

International
IR Rectifier

40CPQ080G
40CPQ100G

SCHOTTKY RECTIFIER

40 Amp

$$I_{F(AV)} = 40\text{Amp}$$

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

Major Ratings and Characteristics

Characteristics	Values	Units
$I_{F(AV)}$ Rectangular waveform	40	A
V_{RRM}	80-100	V
I_{FSM} @tp = 5 μ s sine	2950	A
V_F @20 Apk, $T_J=125^\circ\text{C}$ (per leg)	0.61	V
T_J	-55 to 175	$^\circ\text{C}$

Description/ Features

The 40CPQ...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.

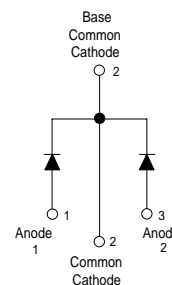
- 175° C T_J operation
- Center tap TO-247 package
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability

Case Styles

40CPQ...G



TO-247AC



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Voltage Ratings

Part number	40CPQ080G	40CPQ100G
V _R Max. DC Reverse Voltage (V)	80	100
V _{RWM} Max. Working Peak Reverse Voltage (V)		

Absolute Maximum Ratings

Parameters	40CPQ	Units	Conditions
I _{F(AV)} Max. Average Forward Current * See Fig. 5	40	A	50% duty cycle @ T _C = 145°C, rectangular wave form
I _{FSM} Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) * See Fig. 7	2950	A	Following any rated load condition and with rated V _{RRM} applied
	300		
E _{AS} Non-Repetitive Avalanche Energy (Per Leg)	11.25	mJ	T _J = 25°C, I _{AS} = 2 Amps, L = 5.6 mH
I _{AR} Repetitive Avalanche Current (Per Leg)	0.75	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	40CPQ	Units	Conditions
V _{FM} Max. Forward Voltage Drop (Per Leg) * See Fig. 1 (1)	0.77	V	@ 20A T _J = 25°C
	0.91	V	@ 40A
	0.61	V	@ 20A T _J = 125°C
	0.75	V	@ 40A
I _{RM} Max. Reverse Leakage Current (Per Leg) * See Fig. 2 (1)	0.27	mA	T _J = 25°C
	15	mA	T _J = 125°C V _R = rated V _R
C _T Max. Junction Capacitance (Per Leg)	600	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 < 300µs, Duty Cycle < 2%

Thermal-Mechanical Specifications

Parameters	40CPQ	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)	1.25	°C/W	DC operation * See Fig. 4
R _{thJC} Max. Thermal Resistance Junction to Case (Per Package)	0.63	°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	40CPQ100G		

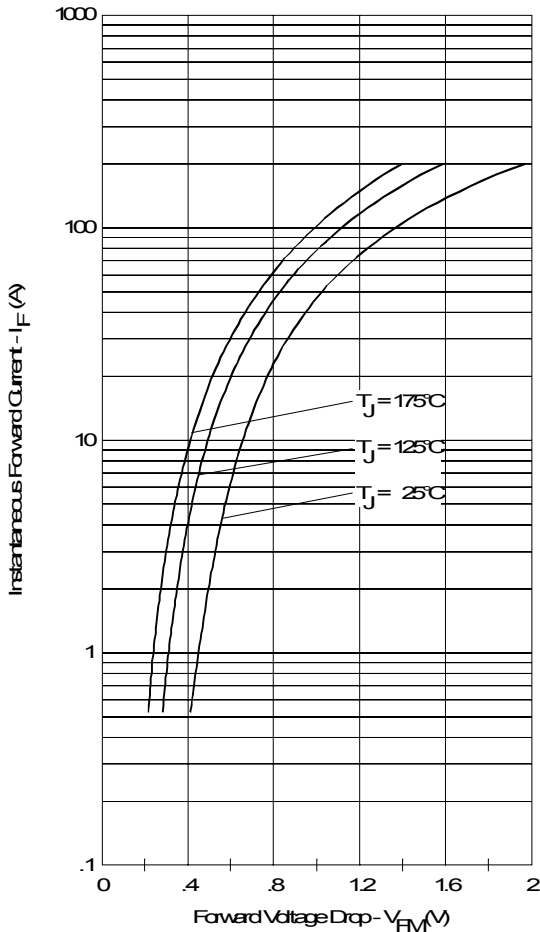


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

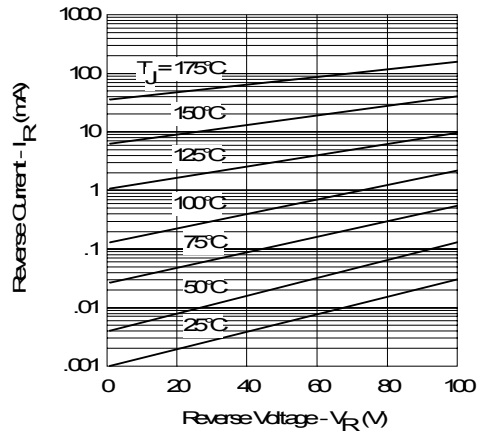


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

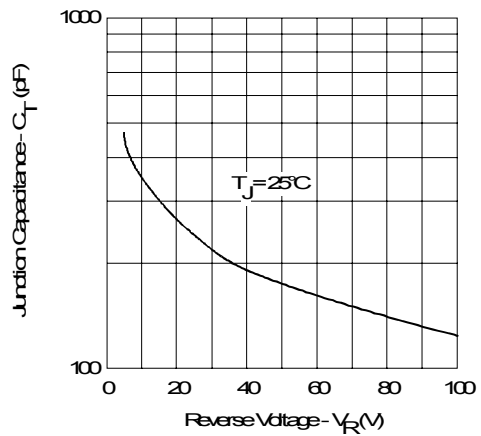


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

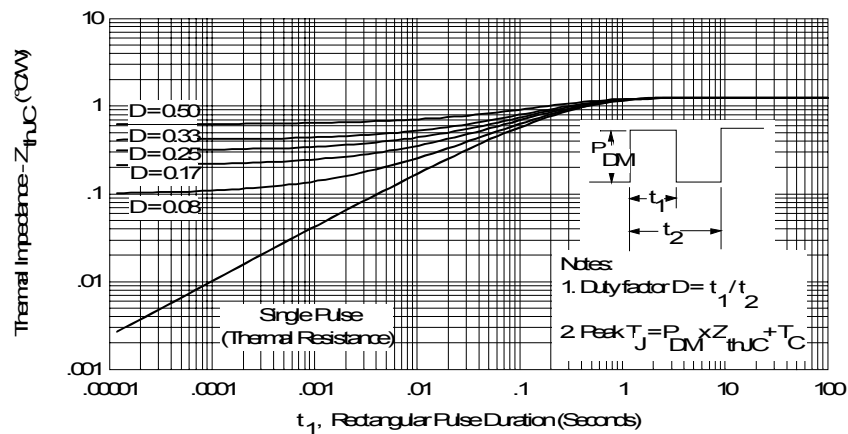


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

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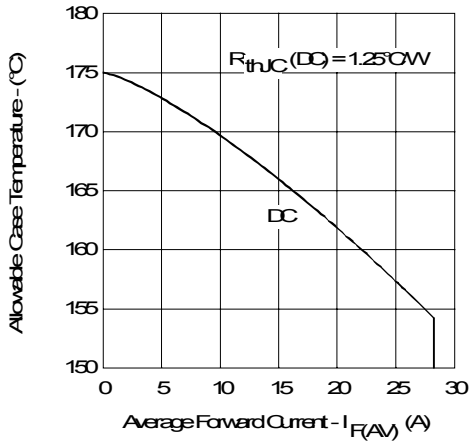


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

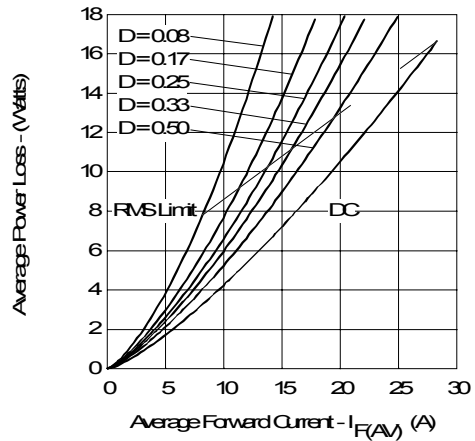


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

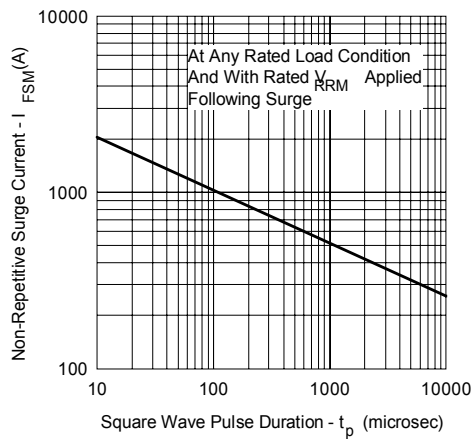


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

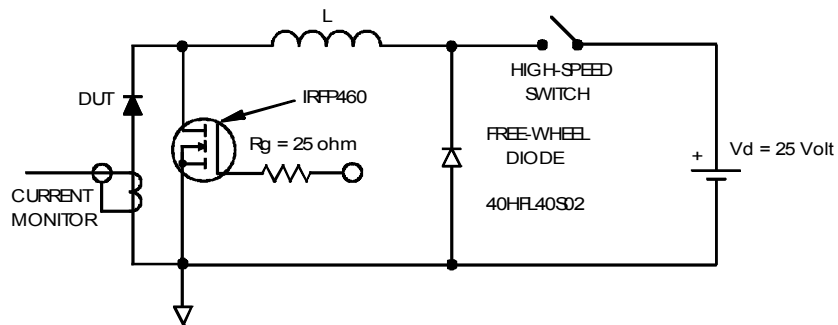
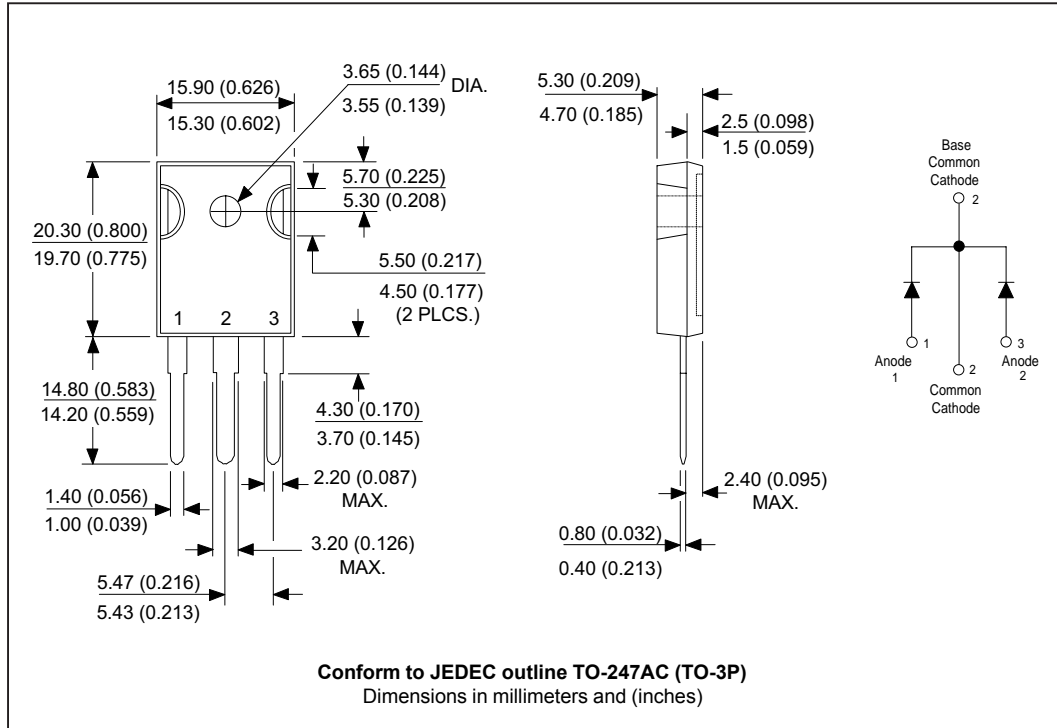
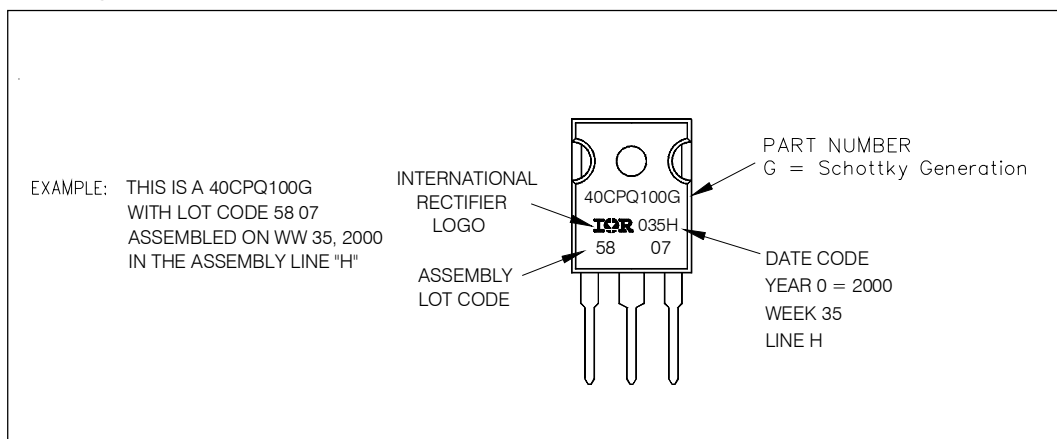


Fig. 8 - Unclamped Inductive Test Circuit

Outline Table



Marking Information



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Ordering Information Table

Device Code															
	<table border="1" style="margin: auto;"> <tr> <td style="padding: 5px;">40</td> <td style="padding: 5px;">C</td> <td style="padding: 5px;">P</td> <td style="padding: 5px;">Q</td> <td style="padding: 5px;">100</td> <td style="padding: 5px;">G</td> <td style="padding: 5px;">-</td> </tr> <tr> <td style="text-align: center;">①</td> <td style="text-align: center;">②</td> <td style="text-align: center;">③</td> <td style="text-align: center;">④</td> <td style="text-align: center;">⑤</td> <td style="text-align: center;">⑥</td> <td style="text-align: center;">⑦</td> </tr> </table>	40	C	P	Q	100	G	-	①	②	③	④	⑤	⑥	⑦
40	C	P	Q	100	G	-									
①	②	③	④	⑤	⑥	⑦									
1	- Current Rating (40 = 40A)														
2	- Circuit Configuration C = Common Cathode														
3	- Package P = TO-247														
4	- Schottky "Q" Series														
5	- Voltage Code														
6	- G = Schottky Generation														
7	- <ul style="list-style-type: none"> • none = Standard Production • PbF = Lead-Free 														
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> 080 = 80V 100 = 100V </div>															
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.

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