal Resistance, Case to Heatsink	0.15	$^\circ\text{C/W}$	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			

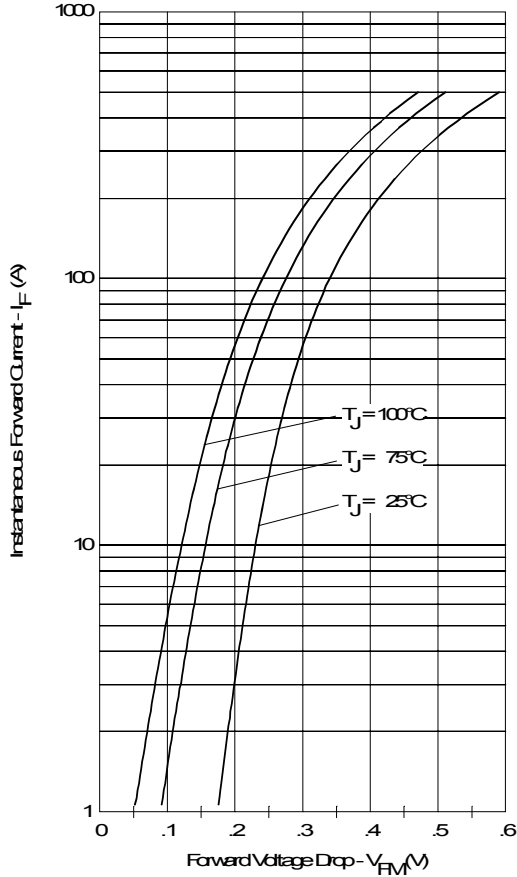


Fig. 1 - Maximum Forward Voltage Drop Characteristics

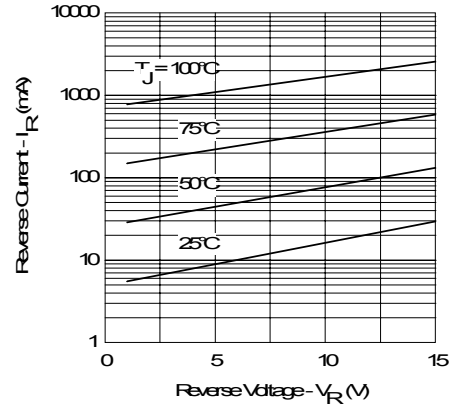


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

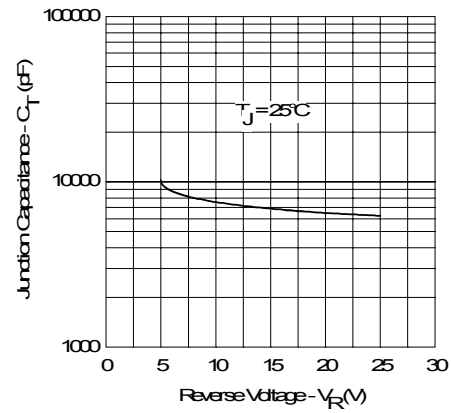


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

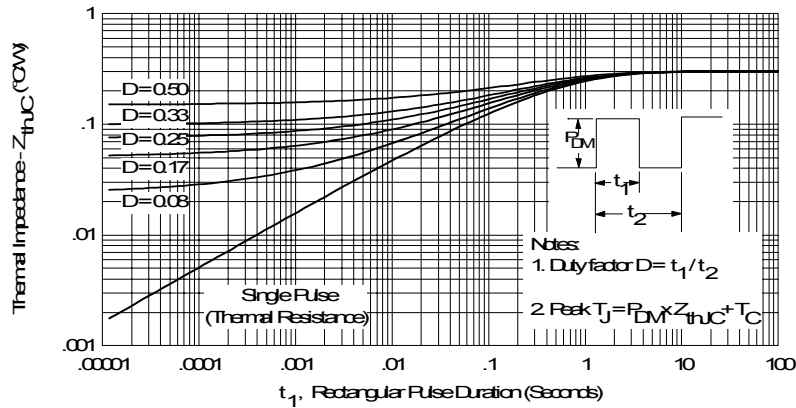


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

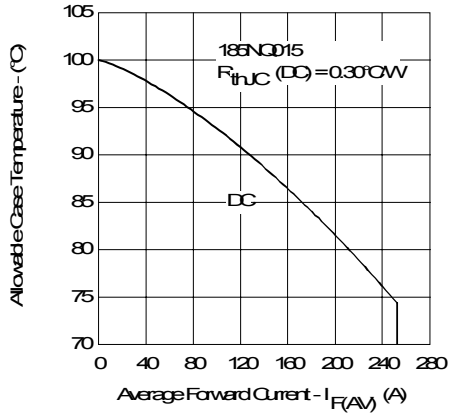


Fig. 5 - Maximum Allowable Case Temperature Vs. Average Forward Current

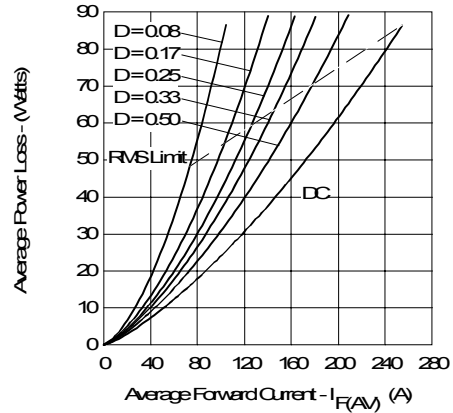


Fig. 6 - Forward Power Loss Characteristics

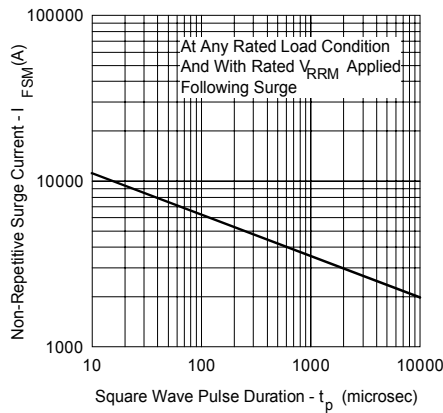


Fig. 7 - Maximum Non-Repetitive Surge Current

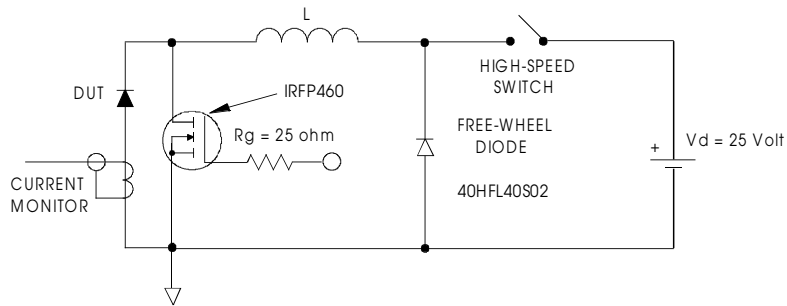


Fig. 8 - Unclamped Inductive Test Circuit