

	CPC1218Y	Units
Blocking Voltage	60	V _P
Load Current	600	mA
Max R _{ON}	0.8	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
- TTL/CMOS Compatible input
- Arc-Free With No Snubbing Circuits
- 2500V_{rms} 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 CPC1218Y is a miniature voltage-controlled 1-Form-A Solid State Relay in a 4-pin Single In-line Package (SIP) that employs optically coupled MOSFET technology to provide 2500V_{rms} of input to output isolation. The super efficient MOSFET switches and photovoltaic die use Clare's patented OptoMOS® architecture. The optically-coupled output is controlled by the input's highly efficient GaAlAs infrared LED and a built-in series resistor to provide input voltage-controlled operation.

The CPC1218Y features a pin-out that matches many popular reed relays and is thus a "drop-in" solid state replacement. Because the input is solid state there is no need for snubbers or "catch" diodes to suppress the inductive fly back transient voltage normally associated with EMR coils.

Approvals

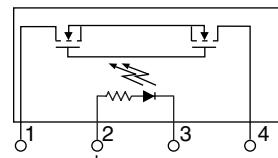
- UL recognized file #E76270
- Certified to EN60950

Ordering Information

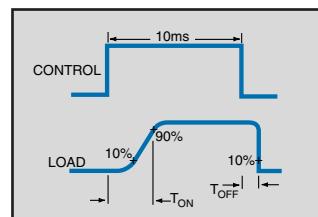
Part #	Description
CPC1218Y	4-Pin SIP (25/tube)

Pin Configuration

CPC1218Y Pinout



Switching Characteristics of Normally Open (Form A) Devices



Absolute Maximum Ratings (@ 25° C)

Parameter	Ratings	Units
Blocking Voltage	60	V _P
Reverse Input Voltage	5	V
Input Control Voltage	15	V
Input Power Dissipation	300	mW
Total Power Dissipation ¹	800	mW
Isolation Voltage Input to Output	1500	V _{rms}
Operational Temperature	-40 to +85	°C
Storage Temperature	-40 to +125	°C

¹ 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.

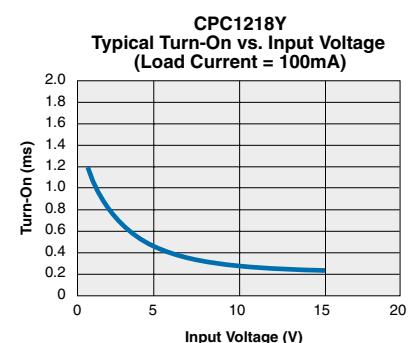
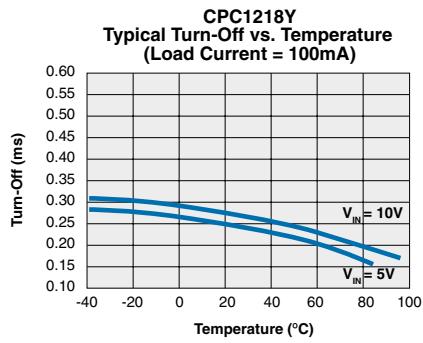
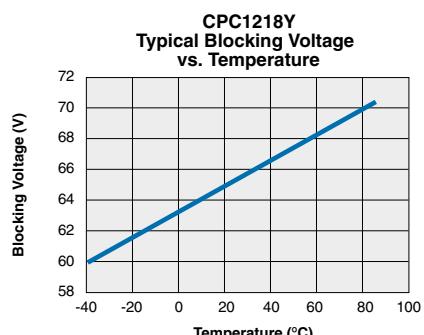
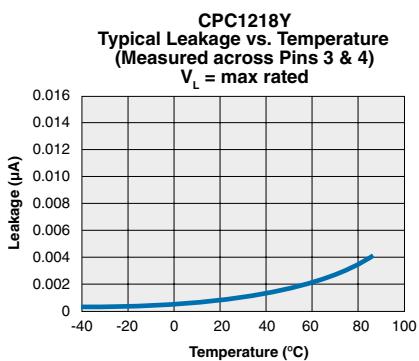
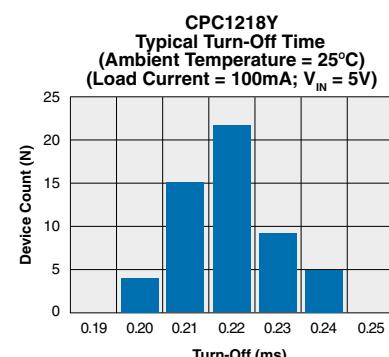
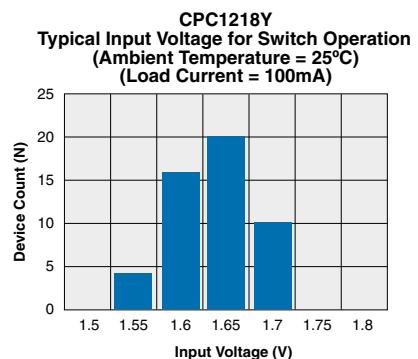
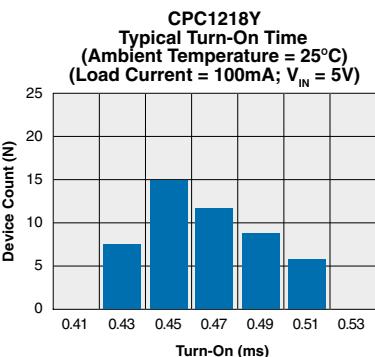
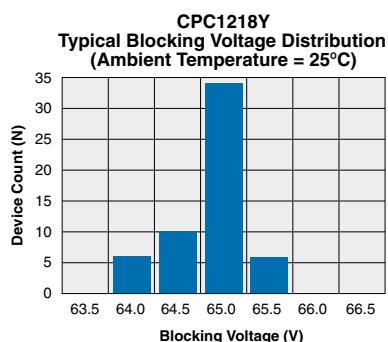
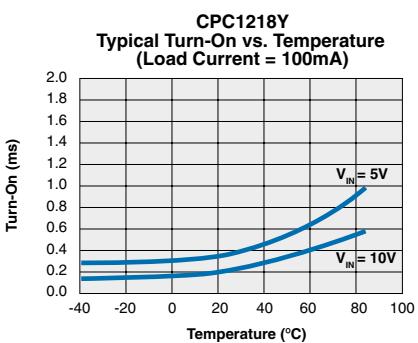
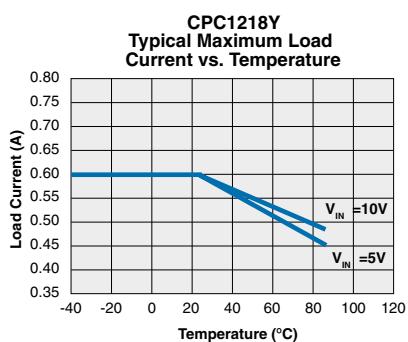
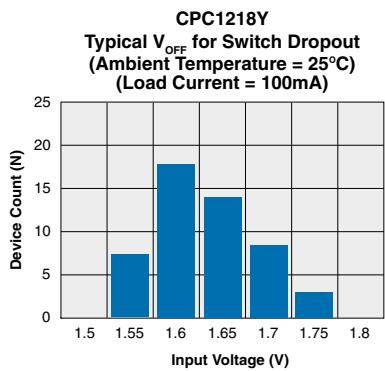
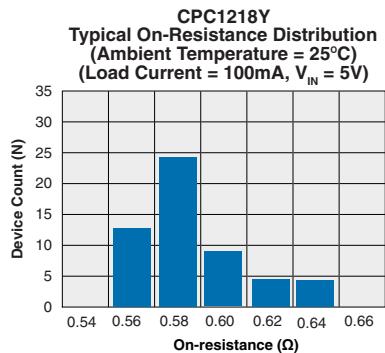
Electrical Characteristics

Parameter	Conditions	Symbol	Min	Typ	Max	Units
Output Characteristics @ 25°C						
Load Current, Continuous ¹	V _{IN} =5V	I _L	-	-	600	mA
Peak Load Current	t≤10ms	I _{LPK}	-	-	1	A
On-Resistance ²	I _L =100mA	R _{ON}	-	-	0.8	Ω
Off-State Leakage Current	V _L =60V	I _{LEAK}	-	-	1	μA
Switching Speeds						
Turn-On	V _{IN} =5V, V _L =10V	T _{ON}	-	-	5	ms
Turn-Off	V _{IN} =5V, V _L =10V	T _{OFF}	-	-	5	ms
Output Capacitance	50V; f=1MHz	C _{OUT}	-	25	-	pF
Input Characteristics @ 25°C						
Input Control Voltage (must operate)	I _L =600mA	V _{OP}	3.75	-	-	V
Off Voltage (must be off)	-	V _{OFF}	-	-	1	V
Reverse Input Current	V _R =5V	I _R	-	-	10	μA
Input Resistor	-	-	950	1K	1050	Ω
Common Characteristics @ 25°C						
Capacitance Input to Output	-	-	-	-	1	-
						pF

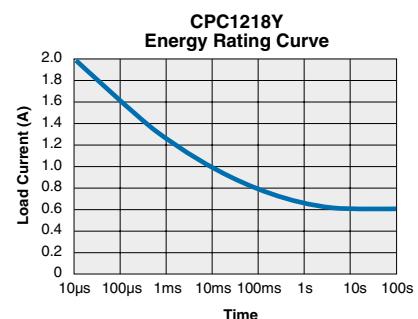
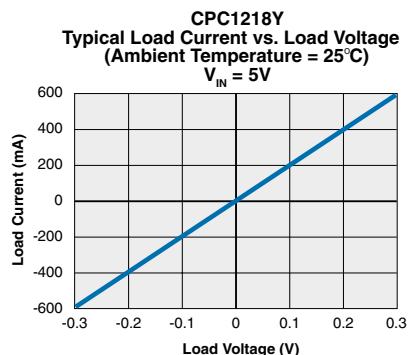
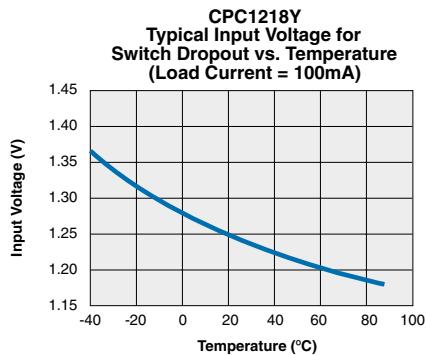
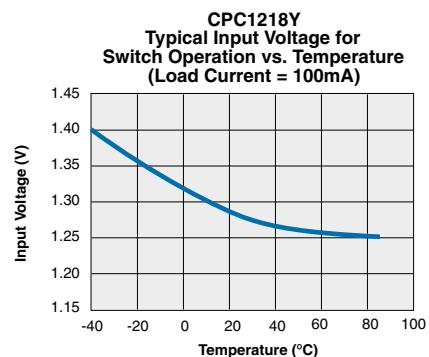
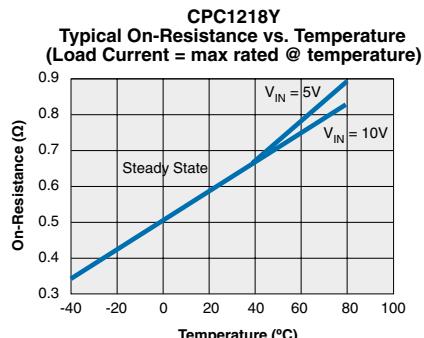
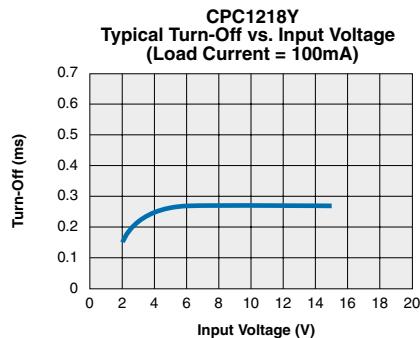
¹ Load current derates linearly from 600mA @ 25°C to 480mA @ 80°C.

² 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

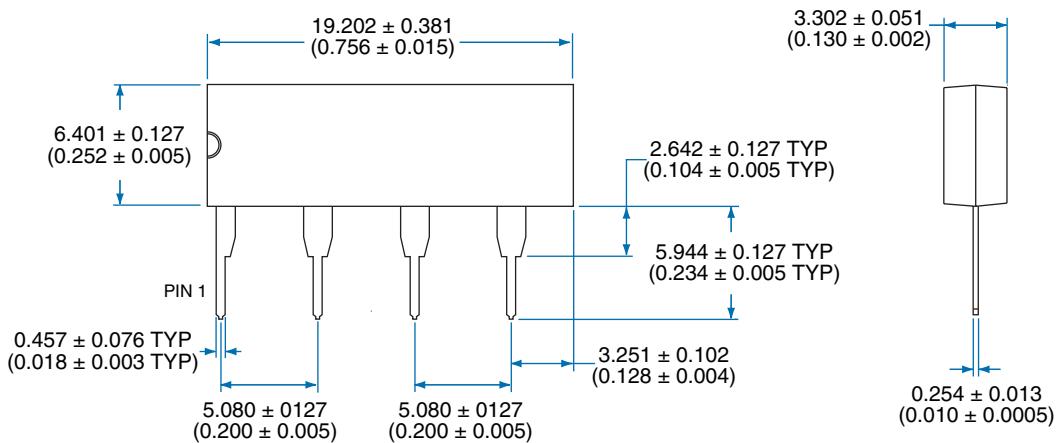
Recommended soldering processes are limited to 245°C component body temperature for 10 seconds.

Washing

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

MECHANICAL DIMENSIONS

4-Pin SIP



NOTES:

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

Dimensions:
mm
(inches)

For additional information please visit our website at: 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-CPC1218Y-R01

©Copyright 2005, Clare, Inc.

OptoMOS® is a registered trademark of Clare, Inc.
All rights reserved. Printed in USA.
8/22/05