

# ISOCOM<sup>®</sup>



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## CNG35, CNG36, CNG39 CNX35, CNX36, CNX39 OPTICALLY COUPLED ISOLATORS

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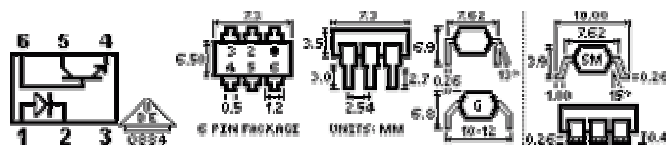
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### Circuit



### Features

- 3120-4400 Volt Isolation.
- High DC Current Transfer Ratio.
- Low Cost Dual-In-Line Package.
- Working Voltage 2500 VDC

### Description

The CNG/CNX Series are optically coupled isolators consisting of a Gallium Arsenide infrared emitting diode and an NPN silicon phototransistor mounted in a standard 6-pin dual-in-line package. Surface Mount Option Available.

All electrical parameters are 100% tested by manufacturing. Specifications are guaranteed to a cumulative 0.65% AQL

## Absolute Maximum Ratings (Ta=25°C)

Storage Temperature: -55°C to +150°C  
 Operating Temperature: -55°C to +100°C  
 Lead Soldering: 260°C for 10s, 1.6mm from case  
 Input-To-Output Isolation Voltage: 3120-4400Vdc

### Input Diode

Forward DC Current: 100mA  
 Reverse DC Voltage: 5V  
 Peak Forward Current (1µs p.w. 300pps): 3A  
 Power Dissipation: 200mW  
 Derate Linearly: 1.33mW/°C above 25°C

### Output Transistor

Collector-Emitter Voltage: 30V  
 Power Dissipation: 200mW

### Optocoupler

Collector Cut-off Current (Dark)  $I_{CEW}$ : 200nA Max (Vcc=10V; work. volt.=2.5kV Diode;  
 Isolation Voltage DC  $V_{IO}$ : If=0) 4.4kVMin  
 Isolation Voltage AC (RMS)  $V_{IO}$ : 3.12kVMin

### Package

Total Power Dissipation: 250mW  
 Derate Linearly: 3.3mW/°C above 25°C

## Electro-optical Characteristics (Ta=25°C)

INPUT	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
$V_F$	Forward Voltage	$I_F=10mA$			1.5	V
$I_R$	Reverse Current	$V_R=5V$			10	µA
OUTPUT	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
$I_{CEO}$	Collector cut-off current (dark)	$V_{CE}=10V$			50	nA
		$V_{CE}=10V, T_A=70°C$			10	µA
		$V_{CB}=10V$			20	nA
	Collector-Emitter Breakdown	$V_{(BR) CEO}$	30			V

	Voltage					
<b>COUPLED</b>	<b>PARAMETER</b>	<b>CONDITIONS</b>	<b>MIN</b>	<b>TYP</b>	<b>MAX</b>	<b>UNIT</b>
I <sub>C</sub> /I <sub>F</sub>	DC Current Transfer Ratio					
	CNG/CNX35	I <sub>F</sub> =10mA, V <sub>CE</sub> =5V	40		80	%
	CNG/CNX36		63		125	%
	CNG/CNX39		100		200	%
R <sub>IO</sub>	Input-to-Output Isolation Resistance	V <sub>IO</sub> =500V, (note 1)	100			Gohm
V <sub>CE(SAT)</sub>	Collector-Emitter Saturation Voltage	I <sub>F</sub> =10mA, I <sub>C</sub> =2.5mA		0.2	0.4	V
C <sub>IO</sub>	Capacitance Input to Output	f=1MHz (note 1)		0.6		pf
T <sub>R</sub>	Output Rise Time	I <sub>F</sub> =10mA, V <sub>CC</sub> =5.0V		2	4	μs
T <sub>ON</sub>	Output Turn-on Time	R <sub>L</sub> =75ohm, T <sub>A</sub> =25°C		3	5.6	μs
T <sub>F</sub>	Output Fall Time			2	3.5	μs
T <sub>OFF</sub>	Output Turn-off Time			2.5	4.1	μs

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