

International IR Rectifier

322CNQ030

SCHOTTKY RECTIFIER

300 Amp

Preliminary Data Sheet PD-20550 rev. A 04/01

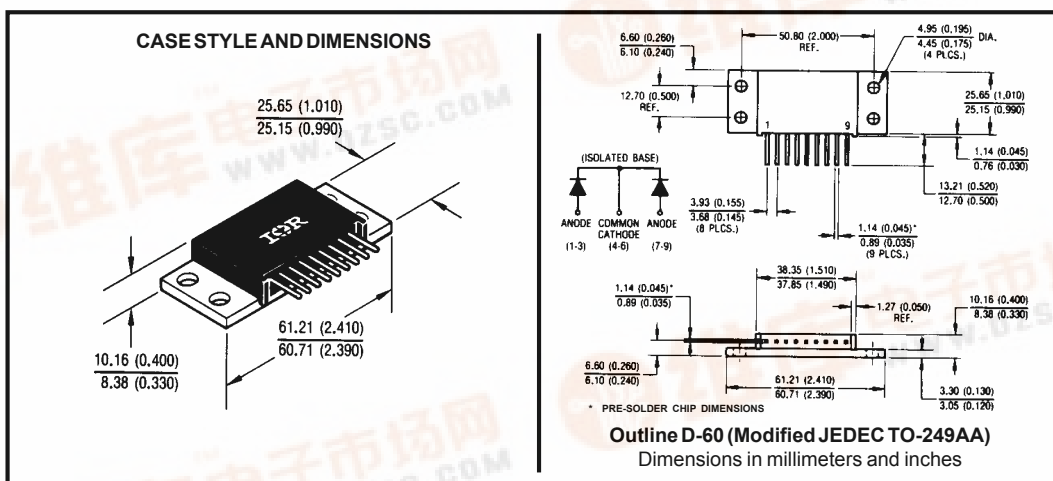
Major Ratings and Characteristics

Characteristics	322CNQ030	Units
$I_{F(AV)}$ Rectangular waveform	300	A
V_{RRM}	30	V
I_{FSM} @ $t_p = 5 \mu s$ sine	10,000	A
V_F @150Apk, $T_J = 125^\circ C$ (per leg)	0.56	V
T_J range	-55 to 150	$^\circ C$

Description/Features

The 322CNQ030 isolated center tap Schottky rectifier module series has been optimized for low reverse leakage at high temperature. 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
- High Surge Capability
- Center tap module
- 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
- Low profile, high current package



322CNQ030

Preliminary Data Sheet PD-20550 rev. A 04/01

International
IR Rectifier

Voltage Ratings

Part number	322CNQ030
V_R Max. DC Reverse Voltage (V)	30
V_{RWM} Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

Parameters	322CNQ	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current (Per Leg)	300	A	50% duty cycle @ $T_C = 87^\circ\text{C}$, rectangular wave form
	150	A	
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg)	10,000	A	5 μs Sine or 3 μs Rect. pulse
	1500		10ms Sine or 6ms Rect. pulse
E_{AS} Non-Repetitive Avalanche Energy (Per Leg)	270	mJ	$T_J = 25^\circ\text{C}$, $I_{AS} = 1$ Amps, $L = 30$ mH
I_{AR} Repetitive Avalanche Current (Per Leg)	60	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	322CNQ	Units	Conditions
V_{FM} Max. Forward Voltage Drop (Per Leg)	0.56	V	@ 150A
	0.70	V	@ 300A
	0.49	V	@ 150A
	0.68	V	@ 300A
I_{RM} Max. Reverse Leakage Current (Per Leg)	10	mA	$T_J = 25^\circ\text{C}$
	650	mA	$T_J = 125^\circ\text{C}$
C_T Max. Junction Capacitance (Per Leg)	5500	pF	$V_R = 5V_{DC}$, (test signal range 100Khz to 1Mhz) 25°C
L_S Typical Series Inductance (Per Leg)	8.0	nH	Measured from terminal hole to terminal hole
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	322CNQ	Units	Conditions
T_J Max. Junction Temperature Range	-55to150	$^\circ\text{C}$	
T_{stg} Max. Storage Temperature Range	-55to150	$^\circ\text{C}$	
R_{thJC} Max. Thermal Resistance Junction to Case (Per Leg)	0.50	$^\circ\text{C}/\text{W}$	DC operation
R_{thJC} Max. Thermal Resistance Junction to Case (Per Package)	0.25	$^\circ\text{C}/\text{W}$	DC operation
R_{thCS} Typical Thermal Resistance, Case to Heatsink	0.10	$^\circ\text{C}/\text{W}$	Mounting surface, smooth and greased
wt Approximate Weight	58 (2.0)	g (oz.)	
T Mounting Torque	Min.	40 (35)	Kg-cm (lbf-in)
	Max.	58 (50)	
Case Style	TO-249AA	JEDEC	

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.

International
IR Rectifier

IR WORLD HEADQUARTERS: 233 Kansas St., El Segundo, California 90245, USA Tel: (310) 252-7105
TAC Fax: (310) 252-7309

Visit us at www.irf.com for sales contact information. 04/01