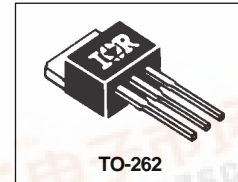


International IOR Rectifier

PD-20576 01/99
10CTQ150L

SCHOTTKY RECTIFIER

10 Amp



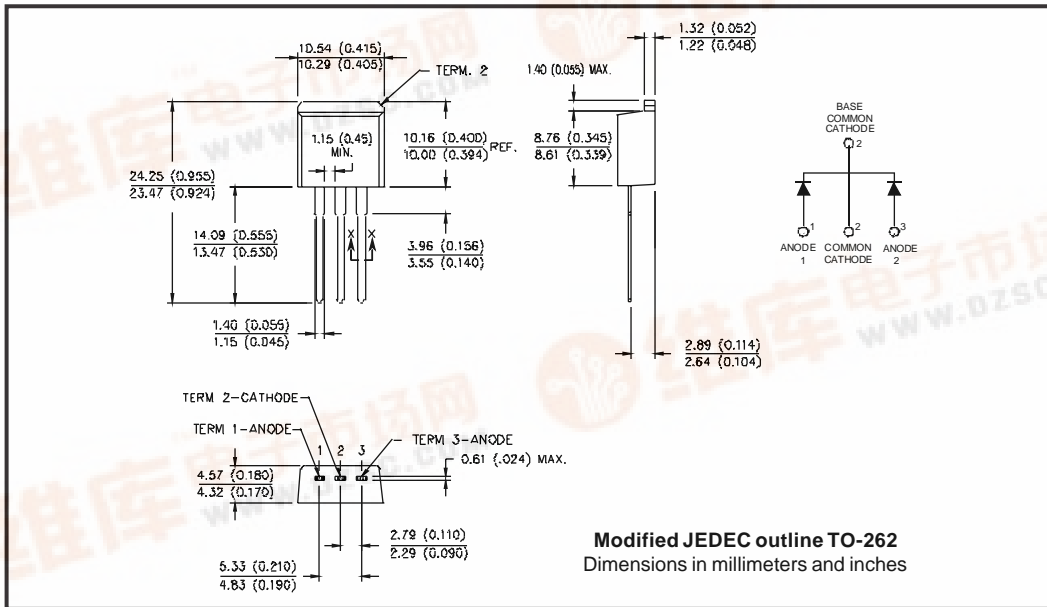
Major Ratings and Characteristics

Characteristics	10CTQ150L	Units
$I_{F(AV)}$ Rectangular waveform	10	A
V_{RRM}	150	V
I_{FSM} @ tp=5 μ s sine	620	A
V_F @ 5Apk, $T_J=125^\circ\text{C}$ (per leg)	0.73	V
T_J range	-55 to 175	$^\circ\text{C}$

Description/Features

The 10CTQ150L center tap Schottky rectifier has been optimized for low reverse leakage at high temperature. The proprietary barrier technology allows for reliable operation up to 175 $^\circ\text{C}$ junction temperature. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

- 175 $^\circ\text{C}$ T_J operation
- Center tap TO-262 package
- Low forward voltage drop
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability



Voltage Ratings

Part number	10CTQ150L
V_R Max. DC Reverse Voltage (V)	150
V_{RWM} Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

Parameters	10CTQ150L	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current * See Fig. 5	10	A	50% duty cycle @ $T_C = 145^\circ\text{C}$, rectangular waveform
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) * See Fig. 7	620	A	5 μs Sine or 3 μs Rect. pulse
	115		10ms Sine or 6ms Rect. pulse
E_{AS} Non-Repetitive Avalanche Energy (Per Leg)	6.75	mJ	$T_J = 25^\circ\text{C}$, $I_{AS} = 0.30$ Amps, $L = 150$ mH
I_{AR} Repetitive Avalanche Current (Per Leg)	0.30	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	10CTQ150L	Units	Conditions
V_{FM} Max. Forward Voltage Drop (Per Leg) * See Fig. 1 (1)	0.93	V	@ 5A
	1.10	V	@ 10A
	0.73	V	@ 5A
	0.86	V	@ 10A
I_{RM} Max. Reverse Leakage Current (Per Leg) * See Fig. 2 (1)	0.05	mA	$T_J = 25^\circ\text{C}$
	7	mA	$T_J = 125^\circ\text{C}$
C_T Max. Junction Capacitance (Per Leg)	200	pF	$V_R = 5V_{DC}$, (test signal range 100Khz to 1Mhz) 25°C
L_S Typ. Series Inductance (Per Leg)	8.0	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	10CTQ150L	Units	Conditions
T_J Max. Junction Temperature Range	-55 to 175	$^\circ\text{C}$	
T_{stg} Max. Storage Temperature Range	-55 to 175	$^\circ\text{C}$	
R_{thJC} Max. Thermal Resistance Junction to Case (Per Leg)	3.50	$^\circ\text{C}/\text{W}$	DC operation * See Fig. 4
R_{thJC} Max. Thermal Resistance Junction to Case (Per Package)	1.75	$^\circ\text{C}/\text{W}$	DC operation
R_{thCS} Typical Thermal Resistance, Case to Heatsink	0.50	$^\circ\text{C}/\text{W}$	Mounting surface, smooth and greased
wt Approximate Weight	2(0.07)	g(oz.)	
T Mounting Torque	Min.	6(5)	Kg-cm (lbf-in)
	Max.	12(10)	
Case Style	TO-262		JEDEC

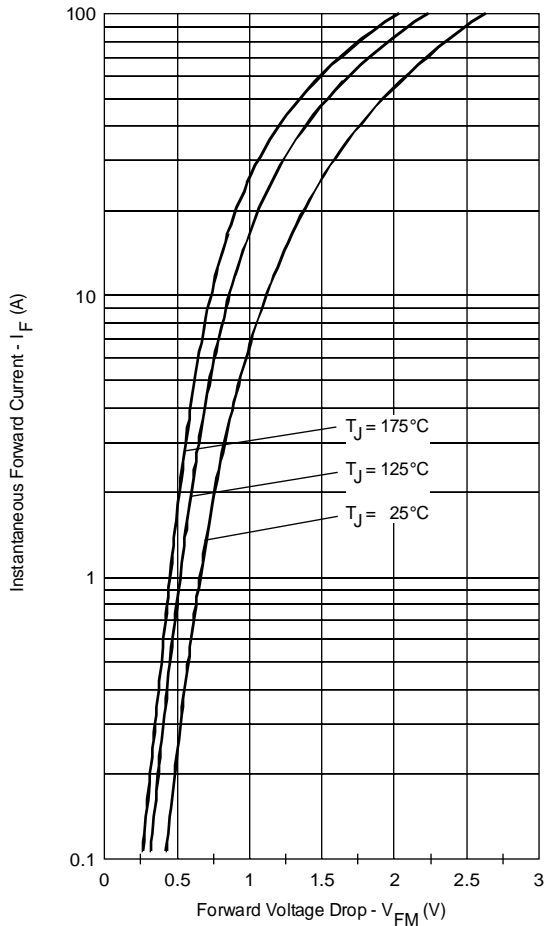


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

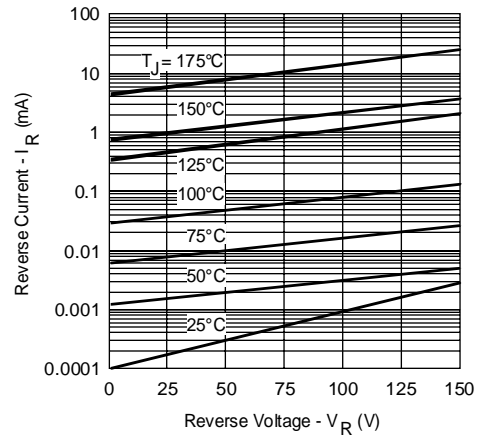


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

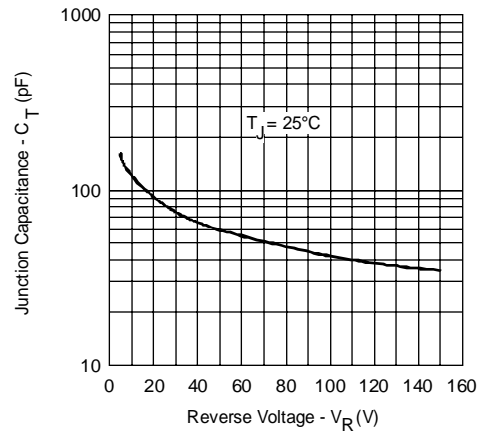


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

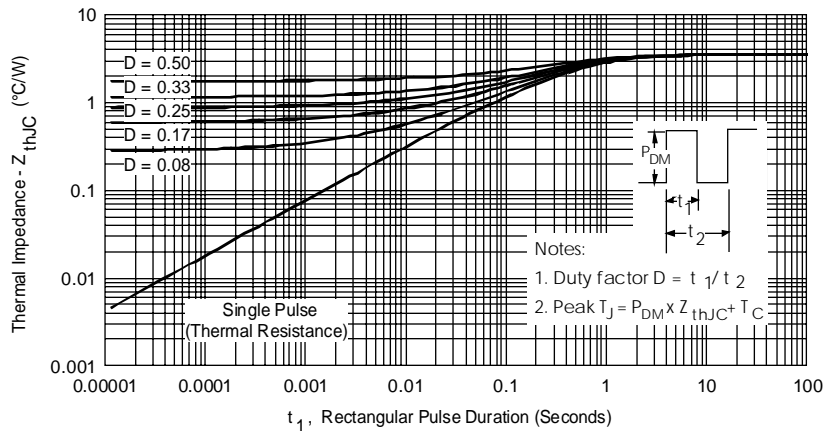


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

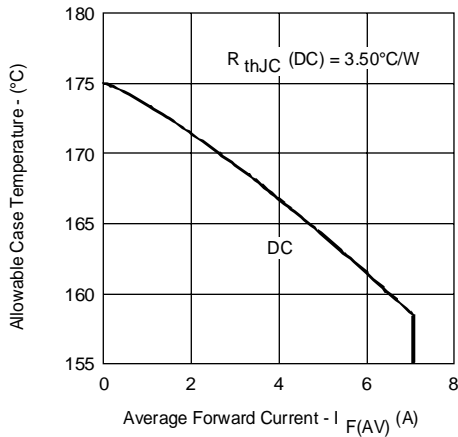


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

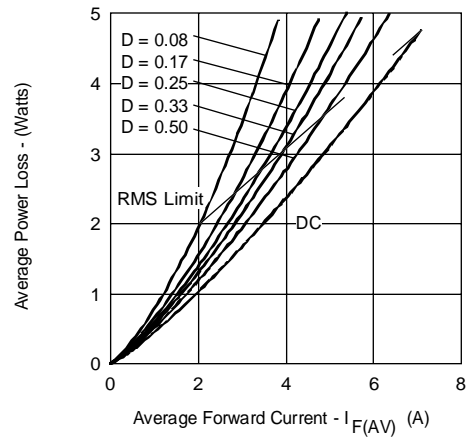


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

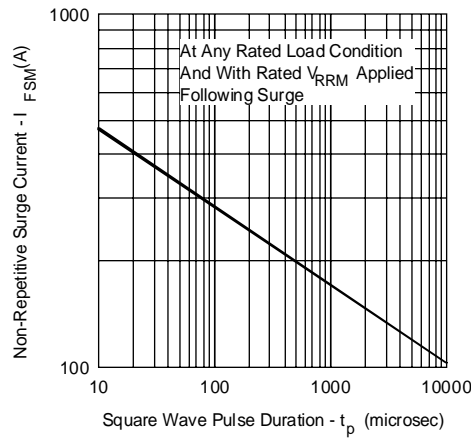


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

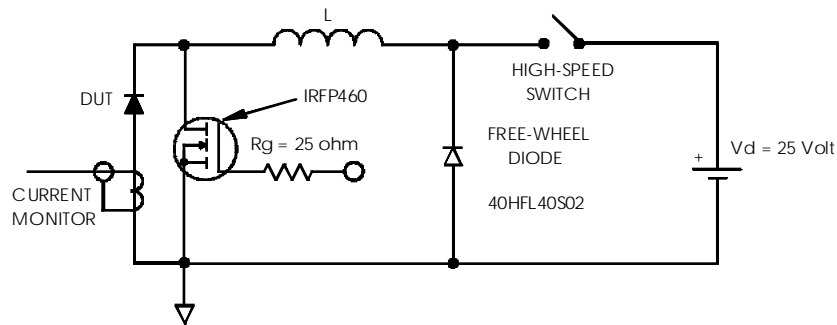


Fig. 8 - Unclamped Inductive Test Circuit

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