

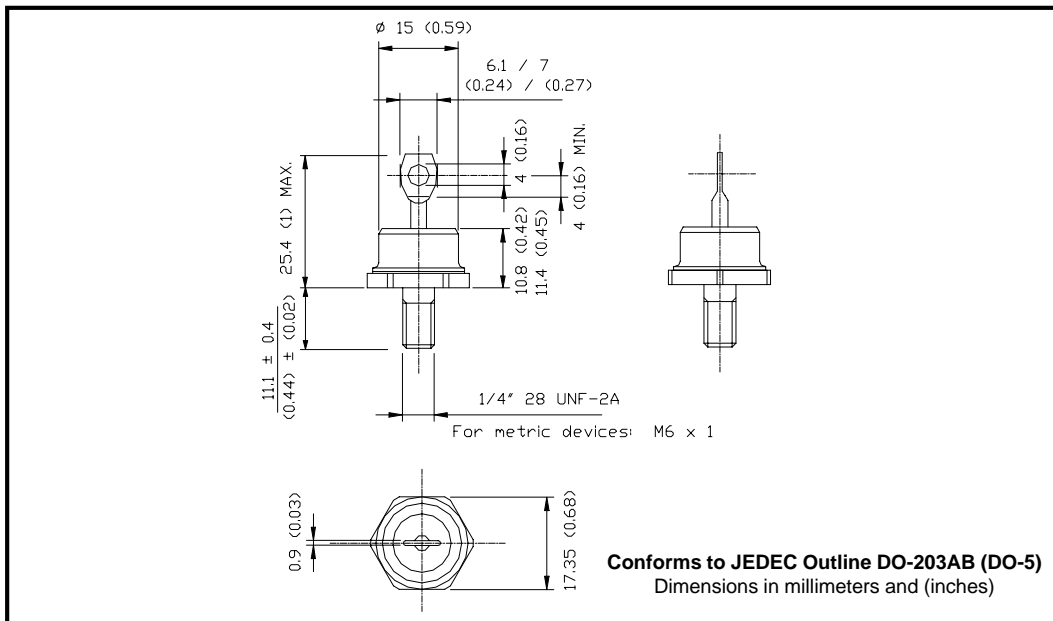
**Major Ratings and Characteristics**

Characteristics	75HQ...	Units
$I_{F(AV)}$ Rectangular waveform	75	A
$V_{RRM}$ range	30 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



## 75HQ... Series

Bulletin PD-2.246 rev. C 11/02

International  
IR Rectifier

### Voltage Ratings

Part number	75HQ030	75HQ035	75HQ040	75HQ045
$V_R$ Max. DC Reverse Voltage (V)	30	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 @ $T_C = 117^\circ\text{C}$ , rectangular wave form
$I_{FSM}$ Max. Peak One Cycle Non-Repetitive Surge Current * See Fig. 7	9000	A	5 $\mu\text{s}$ Sine or 3 $\mu\text{s}$ Rect. pulse
	1180		10ms Sine or 6ms Rect. pulse
$E_{AS}$ Non-Repetitive Avalanche Energy	101	mJ	$T_J = 25^\circ\text{C}$ , $I_{AS} = 15$ Amps, $L = 0.9$ mH
$I_{AR}$ Repetitive Avalanche Current	15	A	Current decaying linearly to zero in 1 $\mu\text{sec}$ Frequency limited by $T_J$ max. $V_A = 1.5 \times V_R$ typical

### Electrical Specifications

Parameters	75HQ	Units	Conditions
$V_{FM}$ Max. Forward Voltage Drop (1) * See Fig. 1	0.71	V	@ 75A
	0.88	V	@ 150A
	0.63	V	@ 75A
	0.78	V	@ 150A
$I_{RM}$ Max. Reverse Leakage Current (1) * See Fig. 2	5	mA	$T_J = 25^\circ\text{C}$
	45	mA	$T_J = 125^\circ\text{C}$
$C_T$ Max. Junction Capacitance	2600	pF	$V_R = 5V_{DC}$ , (test signal range 100Khz to 1Mhz) $25^\circ\text{C}$
$L_S$ Typical Series Inductance	7.5	nH	Measured from top of terminal to mounting plane
$dv/dt$ Max. Voltage Rate of Change (Rated $V_R$ )	10000	V/ $\mu\text{s}$	

(1) Pulse Width < 300 $\mu\text{s}$ , 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	$^\circ\text{C}/\text{W}$	DC operation * See Fig. 4
$R_{thCS}$ Typical Thermal Resistance, Case to Heatsink	0.25	$^\circ\text{C}/\text{W}$	Mounting surface, smooth and greased
wt Approximate Weight	15 (0.53)	g (oz.)	
T Mounting Torque	Min.	23 (20)	Non-lubricated threads
	Max.	46 (40)	
Case Style	DO-203AB (DO-5)	JEDEC	

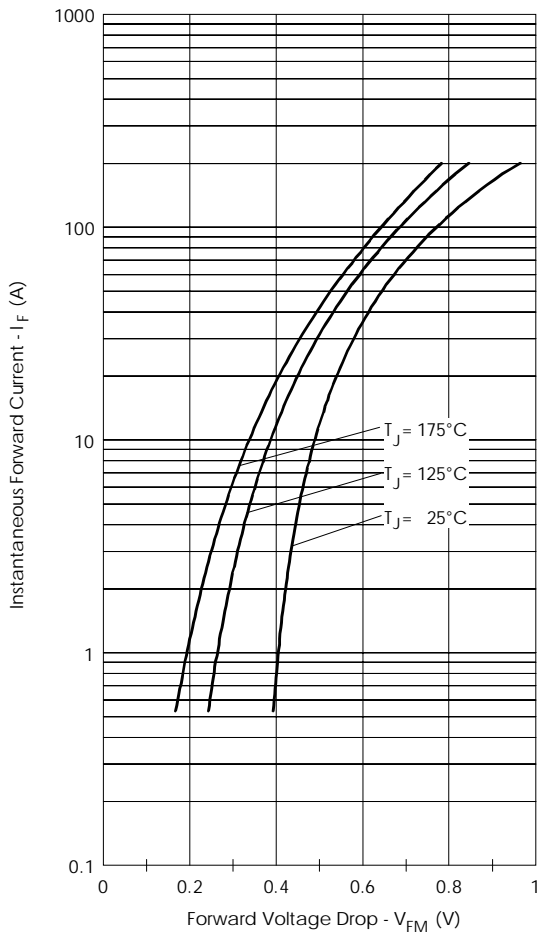


Fig. 1 - Maximum Forward Voltage Drop Characteristics

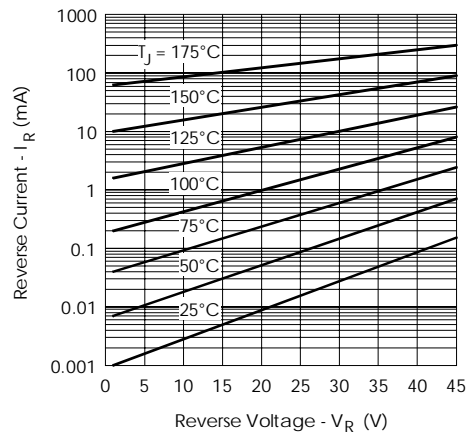


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage

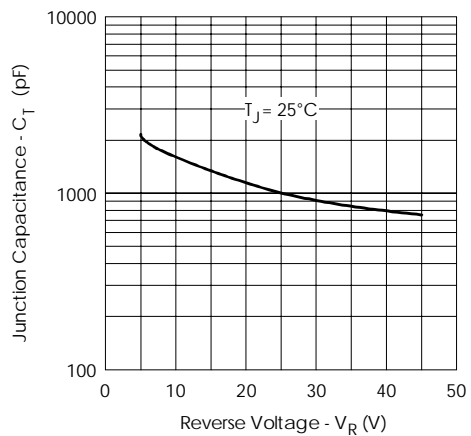


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

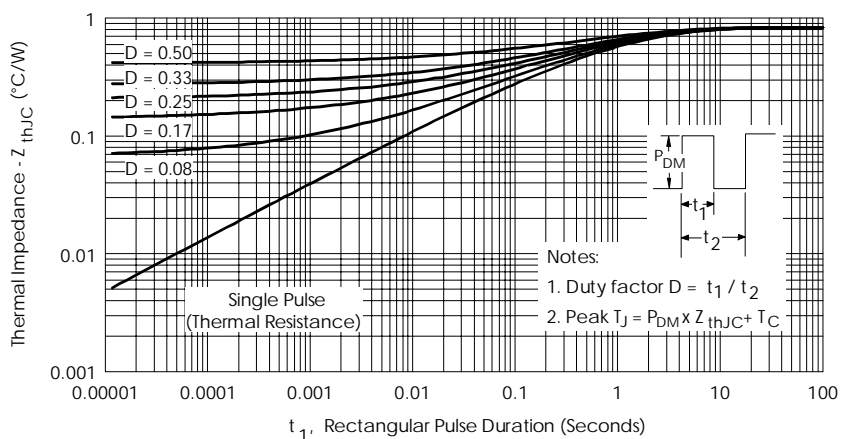


Fig. 4 - Maximum Thermal Impedance  $Z_{thJC}$  Characteristics

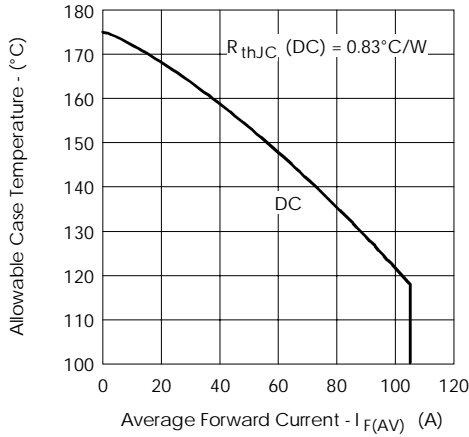


Fig. 5 - Maximum Allowable Case Temperature Vs. Average Forward Current

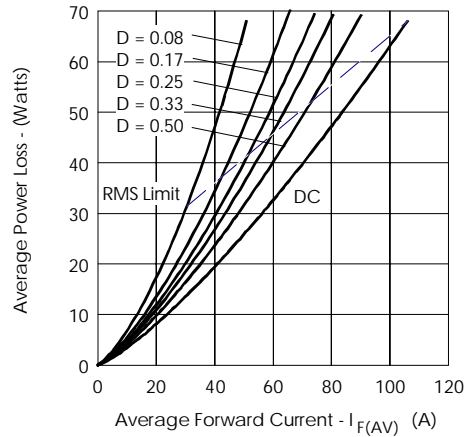


Fig. 6 - Forward Power Loss Characteristics

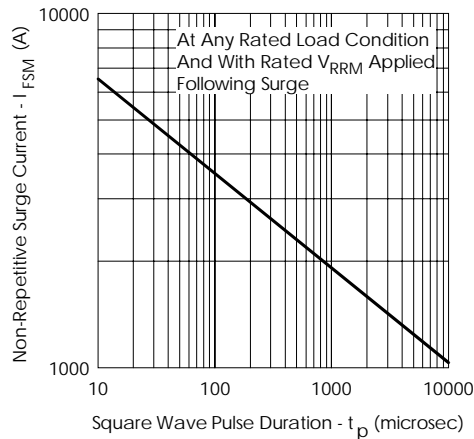


Fig. 7 - Maximum Non-Repetitive Surge Current

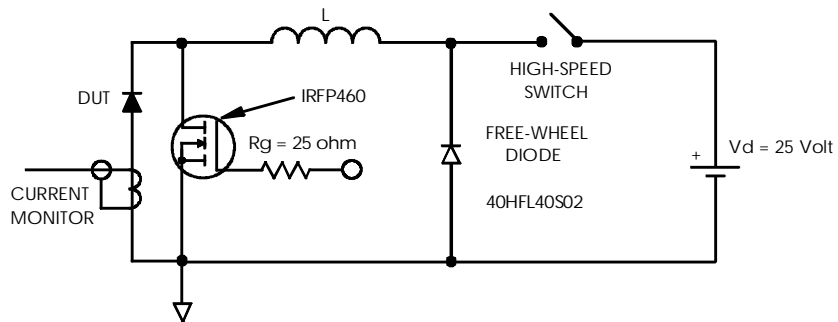


Fig. 8 - Unclamped Inductive Test Circuit

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

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