

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

- 5000V_{rms} Input/Output Isolation
 Low Drive Power Requirements
- High Reliability
- · Arc-Free With No Snubbing Circuits
- No EMI/RFI Generation
- Small 4-pin Package
- Flammability Rating UL 94 V-0

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_{rms} isolation barrier between the input and the output. The optically coupled output is controlled by a highly efficient infrared LED.

This optocoupler satisfies the PD output requirements of IXYS Integrated Circuits' CPC1466 Broadband ADSL/VDSL DC Termination IC.

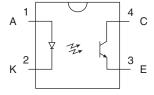
Approvals

- UL 1577 Approved Component: File E76270
- EN/IEC 60950-1 Certified Component: Certificate available on our website

Ordering Information

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

Pin Configuration











Absolute Maximum Ratings @ 25°C

Parameter	Ratings	Units	
Breakdown Voltage	30	V_P	
Reverse Input Voltage	5	V	
Input Control Current	50	mA	
Peak (10ms)	1	Α	
Power Dissipation ²			
Input ¹	150	mW	
Phototransistor ²	150	- IIIVV	
Isolation Voltage, Input to Output	5000	V _{rms}	
Operating Temperature	-40 to +85	°C	
Storage Temperature	-40 to +125	°C	

beyond those indicated in the operational sections of this data sheet is not implied.

Typical values are characteristic of the device at +25°C, and are the regult of engineering evaluations. They are

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

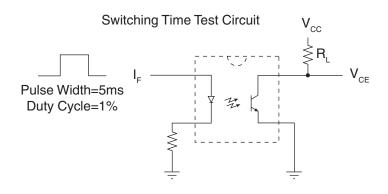
and are the result of engineering evaluations. They are provided for information purposes only, and are not part of the manufacturing testing requirements..

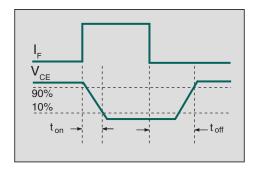
Electrical Characteristics @ 25°C

Parameters	Conditions	Symbol	Min	Тур	Max	Units
Output Characteristics	<u> </u>					
Phototransistor Breakdown Voltage	I _{CEO} =10μA	BV _{CEO}	30	-	-	V _P
Phototransistor Output (Dark) Current	V _{CEO} =5V, I _F =0mA	I _{CEO}	-	25	500	nA
Saturation Voltage	ration Voltage I _C =0.4mA, I _E =0.2mA -		-	0.1	0.45	V
	I _C =10mA, I _F =10mA	- V _{CEsat}	-	0.12	0.5	V
Current Transfer Ratio	I _F =0.2mA, V _{CE} =0.5V	CTR	200	1000	2500	%
Output Capacitance	I _E =0mA, V=25V, f=1MHz	C _{OUT}	-	6	-	pF
Input Characteristics				'	1	
Input Control Current	I _C =0.4mA, V _{CE} =0.5V	I _F	-	-	0.2	mA
Input Voltage Drop	I _F =5mA	V_{F}	0.9	1.2	1.5	V
Input Reverse Current	V _R =5V	I _R	-	-	10	μΑ
Common Characteristics		1		1	1	ı
Capacitance, Input to Output	V _{IO} =0V, f=1MHz	C _{IO}	-	3	-	pF

Switching Characteristics @ 25°C

Characteristic	Symbol	Test Condition	Тур	Units
Turn-On Time	t _{on}	V -5V I -1mA R -5000	2	116
Turn-Off Time	t _{off}	V_{CC} =5V, I_F =1mA, R_L =500 Ω	8	μS



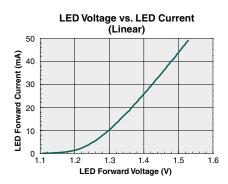


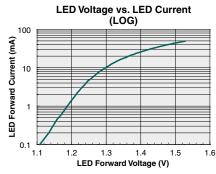
¹ Derate linearly 1.33 mW / °C

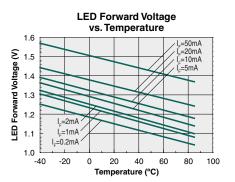
² Derate linearly 2.00 mW / °C

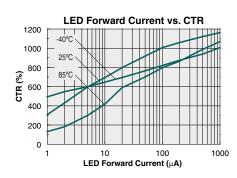


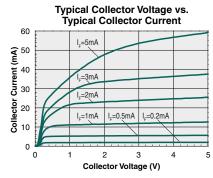
PERFORMANCE DATA*

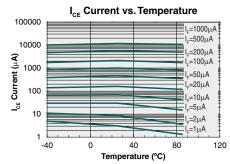


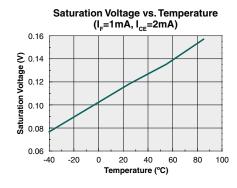


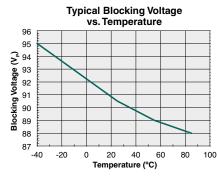


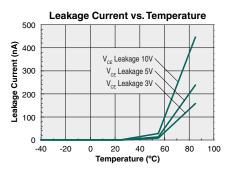


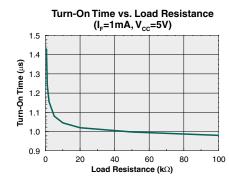


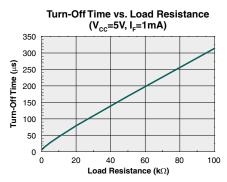












*Unless otherwise noted, data presented in these graphs is typical of device operation at 25°C. For guaranteed parameters not indicated in the written specifications, please contact our application department.



Manufacturing Information

Moisture Sensitivity

All plastic encapsulated semiconductor packages are susceptible to moisture ingression. IXYS Integrated Circuits classifies its plastic encapsulated devices for moisture sensitivity according to the latest version of the joint industry standard, IPC/JEDEC J-STD-020, in force at the time of product evaluation. We test all of our products to the maximum conditions set forth in the standard, and guarantee proper operation of our devices when handled according to the limitations and information in that standard as well as to any limitations set forth in the information or standards referenced below.

Failure to adhere to the warnings or limitations as established by the listed specifications could result in reduced product performance, reduction of operable life, and/or reduction of overall reliability.

This product carries a Moisture Sensitivity Level (MSL) classification as shown below, and should be handled according to the requirements of the latest version of the joint industry standard **IPC/JEDEC J-STD-033**.

Device	Moisture Sensitivity Level (MSL) Classification	
CPC1303G	MSL 1	
CPC1303GR	MSL 3	

ESD Sensitivity



This product is **ESD Sensitive**, and should be handled according to the industry standard **JESD-625**.

Soldering Profile

Provided in the table below is the Classification Temperature ($T_{\rm C}$) of this product and the maximum dwell time the body temperature of this device may be above ($T_{\rm C}$ - 5)°C. The classification temperature sets the Maximum Body Temperature allowed for this device during lead-free reflow processes. Additionally, for the CPC1303GR, the solder reflow profile given in Technical Brief TB-200 "**Pb-Free Solder Reflow Profile for Select Devices**" must be followed. For the through-hole device, CPC1303G, and any other processes, the guidelines of **J-STD-020** must be observed.

Device	Classification Temperature (T _c)	Dwell Time (t _p)	Max Reflow Cycles
CPC1303G	250°C	15 seconds	1
CPC1303GR	250°C	15 seconds	3

Board Wash

IXYS Integrated Circuits recommends the use of no-clean flux formulations. Board washing to reduce or remove flux residue following the solder reflow process is acceptable provided proper precautions are taken to prevent damage to the device. These precautions include, but are not limited to: using a low pressure wash and providing a follow up bake cycle sufficient to remove any moisture trapped within the device due to the washing process. Due to the variability of the wash parameters used to clean the board, determination of the bake temperature and duration necessary to remove the moisture trapped within the package is the responsibility of the user (assembler). Cleaning or drying methods that employ ultrasonic energy may damage the device and should not be used. Additionally, the device must not be exposed to flux or solvents that are Chlorine- or Fluorine-based.



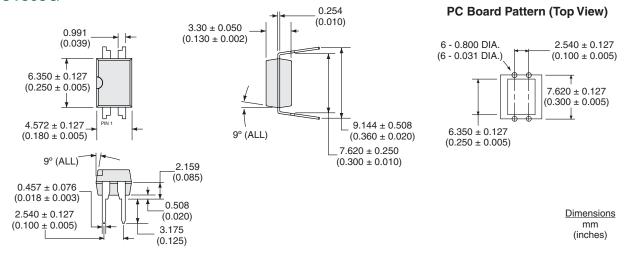




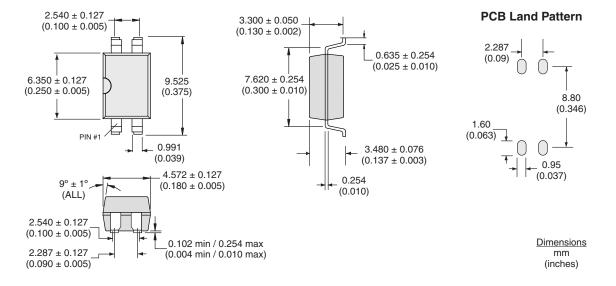


MECHANICAL DIMENSIONS

CPC1303G

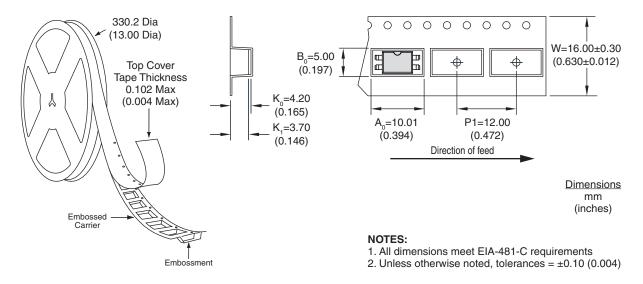


CPC1303GR





CPC1303GRTR Tape & Reel



For additional information please visit our website at: www.ixysic.com

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