

International
IOR Rectifier

30CTQ035
30CTQ040
30CTQ045

SCHOTTKY RECTIFIER

30 Amp

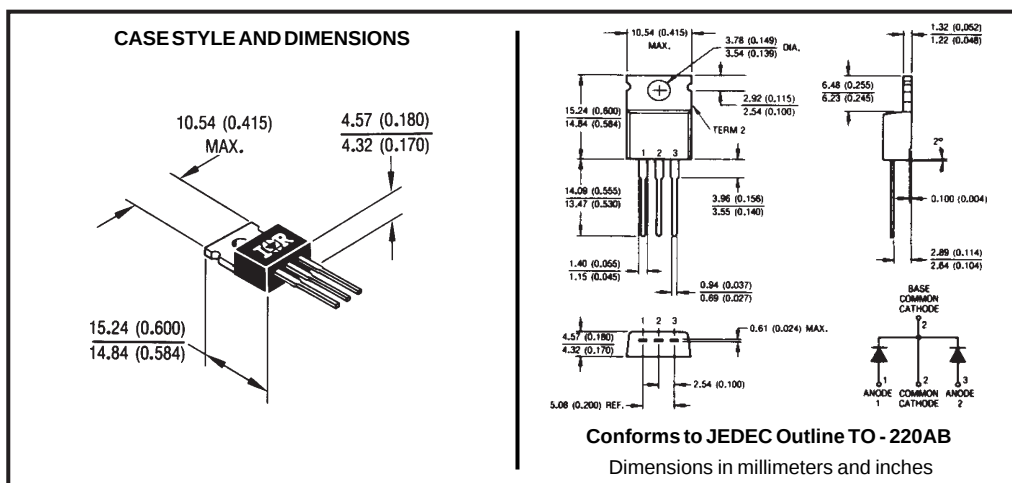
Major Ratings and Characteristics

Characteristics	30CTQ...	Units
$I_{F(AV)}$ Rectangular waveform	30	A
V_{RRM}	35/40/45	V
I_{FSM} @ $t_p = 5 \mu s$ sine	1060	A
V_F @ 15 Apk, $T_J = 125^\circ C$ (per leg)	0.56	V
T_J	-55 to 175	$^\circ C$

Description/Features

The 30CTQ... 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 $175^\circ C$ junction temperature. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

- $175^\circ C$ T_J operation
- Center tap TO-220 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



Voltage Ratings

Part number	30CTQ035	30CTQ040	30CTQ045
V_R Max. DC Reverse Voltage (V)	35	40	45
V_{RWM} Max. Working Peak Reverse Voltage (V)			

Absolute Maximum Ratings

Parameters		30CTQ...	Units	Conditions		
$I_{F(AV)}$	Max. Average Forward Current * See Fig. 5	30	A	50% duty cycle @ $T_C = 127^{\circ}\text{C}$, rectangular wave form		
I_{FSM}	Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) * See Fig. 7	1060	A	5 μs Sine or 3 μs 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)	20	mJ	$T_J = 25^{\circ}\text{C}$, $I_{AS} = 3.0$ Amps, $L = 4.40$ mH		
I_{AR}	Repetitive Avalanche Current (Per Leg)	3.0	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		30CTQ...	Units	Conditions	
V _{FM}	Max. Forward Voltage Drop (Per Leg) * See Fig. 1 (1)	0.62	V	@ 15A	T _J = 25 °C
		0.76	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)	2	mA	T _J = 25 °C	V _R = rated V _R
		15	mA	T _J = 125 °C	
C _T	Max. Junction Capacitance (Per Leg)	900	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)	10,000	V/ μs		

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

Thermal-Mechanical Specifications

Parameters		30CTQ...	Units	Conditions
T _J	Max. Junction Temperature Range	-55to175	°C	
T _{stg}	Max. Storage Temperature Range	-55to175	°C	
R _{thJC}	Max. Thermal Resistance Junction to Case (Per Leg)	3.25	°C/W	DCoperation * See Fig. 4
R _{thJC}	Max. Thermal Resistance Junction to Case (Per Package)	1.63	°C/W	DCoperation
R _{thCS}	Typical Thermal Resistance, Case to Heatsink	0.50	°C/W	Mounting surface, smooth and greased
wt	Approximate Weight	2(0.07)	g(oz.)	
T	Mounting Torque	Min.	6(5)	Kg-cm (lbf-in)
		Max.	12(10)	
Case Style		TO-220AB	JEDEC	

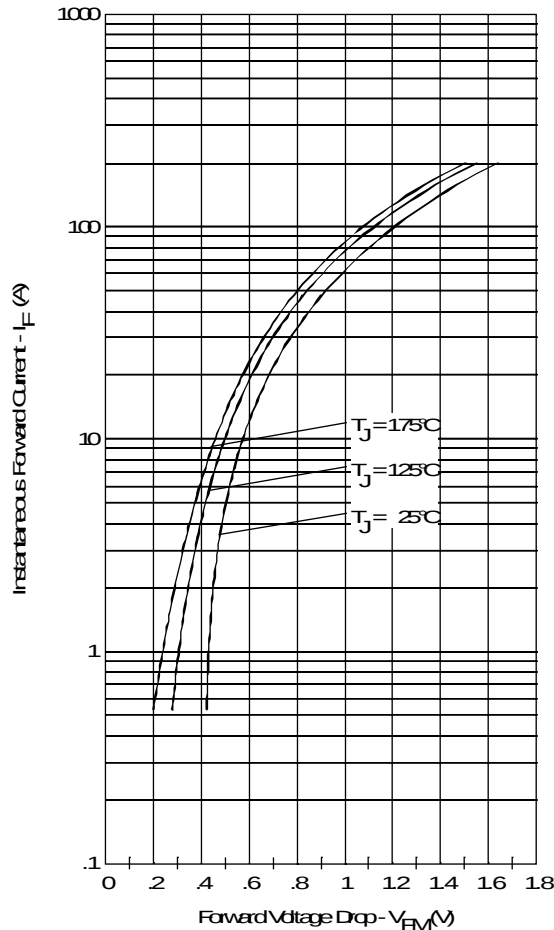


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

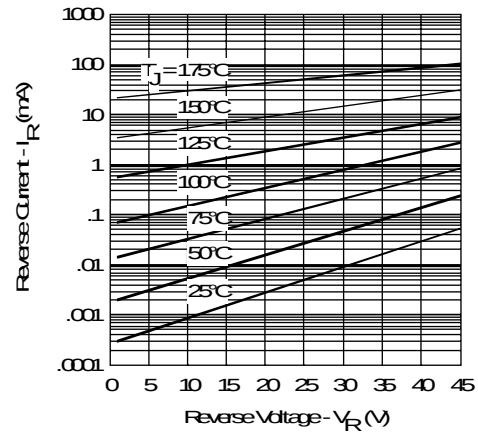


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

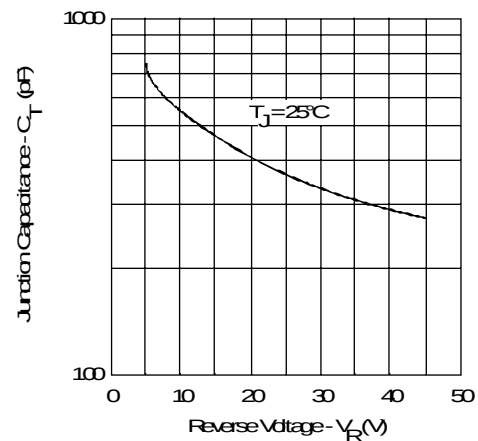


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

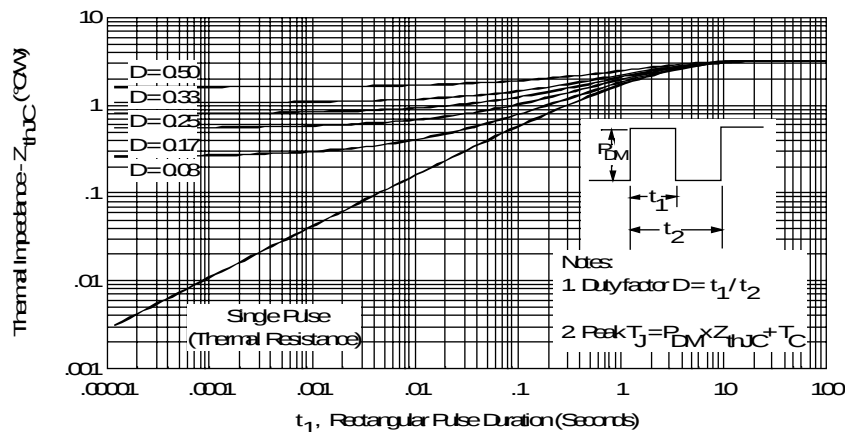


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

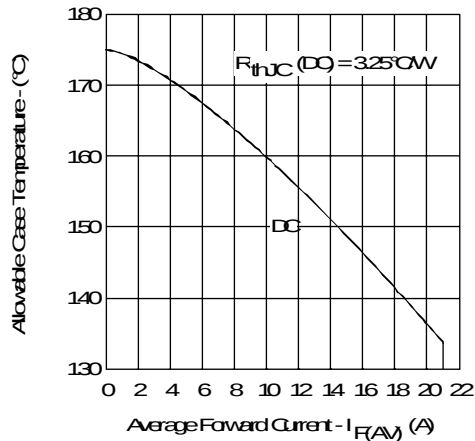


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

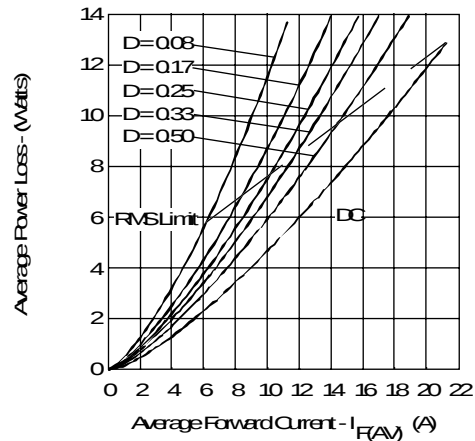


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

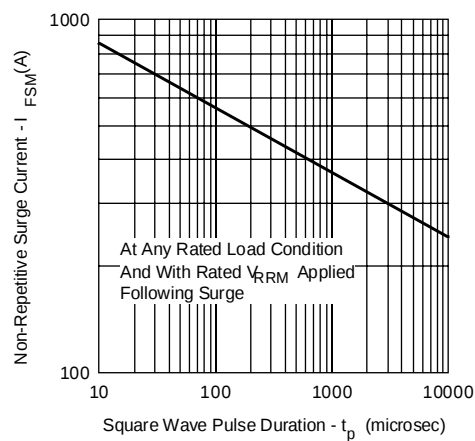


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

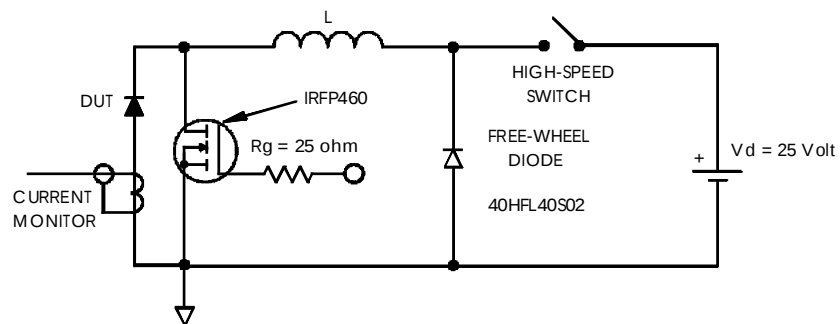


Fig. 8 - Unclamped Inductive Test Circuit