



	CPC1961G	Units
Blocking Voltage	600	V <sub>p</sub>
Load Current <sup>1</sup>	200	mA
On State Voltage Drop	3.0	V <sub>rms</sub> (at I <sub>L</sub> = 250mA)

<sup>1</sup> One Pole Operating

### Features

- Load Current up to 200 mA
- 600V Blocking Voltage
- 5mA Sensitivity
- Zero-Crossing Detection
- DC Control, AC Output
- Optically Isolated
- TTL and CMOS Compatible
- Low EMI and RFI Generation
- High Noise Immunity
- Machine Insertable, Wave Solderable
- Flammability classification rating of V-0

### Applications

- Programmable Control
- Process Control
- Power Control Panels
- Remote Switching
- Gas Pump Electronics
- Contactors
- Large Relays
- Solenoids
- Motors
- Heaters

### Description

The CPC1961G is a dual pole AC solid state switch that uses optical coupling with dual monolithic SCR outputs to produce an alternative to optocoupler and triac circuits. The CPC1961G switches are robust enough to provide a blocking voltage of up to 600V. In addition, tightly controlled zero cross circuitry ensures switching of AC loads without the generation of transients. The input and output circuits are optically coupled to provide 3750V<sub>rms</sub> of isolation and noise immunity between control and load circuits. As a result the CPC1961G is well suited for industrial environments where electromagnetic interference would disrupt the operation of electromechanical relays. The CPC1961G is offered in a space saving 8 pin DIP package with two independent switches.

### Approvals

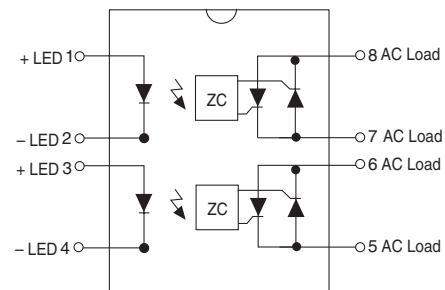
- UL recognized; File #E69938

### Ordering Information

Part #	Description
CPC1961G	8 Pin Dip (50/Tube)
CPC1961GS	8 Pin Surface Mount (50/Tube)
CPC1961GSTR	8 Pin Surface Mount (1000/Reel)

### Pin Configuration

CPC1961G Pinout



### Absolute Maximum Ratings (@ 25° C)

Parameter	Ratings	Units
Blocking Voltage	600	V <sub>P</sub>
Reverse Input Voltage	5	V <sub>P</sub>
Input Control Current	50	mA
Peak (10ms)	1	A
Input Power Dissipation <sup>1</sup>	150	mW
Total Package Dissipation <sup>2</sup>	800	mW
Isolation Voltage Input to Output	3750	V <sub>rms</sub>
Operational 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 6.67 mW/°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>						
Operating Voltage Range	V <sub>T</sub>	-	20	-	240	V <sub>rms</sub>
Load Current <sup>4</sup>	V <sub>L</sub> =120-260V <sub>rms</sub> , Continuous	I <sub>L</sub>	0.005	-	200	mA <sub>rms</sub>
Non-repetitive Single Cycle Surge Current	-	I <sub>TSM</sub>	-	-	1.0	A
Off State Leakage Current	V <sub>DRM</sub>	I <sub>LEAK</sub>	-	-	1	mA
On-State Voltage Drop	I <sub>L</sub> =250 mA	-	-	-	3.0	V <sub>rms</sub>
Critical Rate of Rise <sup>3</sup>	-	dv/dt	1000	-	-	V/μs
Switching Speeds						
Turn-on	I <sub>F</sub> =5 mA	T <sub>ON</sub>	-	-	0.5	cycles
Turn-off	I <sub>F</sub> =5 mA	T <sub>OFF</sub>	-	-	0.5	cycles
Zero-Cross Turn-On Voltage	1st half cycle	-	-	5	20	V
	Sub. half cycle	-	-	-	5	V
Operating Frequency <sup>1</sup>	-	-	20	-	400	Hz
Load Power Factor for Guaranteed Turn-On <sup>2</sup>	60 Hz	PF	0.25	-	-	-
<b>Input Characteristics @ 25°C</b>						
Input Control Current						
For Normal Environment	-	I <sub>F</sub>	5	-	-	mA
For High Noise Environment	-	I <sub>F</sub>	10	-	-	mA
Input Voltage Drop	I <sub>F</sub> =5mA	V <sub>F</sub>	0.9	1.2	1.4	V
Input Drop-out Voltage	-	-	0.8	-	-	V
Reverse Input Current	V <sub>R</sub> =5V	I <sub>R</sub>	-	-	10	μA
<b>Common Characteristics @ 25°C</b>						
Input to Output Capacitance	-	C <sub>I/O</sub>	-	3	-	pF

<sup>1</sup> Zero Cross 1st half cycle @ <100Hz

<sup>2</sup> Snubber circuits may be required at low power factors.

<sup>3</sup> Tested in accordance with EIA/NARM standard RS-443.

<sup>4</sup> Maximum current with one pole operating. Maximum continuous load current with both poles operating simultaneously is 110mA.

**Manufacturing Information**

**Soldering**

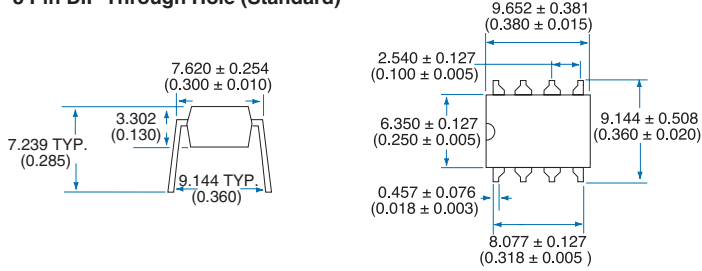
Recommended soldering processes are limited to 245°C component body temperature for 10 seconds.

**Washing**

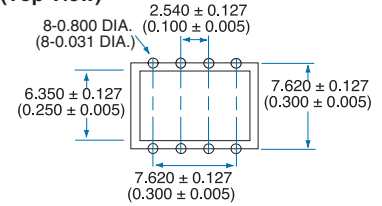
Clare does not recommend ultrasonic cleaning or the use of chlorinated solvents.

**MICHAICAL DIMENSIONS**

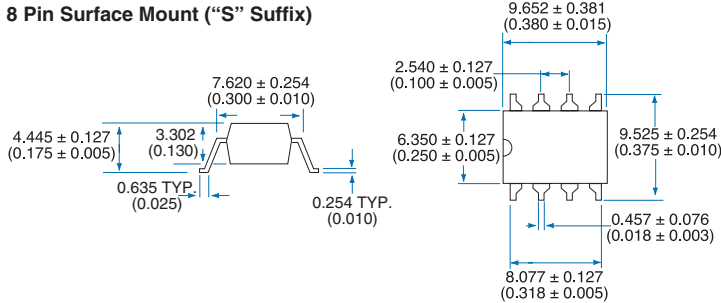
**8 Pin DIP Through Hole (Standard)**



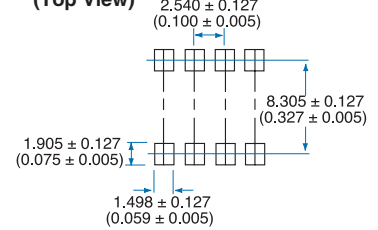
**PC Board Pattern (Top View)**



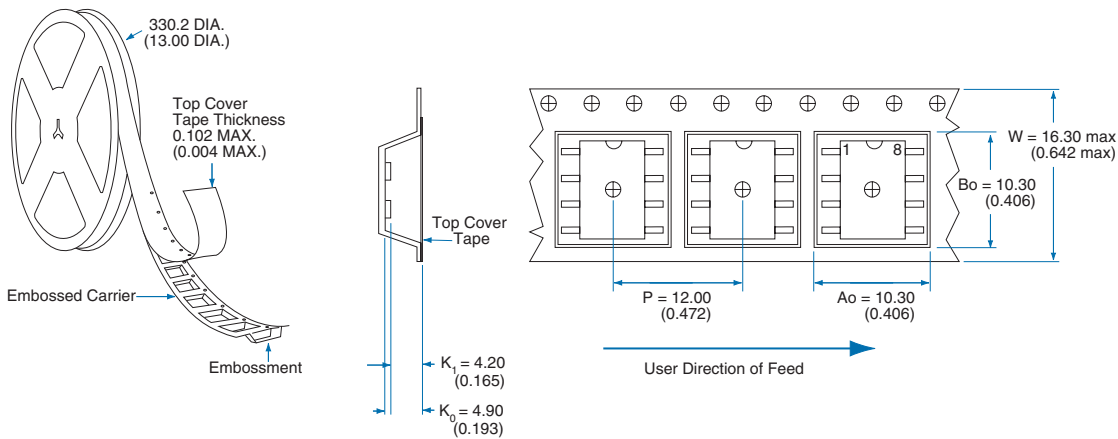
**8 Pin Surface Mount ("S" Suffix)**



**PC Board Pattern (Top View)**



**Tape and Reel Packaging for 8 Pin Surface Mount Package**



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

**Dimensions:**  
mm  
(inches)

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