

International
IR Rectifier

30CPQ080G
30CPQ090G
30CPQ100G

SCHOTTKY RECTIFIER

30 Amp

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

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

Major Ratings and Characteristics

Characteristics	Values	Units
$I_{F(AV)}$ Rectangular waveform	30	A
V_{RRM}	80 to 100	V
I_{FSM} @ tp = 5 μ s 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...G 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.

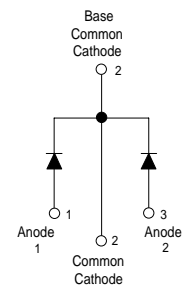
- 175 $^\circ\text{C}$ T_J operation
- Center tap TO-247 package
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability

Case Styles

30CPQ...G



TO-247AC



30CPQ080G, 30CPQ090G, 30CPQ100G

Bulletin PD-20818 11/05



Voltage Ratings

Part number	30CPQ080G	30CPQ090G	30CPQ100G
V _R Max. DC Reverse Voltage (V)	80	90	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°C, rectangular wave form
I _{FSM} Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) * See Fig. 7	920	A	5µs Sine or 3µs Rect. pulse 10ms Sine or 6ms Rect. pulse Following any rated load condition and with rated V _{RRM} applied
	240		
E _{AS} Non-Repetitive Avalanche Energy (Per Leg)	7.50	mJ	T _J = 25 °C, I _{AS} = 0.50 Amps, L = 60mH
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 x 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 T _J = 25 °C
	1.05	V	@ 30A
	0.67	V	@ 15A T _J = 125 °C
	0.81	V	@ 30A
I _{RM} Max. Reverse Leakage Current (Per Leg) * See Fig. 2 (1)	0.28	mA	T _J = 25 °C V _R = rated V _R
	7	mA	T _J = 125 °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 < 300µs, 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	30CPQ100G		

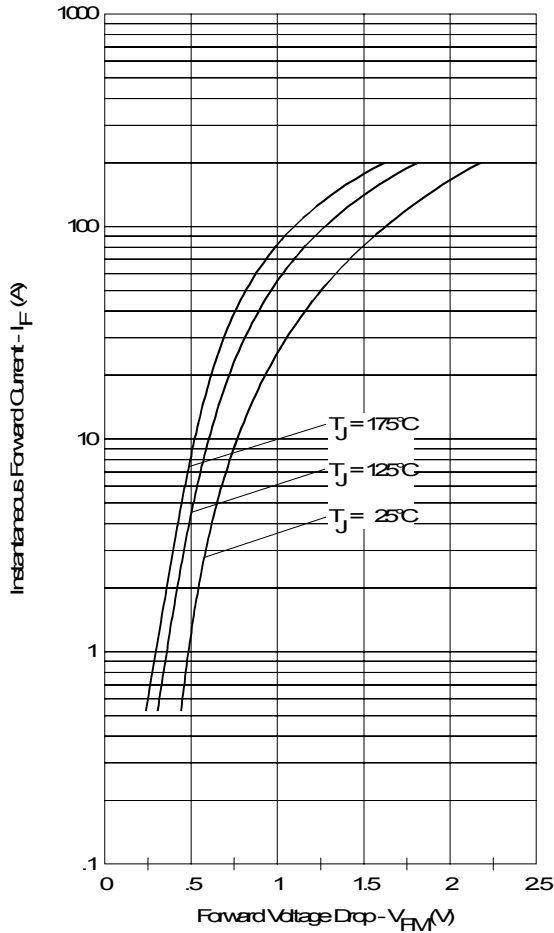


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

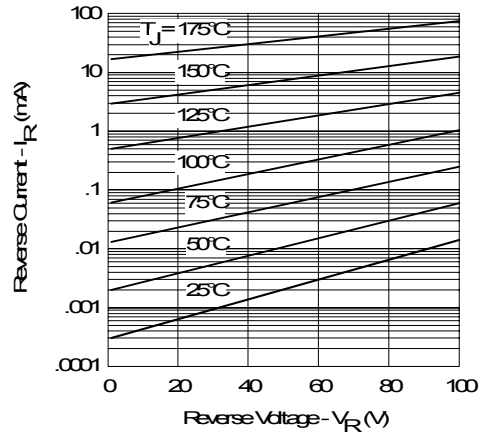


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

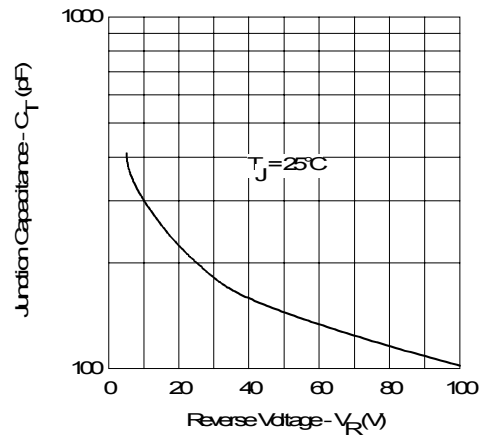


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

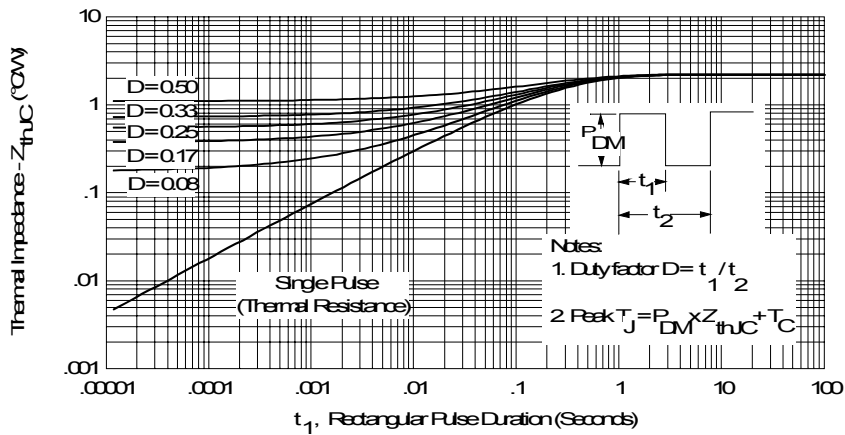


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

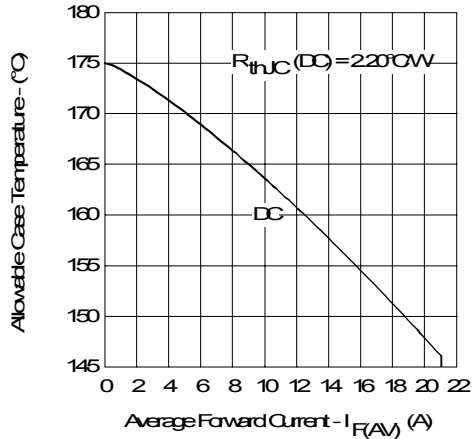


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

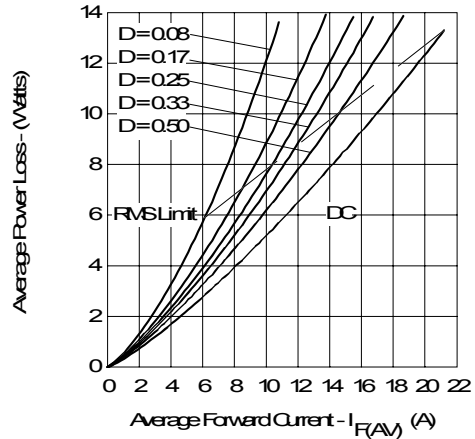


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

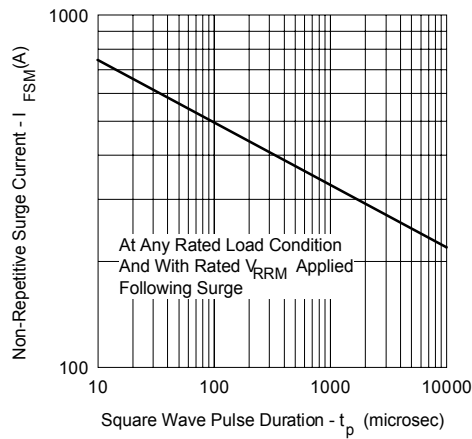


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

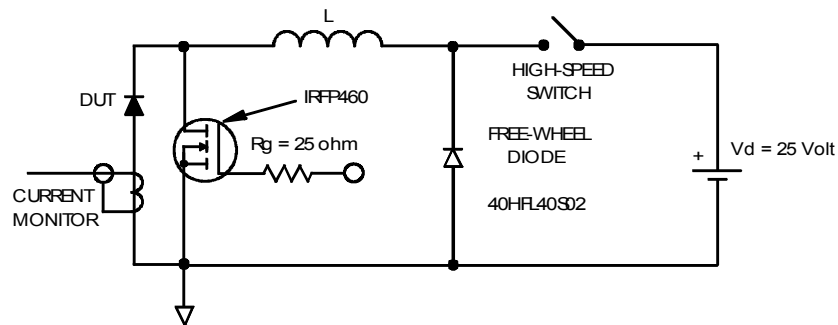
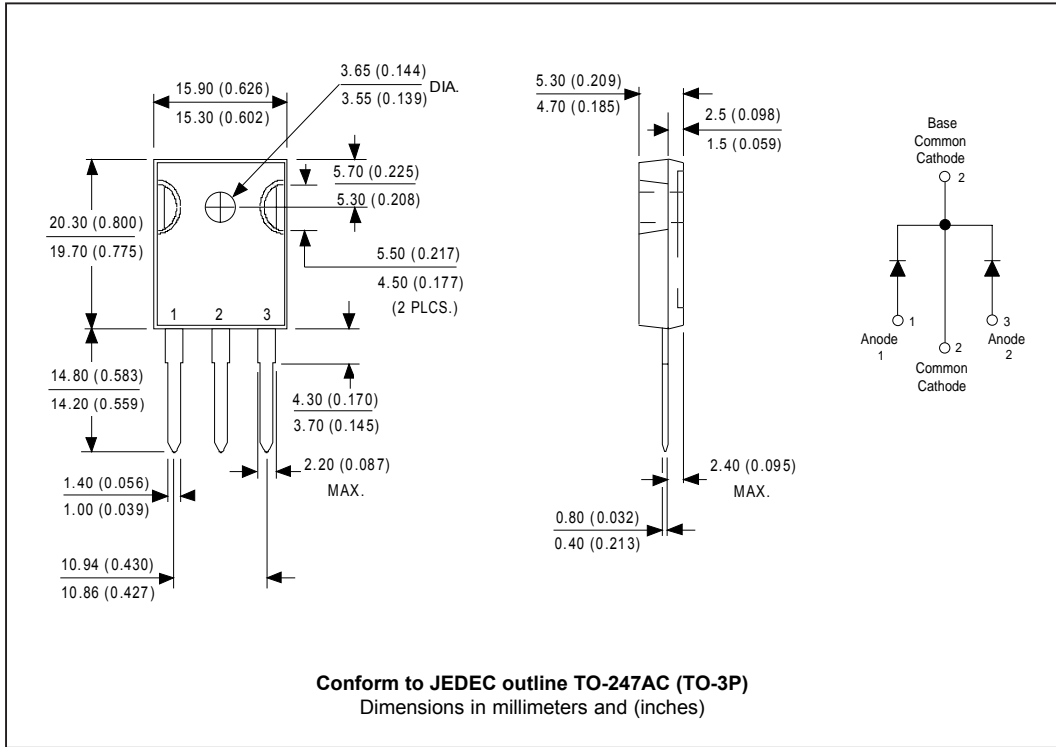
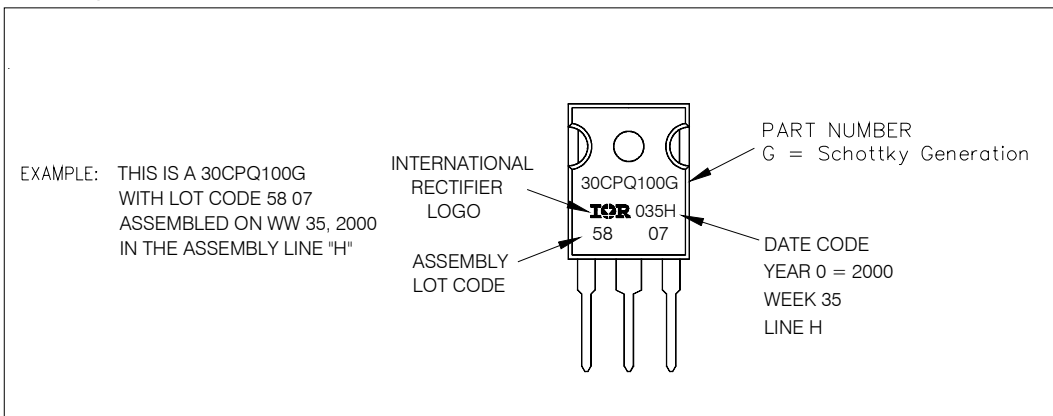


Fig. 8 - Unclamped Inductive Test Circuit

Outline Table



Marking Information



Ordering Information Table

Device Code									
30	C	P	Q	100	G	-			
①	②	③	④	⑤	⑥	⑦			
1	- Current Rating (30 = 30A)								
2	- Circuit Configuration C = Common Cathode								
3	- Package P = TO-247								
4	- Schottky "Q" Series								
5	- Voltage Code								
6	- G = Schottky Generation								
7	- • none = Standard Production • PbF = Lead-Free								
<table border="1" style="margin-left: auto;"> <tr> <td>080 = 80V</td> </tr> <tr> <td>090 = 90V</td> </tr> <tr> <td>100 = 100V</td> </tr> </table>							080 = 80V	090 = 90V	100 = 100V
080 = 80V									
090 = 90V									
100 = 100V									
Tube Standard Pack Quantity : 25 pieces									

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.