

International
IOR Rectifier

30CPQ080PbF
30CPQ100PbF

SCHOTTKY RECTIFIER

30 Amp

$$I_{F(AV)} = 30\text{Amp}$$

$$V_R = 80 - 100\text{V}$$

Major Ratings and Characteristics

Characteristics	Values	Units
$I_{F(AV)}$ Rectangular waveform	30	A
V_{RRM}	80-100	V
I_{FSM} @tp=5μs sine	920	A
V_F @15 Apk, $T_J=125^\circ\text{C}$ (per leg)	0.67	V
T_J	-55 to 175	$^\circ\text{C}$

Description/ Features

The 30CPQ...PbF 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° C junction temperature. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

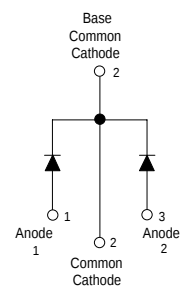
- 175° C T_J operation
- Center tap TO-247 package
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- Lead-Free ("PbF" suffix)

Case Styles

30CPQ...PbF



TO-247AC



Voltage Ratings

Part number	30CPQ080PbF	30CPQ100PbF
V_R Max. DC Reverse Voltage (V)	80	100
V_{RWM} Max. Working Peak Reverse Voltage (V)		

Absolute Maximum Ratings

Parameters	30CPQ...	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current * See Fig. 5	30	A	50% duty cycle @ $T_C = 140^\circ\text{C}$, rectangular wave form
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) * See Fig. 7	920	A	5 μs Sine or 3 μs Rect. pulse
	240		10ms Sine or 6ms Rect. pulse
E_{AS} Non-Repetitive Avalanche Energy (Per Leg)	7.50	mJ	$T_J = 25^\circ\text{C}$, $I_{AS} = 0.50$ Amps, $L = 60$ mH
I_{AR} Repetitive Avalanche Current (Per Leg)	0.50	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	30CPQ...	Units	Conditions
V_{FM} Max. Forward Voltage Drop (Per Leg) * See Fig. 1 (1)	0.86	V	@ 15A
	1.05	V	@ 30A
	0.67	V	@ 15A
	0.81	V	@ 30A
I_{RM} Max. Reverse Leakage Current (Per Leg) * See Fig. 2 (1)	0.55	mA	$T_J = 25^\circ\text{C}$
	7	mA	$T_J = 125^\circ\text{C}$
C_T Max. Junction Capacitance (Per Leg)	500	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 < 300 μs , Duty Cycle <2%

Thermal-Mechanical Specifications

Parameters		30CPQ...	Units	Conditions
T _J	Max. Junction Temperature Range	-55 to 175	°C	
T _{stg}	Max. Storage Temperature Range	-55 to 175	°C	
R _{thJC}	Max. Thermal Resistance Junction to Case (Per Leg)	2.20	°C/W	DC operation * See Fig. 4
R _{thJC}	Max. Thermal Resistance Junction to Case (Per Package)	1.10	°C/W	DC operation
R _{thCS}	Typical Thermal Resistance, Case to Heatsink	0.24	°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)	Non-lubricated threads
		Max. 12 (10)		
Case Style		TO-247AC(TO-3P)	JEDEC	
Device Marking		30CPQ080		
		30CPQ100		

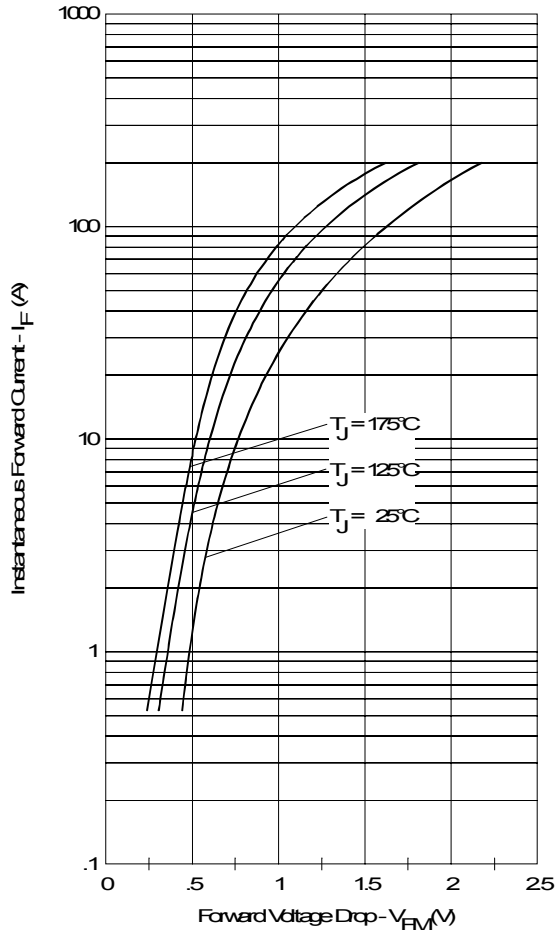


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

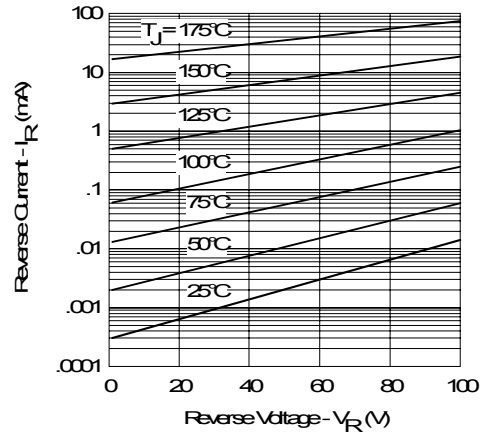


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

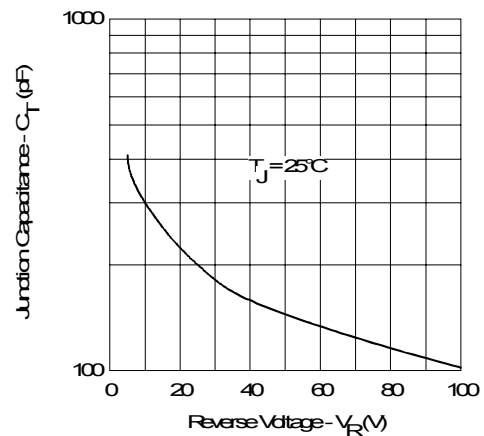


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

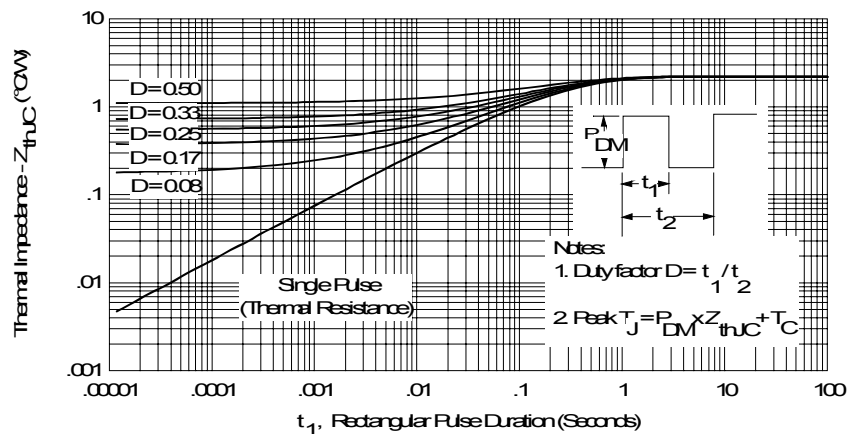


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

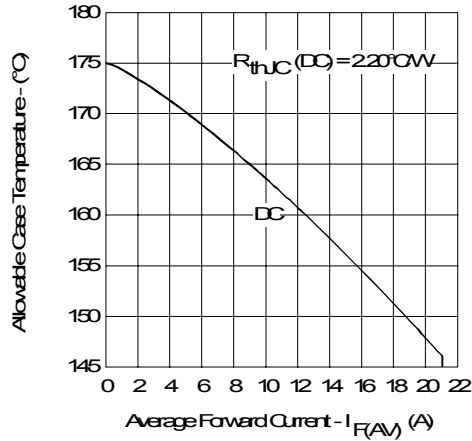


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

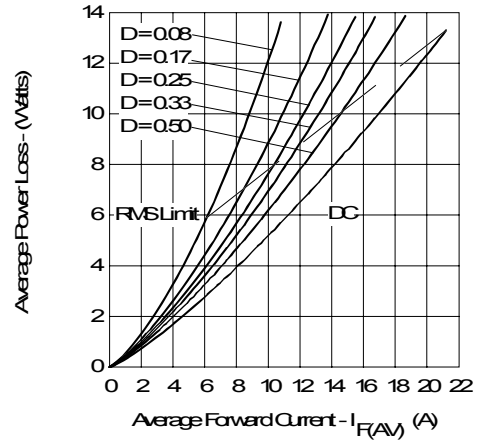


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

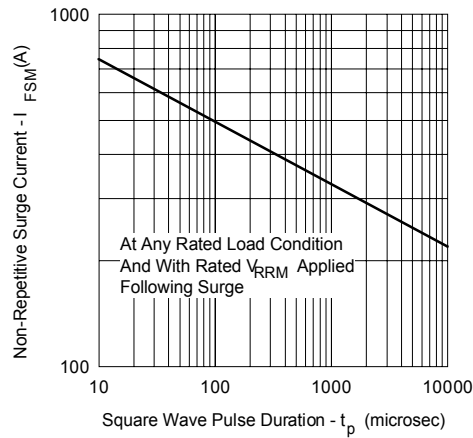


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

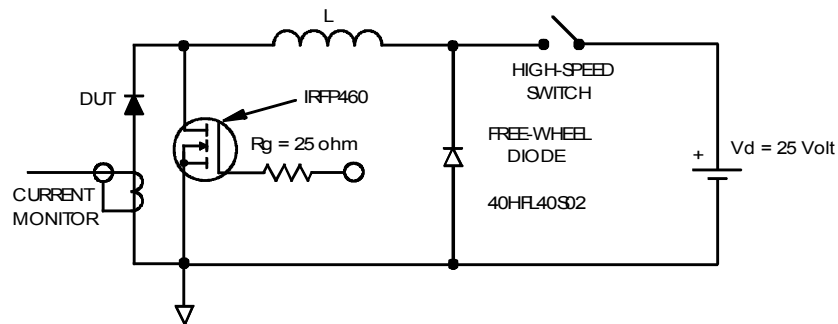
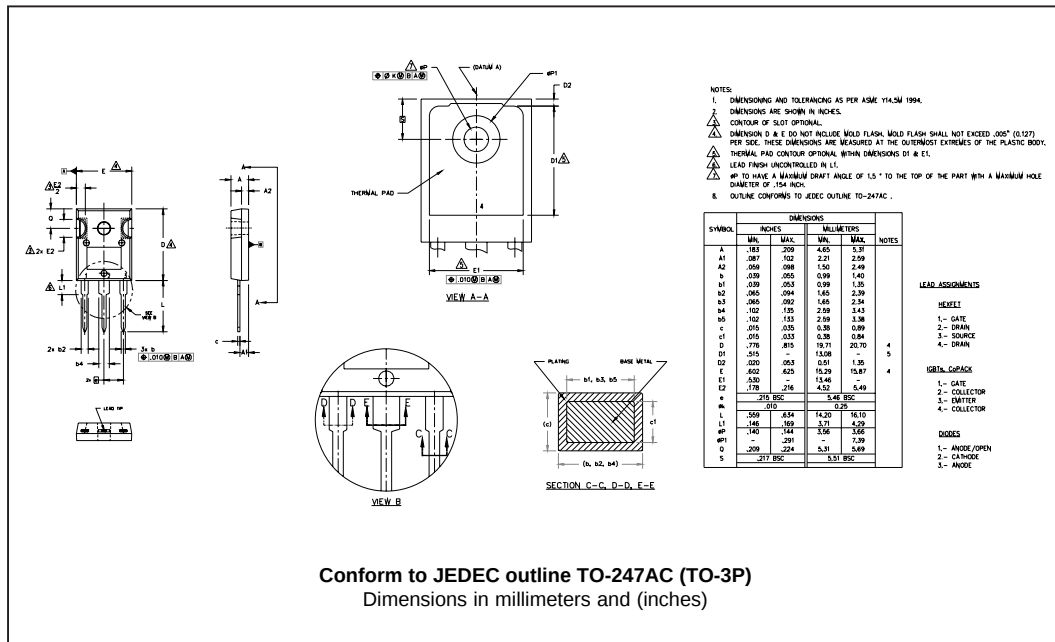
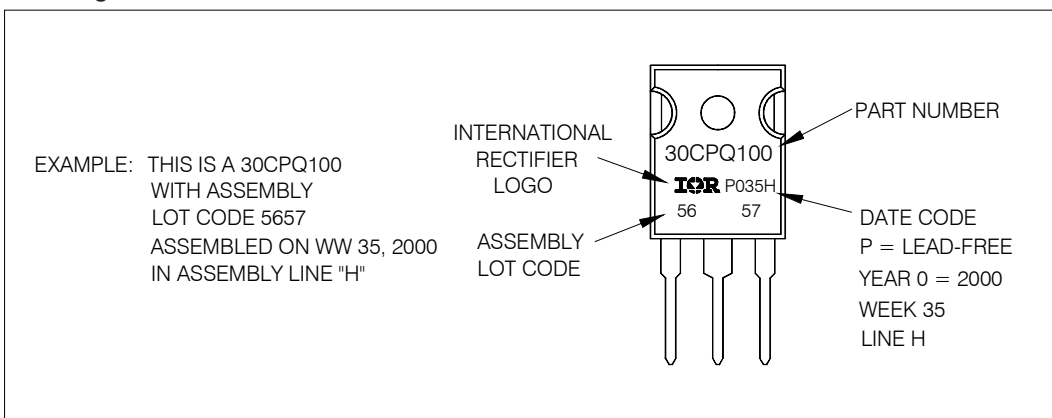


Fig. 8 - Unclamped Inductive Test Circuit

Outline Table



Marking Information



Ordering Information Table

Device Code					
	30	C	P	Q	100 PbF
	1	2	3	4	5 6
1	- Current Rating				
2	- Circuit Configuration				
	C = Common Cathode				
3	- Package				
	P = TO-247				
4	- Schottky "Q" Series				
5	- Voltage Code				
6	- • none = Standard Production				
	• PbF = Lead-Free				
	Tube Standard Pack Quantity : 25 pieces				

080 = 80V

100 = 100V

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