

International
IR Rectifier

155CMQ015

SCHOTTKY RECTIFIER

150 Amp

Major Ratings and Characteristics

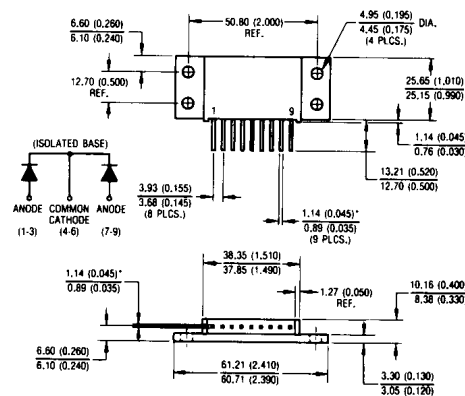
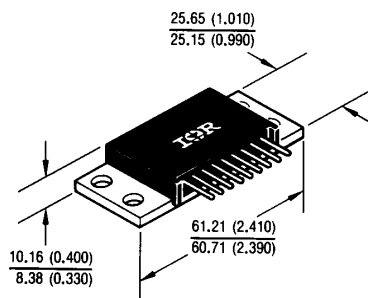
Characteristics	Values	Units
$I_{F(AV)}$ Rectangular waveform (Per Device)	150	A
V_{RRM}	15	V
I_{FSM} @ $t_p = 5 \mu s$ sine	8000	A
V_F @ 75 Apk, $T_J = 125^\circ C$	0.37	V
T_J range	-55 to 125	$^\circ C$

Description/ Features

This center tap Schottky rectifier has been optimized for low reverse leakage at high temperature. The proprietary barrier technology allows for reliable operation up to $125^\circ C$ junction temperature. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

- $125^\circ C$ T_J operation ($V_R < 5V$)
- 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
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability

CASE STYLE AND DIMENSIONS



Outline D-60 (Modified JEDEC TO-249AA)

Dimensions in millimeters and inches

Voltage Ratings

Parameters	155CMQ015
V_R Max. DC Reverse Voltage (V) @ $T_J = 100^\circ\text{C}$	15
V_{RWM} Max. DC Reverse Voltage (V) @ $T_J = 125^\circ\text{C}$	5

Absolute Maximum Ratings

Parameters	Values	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current (Per Leg) (Per Device)	75 150	A	@ $T_C = 102^\circ\text{C}$ (Rated V_R)
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg)	8000 1000	A	5 μs Sine or 3 μs Rect. pulse 10ms Sine or 6ms Rect. pulse Following any rated load condition and with rated V_{RWM} applied
E_{AS} Non-Repetitive Avalanche Energy (Per Leg)	9	mJ	$T_J = 25^\circ\text{C}$, $I_{AS} = 2\text{Amps}$, $L = 4.5\text{mH}$
I_{AR} Repetitive Avalanche Current (Per Leg)	2	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	Values	Units	Conditions
V_{FM} Max. Forward Voltage Drop (1)	0.44 0.59 0.37 0.57	V	@ 75A @ 150A @ 75A @ 150A $T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$
I_{RM} Max. Instantaneous Reverse Current (1)	20 1000 1.2	mA mA A	$T_J = 25^\circ\text{C}$ $T_J = 100^\circ\text{C}$ $T_J = 125^\circ\text{C}$ Rated DC voltage $V_R = 5\text{V}$
C_T Max. Junction Capacitance	3950	pF	$V_R = 5V_{DC}$ (test signal range 100Khz to 1Mhz) 25°C
L_S Typical Series Inductance	9.2	nH	Measured from top of terminal to mounting plane
dv/dt Max. Voltage Rate of Change (Rated V_R)	10000	V/ μs	

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

Thermal-Mechanical Specifications

Parameters	Values	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 (Per Leg)	1.0	$^\circ\text{C/W}$	DC operation
R_{thCS} Typical Thermal Resistance Case to Heatsink	0.1	$^\circ\text{C/W}$	Mounting surface, smooth and greased
wt Approximate Weight	56 (2.0)	g (oz.)	
T Mounting Torque	Min. 40 (35) Max. 58 (50)	Kg-cm (lbf-in)	Non-lubricated threads
Case Style	D-60 (TO-249AA)		Modified JEDEC

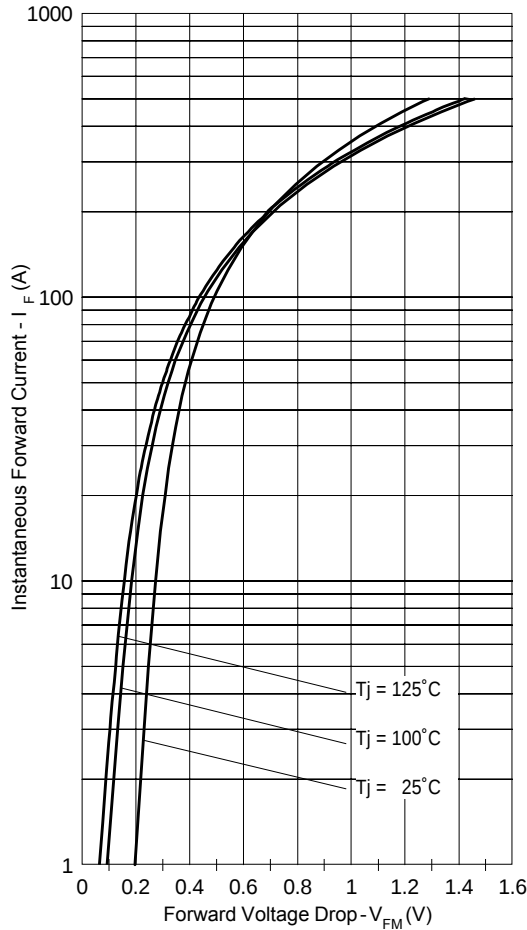


Fig. 1 - Maximum Forward Voltage Drop Characteristics

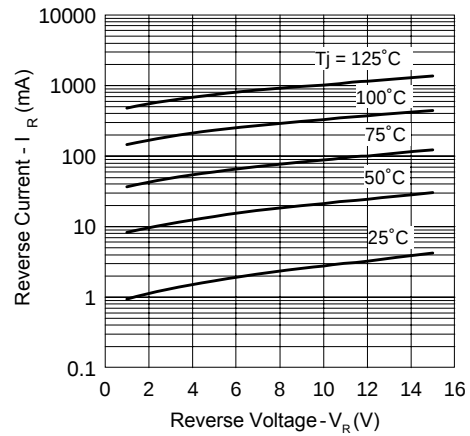


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

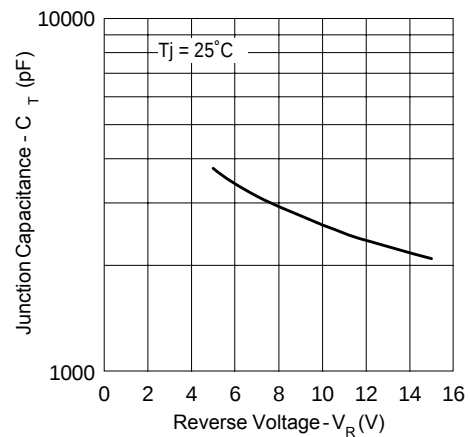


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

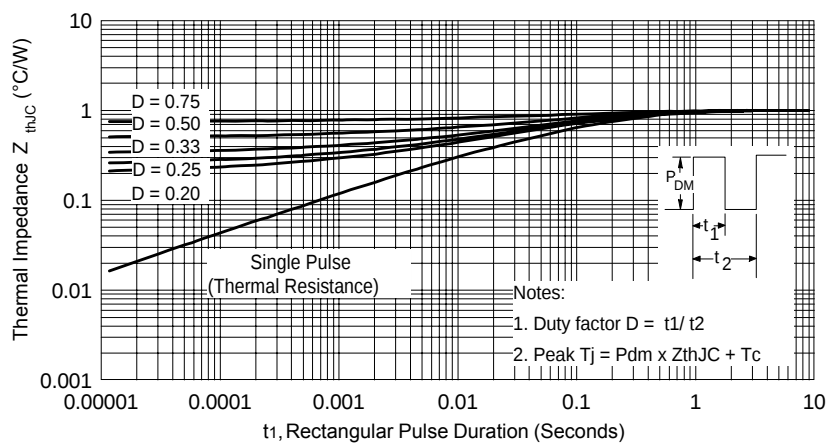


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics

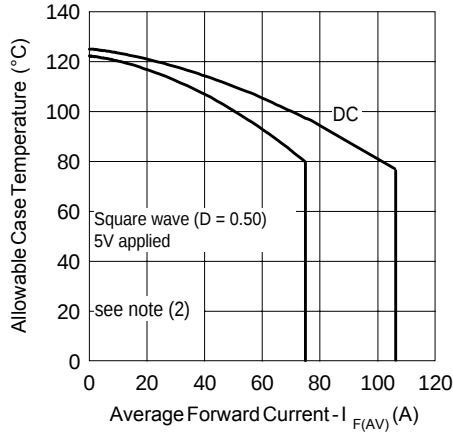


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current

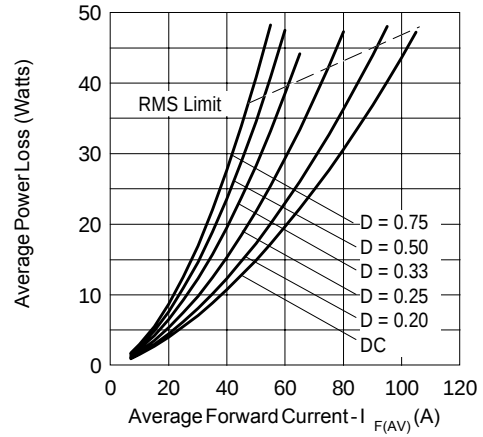


Fig. 6 - Forward Power Loss Characteristics

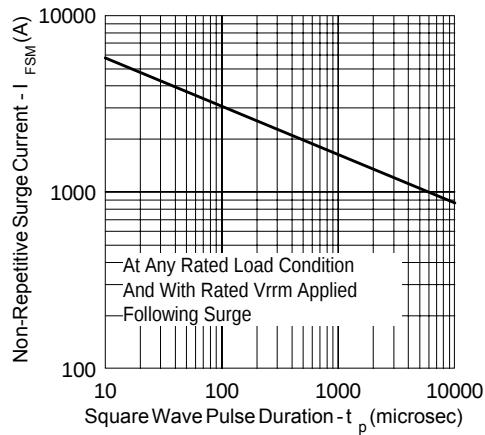


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

(2) Formula used: $T_C = T_J - (P_d + P_{d_{REV}}) \times R_{thJC}$

P_d = Forward Power Loss = $I_{F(AV)} \times V_{FM} @ (I_{F(AV)} / D)$ (see Fig. 6);

$P_{d_{REV}}$ = Inverse Power Loss = $V_{R1} \times I_{R1} (1 - D)$; $I_{R1} @ V_{R1} = 5V$

Ordering Information Table

Device Code				
155	C	M	Q	015
①	②	③	④	⑤
1	-	Essential Part Number		
2	-	Common Cathode		
3	-	M = Module		
4	-	Q = Schottky Q Series		
5	-	Voltage Rating		
				015 = 15V

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.

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155CMQ015

Bulletin PD-20.595 11/01

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