



Parameter	Rating	Units
Breakdown Voltage - $BV_{CEO}$	30	$V_P$
Current Transfer Ratio	200	%
Saturation Voltage	0.5	V
Input Control Current	0.2	mA

## Features

- Small 4-pin Package
- Low Drive Power Requirements (TTL/CMOS Compatible)
- No Moving Parts
- High Reliability
- Arc-Free With No Snubbing Circuits
- 5000V<sub>rms</sub> Input/Output Isolation
- No EMI/RFI Generation
- Machine Insertable, Wave Solderable

## Applications

- Sensor Circuitry
- Instrumentation
- Multiplexers
- Data Acquisition
- Electronic Switching
- I/O Subsystems
- Meters (Watt-Hour, Water, Gas)
- Medical Equipment: Patient/Equipment Isolation
- Aerospace
- Industrial Controls

## Description

The CPC1303 is a unidirectional input optocoupler with a single-transistor output, which uses optically coupled technology to provide an enhanced 5000V<sub>rms</sub> isolation barrier between the input and the output. The optically coupled output is controlled by a highly efficient GaAlAs infrared LED.

This optocoupler satisfies the PD output requirements of the CPC1466.

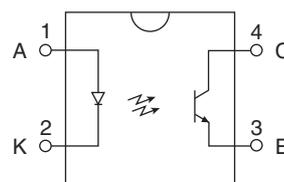
## Approvals

- UL Pending
- EN/IEC 60950-1 Compliant
- CSA Certified Component: Certificate # 043639

## Ordering Information

Part Number	Description
CPC1303G	4-Pin DIP (100/Tube)
CPC1303GR	4-Pin Surface Mount (100/Tube)
CPC1303GRTR	4-Pin Surface Mount (1000/Reel)

## Pin Configuration



### Absolute Maximum Ratings

Parameter	Ratings	Units
Breakdown Voltage	30	V <sub>P</sub>
Reverse Input Voltage	5	V
Input Control Current	50	mA
Peak (10ms)	1	A
Power Dissipation <sup>2</sup>		
Input <sup>1</sup>	150	mW
Phototransistor <sup>2</sup>	150	
Isolation Voltage, Input to Output	5000	V <sub>rms</sub>
Operating Temperature	-40 to +85	°C
Storage Temperature	-40 to +125	°C

<sup>1</sup> Derate Linearly 1.33 mW/°C

<sup>2</sup> Derate Linearly 2.00 mW/°C

Electrical absolute maximum ratings are at 25°C

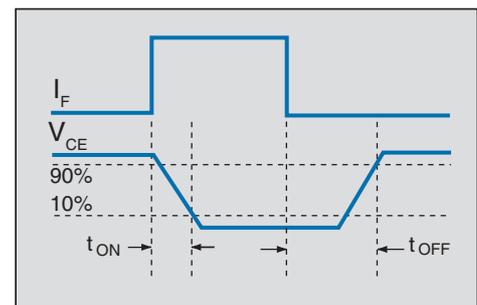
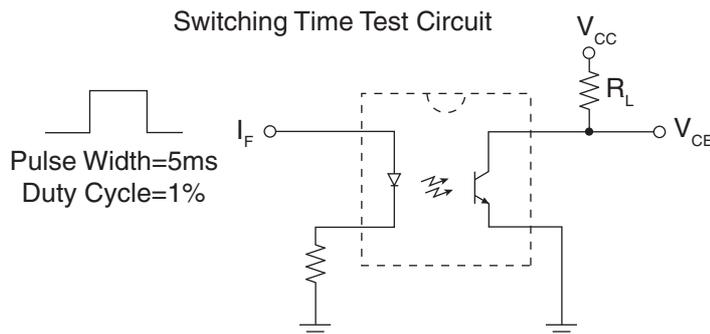
*Absolute Maximum Ratings are stress ratings. Stresses in excess of these ratings can cause permanent damage to the device. Functional operation of the device at conditions beyond those indicated in the operational sections of this data sheet is not implied.*

### Electrical Characteristics

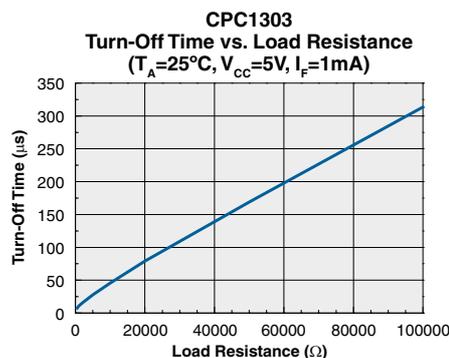
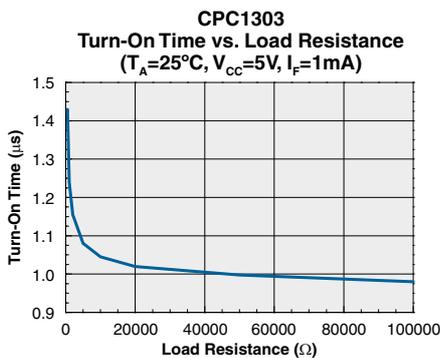
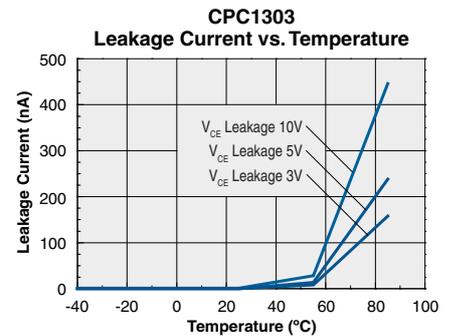
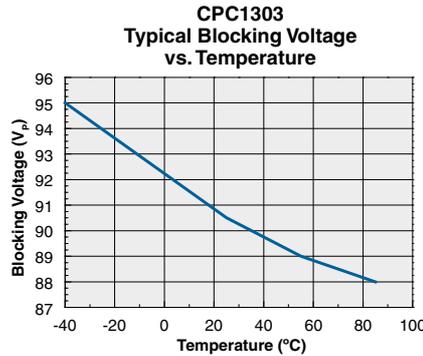
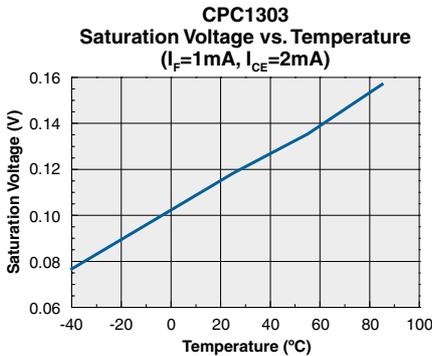
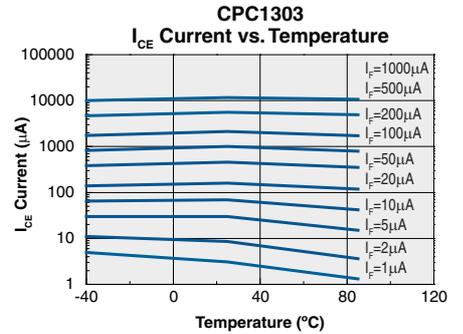
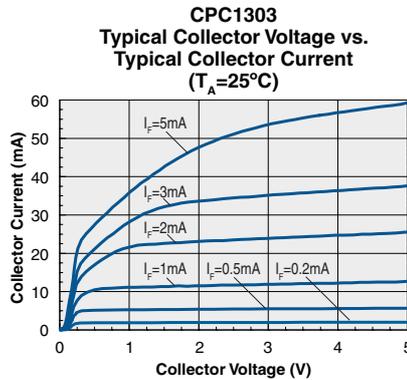
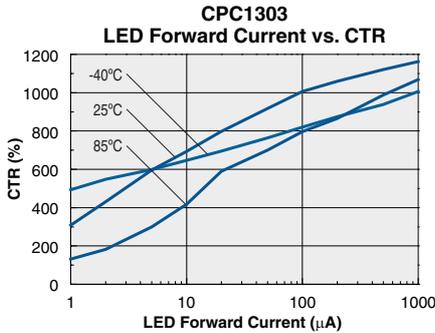
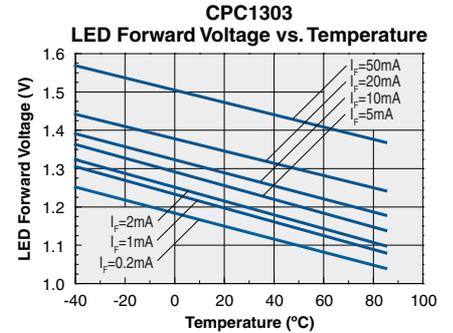
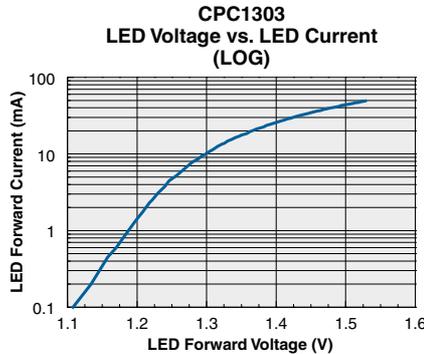
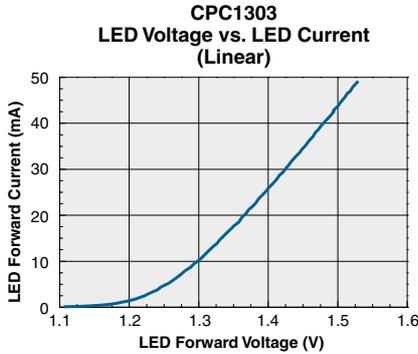
Parameters	Conditions	Symbol	Min	Typ	Max	Units
<b>Output Characteristics @ 25°C</b>						
Phototransistor Breakdown Voltage	I <sub>CEO</sub> =10μA	BV <sub>CEO</sub>	30	-	-	V <sub>P</sub>
Phototransistor Output (Dark) Current	V <sub>CEO</sub> =5V, I <sub>F</sub> =0mA	I <sub>CEO</sub>	-	25	500	nA
Saturation Voltage	I <sub>C</sub> =0.4mA, I <sub>F</sub> =0.2mA	V <sub>CEsat</sub>	-	0.1	0.45	V
	I <sub>C</sub> =10mA, I <sub>F</sub> =10mA		-	0.12	0.5	V
Current Transfer Ratio	I <sub>F</sub> =0.2mA, V <sub>CE</sub> =0.5V	CTR	200	1000	2500	%
Output Capacitance	V <sub>CEO</sub> =25V, f=1MHz	C <sub>OUT</sub>	-	6	-	pF
<b>Input Characteristics @ 25°C</b>						
Input Control Current	I <sub>C</sub> =0.4mA, V <sub>CE</sub> =0.5V	I <sub>F</sub>	-	-	0.2	mA
Input Voltage Drop	I <sub>F</sub> =5mA	V <sub>F</sub>	0.9	1.2	1.4	V
Input Reverse Current	V <sub>R</sub> =5V	I <sub>R</sub>	-	-	10	μA
<b>Common Characteristics @ 25°C</b>						
Input to Output Capacitance	-	C <sub>IO</sub>	-	3	-	pF

### Switching Characteristics @ 25°C

Characteristic	Symbol	Test Condition	Typ	Units
Turn-On Time	t <sub>ON</sub>	V <sub>CC</sub> =5V, I <sub>F</sub> =1mA, R <sub>L</sub> =500Ω	2	μs
Turn-Off Time	t <sub>OFF</sub>		8	



**PERFORMANCE DATA\***



\*The Performance data shown in the graphs above is typical of device performance. For guaranteed parameters not indicated in the written specifications, please contact our application department.

**Manufacturing Information**

**Soldering**

For proper assembly, the component must be processed in accordance with the current revision of IPC/JEDEC standard J-STD-020. Failure to follow the recommended guidelines may cause permanent damage to the device resulting in impaired performance and/or a reduced lifetime expectancy.

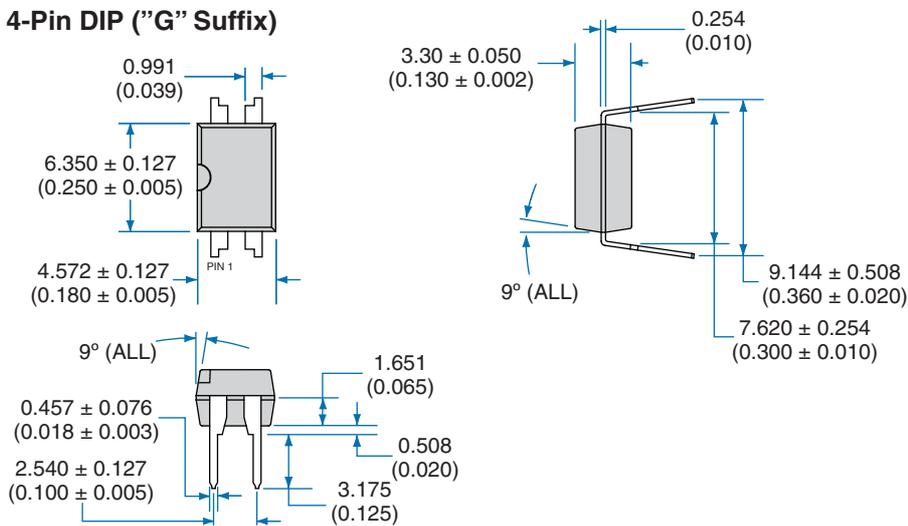
**Washing**

Clare does not recommend ultrasonic cleaning or the use of chlorinated solvents.

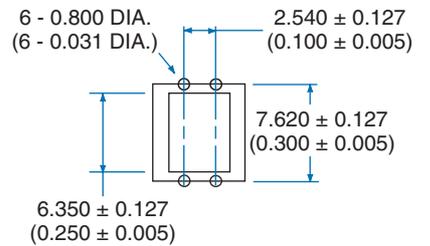


**MECHANICAL DIMENSIONS**

**4-Pin DIP ("G" Suffix)**

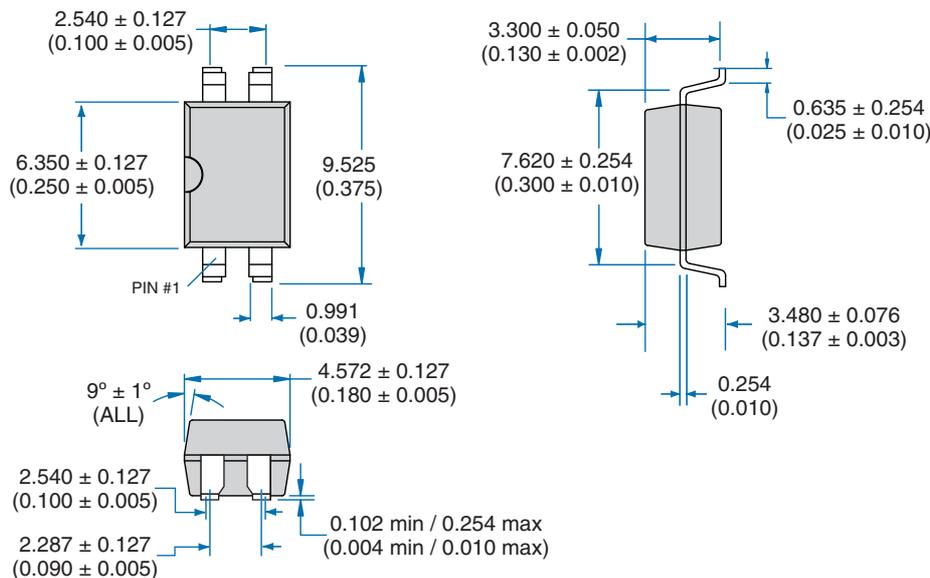


**PC Board Pattern (Top View)**

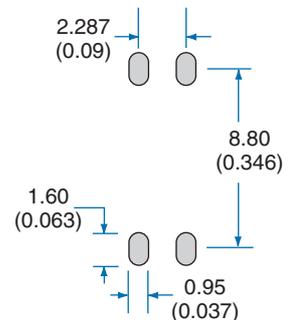


Dimensions  
mm  
(inches)

**4-Pin Surface Mount ("GR" Suffix)**

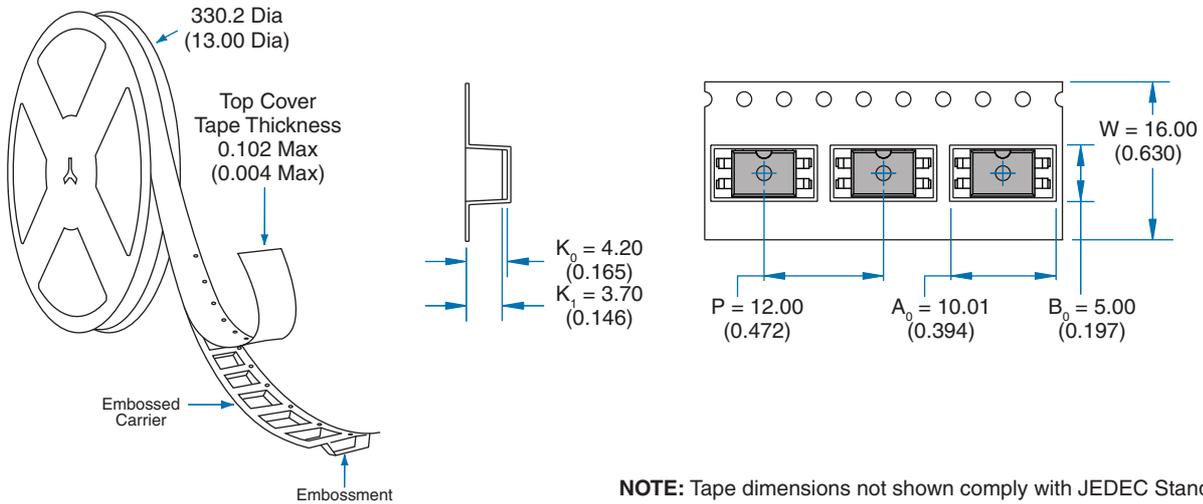


**Recommended PCB Land Pattern**



Dimensions  
mm  
(inches)

**Tape and Reel Packaging for 4-Pin Surface Mount Package**



**NOTE:** Tape dimensions not shown comply with JEDEC Standard EIA-481-2

**For additional information please visit our website at: [www.clare.com](http://www.clare.com)**

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