



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

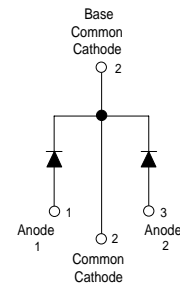
- 175° C T_J operation
- Center tap TO-247 package
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability

Case Styles

30CPQ...G



TO-247AC



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 @ $T_C = 140^\circ\text{C}$, rectangular wave form
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) * See Fig. 7	920	A	5 μ s Sine or 3 μ s 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	$T_J = 25^\circ\text{C}$, $I_{AS} = 0.50$ Amps, $L = 60$ mH
I_{AR} Repetitive Avalanche Current (Per Leg)	0.50	A	Current decaying linearly to zero in 1 μ sec 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 $T_J = 25^\circ\text{C}$
	1.05	V	@ 30A
	0.67	V	@ 15A $T_J = 125^\circ\text{C}$
	0.81	V	@ 30A
I_{RM} Max. Reverse Leakage Current (Per Leg) * See Fig. 2 (1)	0.28	mA	$T_J = 25^\circ\text{C}$ $V_R = \text{rated } V_R$
	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/ μ s	(Rated V_R)

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

Thermal-Mechanical Specifications

Parameters	30CPQ...	Units	Conditions
T_J Max. Junction Temperature Range	-55 to 175	$^\circ\text{C}$	
T_{stg} Max. Storage Temperature Range	-55 to 175	$^\circ\text{C}$	
R_{thJC} Max. Thermal Resistance Junction to Case (Per Leg)	2.20	$^\circ\text{C}/\text{W}$	DC operation * See Fig. 4
R_{thJC} Max. Thermal Resistance Junction to Case (Per Package)	1.10	$^\circ\text{C}/\text{W}$	DC operation
R_{thCS} Typical Thermal Resistance, Case to Heatsink	0.24	$^\circ\text{C}/\text{W}$	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		

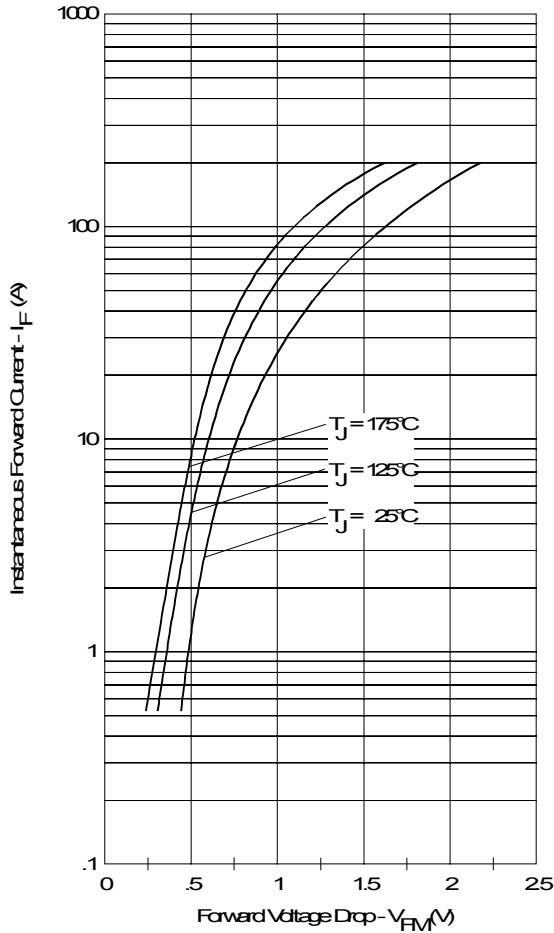


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

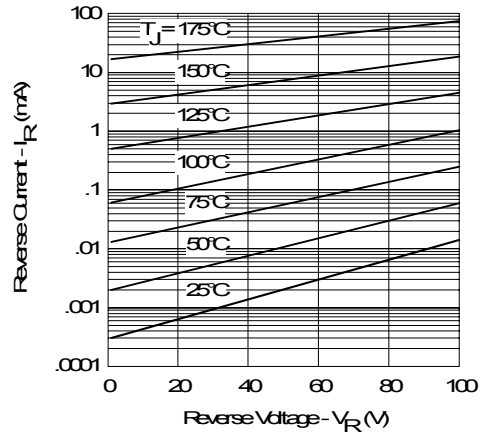


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

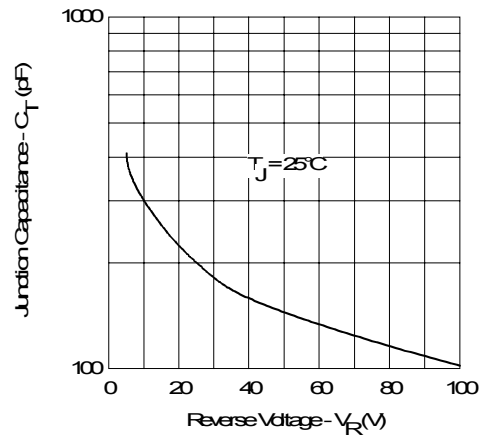


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

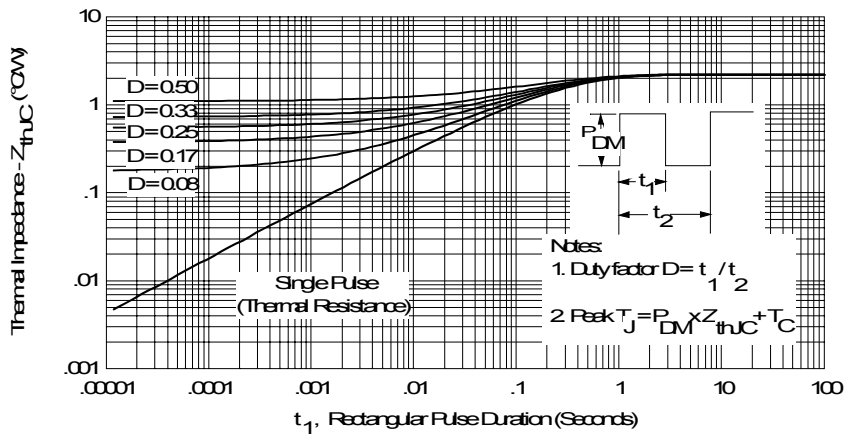


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

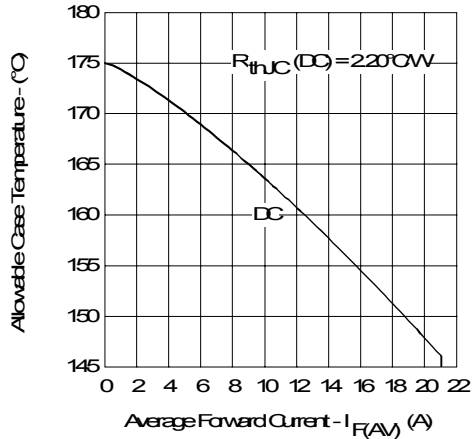


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

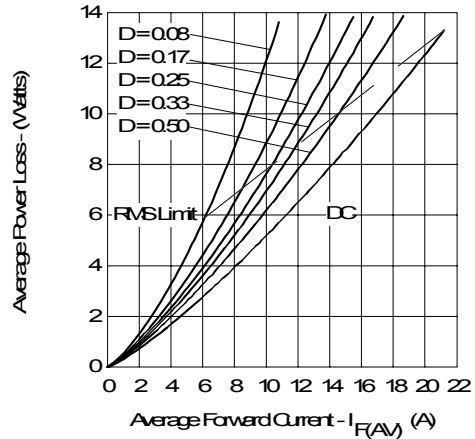


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

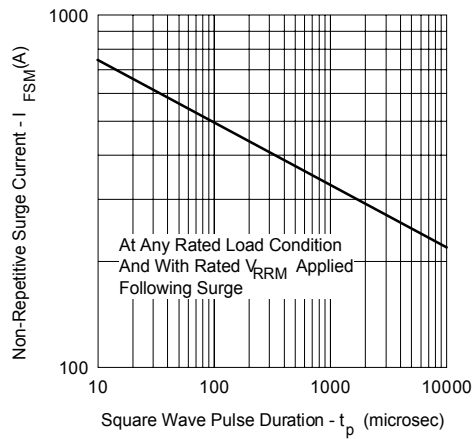


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

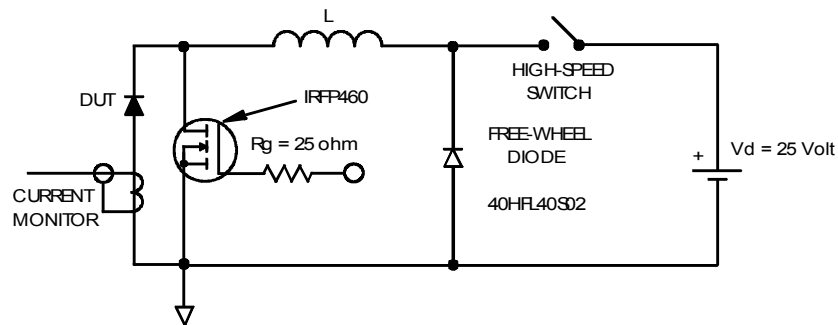
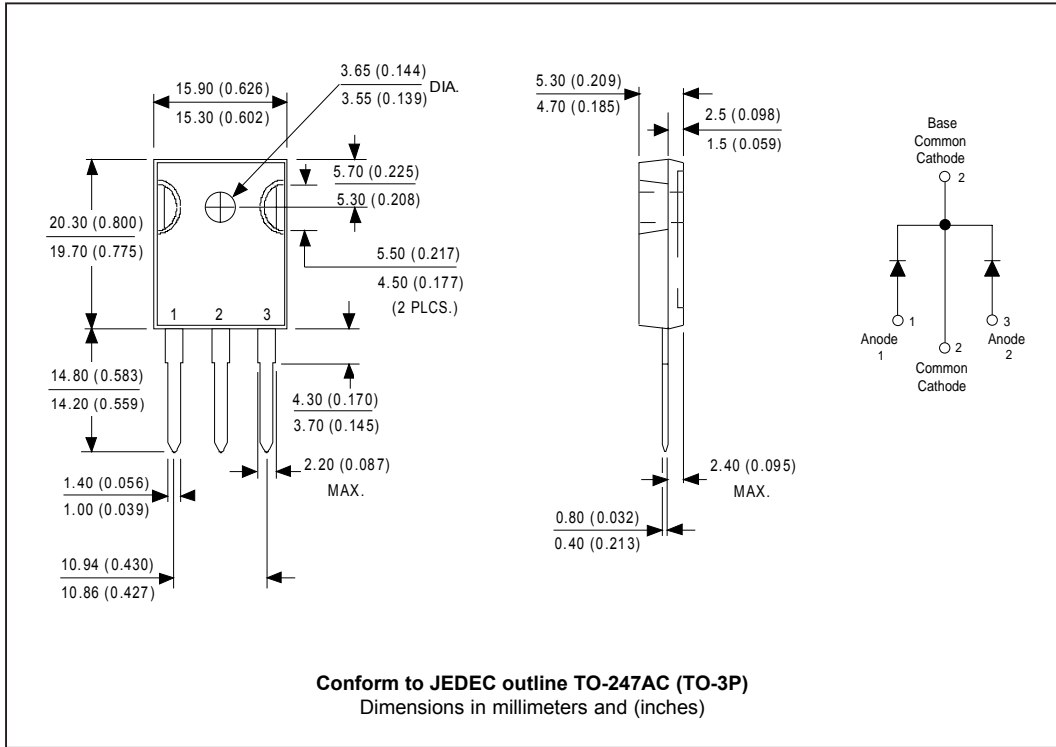
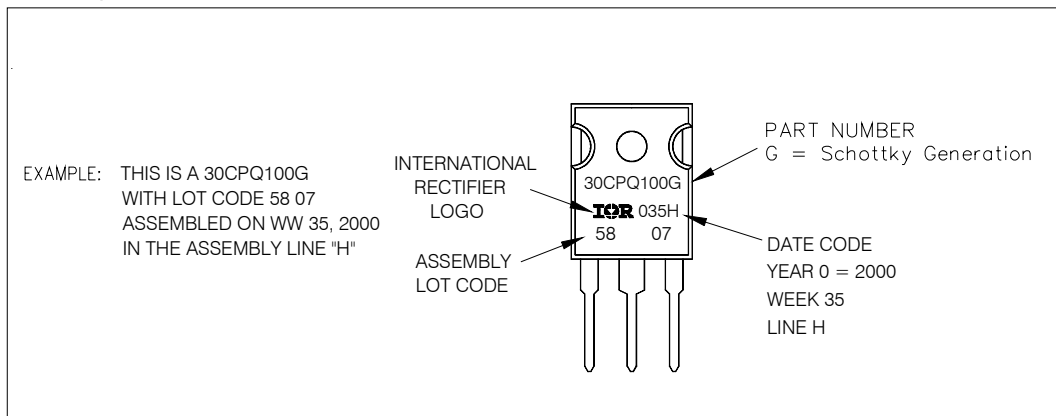


Fig. 8 - Unclamped Inductive Test Circuit

Outline Table



Marking Information



Ordering Information Table

Device Code	
30	C
①	②
P	Q
③	④
100	G
⑤	⑥
-	⑦

<p>1 - Current Rating (30 = 30A)</p> <p>2 - Circuit Configuration C = Common Cathode</p> <p>3 - Package P = TO-247</p> <p>4 - Schottky "Q" Series</p> <p>5 - Voltage Code</p> <p>6 - G = Schottky Generation</p> <p>7 -</p> <ul style="list-style-type: none"> • none = Standard Production • PbF = Lead-Free 	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> 080 = 80V 090 = 90V 100 = 100V </div>
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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.