

## 150CMQ... SERIES

SCHOTTKY RECTIFIER

150 Amp

### Major Ratings and Characteristics

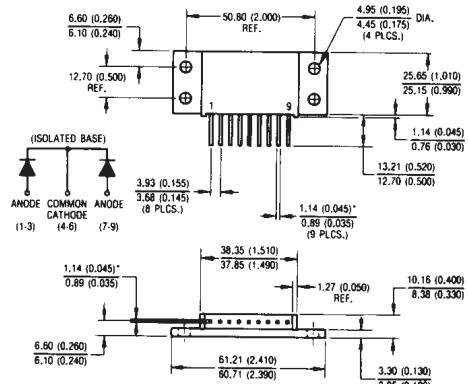
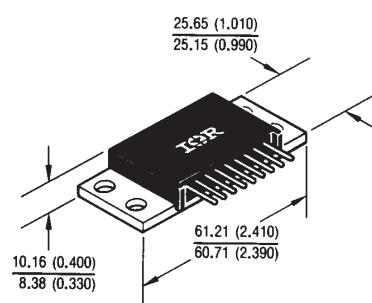
Characteristics	150CMQ...	Units
$I_{F(AV)}$ Rectangular waveform	150	A
$V_{RRM}$ range	35 to 45	V
$I_{FSM}$ @ $t_p = 5 \mu s$ sine	6600	A
$V_F$ @ 75 Apk, $T_J = 125^\circ C$ (per leg)	0.60	V
$T_J$ range	-55 to 150	°C

### Description/Features

The 150CMQ isolated, center tap Schottky rectifier module series has been optimized for very low forward voltage drop, with moderate leakage. The proprietary barrier technology allows for reliable operation up to  $150^\circ C$  junction temperature. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

- $150^\circ C T_J$  operation
- Isolated heatsink
- Center tap module
- Multiple leads per terminal for high frequency, high current PC board mounting
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Very low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- Low profile, high current package

### CASE STYLE AND DIMENSIONS



**Voltage Ratings**

Part number	150CMQ035	150CMQ040	150CMQ045
$V_R$ Max. DC Reverse Voltage (V)	35	40	45
$V_{RWM}$ Max. Working Peak Reverse Voltage (V)			

**Absolute Maximum Ratings**

Parameters	150CMQ	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current * See Fig. 5	150	A	50% duty cycle @ $T_C = 71^\circ\text{C}$ , rectangular wave form
$I_{FSM}$ Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) * See Fig. 7	6600	A	5μs Sine or 3μs Rect. pulse
	800		10ms Sine or 6ms Rect. pulse Following any rated load condition and with rated $V_{RRM}$ applied
$E_{AS}$ Non-Repetitive Avalanche Energy (Per Leg)	101	mJ	$T_J = 25^\circ\text{C}$ , $I_{AS} = 15$ Amps, $L = 0.9$ mH
$I_{AR}$ Repetitive Avalanche Current (Per Leg)	15	A	Current decaying linearly to zero in 1 μsec Frequency limited by $T_J$ max. $V_A = 1.5 \times V_R$ typical

**Electrical Specifications**

Parameters	150CMQ	Units	Conditions
$V_{FM}$ Max. Forward Voltage Drop (Per Leg) * See Fig. 1 (1)	0.64	V	$T_J = 25^\circ\text{C}$
	0.87	V	
	0.60	V	$T_J = 125^\circ\text{C}$
	0.79	V	
$I_{RM}$ Max. Reverse Leakage Current (Per Leg) * See Fig. 2 (1)	5	mA	$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$ $V_R = \text{rated } V_R$
	200	mA	
$C_T$ Max. Junction Capacitance (Per Leg)	2600	pF	$V_R = 5V_{DC}$ , (test signal range 100Khz to 1Mhz) 25°C
$L_S$ Typical Series Inductance (Per Leg)	9.2	nH	Measured lead to lead 5mm from package body
$dv/dt$ Max. Voltage Rate of Change (Rated $V_R$ )	10,000	V/ μs	

(1) Pulse Width &lt; 300μs, Duty Cycle &lt;2%

**Thermal-Mechanical Specifications**

Parameters	150CMQ	Units	Conditions
$T_J$ Max. Junction Temperature Range	-55 to 150	°C	
$T_{stg}$ Max. Storage Temperature Range	-55 to 150	°C	
$R_{thJC}$ Max. Thermal Resistance Junction to Case (Per Leg)	1.0	°C/W	DC operation * See Fig. 4
$R_{thJC}$ Max. Thermal Resistance Junction to Case (Per Package)	0.50	°C/W	DC operation
$R_{thCS}$ Typical Thermal Resistance, Case to Heatsink	0.10	°C/W	Mounting surface, smooth and greased
wt Approximate Weight	56 (2.0)	g (oz.)	
T Mounting Torque	Min.	Kg-cm (lbf-in)	
	Max.	58 (50)	
Case Style	D-60 (TO-249AA)		Modified JEDEC

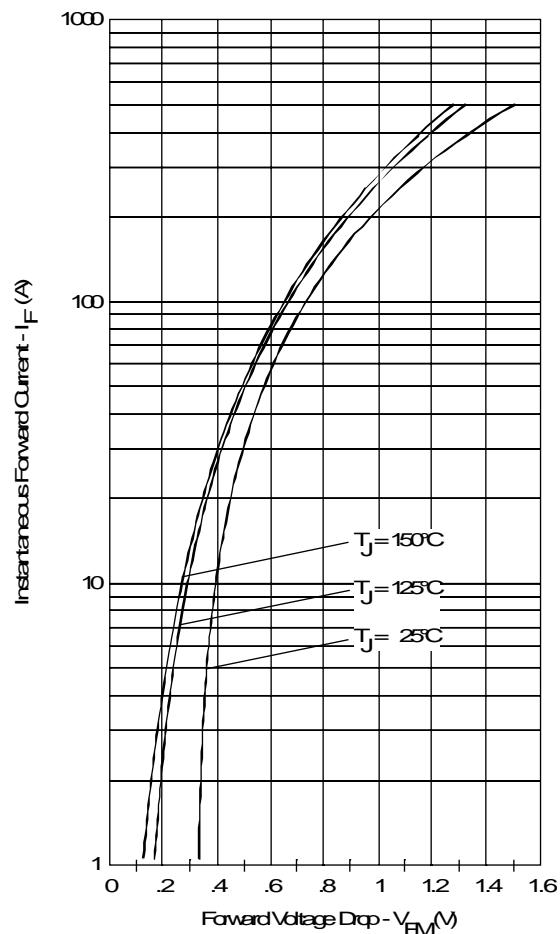


Fig. 1 - Max. Forward Voltage Drop Characteristics  
 (Per Leg)

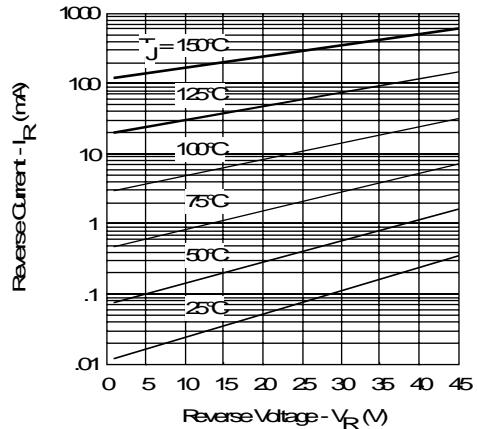


Fig. 2 - Typical Values Of Reverse Current  
 Vs. Reverse Voltage (Per Leg)

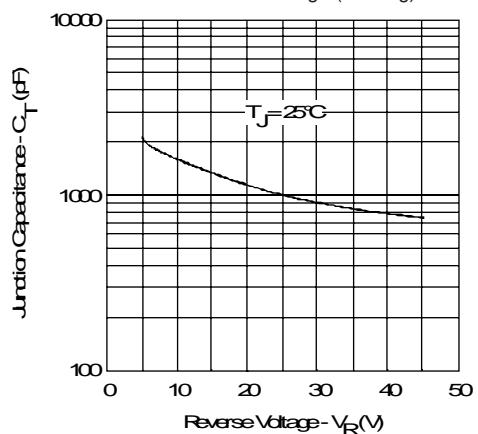


Fig. 3 - Typical Junction Capacitance  
 Vs. Reverse Voltage (Per Leg)

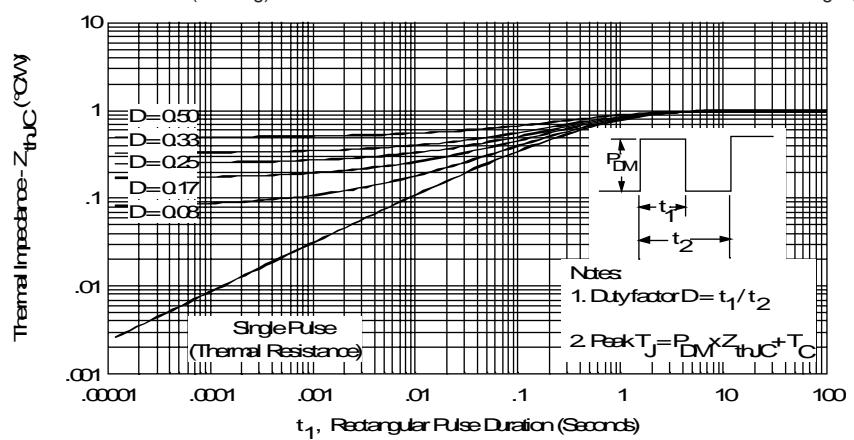


Fig. 4 - Max. Thermal Impedance  $Z_{thJC}$  Characteristics (Per Leg)

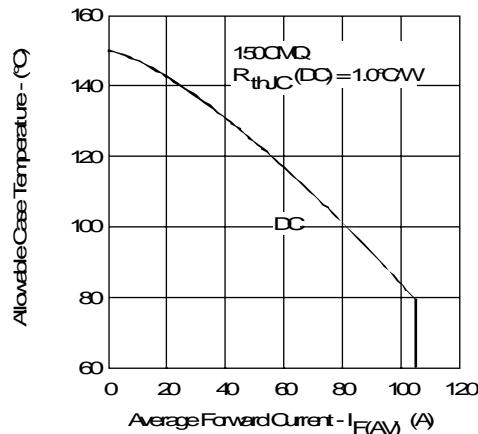


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

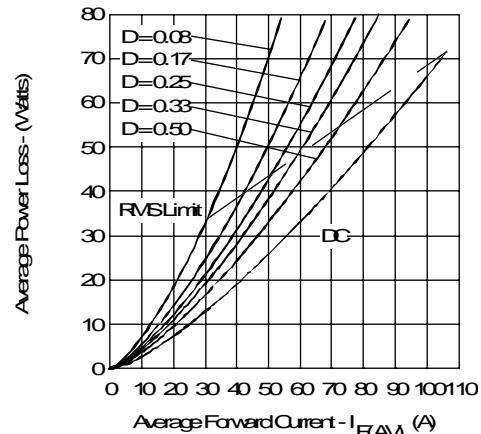


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

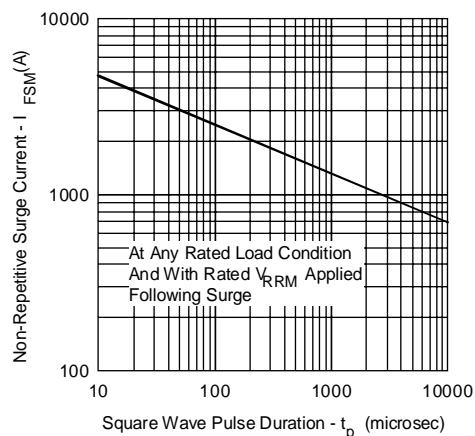


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

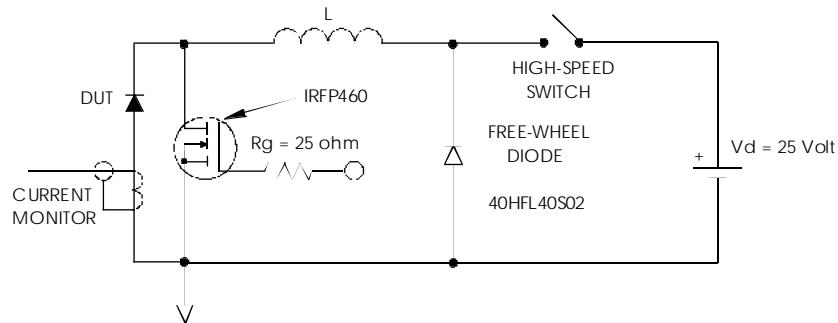


Fig. 8 - Unclamped Inductive Test Circuit