

$I_{F(AV)} = 30 \text{ Amp}$
 $V_R = 80 - 100V$

Major Ratings and Characteristics

Characteristics	Values	Units
$I_{F(AV)}$ Rectangular waveform	30	A
V_{RRM}	80 - 100	V
I_{FSM} @ tp = 5 μ s sine	650	A
V_F @ 15 Apk, $T_J = 125^\circ\text{C}$ (per leg)	0.69	V
T_J range	-55 to 175	$^\circ\text{C}$

Description/ Features

This center tap Schottky rectifier series 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.

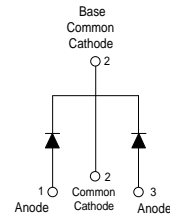
- 175° C T_J operation
- Center tap configuration
- Low forward voltage drop
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability

Case Styles

30CTQ...G



TO-220



Voltage Ratings

Parameters	30CTQ80G	30CTQ100G
V_R Max. DC Reverse Voltage (V)	80	100
V_{RWM} Max. Working Peak Reverse Voltage (V)		

Absolute Maximum Ratings

Parameters	Values	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current (Per Leg) * See Fig. 5 (Per Device)	15	A	50% duty cycle @ $T_C = 129^\circ\text{C}$, rectangular wave form
	30		
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) * See Fig. 7	650	A	5 μs Sine or 3 μs Rect. pulse
	210		10ms Sine or 6ms Rect. pulse
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 μsec Frequency limited by T_J max. $V_A = 1.5 \times V_R$ typical

Electrical Specifications

Parameters	Values	Units	Conditions
V_{FM} Max. Forward Voltage Drop (Per Leg) * See Fig. 1 (1)	0.86	V	@ 15A
	1.05	V	@ 30A
	0.69	V	@ 15A
	0.82	V	@ 30A
I_{RM} Max. Reverse Leakage Current (Per Leg) * See Fig. 2 (1)	0.28	mA	$T_J = 25^\circ\text{C}$
	7.0	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)	8.0	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	Values	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)	3.25	$^\circ\text{C}/\text{W}$	DC operation
R_{thJC} Max. Thermal Resistance Junction to Case (Per Package)	1.63	$^\circ\text{C}/\text{W}$	DC operation
R_{thCS} Typical Thermal Resistance, Case to Heatsink	0.50	$^\circ\text{C}/\text{W}$	Mounting surface, smooth and greased (only for TO-220)
wt Approximate Weight	2 (0.07)	g (oz.)	
T Mounting Torque	Min.	6 (5)	Kg-cm (lbf-in)
	Max.	12 (10)	
Device Marking	30CTQ...G		

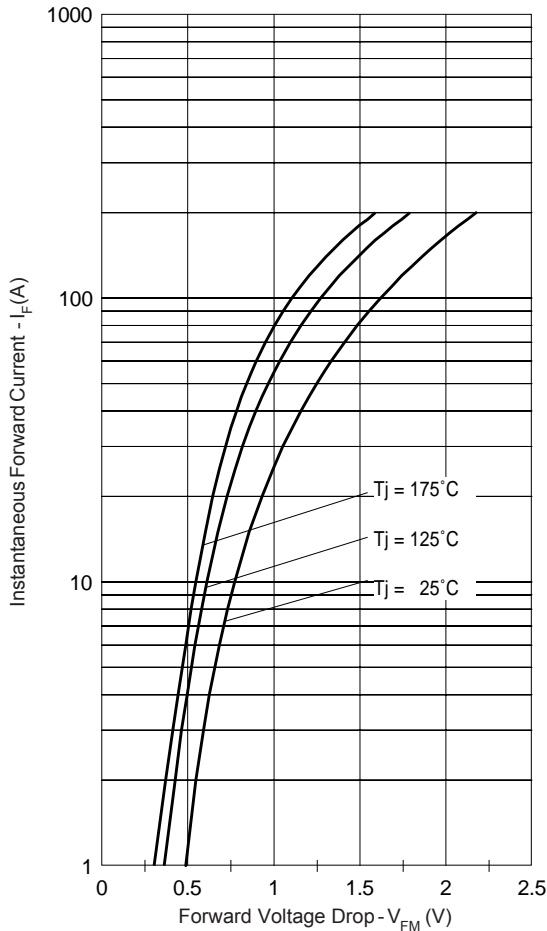


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

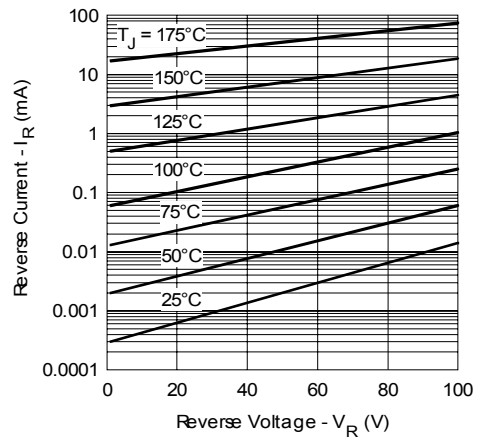


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

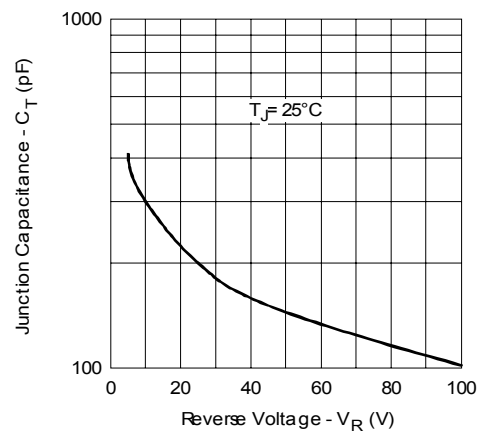


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

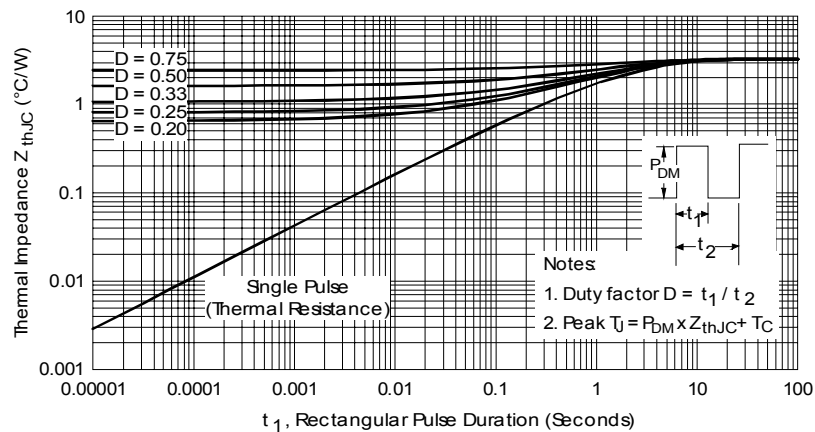


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

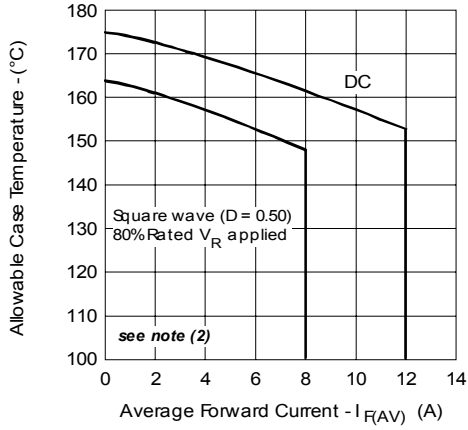


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

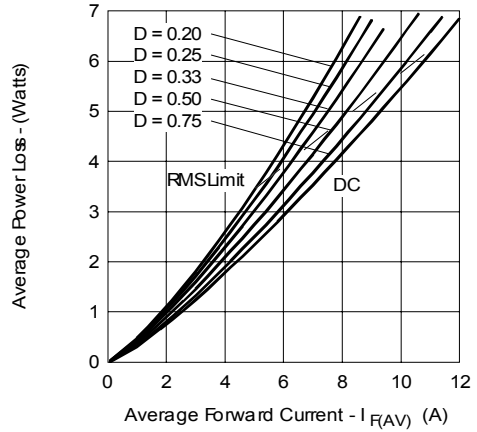


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

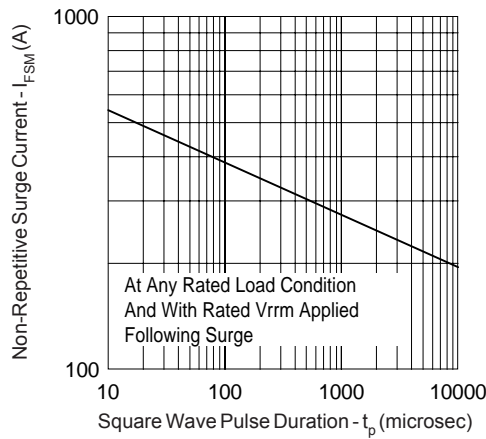


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

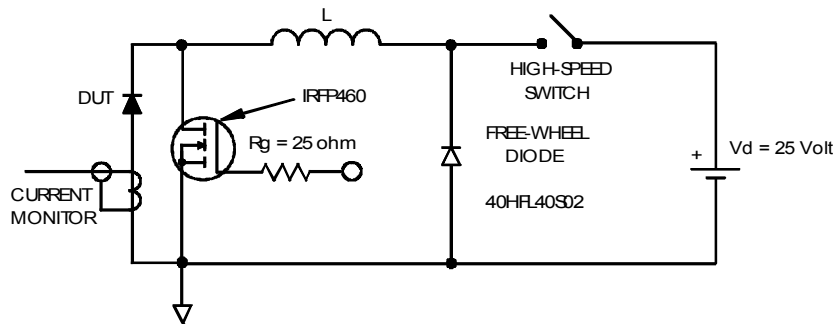


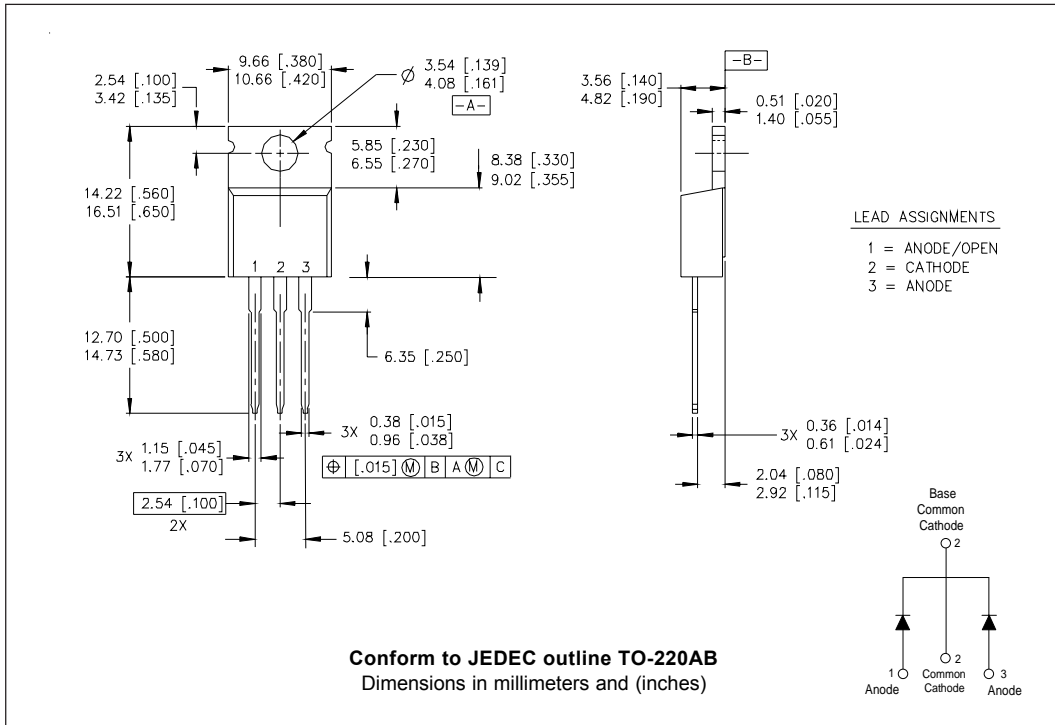
Fig. 8 - Unclamped Inductive Test Circuit

(2) Formula used: $T_C = T_J - (Pd + Pd_{REV}) \times R_{thJC}$

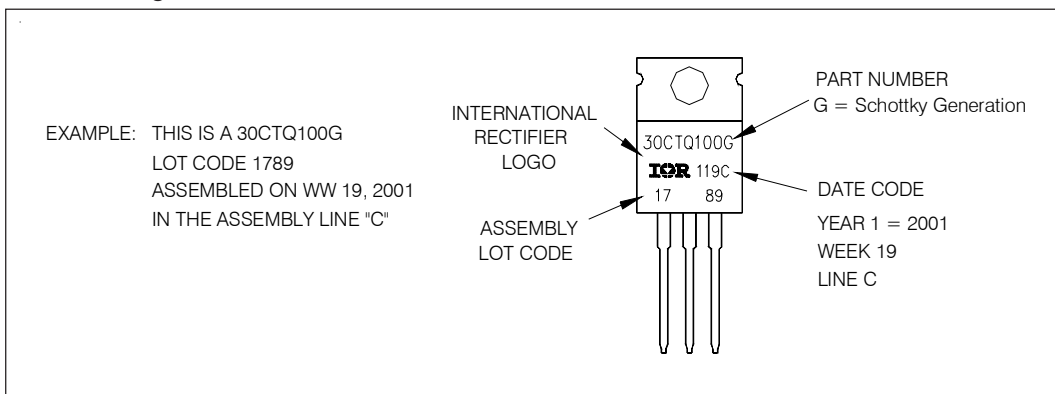
$Pd = \text{Forward Power Loss} = I_{F(AV)} \times V_{FM} @ (I_{F(AV)} / D)$ (see Fig. 6);

$Pd_{REV} = \text{Inverse Power Loss} = V_{R1} \times I_R (1 - D); I_R @ V_{R1} = 10 \text{ V}$

Outline Table



Part Marking Information



Ordering Information Table

Device Code															
	<table border="1" style="margin: auto;"> <tr> <td style="padding: 5px;">30</td> <td style="padding: 5px;">C</td> <td style="padding: 5px;">T</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>	30	C	T	Q	100	G	-	①	②	③	④	⑤	⑥	⑦
30	C	T	Q	100	G	-									
①	②	③	④	⑤	⑥	⑦									
1	- Current Rating (30 = 30A)														
2	- C = Common Cathode														
3	- T = TO-220														
4	- Q = Schottky Q Series														
5	- Voltage Ratings														
6	- G = Schottky Generation														
7	- <ul style="list-style-type: none"> • none = Standard Production • PbF = Lead-Free 														

080 = 80V
100 = 100V

Tube Standard Pack Quantity : 50 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.