

75HQ... SERIES

SCHOTTKY RECTIFIER

75 Amp

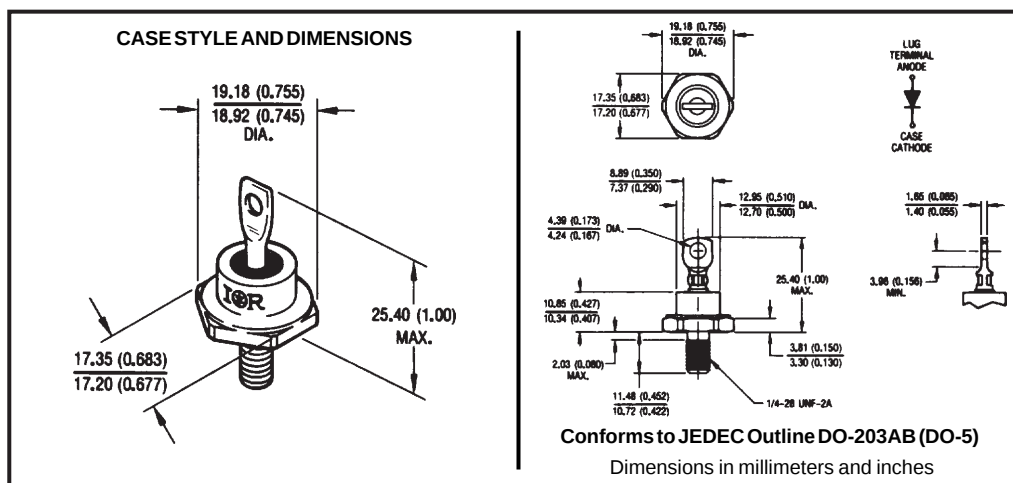
Major Ratings and Characteristics

Characteristics	75HQ...	Units
$I_{F(AV)}$ Rectangular waveform	75	A
V_{RRM} range	35 to 45	V
I_{FSM} @ $t_p = 5 \mu s$ sine	9000	A
V_F @ 75 Apk, $T_J = 125^\circ C$	0.63	V
T_J range	-65 to 175	$^\circ C$

Description/Features

The 75HQ Schottky rectifier series has been optimized for low reverse leakage at high temperature. The proprietary barrier technology allows for reliable operation up to 175 °C junction temperature. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

- 175 °C T_J operation
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- Hermetic packaging



Voltage Ratings

Part number	75HQ035	75HQ040	75HQ045
V_R Max. DC Reverse Voltage (V)	35	40	45
V_{RWM} Max. Working Peak Reverse Voltage (V)			

Absolute Maximum Ratings

Parameters		75HQ	Units	Conditions		
I _{F(AV)}	Max. Average Forward Current * See Fig. 5	75	A	50% duty cycle @ T _C = 117°C, rectangular wave form		
I _{FSM}	Max. Peak One Cycle Non-Repetitive Surge Current * See Fig. 7	9000	A	5µs Sine or 3µs Rect. pulse	Following any rated load condition and with rated V _{RRM} applied	
		1180		10ms Sine or 6ms Rect. pulse		
E _{AS}	Non-Repetitive Avalanche Energy	101	mJ	T _J = 25°C, I _{AS} = 15 Amps, L = 0.9 mH		
I _{AR}	Repetitive Avalanche Current	15	A	Current decaying linearly to zero in 1µsec Frequency limited by T _J max. V _A = 1.5 x V _R typical		

Electrical Specifications

Parameters	75HQ	Units	Conditions
V_{FM} Max. Forward Voltage Drop (1) * See Fig. 1	0.71	V	@ 75A $T_J = 25^\circ\text{C}$
	0.88	V	@ 150A $T_J = 25^\circ\text{C}$
	0.63	V	@ 75A $T_J = 125^\circ\text{C}$
	0.78	V	@ 150A $T_J = 125^\circ\text{C}$
I_{RM} Max. Reverse Leakage Current (1) * See Fig. 2	5	mA	$T_J = 25^\circ\text{C}$ $V_R = \text{rated } V_R$
	45	mA	$T_J = 125^\circ\text{C}$ $V_R = \text{rated } V_R$
C_T Max. Junction Capacitance	2600	pF	$V_R = 5V_{DC}$, (test signal range 100Khz to 1Mhz) 25°C
L_S Typical Series Inductance	7.5	nH	Measured from top of terminal 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	75HQ	Units	Conditions
T_J Max. Junction Temperature Range	-65 to 175	$^\circ\text{C}$	
T_{stg} Max. Storage Temperature Range	-65 to 175	$^\circ\text{C}$	
R_{thJC} Max. Thermal Resistance Junction to Case	0.83	$^\circ\text{C/W}$	DC operation * See Fig. 4
R_{thCS} Typical Thermal Resistance, Case to Heatsink	0.25	$^\circ\text{C/W}$	Mounting surface, smooth and greased
wt Approximate Weight	15(0.53)	g(oz.)	
T Mounting Torque	Min. 23(20)	Kg-cm (lbf-in)	Non-lubricated threads
	Max. 46(40)		
Case Style	DO-203AB(DO-5)	JEDEC	

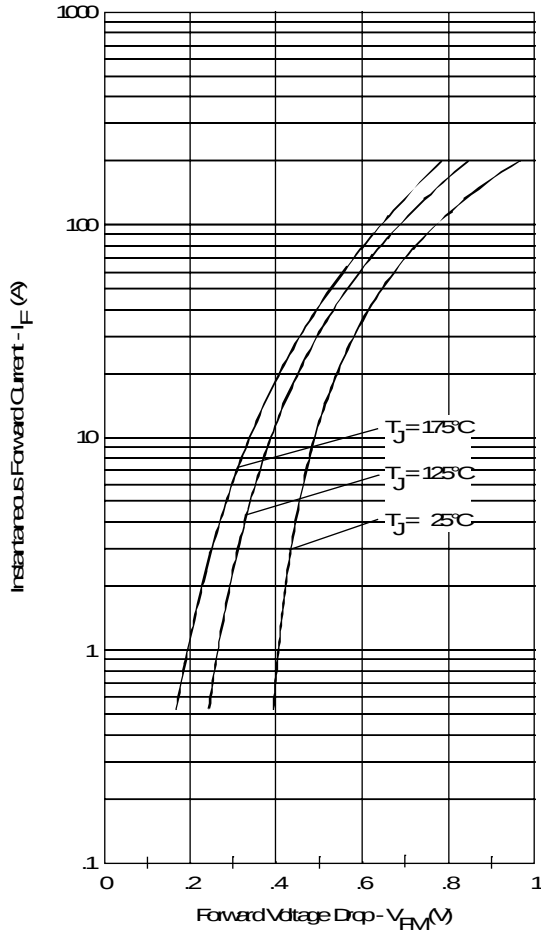


Fig. 1 - Maximum Forward Voltage Drop Characteristics

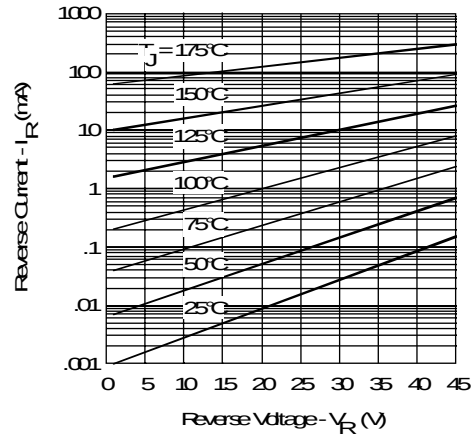


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage

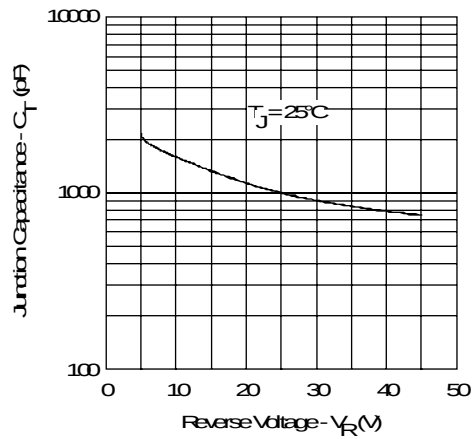


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

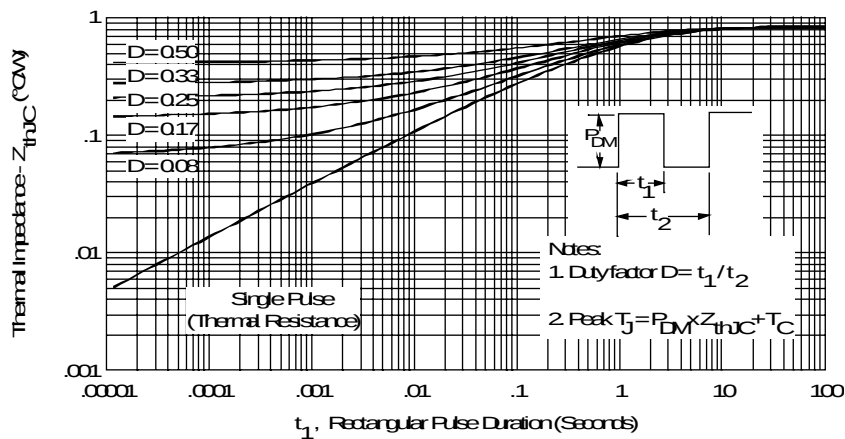


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

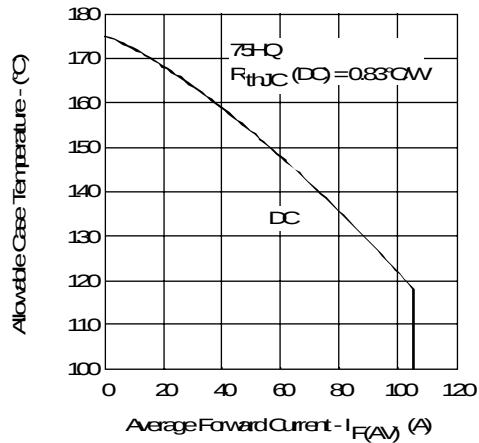


Fig. 5 - Maximum Allowable Case Temperature Vs. Average Forward Current

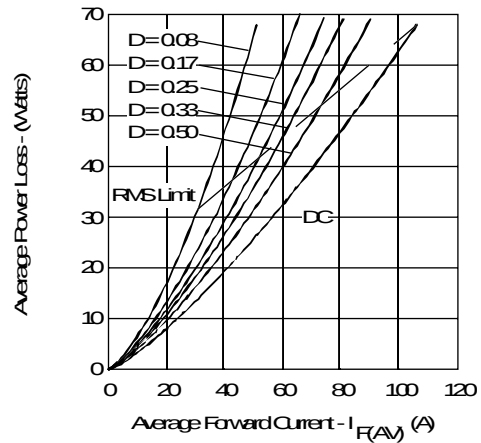


Fig. 6 - Forward Power Loss Characteristics

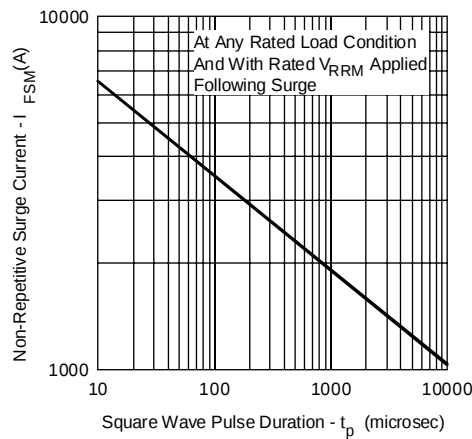


Fig. 7 - Maximum Non-Repetitive Surge Current

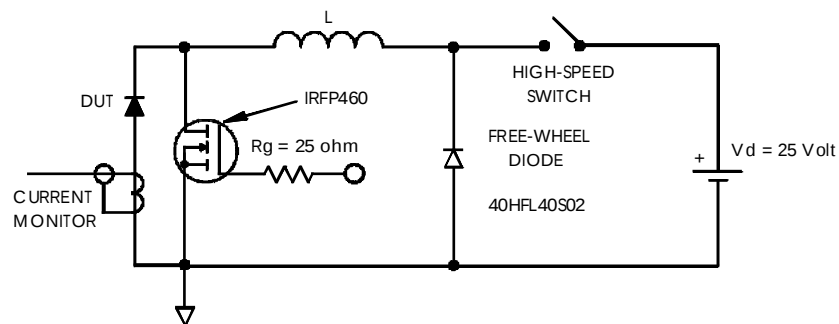


Fig. 8 - Unclamped Inductive Test Circuit