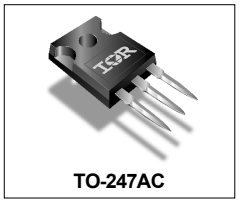
Bulletin PD-20757 rev. A 04/02

International
IOR Rectifier

80CPT015

SCHOTTKY RECTIFIER

80 Amp



TO-247AC

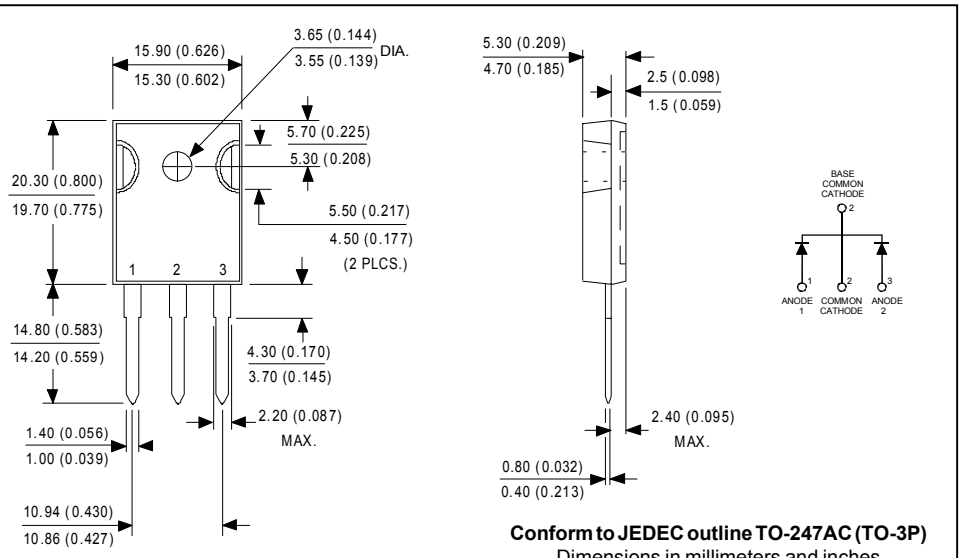
Major Ratings and Characteristics

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



Conform to JEDEC outline TO-247AC (TO-3P)
Dimensions in millimeters and inches

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)	40	A	50% duty cycle @ T_C = 111°C, rectangular wave form	
		(Per Device)	80			
I_{FSM}	Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg)		1600	A	5µs Sine or 3µs Rect. pulse	Following any rated load condition and with rated V_{RRM} applied
			500		10ms Sine or 6ms Rect. pulse	
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

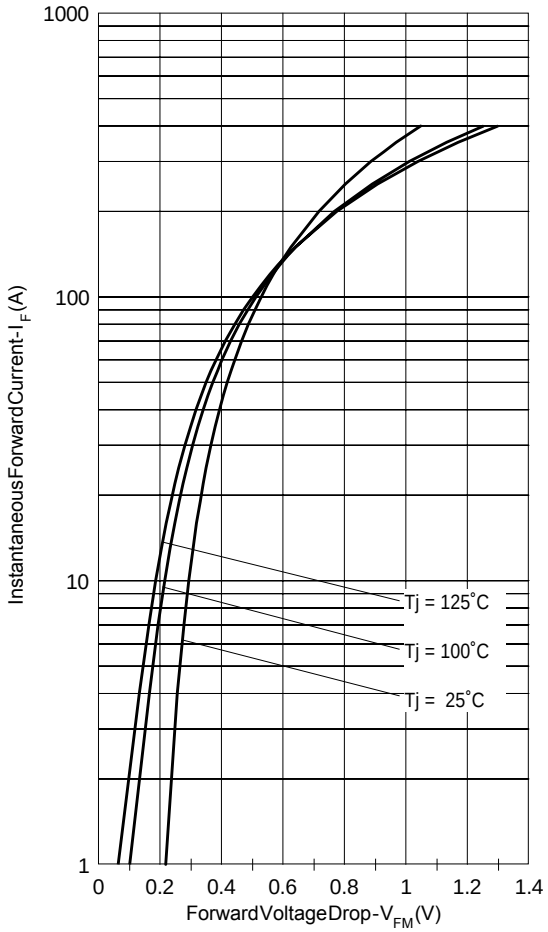


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

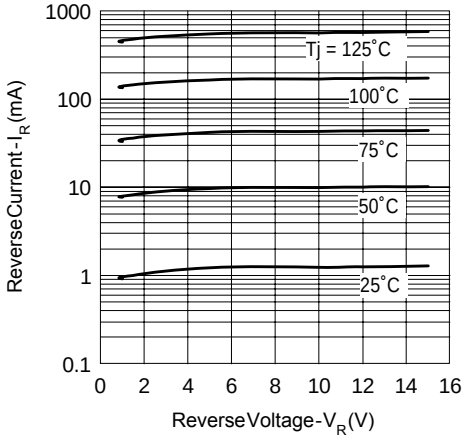


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

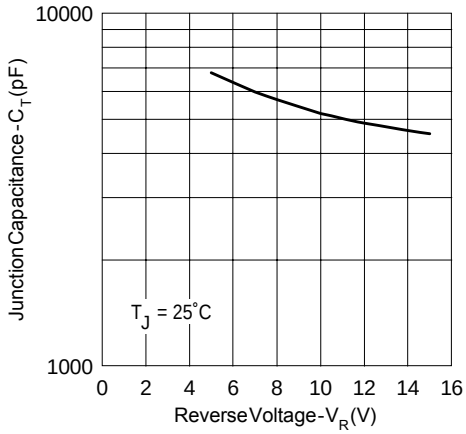


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

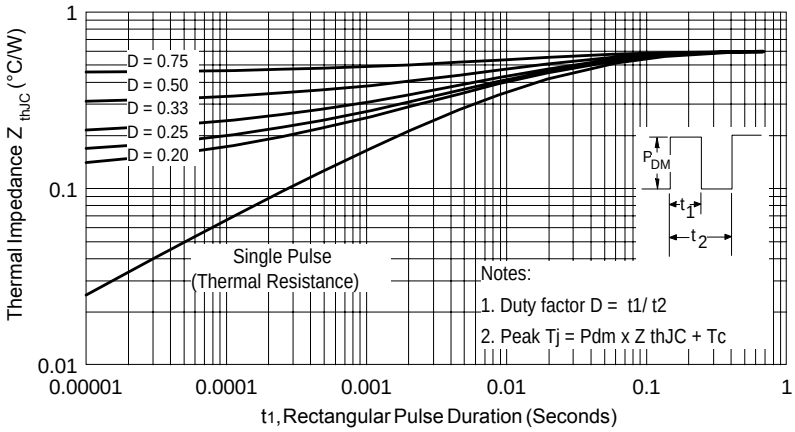


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

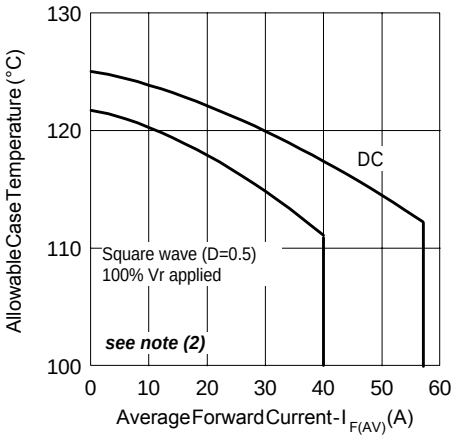


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

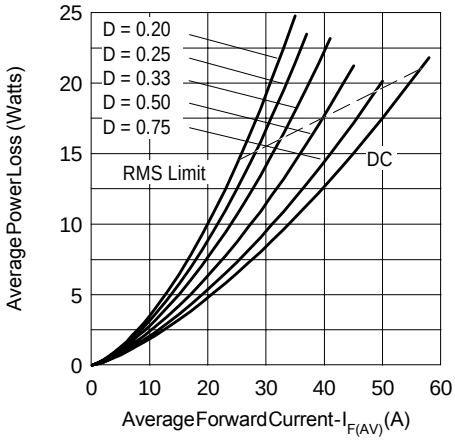


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

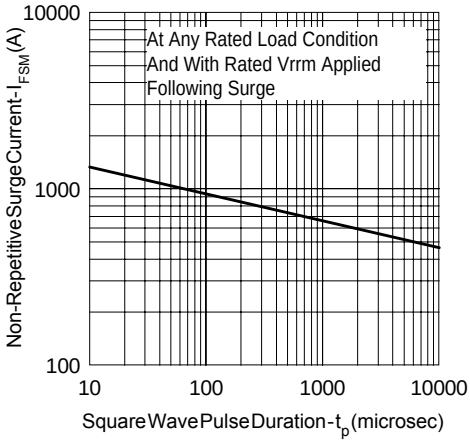


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

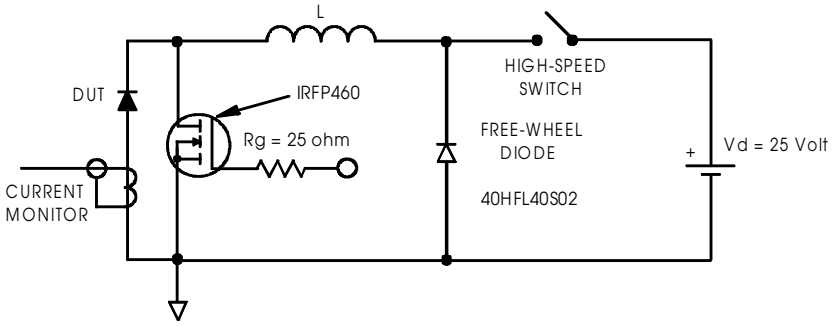


Fig. 8 - Unclamped Inductive Test Circuit

(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.

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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 for sales contact information. 04/02