

Parameter	Rating	Units
Blocking Voltage	60	V <sub>P</sub>
Load Current	200	mA
Max R <sub>ON</sub>	16	Ω
Input Voltage to operate	5-12	V

### Features

- 100% Solid State
- Voltage-controlled operation
- Matches popular reed relay pin-out
- Designed for use in security systems complying with EN50130-4
- Small 4-Pin SIP Package
- Arc-Free With No Snubbing Circuits
- 2500V<sub>rms</sub> Input/Output Isolation
- No EMI/RFI Generation
- Immune to radiated EM fields
- Auto Pick & Place, Wave Solderable

### Applications

- Security
  - Passive Infrared Detectors (PIR)
  - Data Signalling
  - Sensor Circuitry
- Instrumentation
  - Multiplexers
  - Data Acquisition
  - Electronic Switching
  - I/O Subsystems
  - Energy Meters
- Medical Equipment—Patient/Equipment Isolation
- Aerospace
- Industrial Controls

### Description

The CPC1217 is a voltage-controlled, single-pole, normally open (1-Form-A), optically coupled solid state relay configuration in a 4-pin Single In-line Package (SIP). Clare's patented OptoMOS architecture makes available the optically coupled technology necessary to activate the output's efficient MOSFET switches while providing a 2500V<sub>rms</sub> input-to-output isolation barrier. Control of the isolated output is accomplished by means of a highly effective GaAlAs infrared LED at the input while the internal resistor in series with the LED enables the input voltage-controlled operation.

Because the input is solid state there is no need for snubbers or "catch" diodes to suppress the inductive flyback transient voltage normally associated with EMR coils.

### Approvals

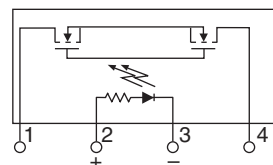
- UL Recognized Component: File # E76270
- EN/IEC 60950 Compliant
- CSA Certified Component: Certificate # 1172007

### Ordering Information

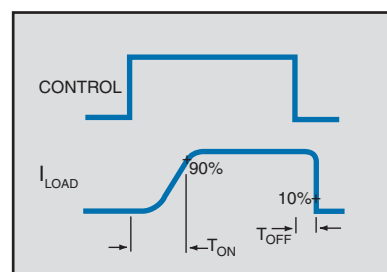
Part #	Description
CPC1217Y	4-Pin SIP (25/tube)

### Pin Configuration

CPC1217 Pinout



### Switching Characteristics of Normally Open (Form A) Devices



## Absolute Maximum Ratings

Parameter	Ratings	Units
Blocking Voltage	60	$V_P$
Reverse Input Voltage	5	V
Input Control Voltage	15	V
Input Power Dissipation	225	mW
Total Power Dissipation <sup>1</sup>	800	mW
Isolation Voltage Input to Output	2500	$V_{rms}$
Operational Temperature	-40 to +85	°C
Storage Temperature	-40 to +125	°C

<sup>1</sup> Derate Linearly 6.67 mW / °C

Electrical absolute maximum ratings are at 25°C

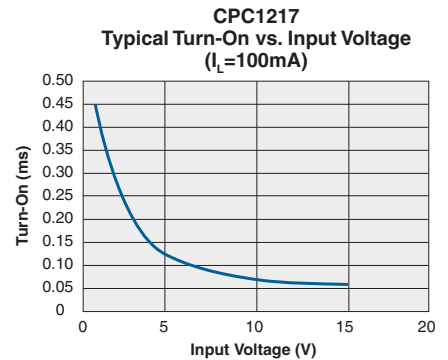
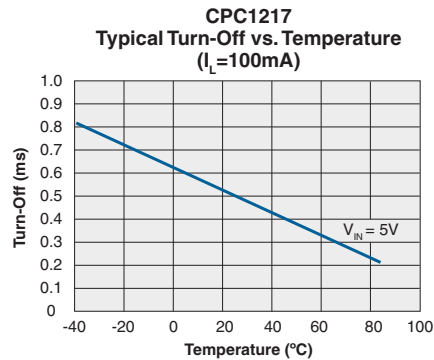
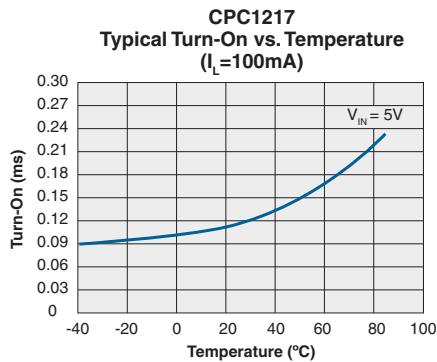
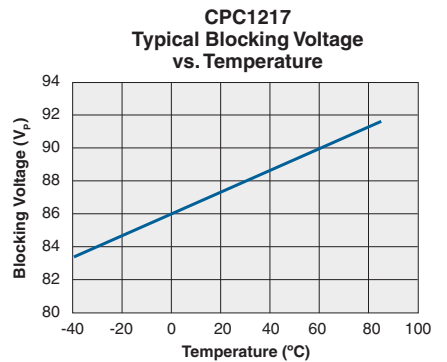
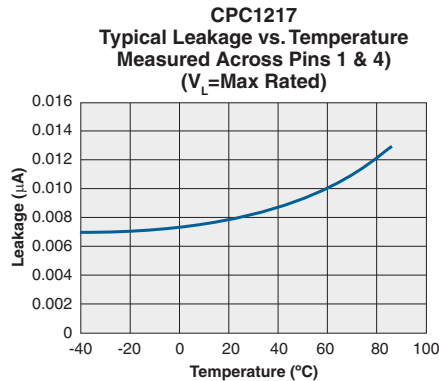
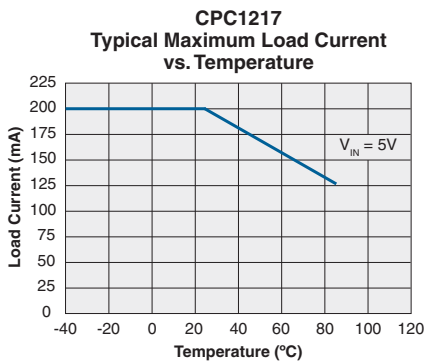
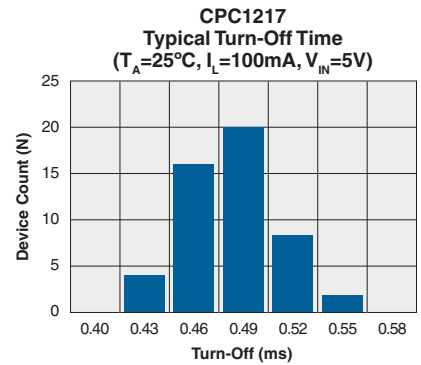
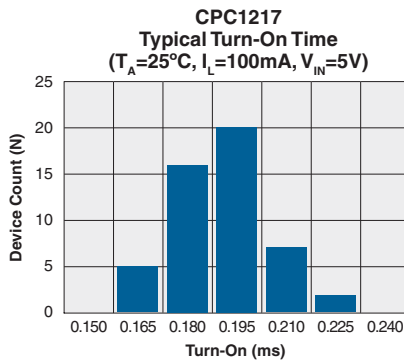
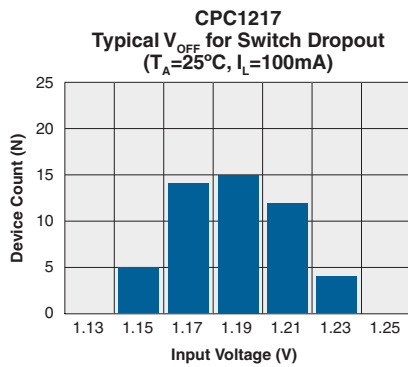
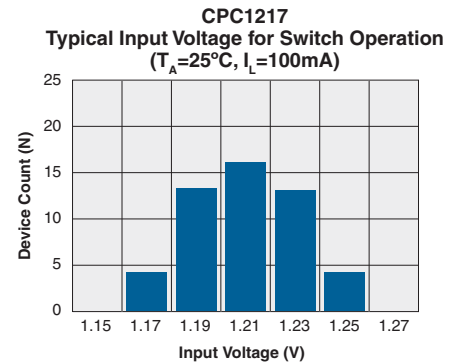
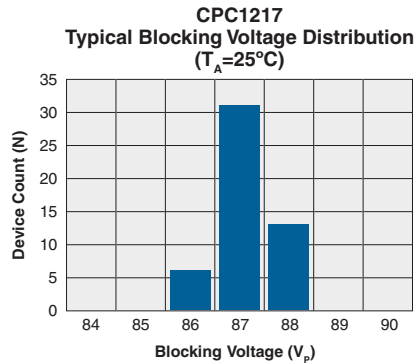
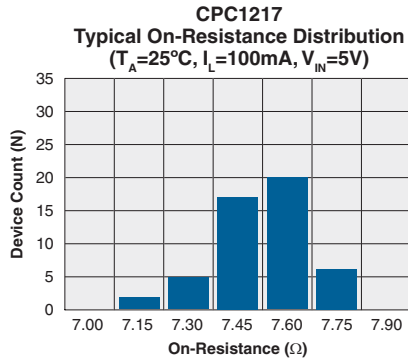
*Absolute Maximum Ratings are stress ratings. Stresses in excess of these ratings can cause permanent damage to the device. Functional operation of the device at conditions beyond those indicated in the operational sections of this data sheet is not implied.*

## Electrical Characteristics

Parameter	Conditions	Symbol	Min	Typ	Max	Units
<b>Output Characteristics @ 25°C</b>						
Load Current	$V_{IN}=5V$	$I_L$	-	-	200	mA
Continuous						
Peak	$t \leq 10ms$	$I_{LPK}$	-	-	400	
On-Resistance <sup>1</sup>	$I_L=200mA$	$R_{ON}$	-	-	16	$\Omega$
Off-State Leakage Current	$V_L=60V_P$	$I_{LEAK}$	-	-	1	$\mu A$
Switching Speeds						
Turn-On (Output Closed)	$V_{IN}=5V, V_L=10V$	$T_{ON}$	-	-	5	ms
Turn-Off (Output Open)		$T_{OFF}$	-	-	5	
Output Capacitance	$V_{IN}=0V, V_L=50V; f=1MHz$	$C_{OUT}$	-	25	-	pF
<b>Input Characteristics @ 25°C</b>						
Input Control Voltage						
Output Closed	$I_L=200mA$	$V_{IN}$	-	-	3.75	V
Recommended Operating Range			5	-	12	
Output Open			1	-	-	
Reverse Input Current	$V_{IN}=-5V$	$I_R$	-	-	10	$\mu A$
Input Resistor	-	-	900	1000	1100	$\Omega$
<b>Common Characteristics @ 25°C</b>						
Capacitance, Input to Output	-	-	-	1	-	pF

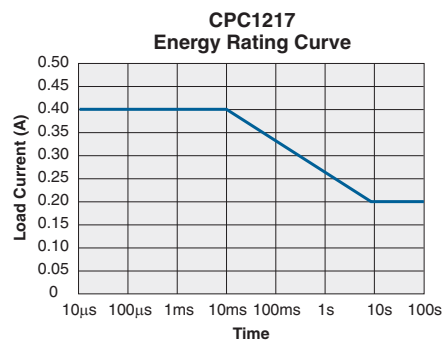
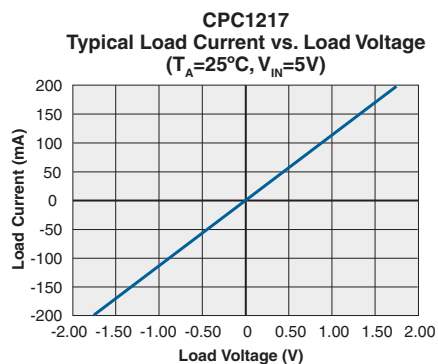
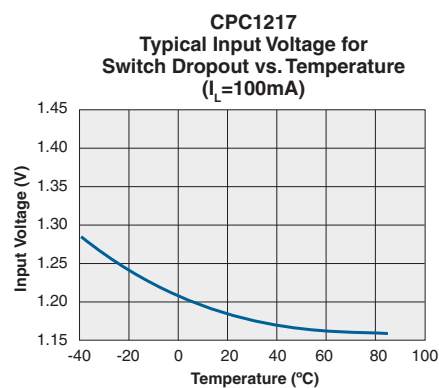
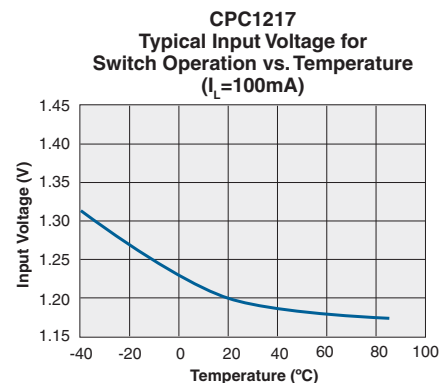
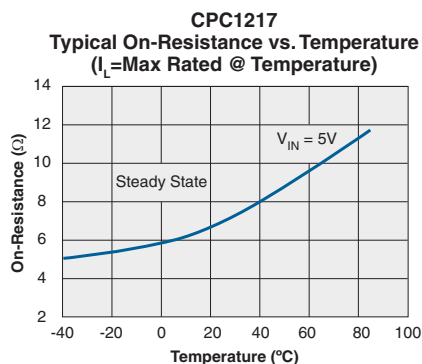
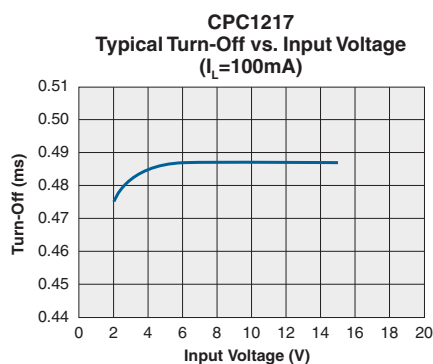
<sup>1</sup> Measurement taken within 1 second of on time.

**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\*



\*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

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.

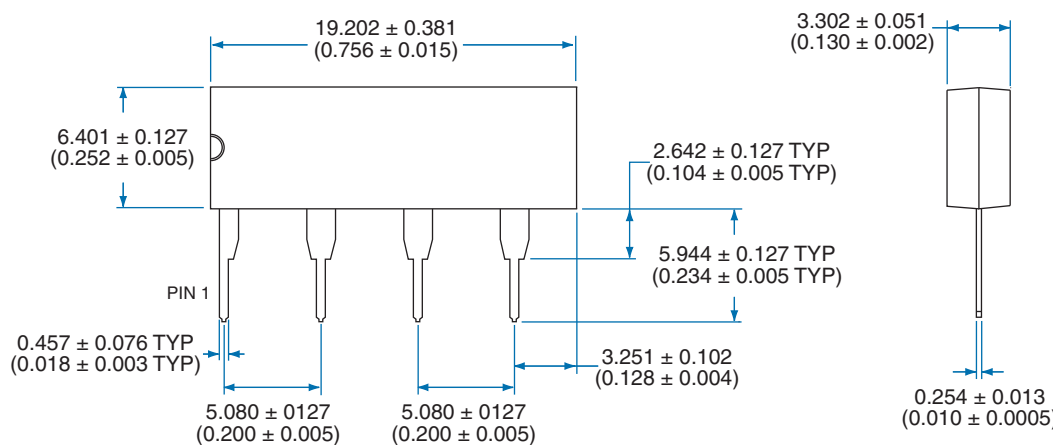
### Washing

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



## MECHANICAL DIMENSIONS

### 4-Pin SIP



Dimensions:  
mm  
(inches)

#### NOTES:

1. Leadframe thickness does not include plating. (1000 microinches maximum)
2. Pin location tolerances are non-accumulative.

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

Clare, Inc. makes no representations or warranties with respect to the accuracy or completeness of the contents of this publication and reserves the right to make changes to specifications and product descriptions at any time without notice. Neither circuit patent licenses nor indemnity are expressed or implied. Except as set forth in Clare's Standard Terms and Conditions of Sale, Clare, Inc. assumes no liability whatsoever, and disclaims any express or implied warranty, relating to its products including, but not limited to, the implied warranty of merchantability, fitness for a particular purpose, or infringement of any intellectual property right.

The products described in this document are not designed, intended, authorized or warranted for use as components in systems intended for surgical implant into the body, or in other applications intended to support or sustain life, or where malfunction of Clare's product may result in direct physical harm, injury, or death to a person or severe property or environmental damage. Clare, Inc. reserves the right to discontinue or make changes to its products at any time without notice.

Specification: DS-CPC1217-R03  
©Copyright 2008, Clare, Inc.  
OptoMOS® is a registered trademark of Clare, Inc.  
All rights reserved. Printed in USA.  
7/16/08