



	CPC1976Y	Units
AC Operating Voltage	20 - 240	$V_{rms}$
Load Current	2	$A_{rms}$
On-State Voltage Drop	1.6	$V_{rms}$ (at $I_L = 2A_{rms}$ )

### Features

- Load Current up to  $2A_{rms}$
- Blocking Voltages of 600V
- 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

### Applications

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

### Description

CPC1976Y is an AC Solid State Switch utilizing dual power SCR thyristor outputs. This device also includes zero-cross turn-on circuitry and is specified with a blocking voltage of 600V.

In addition, tightly controlled zero-cross circuitry ensures low noise switching of AC loads by minimizing the generation of transients. The optically coupled input and output circuits provide  $3750V_{rms}$  of isolation and noise immunity between the control and load circuits. As a result, the CPC1976Y is well suited for industrial environments where electromagnetic interference would disrupt the operation of plant facility communication and control systems.

### Approvals

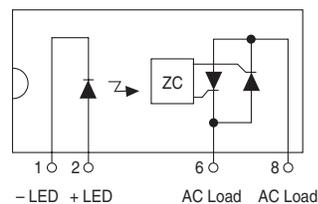
- UL recognized file #: E69938
- CSA certified file #: LR 43639-8

### Ordering Information

Part #	Description
CPC1976Y	8 Pin SIP (25/Tube)

### Pin Configuration

#### CPC1976Y Pinout



## Absolute Maximum Ratings (@ 25° C)

Parameter	Ratings	Units
Blocking Voltage ( $V_{DRM}$ )	600	$V_P$
Reverse Input Voltage	5	V
Input Control Current	50	mA
Peak (10ms)	1	A
Input Power Dissipation	150 <sup>1</sup>	mW
Total Power Dissipation	1600 <sup>2</sup>	mW
Isolation voltage Input to Output	3750	$V_{rms}$
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 16.6 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.

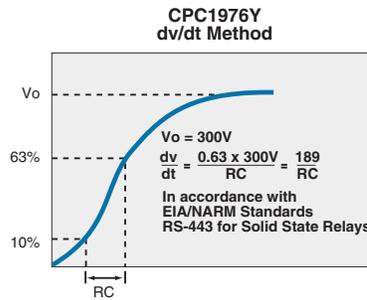
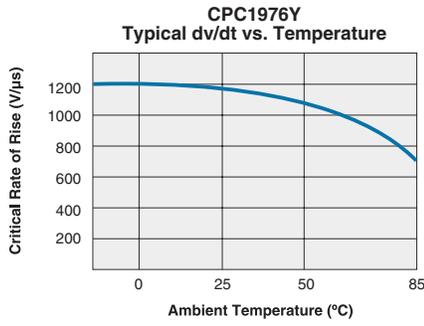
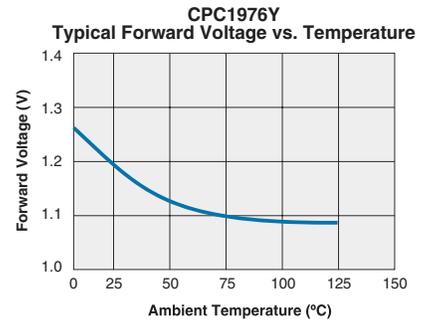
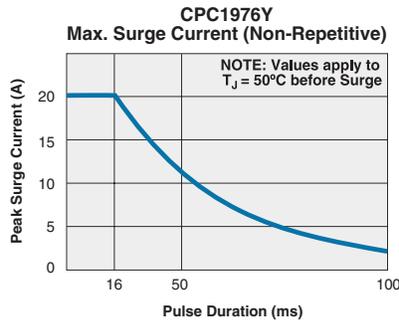
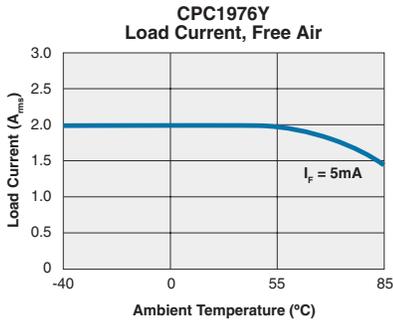
## Electrical Characteristics

Parameters	Conditions	Symbol	Min	Typ	Max	Units
<b>Output Characteristics @ 25°C</b>						
Load Current, Continuous	$V_L=120-240V_{rms}$	$I_L$	0.005	-	2	$A_{rms}$
Off State Leakage Current	$V_{DRM}$	$I_{LEAK}$	-	-	1	mA
On-State Voltage Drop	$I_L=2A_{rms}$	-	-	-	1.6	$V_{rms}$
Critical Rate of Rise	-	dv/dt	1000	1200	-	V/μs
Switching Speeds						
Turn-on	$I_F=5\text{ mA}$	$T_{ON}$	-	-	0.5	cycles
Turn-off	$I_F=5\text{ mA}$	$T_{OFF}$	-	-	0.5	cycles
Zero-Cross Turn-On Voltage	1st half cycle	-	-	2	10	V
	Sub. half cycle	-	-	-	2	V
Operating Frequency <sup>1</sup>	-		20	-	500	Hz
Load Power Factor for Guaranteed Turn-On <sup>2</sup>	60Hz	PF	0.25	-	-	-
<b>Input Characteristics @ 25°C</b>						
Input Control Current						
For Normal Environment	-	$I_F$	5	-	-	mA
For High Noise Environment	-	$I_F$	10	-	-	mA
Input Voltage Drop	$V_F=5\text{mA}$	$V_F$	0.9	1.2	1.4	V
Input Drop-out Voltage	-	-	0.8	-	-	V
Reverse Input Current	$V_R=5\text{V}$	$I_R$	-	-	10	μA
<b>Common Characteristics @ 25°C</b>						
Input to Output Capacitance	-	$C_{I/O}$	-	-	3	pF

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

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

**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

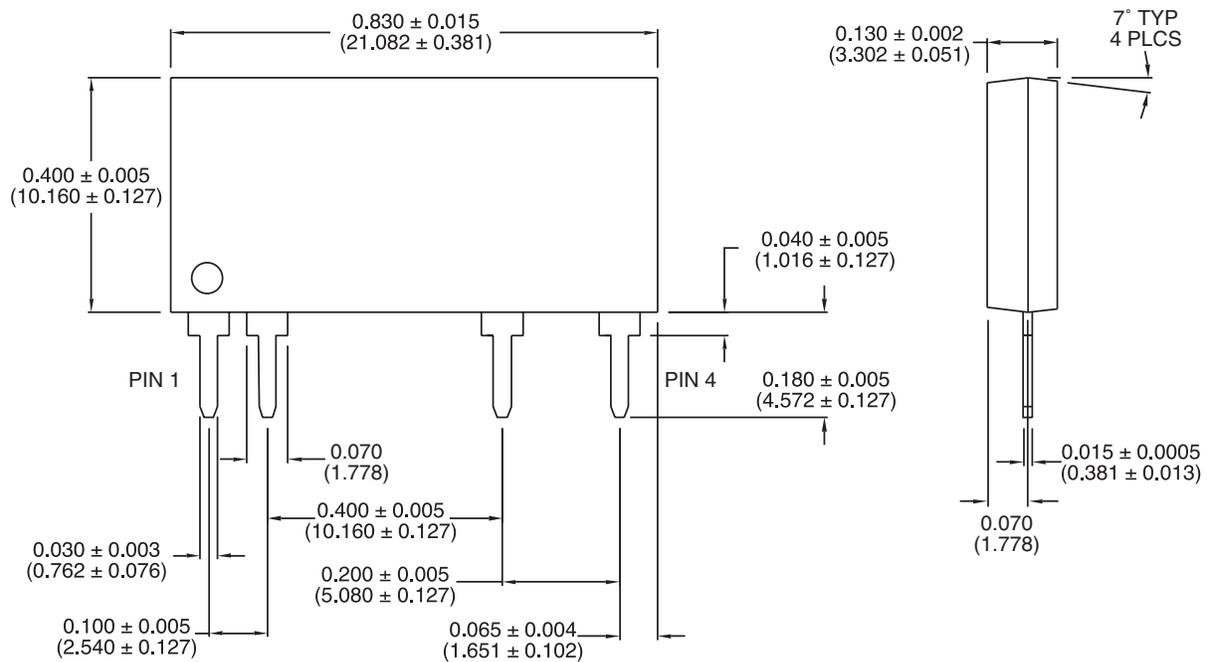
### Soldering

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.

## MECHANICAL DIMENSIONS



Dimensions:  
inches  
(mm)

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

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