

International
IOR Rectifier

30CPQ050PbF
30CPQ060PbF

SCHOTTKY RECTIFIER

30 Amp

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

$$V_R = 50 - 60\text{V}$$

Major Ratings and Characteristics

Characteristics	Values	Units
$I_{F(AV)}$ Rectangular waveform	30	A
V_{RRM}	50 - 60	V
I_{FSM} @tp=5 μ s sine	1020	A
V_F @15 Apk, $T_J=125^\circ\text{C}$ (per leg)	0.56	V
T_J	-55 to 150	$^\circ\text{C}$

Description/ Features

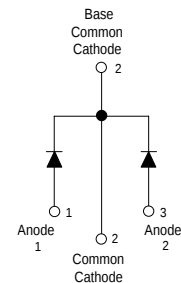
The 30CPQ...PbF center tap Schottky rectifier has been optimized for very low forward voltage drop, with moderate leakage. The proprietary barrier technology allows for reliable operation up to 150° C junction temperature. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

- 150° C T_J operation
- Center tap TO-247 package
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Very low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- Lead-Free ("PbF" suffix)

Case Styles



TO-247AC



30CPQ050PbF, 30CPQ060PbF

Bulletin PD-20785 rev. A 11/06

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Voltage Ratings

Part number	30CPQ050PbF	30CPQ060PbF
V_R Max. DC Reverse Voltage (V)	50	60
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 = 112 °C, rectangular wave form	
I _{FSM}	Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) * See Fig. 7	1020	A	5μs Sine or 3μs Rect. pulse	Following any rated load condition and with rated V _{RRM} applied
		265		10ms Sine or 6ms Rect. pulse	
E _{AS}	Non-Repetitive Avalanche Energy (Per Leg)	13	mJ	T _J = 25 °C, I _{AS} = 1.50 Amps, L = 11.5 mH	
I _{AR}	Repetitive Avalanche Current (Per Leg)	1.50	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)	0.60	V	@ 15A	T _J = 25 °C
		0.80	V	@ 30A	
		0.56	V	@ 15A	T _J = 125 °C
		0.70	V	@ 30A	
I _{RM}	Max. Reverse Leakage Current (Per Leg) * See Fig. 2 (1)	0.80	mA	T _J = 25 °C	V _R = rated V _R
		45	mA	T _J = 125 °C	
C _T	Max. Junction Capacitance (Per Leg)	720	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 (Rated V _R)	10000	V/ μs		

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

Thermal-Mechanical Specifications

Parameters		30CPQ...	Units	Conditions		
T _J	Max. Junction Temperature Range	-55 to 150	°C			
T _{stg}	Max. Storage Temperature Range	-55 to 150	°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		30CPQ050				
		30CPQ060				

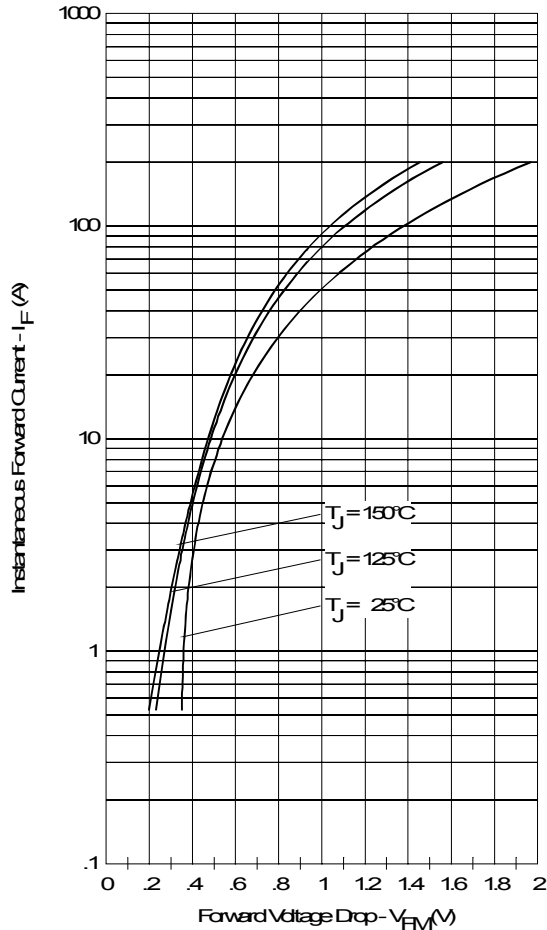


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

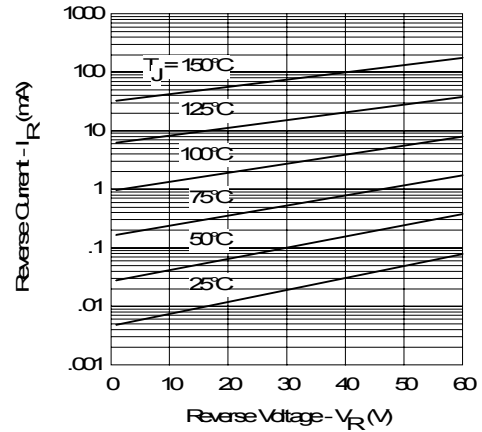


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

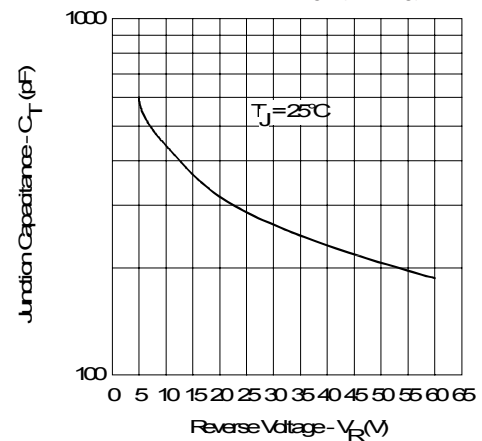


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

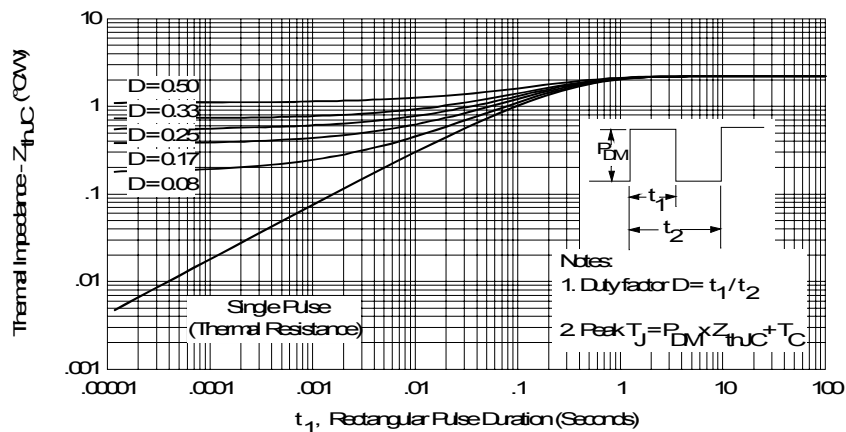


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

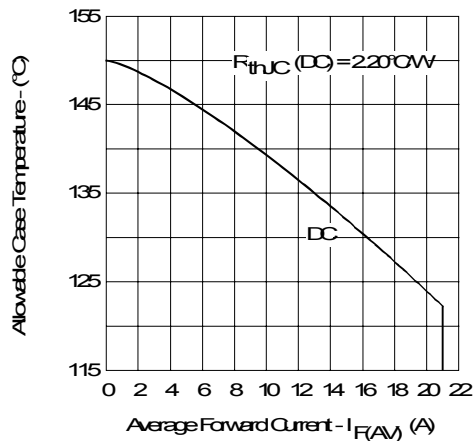


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

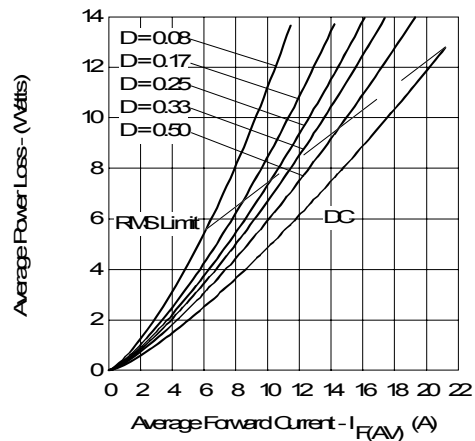


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

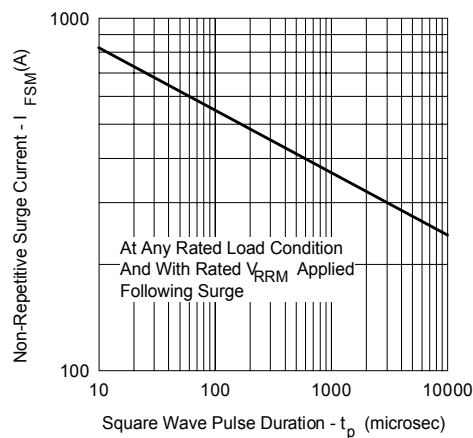


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

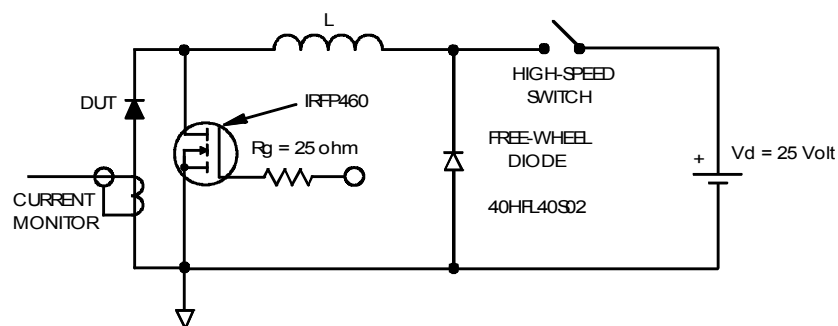
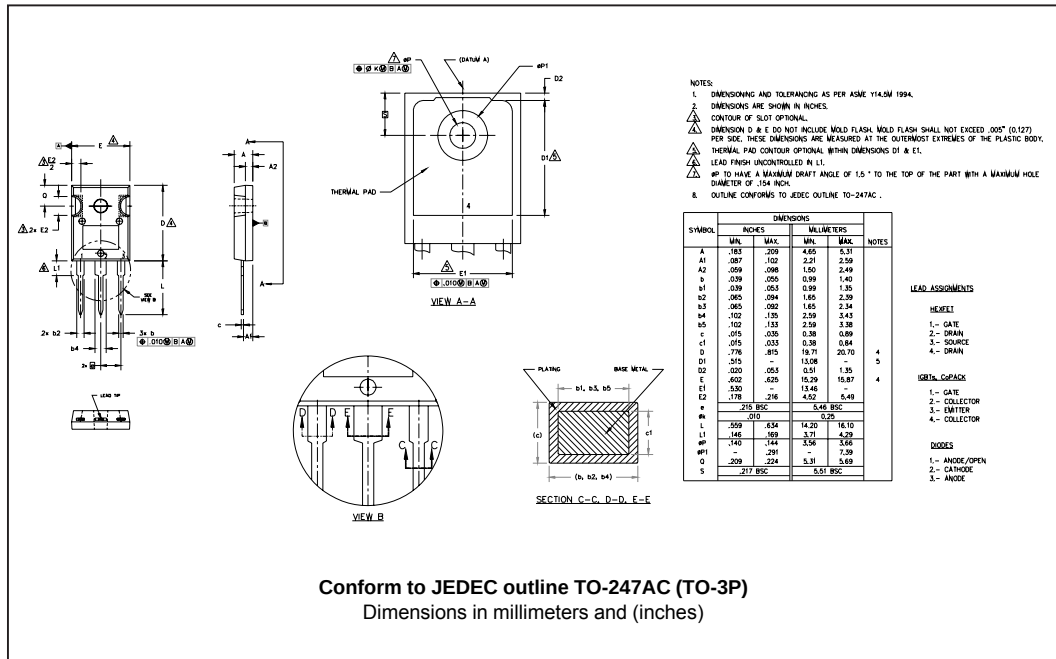
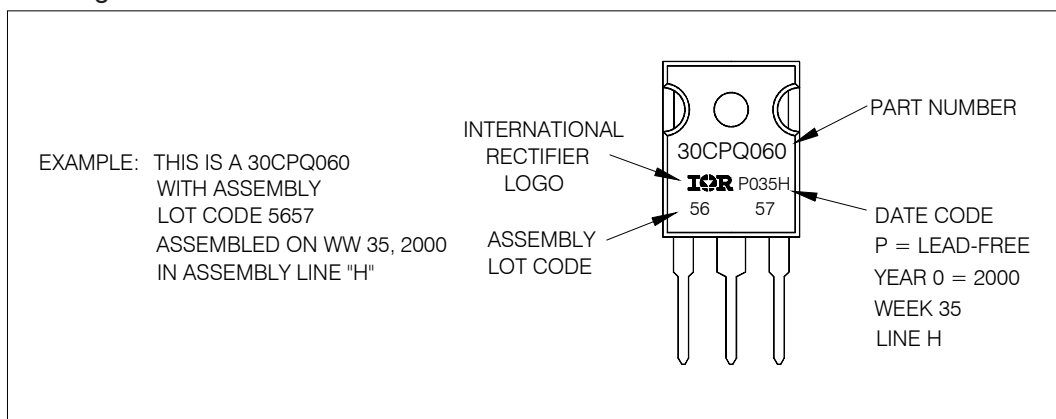


Fig. 8 - Unclamped Inductive Test Circuit

Outline Table



Marking Information



Ordering Information Table

Device Code

30	C	P	Q	060	PbF
1	2	3	4	5	6

- 1** - Current Rating (30 = 30A)
- 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

050 = 50V
060 = 60V

Tube Standard Pack Quantity : 25 pieces

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.

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