Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

IXYS
INTEGRATED CIRCUITS DIVISION

CPC1001N
Optocoupler: Unidirectional Input, Single-Transistor Output

Parameter	Rating	Units
Breakdown Voltage BV_{CEO}	30	V
Current Transfer Ratio (Min)	100	%
Saturation Voltage	0.3	V
Input Control Current	0.2	mA

Features

- 100mA Continuous Load Rating
- $1500V_{rms}$ Input/Output Isolation
- Small 4-Pin SOP Package
- Machine Insertable, Wave Solderable
- Surface Mount and Tape & Reel Version Available

Applications

- Loop Detect
- Ringing Detect
- Sensor Circuitry
- Instrumentation
- Multiplexers
- Data Acquisition
- I/O Subsystems
- Industrial Control

Description

CPC1001N is a unidirectional input optocoupler with a single transistor output. Current transfer ratios range from 100% to 800%.

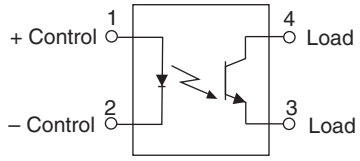
Approvals

- UL Recognized Component: File # E76270
- CSA Certified Component: Certificate # 1175739
- EN/IEC 60950-1 Certified Component: TUV Certificate B 09 07 49410 004

Ordering Information

Part #	Description
CPC1001N	4-Pin SOP (100/Tube)
CPC1001NTR	4-Pin SOP Surface Mount (2000/Reel)

Pin Configuration



Absolute Maximum Ratings @ 25ºC

Parameter	Ratings	Units
Input Power Dissipation [1]	150	mW
Input Control Current	5	mA
Peak (10ms)	1	A
Reverse Input Voltage	5	V
Phototransistor [2]	150	mW
Isolation Voltage, Input to Output	1500	V_{rms}
Operational Temperature	-40 to +85	°C
Storage Temperature	-40 to +125	°C

[1] Derate linearly 1.33 mW / ºC

[2] Derate linearly 2.00 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.

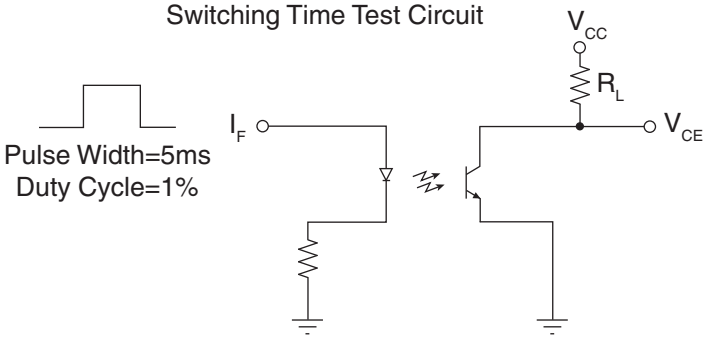
Electrical Characteristics @ 25ºC

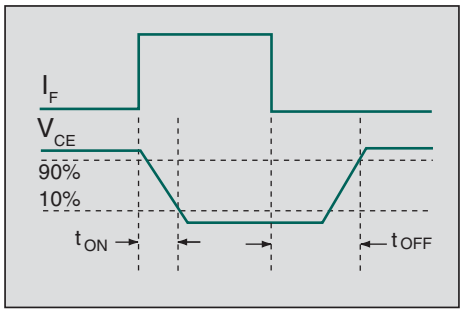
Parameters	Conditions	Symbol	Min	Typ	Max	Units
Output Characteristics						
Phototransistor Blocking Voltage	I_{CEO}=10µA	BV_{CEO}	30	90	-	V_P
Phototransistor Output (Dark) Current	I_F=0mA, V_{CEO}=5V	I_{CEO}	-	9	500	nA
Saturation Voltage	I_F=1mA, I_C=1mA	$V_{CE(sat)}$	-	-	0.3	V
Current Transfer Ratio	I_F=0.2mA, V_{CE}=0.5V	CTR	100	330	800	%
Output Capacitance	V_{CEO}=25V, f=1MHz	C_{OUT}	-	6	-	pF
Input Characteristics						
Input Control Current	I_C=0.2mA, V_{CE}=0.5V	I_F	-	0.1	0.2	mA
Input Voltage Drop	I_F=5mA	V_F	0.9	1.2	1.4	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
Turn-On Time	t_{on}	I_F=2mA, V_{CC}=5V, R_L=1KΩ	1	µs
Turn-Off Time	t_{off}		30	

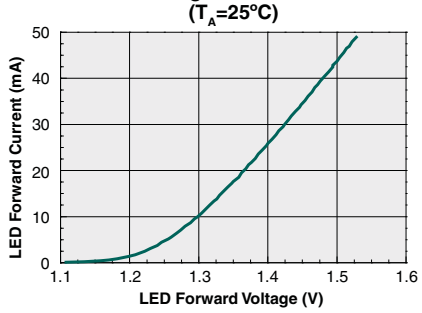
Switching Time Test Circuit



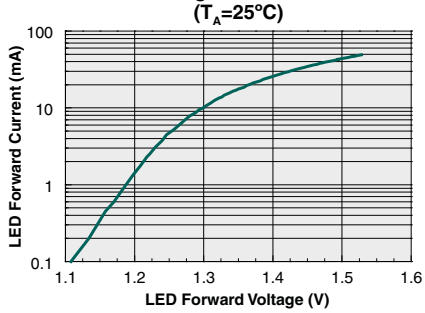


PERFORMANCE DATA*

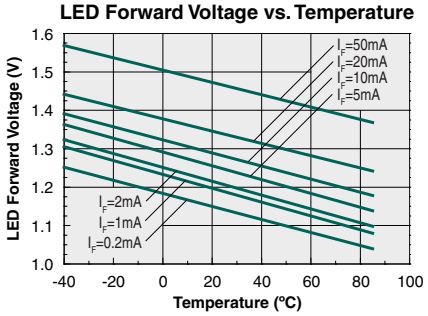
LED Voltage vs. LED Current (T_A=25°C)



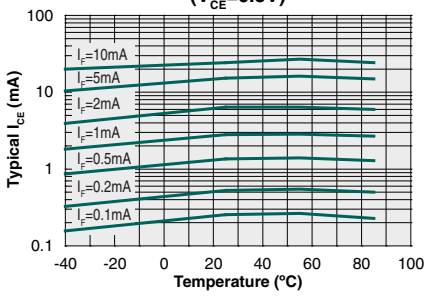
LED Voltage vs. LED Current (T_A=25°C)



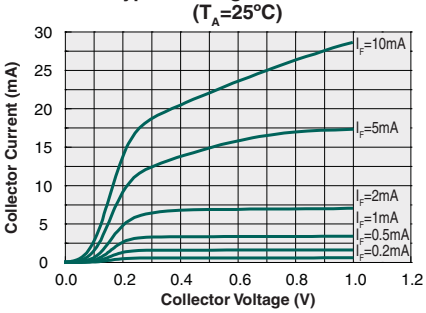
LED Forward Voltage vs. Temperature



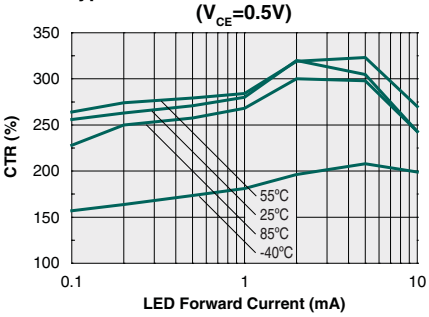
Typical I_{CE} Current vs. Temperature (V_{CE}=0.5V)



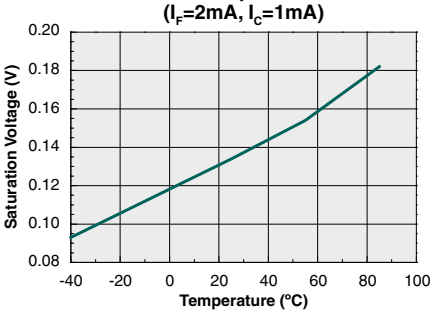
Typical Voltage vs. Current (T_A=25°C)



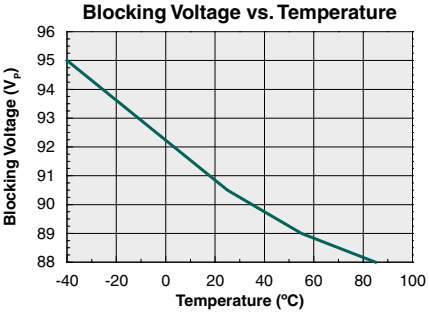
Typical CTR vs. LED Forward Current (V_{CE}=0.5V)



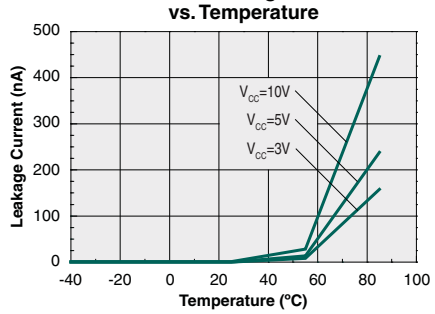
Typical Saturation Voltage vs. Temperature (I_F=2mA, I_C=1mA)



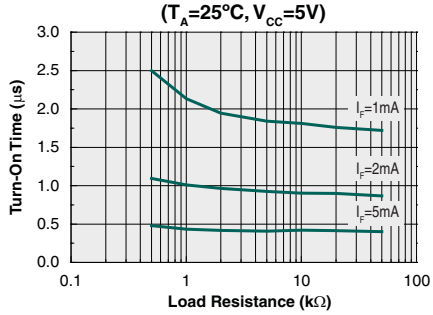
Blocking Voltage vs. Temperature



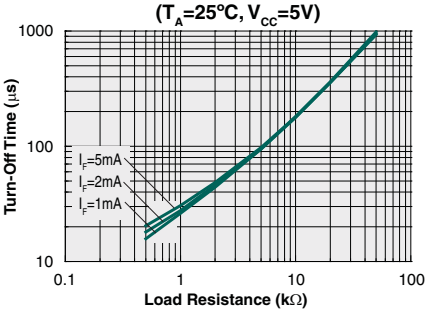
Collector Leakage Current vs. Temperature



Turn-On Time vs. Load Resistance (T_A=25°C, V_{CC}=5V)



Turn-Off Time vs. Load Resistance (T_A=25°C, V_{CC}=5V)



Refer to the Test Circuit on the previous page for these two graphs.

*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

Moisture Sensitivity

All plastic encapsulated semiconductor packages are susceptible to moisture ingression. IXYS Integrated Circuits Division classified all of 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) rating** 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) Rating
CPC1001N	MSL 3

ESD Sensitivity

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

Reflow Profile

This product has a maximum body temperature and time rating as shown below. All other guidelines of **J-STD-020** must be observed.

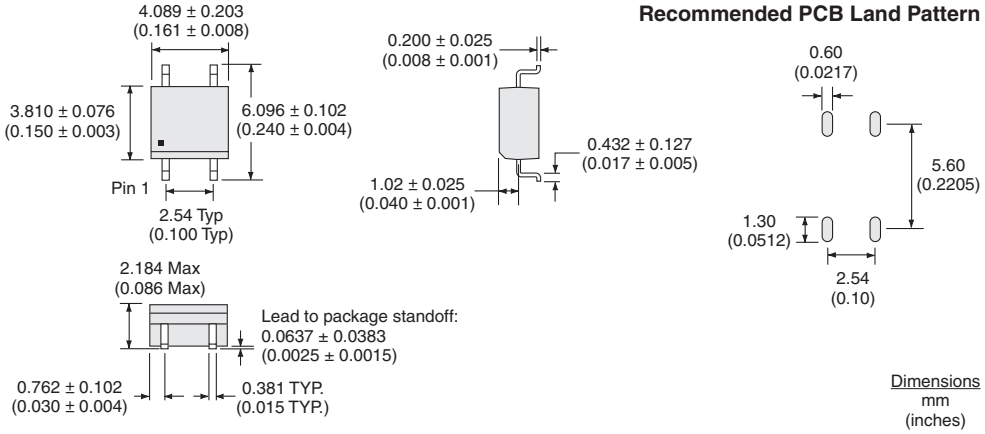
Device	Maximum Temperature x Time
CPC1001N	260°C for 30 seconds

Board Wash

IXYS Integrated Circuits Division recommends the use of no-clean flux formulations. However, board washing to remove flux residue is acceptable. Since IXYS Integrated Circuits Division employs the use of silicone coating as an optical waveguide in many of its optically isolated products, the use of a short drying bake could be necessary if a wash is used after solder reflow processes. Chlorine- or Fluorine-based solvents or fluxes should not be used. Cleaning methods that employ ultrasonic energy should not be used.

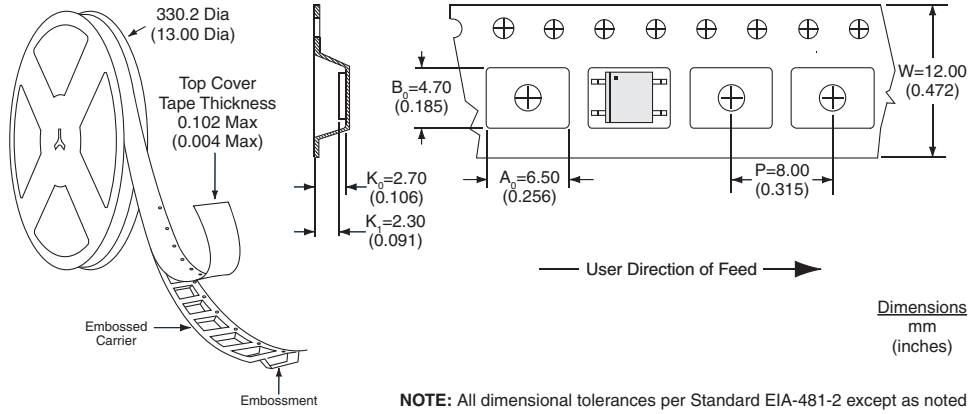
MECHANICAL DIMENSIONS

CPC1001N



Dimensions
mm
(inches)

CPC1001NTR Tape & Reel



Dimensions
mm
(inches)

NOTE: All dimensional tolerances per Standard EIA-481-2 except as noted

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

Specification: DS-CPC1001N-R05

12/13/2012