

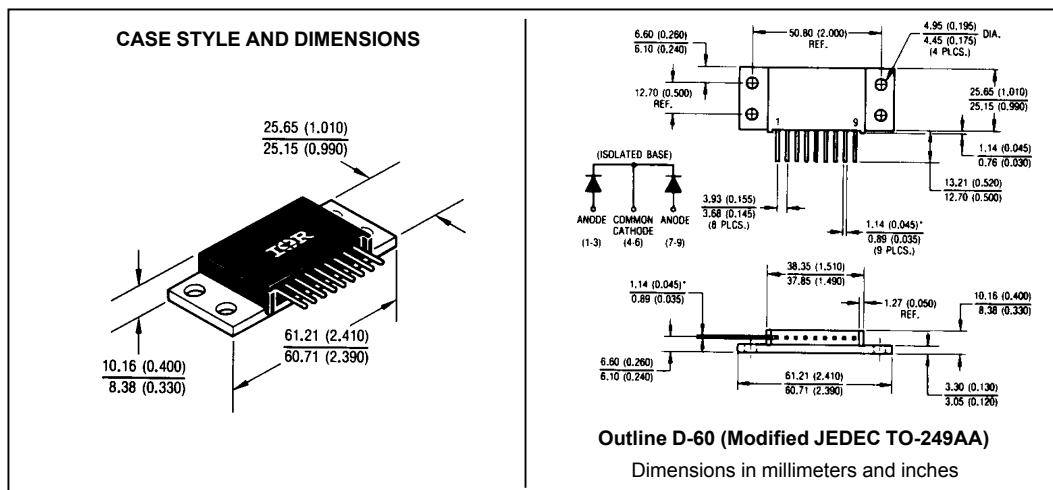
#### Major Ratings and Characteristics

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

#### 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 $^\circ\text{C}$  junction temperature. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

- 125 $^\circ\text{C}$   $T_J$  operation ( $V_R < 5\text{V}$ )
- 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



## 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	A	@ $T_C = 102^\circ\text{C}$ (Rated $V_R$ )
	150		
$I_{FSM}$ Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg)	8000	A	5 $\mu\text{s}$ Sine or 3 $\mu\text{s}$ Rect. pulse 10ms Sine or 6ms Rect. pulse Following any rated load condition and with rated $V_{RWM}$ applied
	1000		
$E_{AS}$ 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 $\mu\text{sec}$ 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	V	@ 75A
	0.59	V	@ 150A
	0.37	V	@ 75A
	0.57	V	@ 150A
$I_{RM}$ Max. Instantaneous Reverse Current (1)	20	mA	$T_J = 25^\circ\text{C}$
	1000	mA	$T_J = 100^\circ\text{C}$
	1.2	A	$T_J = 125^\circ\text{C}$
$C_T$ Max. Junction Capacitance	3950	pF	$V_R = 5V_{DC}$ (test signal range 100Khz to 1Mhz) $25^\circ\text{C}$
$L_S$ 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/ $\mu\text{s}$	

(1) Pulse Width < 300 $\mu\text{s}$ , 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	$^\circ\text{C}/\text{W}$	DC operation
$R_{thCS}$ Typical Thermal Resistance Case to Heatsink	0.1	$^\circ\text{C}/\text{W}$	Mounting surface, smooth and greased
wt Approximate Weight	56(2.0)	g(oz.)	
T Mounting Torque	Min. 40(35)	Kg-cm (lbf-in)	Non-lubricated threads
	Max. 58(50)		
Case Style	D-60 (TO-249AA)		Modified JEDEC

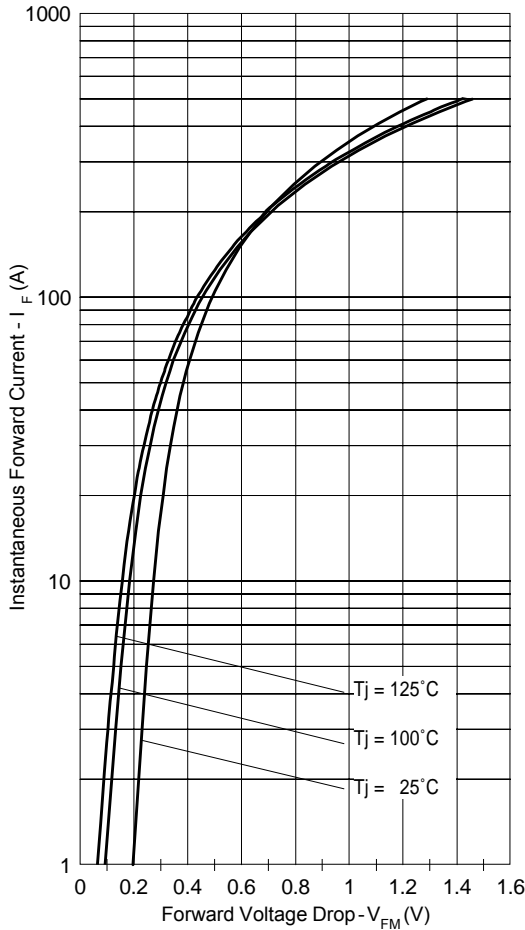


Fig. 1 - Maximum Forward Voltage Drop Characteristics

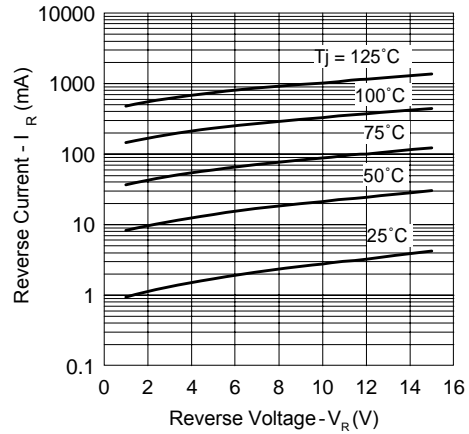


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

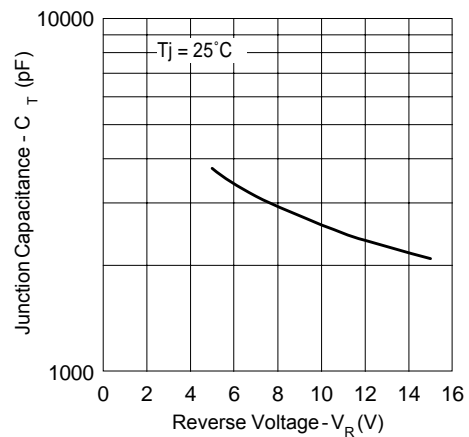


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

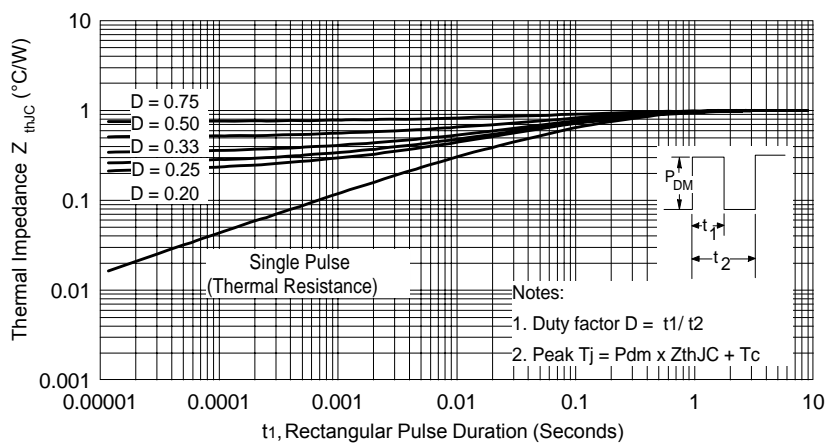
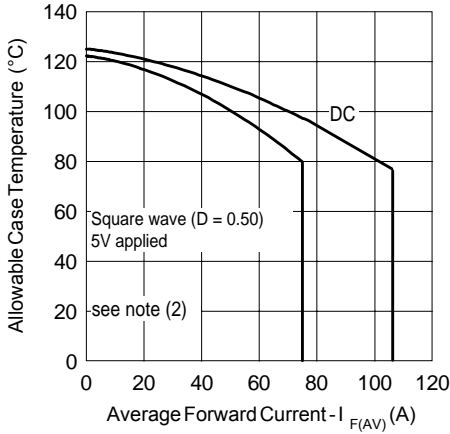
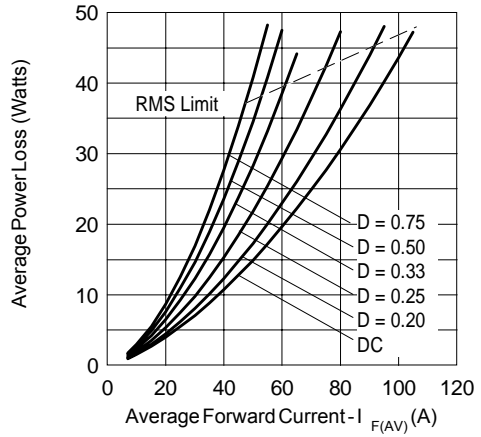


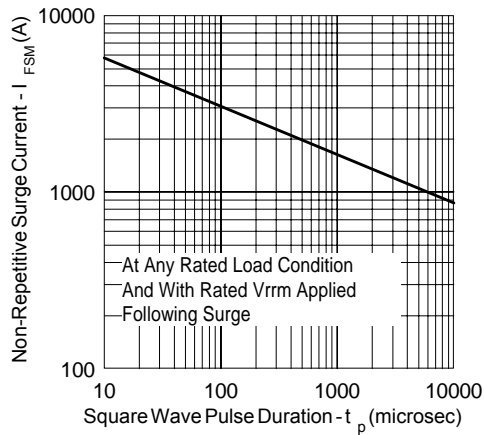
Fig. 4 - Max. Thermal Impedance  $Z_{thJC}$  Characteristics



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



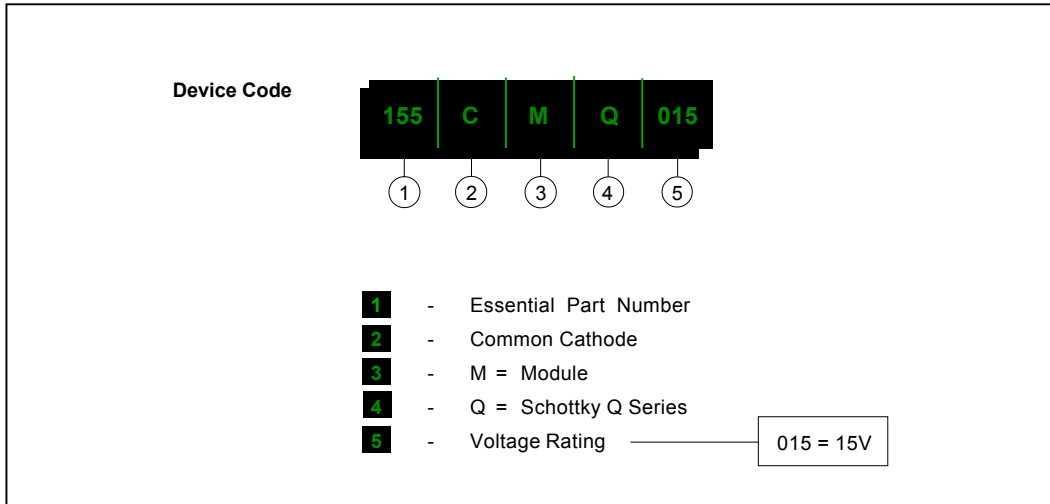
**Fig. 6 - Forward Power Loss Characteristics**



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

- (2) Formula used:  $T_c = T_j - (Pd + Pd_{REV}) \times R_{thJC}$   
 $Pd = \text{Forward Power Loss} = I_{F(AV)} \times V_{FM} @ (I_{F(AV)} / D)$  (see Fig. 6);  
 $Pd_{REV} = \text{Inverse Power Loss} = V_{R1} \times I_R (1 - D); I_R @ V_{R1} = 5V$

### Ordering Information Table



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.

155CMQ015

Bulletin PD-20.595 11/01

International  
**IOR** Rectifier

---

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

**IR WORLD HEADQUARTERS:** 233 Kansas St., El Segundo, California 90245, USA Tel: (310) 252-7105  
TAC Fax: (310) 252-7309  
Visit us at [www.irf.com](http://www.irf.com) for sales contact information. 11/01