

Voltage Ratings

Part number	152CMQ030
V_R Max. DC Reverse Voltage (V)	30
V_{RWM} Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

Parameters	152CMQ	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current * See Fig. 5	150	A	50% duty cycle @ $T_C = 85^\circ\text{C}$, rectangular wave form
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) * See Fig. 7	7800	A	5 μs Sine or 3 μs Rect. pulse
	1000		10ms Sine or 6ms Rect. pulse
E_{AS} Non-Repetitive Avalanche Energy (Per Leg)	68	mJ	$T_J = 25^\circ\text{C}$, $I_{AS} = 15$ Amps, $L = 0.6$ 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	152CMQ	Units	Conditions
V_{FM} Max. Forward Voltage Drop (Per Leg) * See Fig. 1 (1)	0.55	V	@ 75A
	0.69	V	@ 150A
	0.47	V	@ 75A
	0.66	V	@ 150A
I_{RM} Max. Reverse Leakage Current (Per Leg) * See Fig. 2 (1)	5	mA	$T_J = 25^\circ\text{C}$
	280	mA	$T_J = 125^\circ\text{C}$
C_T Max. Junction Capacitance (Per Leg)	3700	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 < 300 μs , Duty Cycle <2%

Thermal-Mechanical Specifications

Parameters	152CMQ	Units	Conditions
T_J Max. Junction Temperature Range	-55 to 150	$^\circ\text{C}$	
T_{stg} Max. Storage Temperature Range	-55 to 150	$^\circ\text{C}$	
R_{thJC} Max. Thermal Resistance Junction to Case (Per Leg)	1.0	$^\circ\text{C}/\text{W}$	DC operation * See Fig. 4
R_{thJC} Max. Thermal Resistance Junction to Case (Per Package)	0.50	$^\circ\text{C}/\text{W}$	DC operation
R_{thCS} Typical Thermal Resistance, Case to Heatsink	0.10	$^\circ\text{C}/\text{W}$	Mounting surface, smooth and greased
wt Approximate Weight	56 (2.0)	g (oz.)	
T Mounting Torque	Min. 40 (35)	Kg-cm (lbf-in)	
	Max. 58 (50)		
Case Style	D-60(TO-249AA)		Modified JEDEC

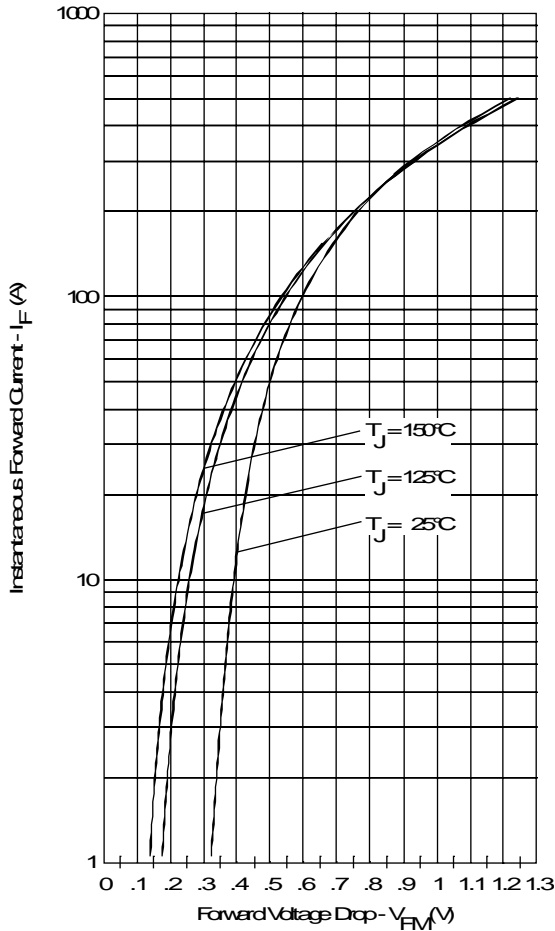


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

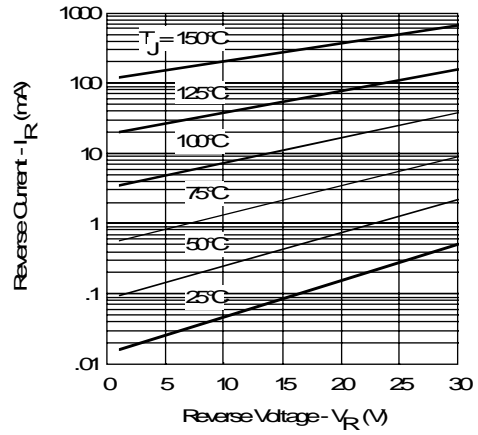


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

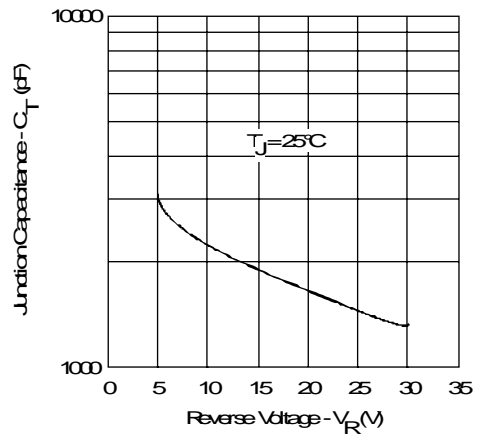


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

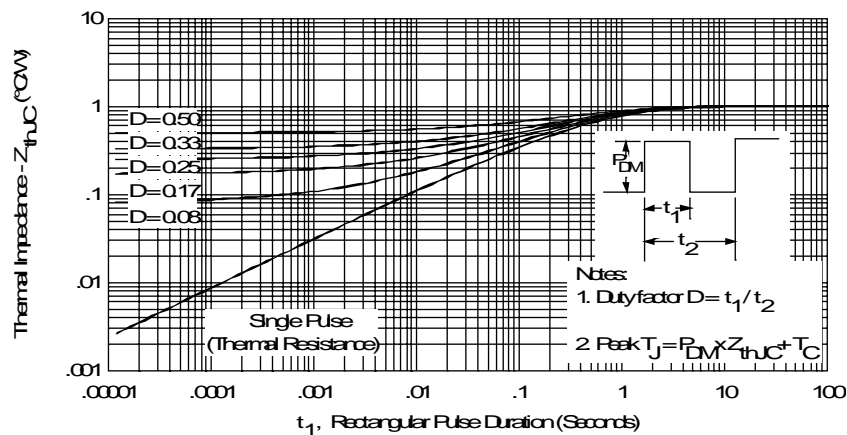


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

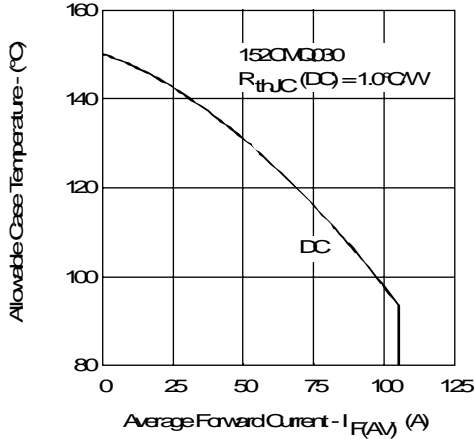


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

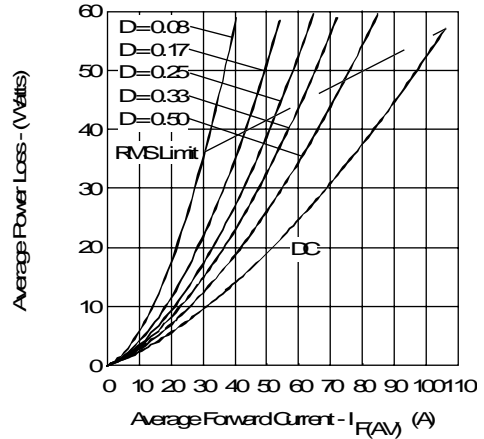


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

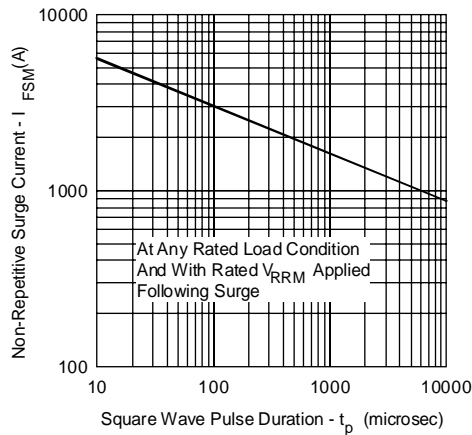


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

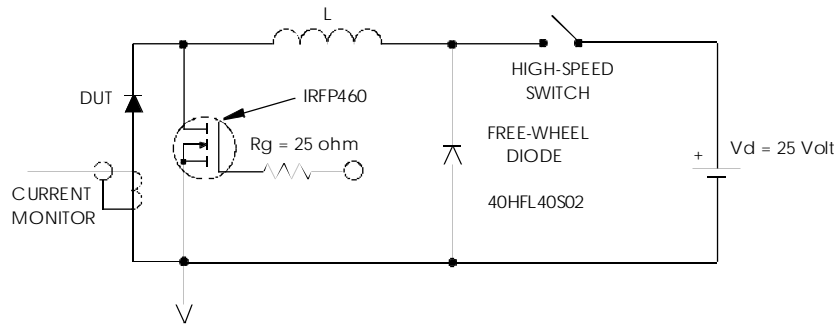


Fig. 8 - Unclamped Inductive Test Circuit