

International
IOR 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} @ $t_p = 5 \mu\text{s}$ 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.

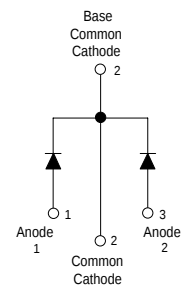
- 175°C T_J operation
- Center tap TO-247 package
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability

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°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	Following any rated load condition and with rated V _{RRM} applied	
		240		10ms Sine or 6ms Rect. pulse		
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 < 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		30CPQ100G				

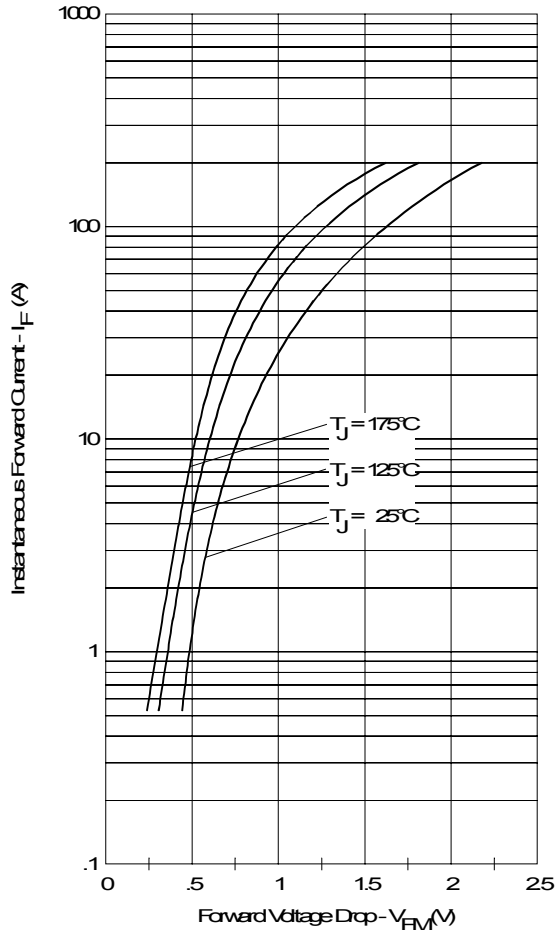


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

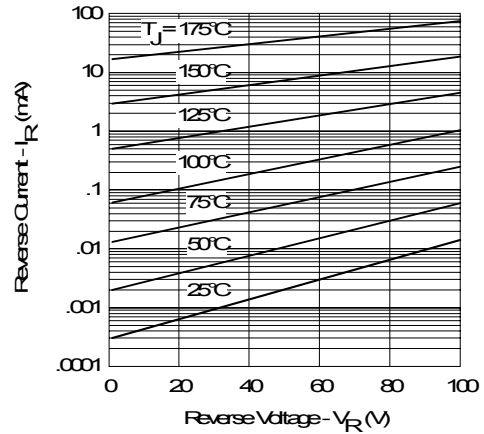


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

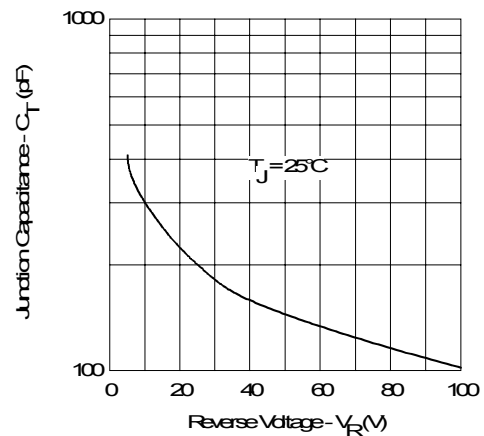


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

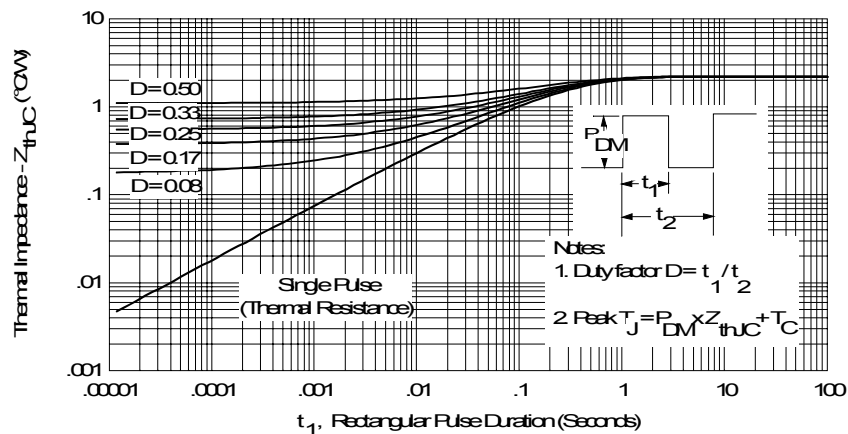


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

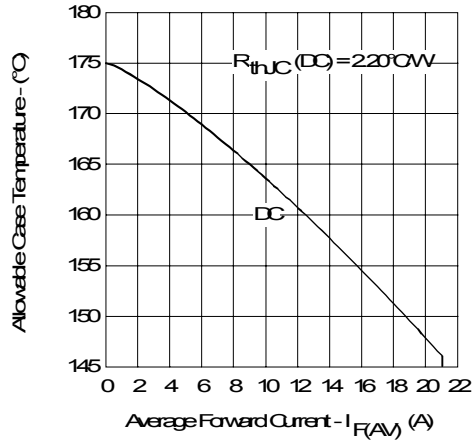


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

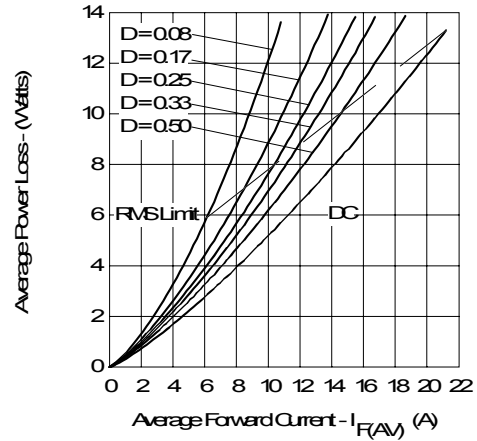


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

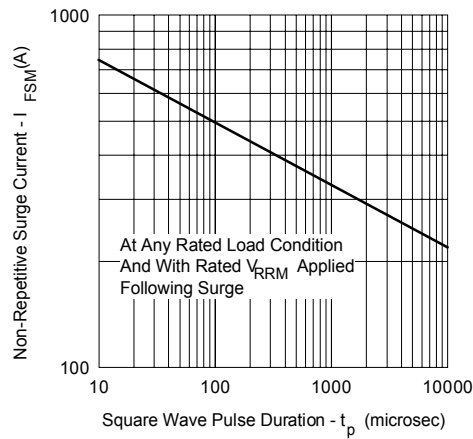


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

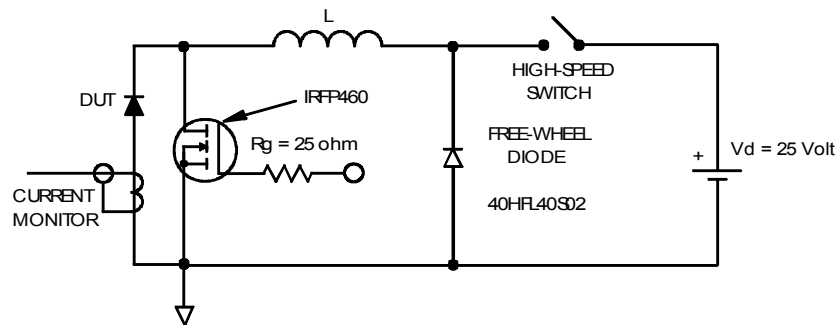
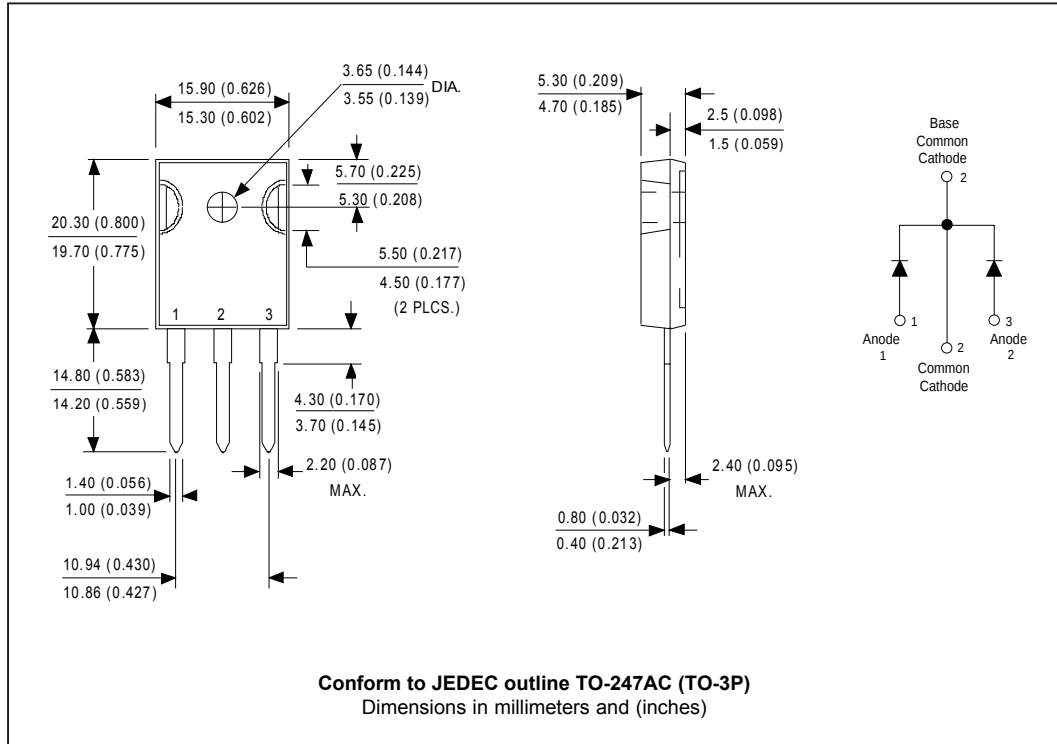
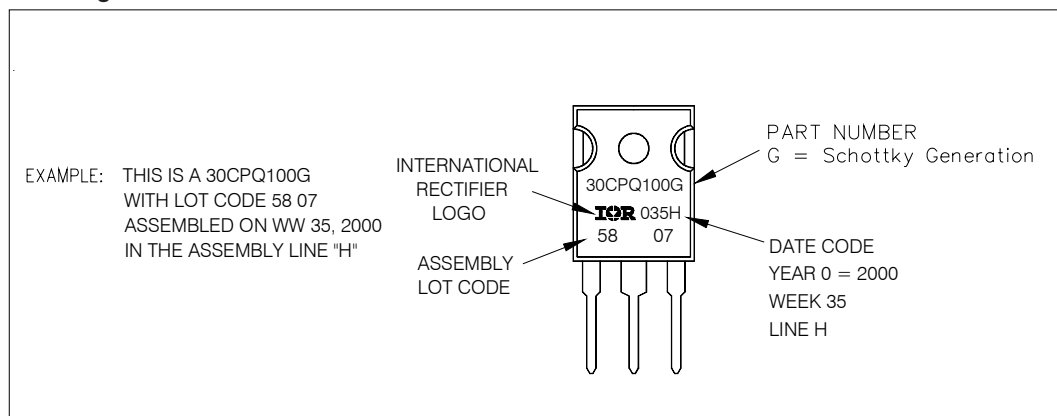


Fig. 8 - Unclamped Inductive Test Circuit

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

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.