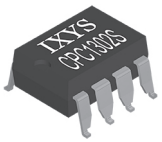
IXYS
INTEGRATED CIRCUITS DIVISION



CPC1302
Dual Optocoupler
High-Voltage Darlington Output

Parameter	Rating	Units
Breakdown Voltage - BV_{CEO}	350	V_P
Current Transfer Ratio - CTR	1000-8000	%

Features

- $350V_P$ Breakdown Voltage
- $3750V_{rms}$ Input/Output Isolation
- Surface Mount Tape & Reel Version Available

Applications

- Telecom Switching
- Tip/Ring Circuits
- Hook Switch
- Modem Switching (Laptop, Notebook, Pocket Size)
- Loop Detect
- Ringing Detect
- Current Sensing

Description

The CPC1302 is a dual optocoupler with two identical, independent channels, each having a unidirectional input and a high-voltage Darlington output. Light output from the highly efficient infrared LED activates its associated, optically coupled silicon NPN photo-Darlington output transistor. The input LED and the output transistor are separated by a $3750V_{rms}$ isolation barrier.

With a LED current of only 1mA, a current transfer ratio of 1000% to 8000% is guaranteed at the collector of the 350V Darlington output transistor.

The CPC1302's low input current capability with high current transfer ratios, output voltage capability, and isolation barrier rating make it ideal for many applications such as telecom, industrial, and power control.

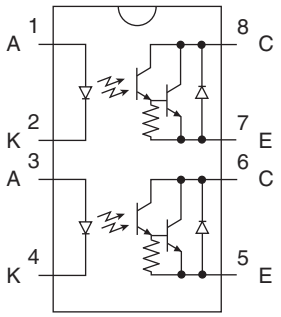
Approvals

- UL 1577 Approved Component: File E76270
- CSA Certified Component: Certificate 1172007
- TUV EN 62368-1: Certificate B 082667 0008

Ordering Information

Part Number	Description
CPC1302G	8-Pin DIP (50/Tube) Not For New Designs
CPC1302GS	8-Pin Surface Mount (50/Tube) Not For New Designs
CPC1302GSTR	8-Pin Surface Mount (1000/Reel)

Pin Configuration



Downloaded from Arrow.com.

Absolute Maximum Ratings @ 25ºC

Parameter	Ratings	Units
Breakdown Voltage, BV_{CEO}	350	V_P
Reverse Input Voltage	5	V
Input Control Current	50	mA
Peak (10ms)	1	A
Input Power Dissipation [1] (Each)	150	mW
Phototransistor Power Dissipation [2] (Each)	150	mW
Isolation Voltage, Input to Output	3750	V_{rms}
Operational Temperature	-40 to +85	°C
Storage Temperature	-40 to +125	°C

[1] Derate linearly 1.33 mW / ºC
[2] Derate linearly 1.5 mW / ºC

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.

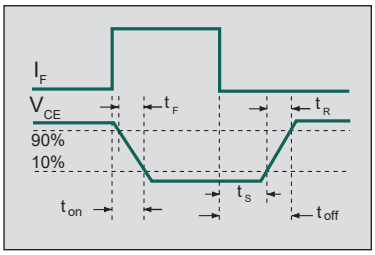
Typical values are characteristic of the device at +25°C, and are the result of engineering evaluations. They are provided for information purposes only, and are not part of the manufacturing testing requirements.

Electrical Characteristics @ 25ºC

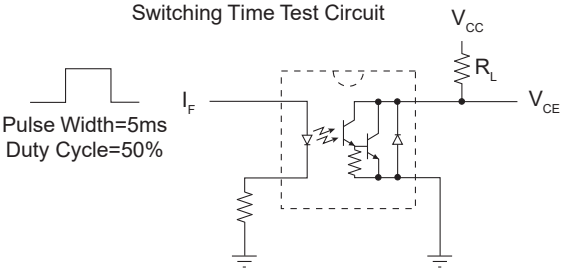
Parameters	Conditions	Symbol	Min	Typ	Max	Units
Output Characteristics						
Phototransistor Breakdown Voltage	I_{CEO}=100µA	BV_{CEO}	350	-	-	V_P
Emitter-Collector Breakdown Voltage	I_E=0.1mA	BV_{ECO}	0.3	-	-	V
Phototransistor Output (Dark) Current	V_{CEO}=200V, I_F=0mA	I_{CEO}	-	-	100	nA
Saturation Voltage	I_C=10mA, I_F=1mA	$V_{CE(sat)}$	-	-	1	V
	I_C=100mA, I_F=10mA		-	-	1.2	V
Current Transfer Ratio	I_F=1mA, V_{CE}=1V	CTR	1000	5500	8000	%
Output Capacitance	V_{CEO}=50V, f=1MHz	C_{OUT}	-	13	-	pF
Input Characteristics						
Input Control Current	I_C=10mA, V_{CE}=1V	I_F	-	0.07	1	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	µA
Common Characteristics						
Input to Output Capacitance	-	$C_{I/O}$	-	3	-	pF

Switching Characteristics @ 25ºC

Characteristic	Symbol	Test Condition	Typ	Units
Rise Time	t_R	V_{CC}=10V I_F=10mA R_L=100Ω	40	µs
Fall Time	t_F		5	
Turn-On Time	t_{on}		5	
Storage Time	t_S		20	
Turn-Off Time	t_{off}		60	
Turn-On Time	t_{on}	V_{CC}=10V I_F=16mA R_L=180Ω	1	
Storage Time	t_S		40	
Turn-Off Time	t_{off}		80	



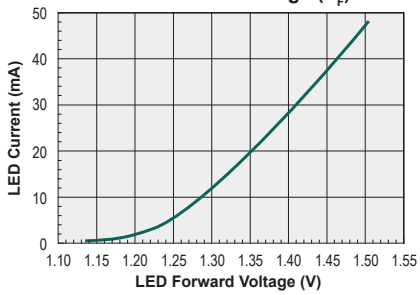
Switching Time Test Circuit



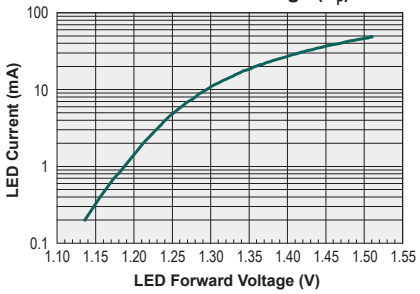
Downloaded from Arrow.com.

PERFORMANCE DATA*

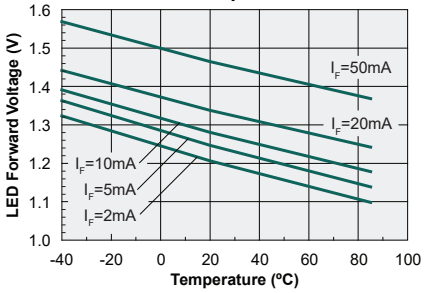
LED Current (I_F) vs. LED Forward Voltage (V_F)



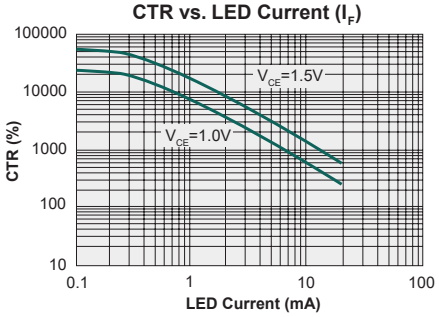
LED Current (I_F) vs. LED Forward Voltage (V_F)



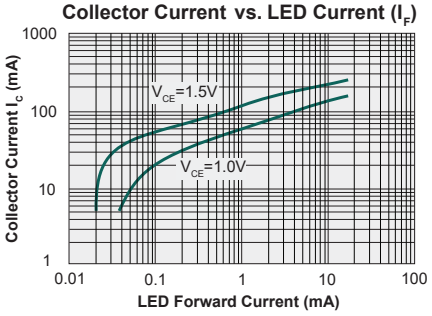
LED Forward Voltage vs. Temperature



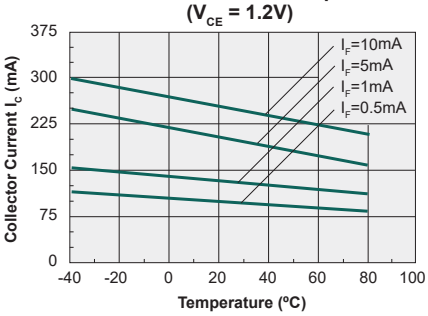
CTR vs. LED Current (I_F)



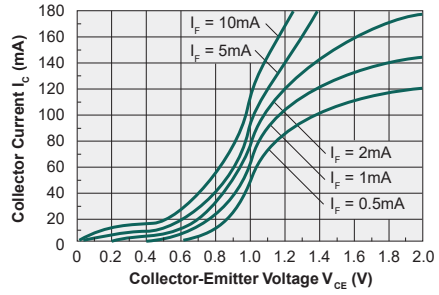
Collector Current vs. LED Current (I_F)



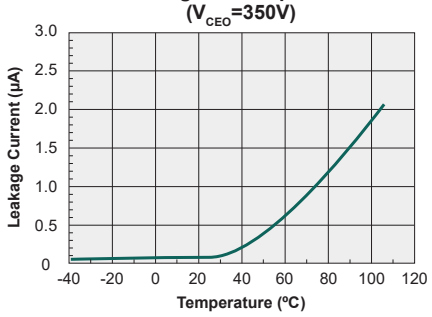
Collector Current vs. Temperature (V_{CE} = 1.2V)



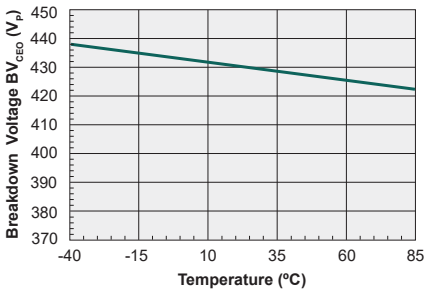
Collector Current vs. Collector-Emitter Voltage



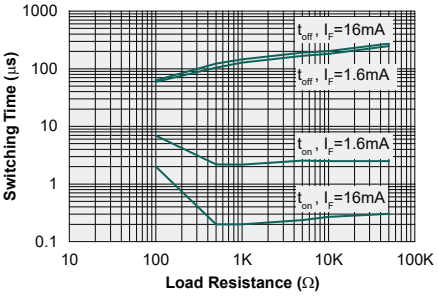
Leakage vs. Temperature (V_{CEO}=350V)



Breakdown Voltage vs. Temperature



Switching Time vs. Load Resistance



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

Downloaded from Arrow.com.

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
CPC1302G Not For New Designs	MSL 1
CPC1302GS	MSL 1

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_C) of this product and the maximum dwell time the body temperature of this device may be (T_C - 5)ºC or greater. The classification temperature sets the Maximum Body Temperature allowed for this device during lead-free reflow processes. For through-hole devices, 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
CPC1302G Not For New Designs	250ºC	30 seconds	1
CPC1302GS	250ºC	30 seconds	3

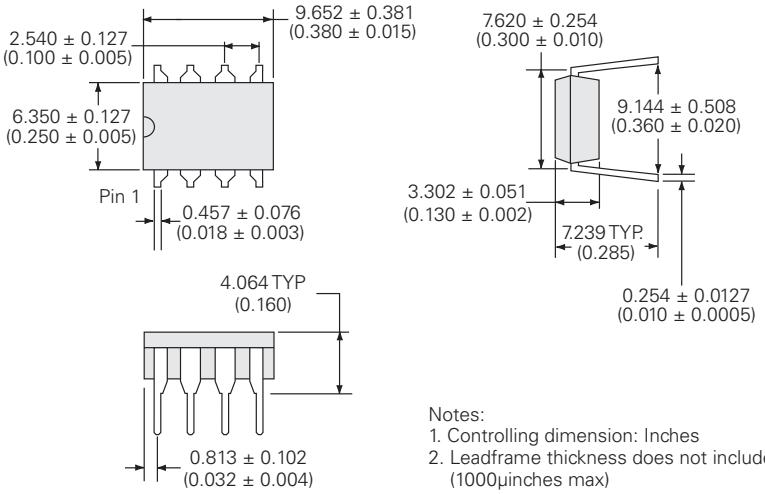
Board Wash

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.

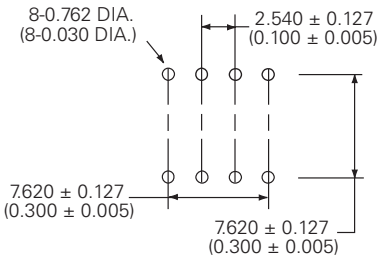
Downloaded from Arrow.com.

MECHANICAL DIMENSIONS

CPC1302G Not For new Designs



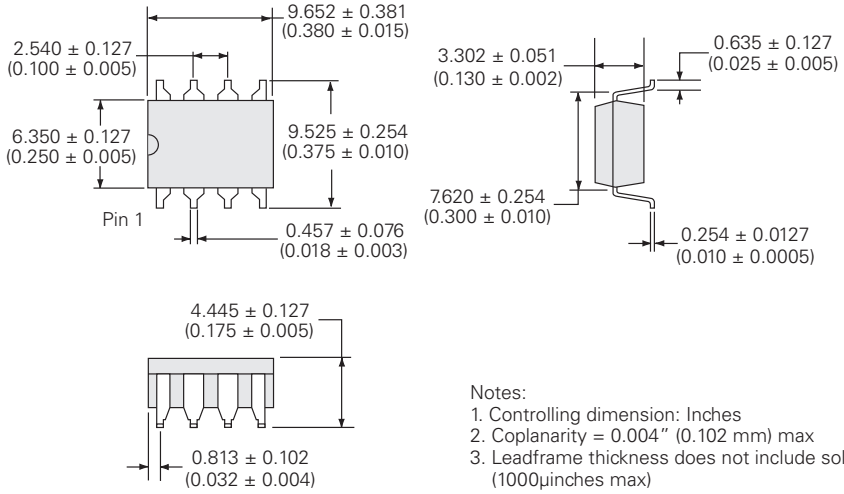
PCB Hole Pattern



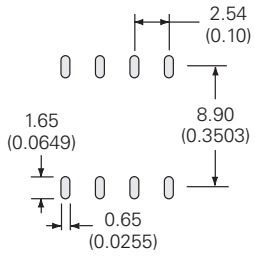
Notes:
1. Controlling dimension: Inches
2. Leadframe thickness does not include solder plating (1000µinches max)

Dimensions
mm
(inches)

CPC1302GS



PCB Land Pattern



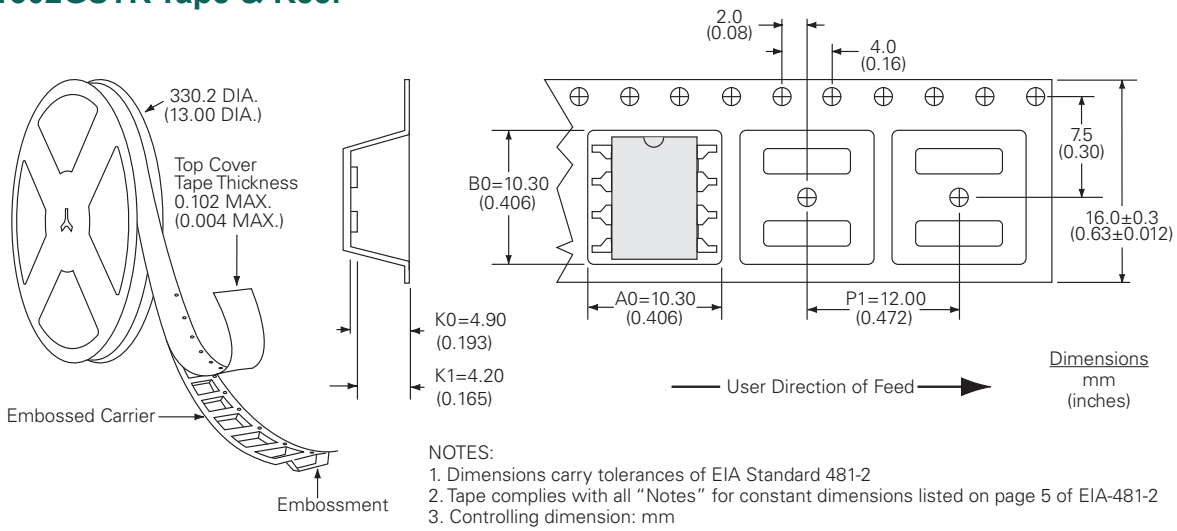
Notes:
1. Controlling dimension: Inches
2. Coplanarity = 0.004" (0.102 mm) max
3. Leadframe thickness does not include solder plating (1000µinches max)

Dimensions
mm
(inches)

Downloaded from Arrow.com.

MECHANICAL DIMENSIONS

CPC1302GSTR Tape & Reel



NOTES:
1. Dimensions carry tolerances of EIA Standard 481-2
2. Tape complies with all "Notes" for constant dimensions listed on page 5 of EIA-481-2
3. Controlling dimension: mm

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

IXYS
A Littelfuse Technology

Disclaimer Notice - Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at https://www.littelfuse.com/disclaimer-electronics.

Specification: DS-CPC1302-R09
©Copyright 2026, Littelfuse, Inc.
OptoMOS® is a registered trademark of Littelfuse, Inc.
All rights reserved. Printed in USA.
9/16/2026

Downloaded from Arrow.com.