

Bulletin PD-20489 rev. A 02/03

International IOR Rectifier

60CTTN015

TRENCH SCHOTTKY RECTIFIER

60 Amp

Major Ratings and Characteristics

Characteristics	Values	Units
$I_{F(AV)}$ Rectangular waveform Per Device	60	A
V_{RRM}	15	V
I_{FSM} @ tp = 5 μ s sine	1800	A
V_F @ 30 Apk, $T_J = 125^\circ\text{C}$ (typical) per leg	0.3	V
T_J range	-55 to 150	$^\circ\text{C}$

Description/ Features

This center tap Schottky rectifier has been optimized for low forward voltage drop. The proprietary sub-micron technology allows for low power loss both in forward and reverse conduction.

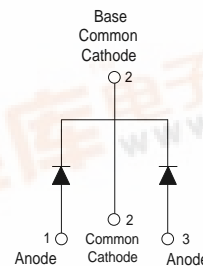
- 150 $^\circ\text{C}$ T_J operation
- Center tap configuration
- Low forward voltage drop
- High frequency operation
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance

Case Styles

60CTTN015



TO-220



60CTTN015

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Voltage Ratings

Part number	60CTTN015
V_R Max. DC Reverse Voltage (V) @ $T_J = 150^\circ\text{C}$	15

Absolute Maximum Ratings

Parameters	Values	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current (Per Leg) (Per Device)	30 60	A	50% duty cycle @ $T_C = 130^\circ\text{C}$, rectangular wave form
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg)	1800 340	A	5 μs Sine or 3 μs Rect. pulse 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)	9.0	mJ	$T_J = 25^\circ\text{C}$, $I_{AS} = 2$ Amps, $L = 4.5$ 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	Typ	Max	Units	Conditions
V_{FM} Max. Forward Voltage Drop (Per Leg) (1)	0.41	0.44	V	@ 30A $T_J = 25^\circ\text{C}$
	0.48	0.53	V	@ 60A $T_J = 25^\circ\text{C}$
	0.33	0.36	V	@ 30A $T_J = 125^\circ\text{C}$
	0.44	0.47	V	@ 60A $T_J = 125^\circ\text{C}$
	0.30	0.32	V	@ 30A $T_J = 150^\circ\text{C}$
	0.42	0.45	V	@ 60A $T_J = 150^\circ\text{C}$
I_{RM} Max. Reverse Leakage Current (Per Leg) (1)	0.4	2	mA	$T_J = 25^\circ\text{C}$ $V_R = \text{rated } V_R$
	31	50	mA	$T_J = 100^\circ\text{C}$ $V_R = 5V$
	120	250	mA	$T_J = 125^\circ\text{C}$ $V_R = \text{rated } V_R$
C_T Junction Capacitance (Per Leg)	3000	-	pF	$V_R = 10V_{DC}$ (test signal range 100KHz to 1MHz) 25°C
L_S Series Inductance (Per Leg)	8.0	-	nH	Measured lead to lead 5mm from package body
dv/dt Max. Voltage Rate of Change	-	10000	V/ μs	(Rated V_R)

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

Thermal-Mechanical Specifications

Parameters	Values	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)	1.2	$^\circ\text{C}/\text{W}$	DC operation
R_{thCS} Typical Thermal Resistance, Case to Heatsink	0.5	$^\circ\text{C}/\text{W}$	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-220AB		

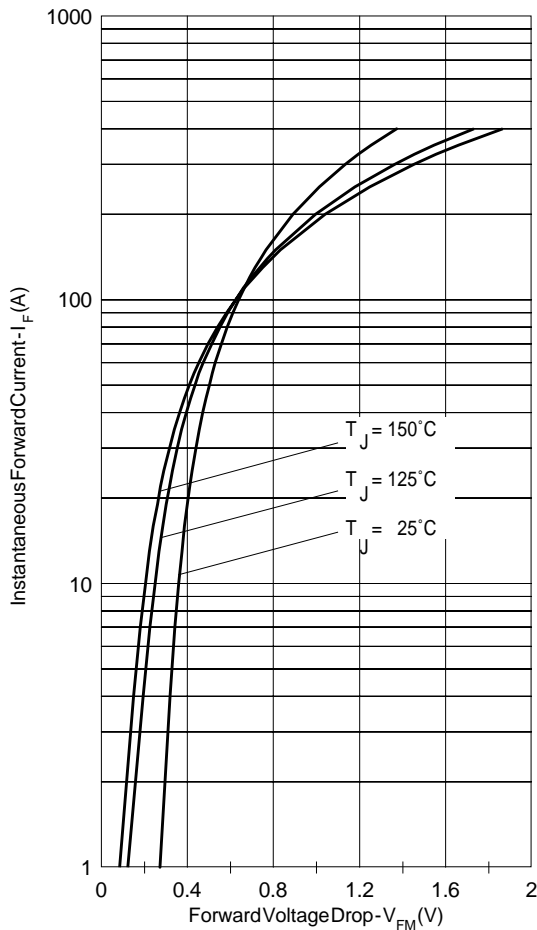


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

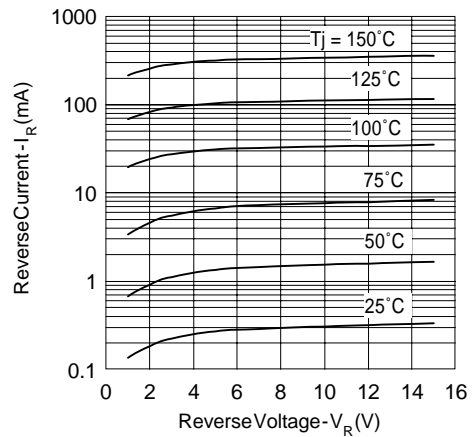


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

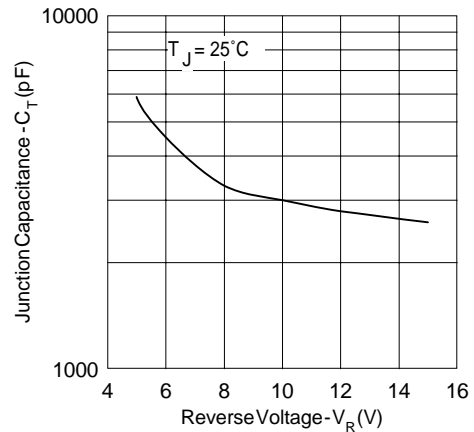


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

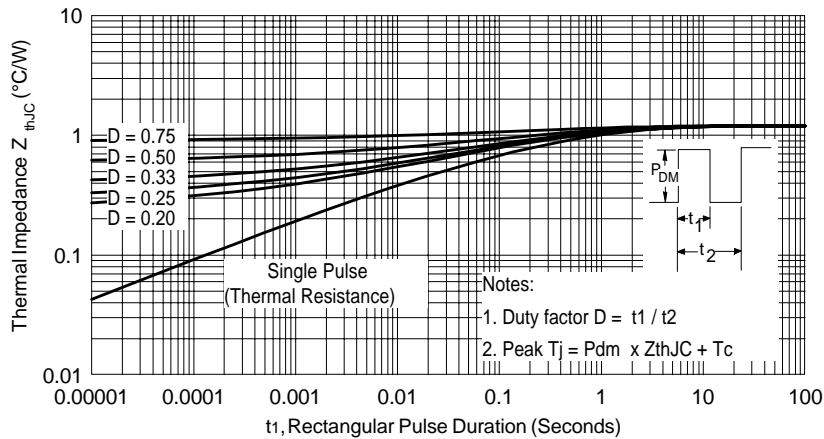


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

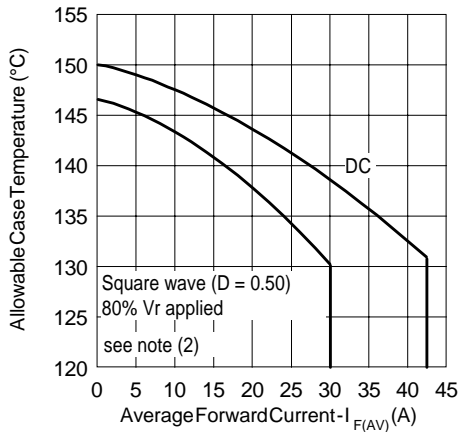


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

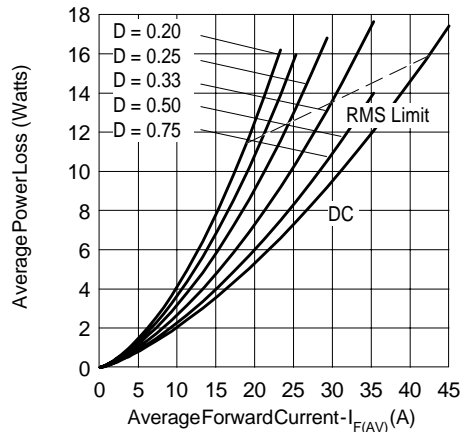


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

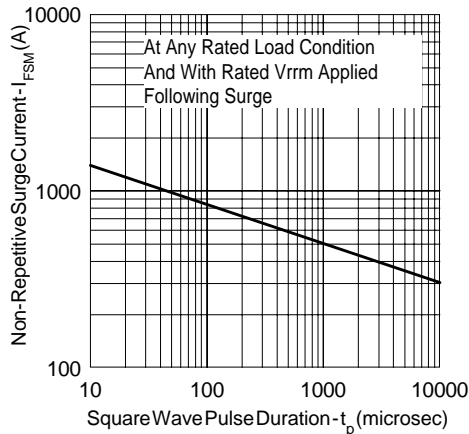


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

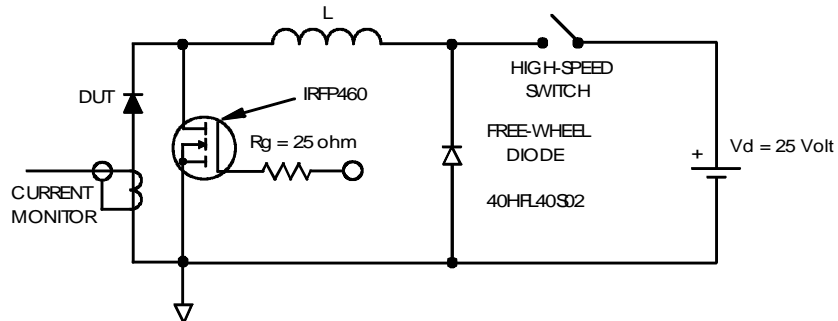
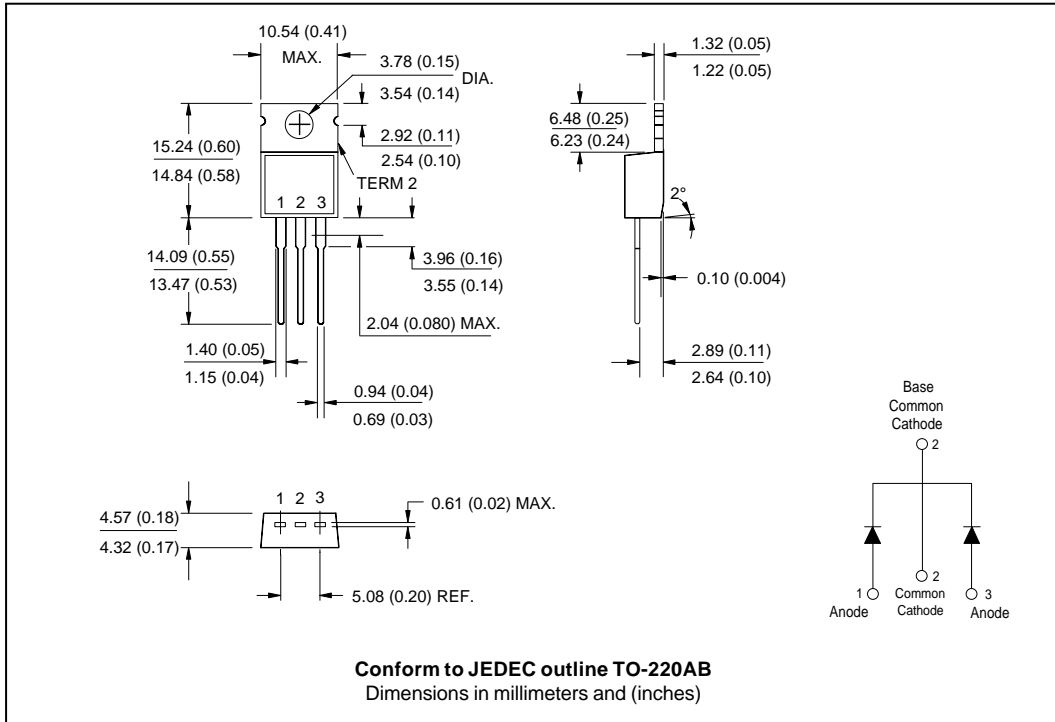


Fig. 8 - Unclamped Inductive Test Circuit

- (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);
 $Pd_{REV} = \text{Inverse Power Loss} = V_{R1} \times I_R (1 - D)$; $I_R @ 80\% V_R$ applied

Outline Table



Data and specifications subject to change without notice.
 This product has been designed for Industrial Level.
 Qualification Standards can be found on IR's Web site.