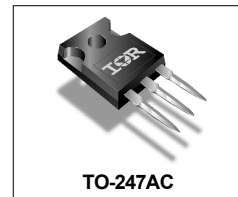


International IR Rectifier

80CPT015

SCHOTTKY RECTIFIER

80 Amp



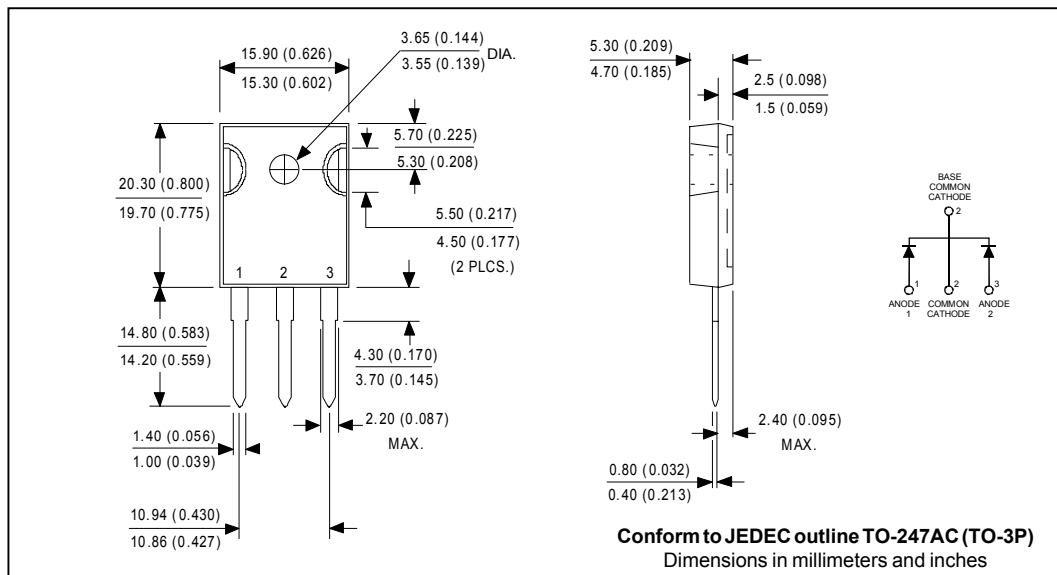
Major Ratings and Characteristics

Characteristics	Values	Units
$I_{F(AV)}$ Rectangular waveform	80	A
V_{RRM}	15	V
I_{FSM} @tp = 5 μ s sine	1600	A
V_F @40Apk, $T_J=125^\circ\text{C}$ (typical) per leg	0.27	V
T_J range	-55 to 125	$^\circ\text{C}$

Description/Features

This center tap Schottky rectifier has been optimized for ultra low forward voltage drop specifically for 1.5V output power supplies. The proprietary sub-micron technology allows for low power loss both in forward and reverse conduction.

- 125 $^\circ\text{C}$ T_J operation
- Center tap configuration
- Ultra low forward voltage drop
- High frequency operation
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance



Voltage Ratings

Part number	80CPT015
V _R Max. DC Reverse Voltage (V)	15

Absolute Maximum Ratings

Parameters	Values	Units	Conditions
I _{F(AV)} Max. Average Forward Current (Per Leg) (Per Device)	40 80	A	50% duty cycle @ T _C = 111°C, rectangular wave form
I _{FSM} Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg)	1600 500	A	5µs Sine or 3µs 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)	50	mJ	T _J = 25°C, I _{AS} = 8 Amps, L = 1.5 mH
I _{AR} Repetitive Avalanche Current (Per Leg)	8	A	Current decaying linearly to zero in 1 µsec Frequency limited by T _J max. V _A = 1.5 x V _R typical

Electrical Specifications

Parameters	Typ	Max	Units	Conditions
V _{FM} Max. Forward Voltage Drop (Per Leg) (1)	0.36	0.39	V	@ 40A T _J = 25°C
	0.44	0.48	V	@ 80A
	0.29	0.33	V	@ 40A T _J = 100°C
	0.39	0.45	V	@ 80A
	0.27	0.31	V	@ 40A T _J = 125°C
	0.38	0.44	V	@ 80A
I _{RM} Max. Reverse Leakage Current (Per Leg) (1)	2.0	5.0	mA	T _J = 25°C V _R = rated V _R
	135	180	mA	T _J = 100°C V _R = 1.5V
	600	950	mA	T _J = 125°C V _R = rated V _R
C _T Max. Junction Capacitance (Per Leg)	-	5200	pF	V _R = 5V _{DC} (test signal range 100KHz to 1MHz) 25°C
L _S Typical Series Inductance (Per Leg)	-	7.5	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 < 300µs, Duty Cycle < 2%

Thermal-Mechanical Specifications

Parameters	Values	Units	Conditions
T _J Max. Junction Temperature Range	-55 to 125	°C	
T _{stg} Max. Storage Temperature Range	-55 to 150	°C	
R _{thJC} Max. Thermal Resistance Junction to Case (Per Leg)	0.6	°C/W	DC operation
R _{thJC} Max. Thermal Resistance Junction to Case (Per Package)	0.3	°C/W	DC operation
R _{thCS} Typical Thermal Resistance, Case to Heatsink	0.25	°C/W	Mounting surface, smooth and greased
wt Approximate Weight	6(0.21)	g(oz.)	
T Mounting Torque	Min.	6(5)	Kg-cm (lbf-in)
	Max.	12(10)	
Case Style	TO-247AC (TO-3P)	JEDEC	

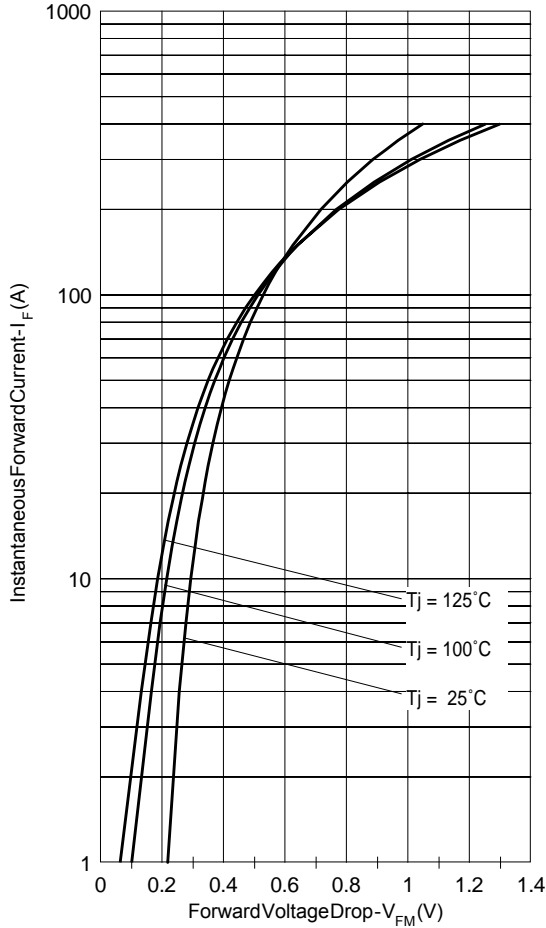


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

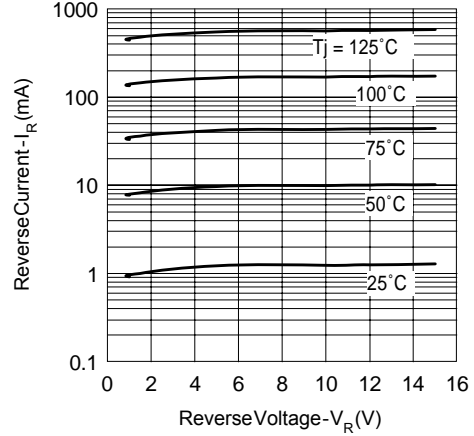


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

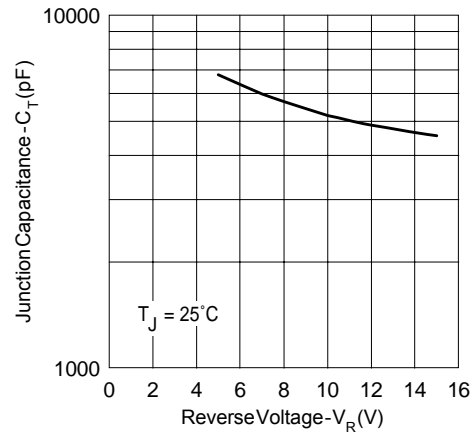


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

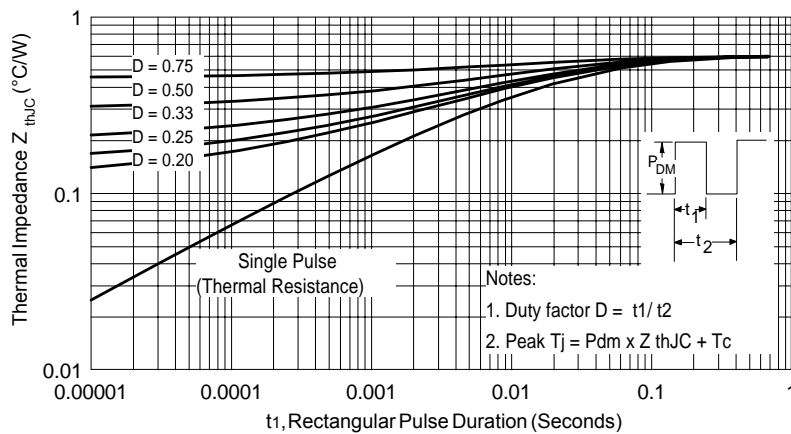


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

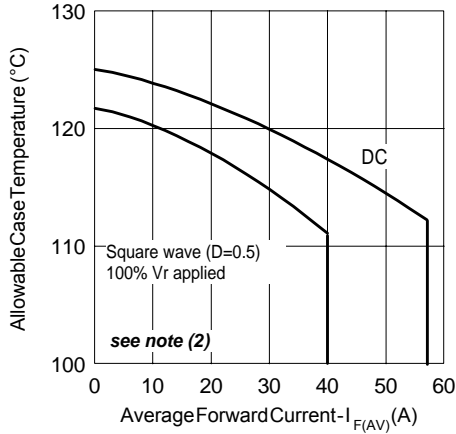


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

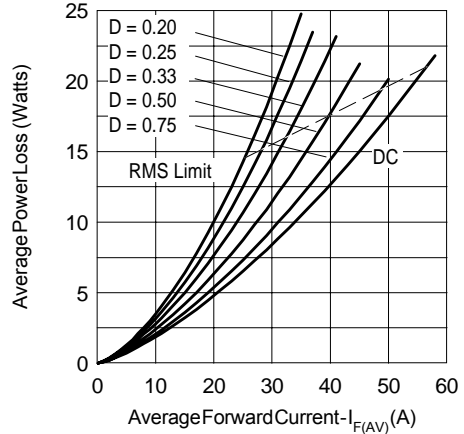


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

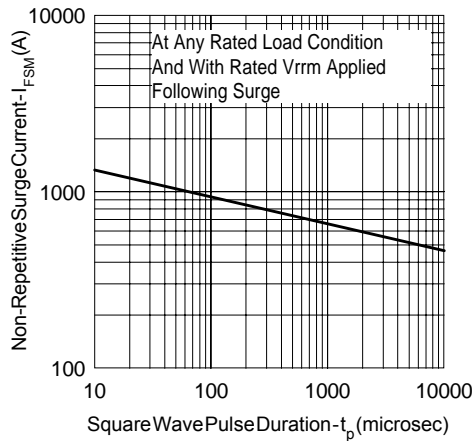


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

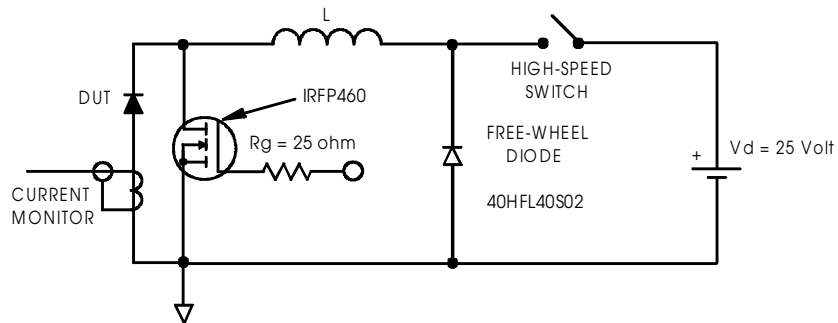


Fig. 8 - Unclamped Inductive Test Circuit

(2) Formula used: $T_c = T_j - (Pd + Pd_{REV}) \times R_{thJC}$;

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

Pd_{REV} = Inverse Power Loss = $V_{R1} \times I_R (1 - D)$; $I_R @ 100\% V_R$ applied

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
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