



Parameter	Rating	Units
AC Operating Voltage	20 - 240	$V_{rms}$
Load Current	3	$A_{rms}$
On-State Voltage Drop	0.8	$V_{rms}$ (at $I_L = 3A_{rms}$ )
Blocking Voltage	600	$V_P$

### Features

- Load Current up to  $3A_{rms}$
- $600V_P$  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

### Applications

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

### Description

CPC1966 is an AC Solid State Switch utilizing dual power SCR outputs. This device also includes zero-cross turn-on circuitry and is specified with a blocking voltage of  $600V_P$ .

In addition, the 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 CPC1966 is well suited for industrial environments where electromagnetic interference would disrupt the operation of plant facility communication and control systems.

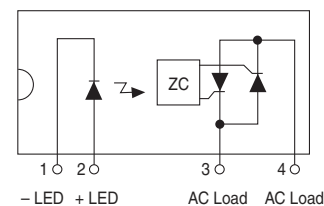
### Approvals

- UL 508 Recognized Component: File #: E69938
- CSA Certified Component: Certificate #: 1172007

### Ordering Information

Part #	Description
CPC1966Y	4-Pin SIP (25/Tube)

### Pin Configuration



## 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 <sup>1</sup>	150	mW
Total Power Dissipation <sup>2</sup>	2400	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 20 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	$V_L=120-240V_{rms}$	$I_L$	0.1	-	3	$A_{rms}$
Maximum Surge Current	$t \leq 16ms$	$I_P$	-	-	30	A
Off State Leakage Current	$V_{DRM}$	$I_{LEAK}$	-	-	100	$\mu A_P$
On-State Voltage Drop <sup>1</sup>	$I_L=2A_P$	-	-	0.88	1.1	$V_P$
Off-State dV/dt	-	dV/dt	500	-	-	V/ $\mu s$
Switching Speeds	$I_F = 5 mA$					
Turn-on						
Turn-off		$t_{OFF}$	-	-	0.5	cycles
Zero-Cross Turn-On Voltage	1st half cycle	-	-	5	20	V
	Subsequent half cycle	-	-	-	5	V
Holding Current	-	$I_H$	-	44	50	mA
Latching Current	-	$I_L$	-	48	75	mA
Operating Frequency <sup>2</sup>	-		20	-	500	Hz
Load Power Factor for Guaranteed Turn-On <sup>3</sup>	60Hz	PF	0.25	-	-	-
<b>Input Characteristics @ 25°C</b>						
Input Control Current <sup>4</sup>	60Hz	$I_F$	-	-	5	mA
Input Drop-out Voltage	-	-	0.8	-	-	V
Input Voltage Drop	$I_F=5mA$	$V_F$	0.9	1.2	1.4	V
Reverse Input Current	$V_R=5V$	$I_R$	-	-	10	$\mu A$
<b>Common Characteristics @ 25°C</b>						
Input to Output Capacitance	-	$C_{I/O}$	-	-	3	pF

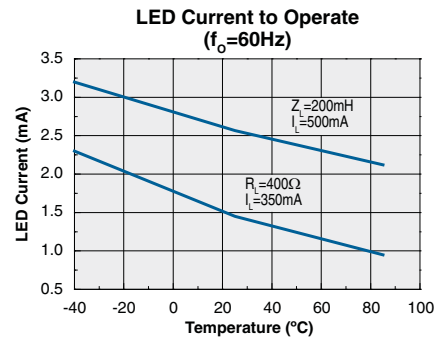
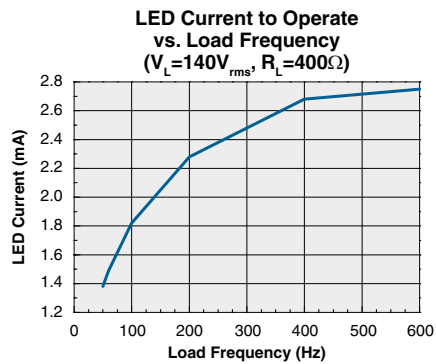
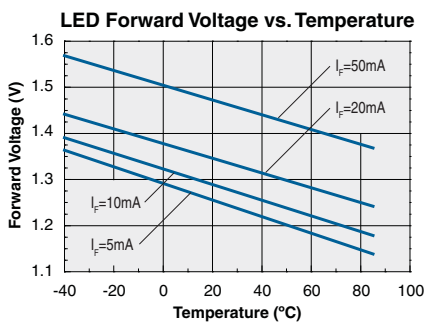
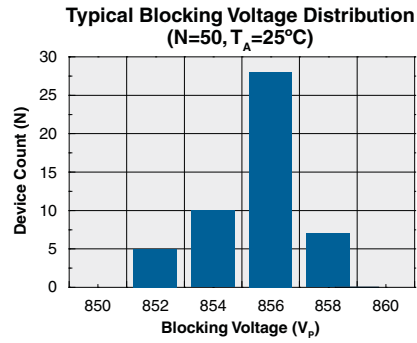
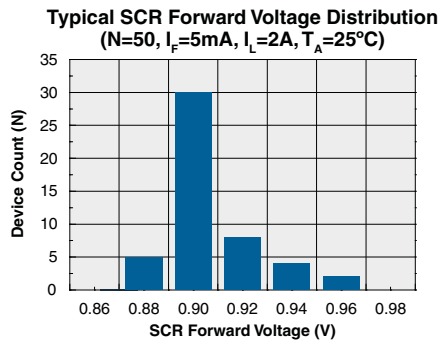
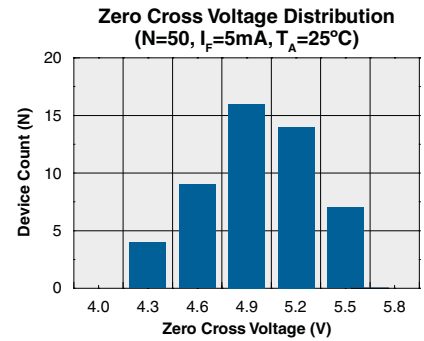
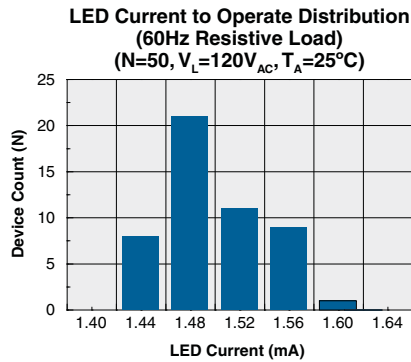
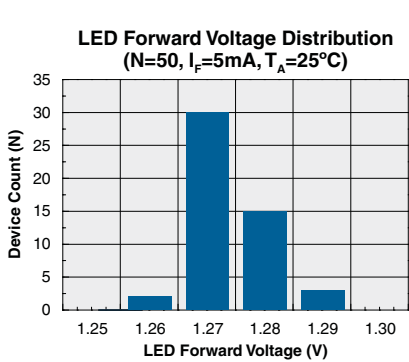
<sup>1</sup> Tested at a peak value equivalent.

<sup>2</sup> Zero Cross 1st half cycle @ <100Hz.

<sup>3</sup> Snubber circuits may be required at low power factors.

<sup>4</sup> For high-noise environments, or for high-frequency operation, use  $I_F \geq 10mA$ .

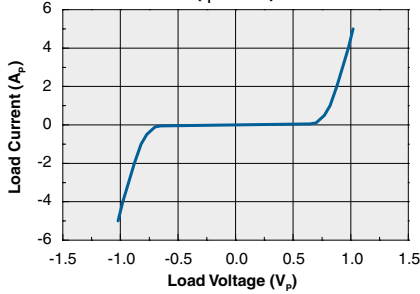
**PERFORMANCE DATA\***



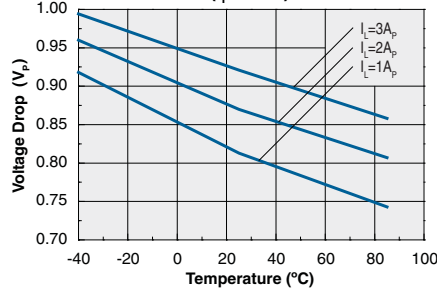
\* The Performance data shown in the graphs above is typical of device performance. For guaranteed parameters not indicated in the written specifications, please contact our application department.

PERFORMANCE DATA\*

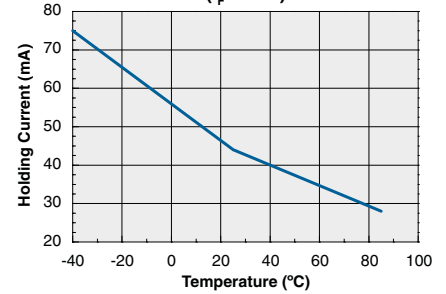
Typical Load Voltage vs. Load Current  
( $I_f=5mA$ )



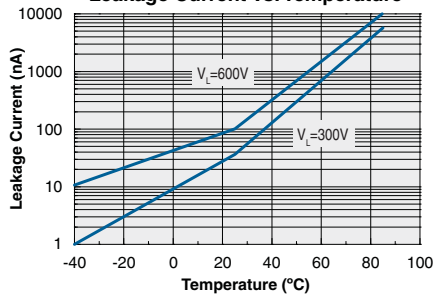
Voltage Drop vs. Temperature  
( $I_f=5mA$ )



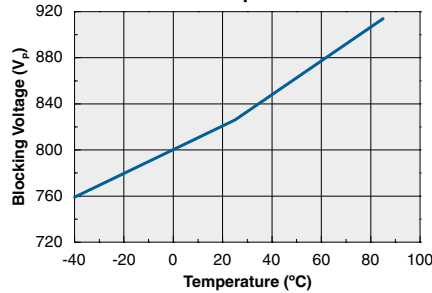
Holding Current vs. Temperature  
( $I_f=0mA$ )



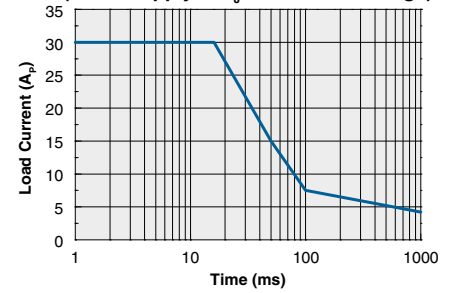
Leakage Current vs. Temperature



Typical Blocking Voltage vs. Temperature



Maximum Surge Current  
(non-Repetitive)  
(Values Apply to  $T_j=50°C$  Before Surge)



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**MANUFACTURING INFORMATION**

**Soldering**

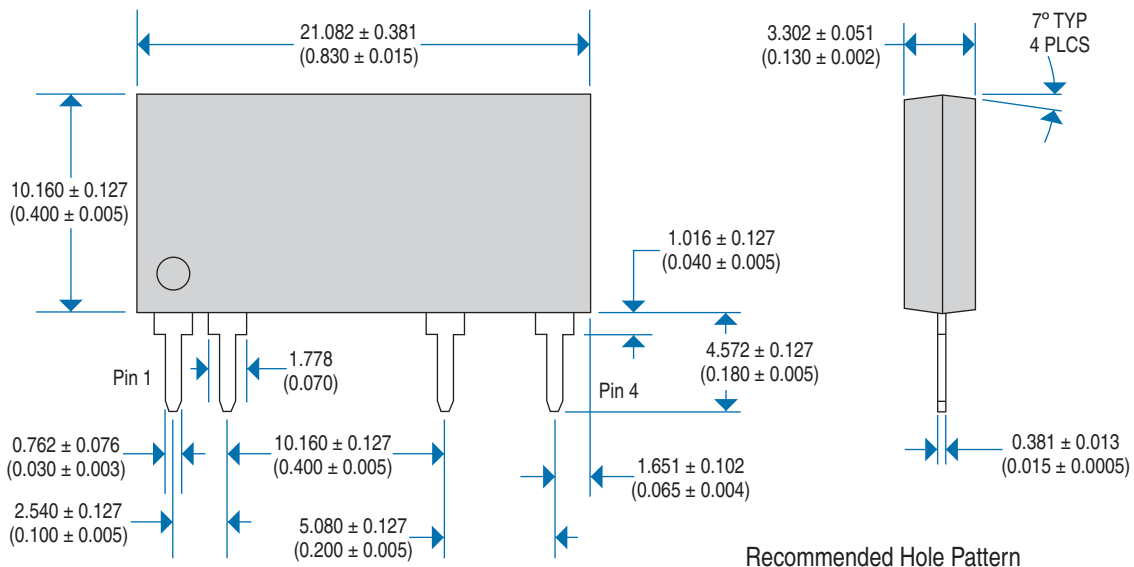
For proper assembly, the component must be processed in accordance with the current revision of IPC/JEDEC standard J-STD-020. Failure to follow the recommended guidelines may cause permanent damage to the device resulting in impaired performance and/or a reduced lifetime expectancy.

**Washing**

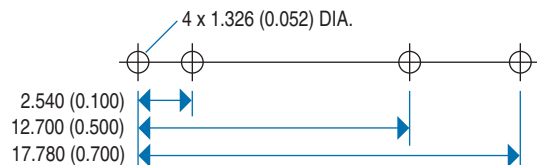
Clare does not recommend ultrasonic cleaning or the use of chlorinated solvents.



**MECHANICAL DIMENSIONS**



**Recommended Hole Pattern**



Dimensions  
mm  
(inches)

**Note:** Recommended hole size is based on the maximum cross-section diagonal measure of the pin plus 0.4mm (0.016).

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

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