CPC1018N
4 Pin SOP OptoMOS® Relay

	CPC1018N	Units
Load Voltage	60	V
Load Current	600	mA
Max R_{ON}	0.8	Ω
LED Current to operate	1.0	mA

Features
- Designed for use in security systems complying with EN50130-4
- Only 1mA of LED current required to operate
- Small 4 Pin SOP Package
- TTL/CMOS Compatible input
- No Moving Parts
- High Reliability
- Arc-Free With No Snubbing Circuits
- $1500V_{rms}$ Input/Output Isolation
- No EMI/RFI Generation
- Immune to radiated EM fields
- SMD Pick & Place, Wave Solderable
- Tape & Reel Version Available

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

Description
The CPC1018N is a miniature 1-Form-A solid state relay in a 4 pin SOP package that employs optically coupled MOSFET technology to provide $1500V_{rms}$ of input to output isolation. The super efficient MOSFET switches and photovoltaic die use Clare's patented OptoMOS® architecture. The optically coupled input is controlled by a highly efficient GaAlAs infrared LED. The CPC1018N uses Clare's state of the art double molded vertical construction packaging to produce the world's smallest relay. The CPC1018N offers board space savings of at least 20% over the competitor's larger 4 pin SOP relay. It boasts the industries' lowest input current to operate in its class.

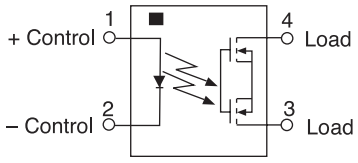
Approvals
- TBD

Ordering Information

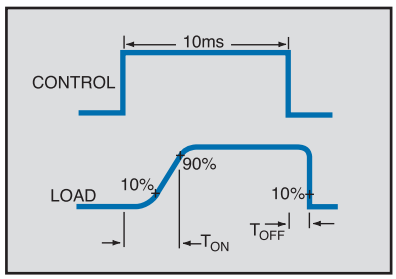
Part #	Description
CPC1018N	4 Pin SOP (100/tube)
CPC1018NTR	4 Pin SOP (2000/reel)

Pin Configuration

CPC1018N Pinout



Switching Characteristics of Normally Open (Form A) Devices



Absolute Maximum Ratings (@ 25˚ C)

Parameter	Ratings	Units
Blocking Voltage	60	V
Input Power Disipation	70	mW
Input control Current	50	mA
Peak (10ms)	1	A
Reverse Input Voltage	5	V
Total PowerDissipation	400[1]	mW
Isolation voltage Input to Output	1500	V_{rms}
Operational Temperature	-40 to +85	°C
Storage Temperature	-40 to +125	°C
Soldering Temperature (10 seconds Max.)	+220	°C

[1] Derate Linearly 3.33 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.

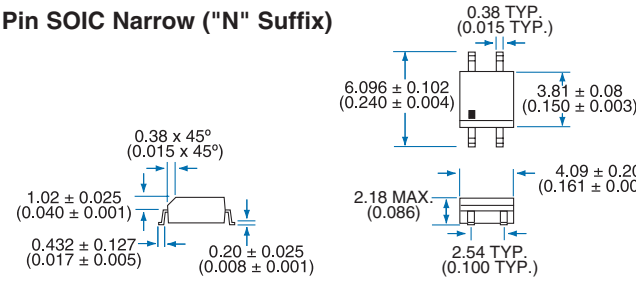
Electrical Characteristcs

Parameter	Conditions	Symbol	Min	Typ	Max	Units
Output Characteristics @ 25°C						
Load Current (Continuous)	I_F=2mA	I_L	-	-	600	mA
Peak Load Current	10ms	I_{LPK}	-	-	1.0	A_{rms}
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	I_F=5mA, V_L=10V	T_{ON}	-	-	3	ms
Turn-Off	I_F=5mA, V_L=10V	T_{OFF}	-	-	2	ms
Output Capacitance	50V; f=1MHz	C_{OUT}	-	25	-	pF
Capacitance Input to Output	-	-	-	1	-	pF
Input Characteristics @ 25°C						
Input Control Current[3]	I_L=600mA	I_F	1	-	-	mA
Input Dropout Current	-	I_F	0.3	0.9	-	mA
Input Voltage Drop	I_F=5mA	V_F	0.9	1.2	1.4	V
Reverse Input Current	V_R=5V	I_R	-	-	10	µA

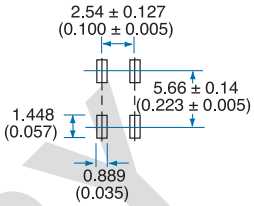
[1] Load current derates linearly from 600mA @ 25ºC to 480mA @80ºC.
[2] Measurement taken within 1 second of on time.
[3] For applications requiring high temperature operation (greater than 60ºC) an LED drive current of 3mA is recommended.

PERFORMANCE DATA*

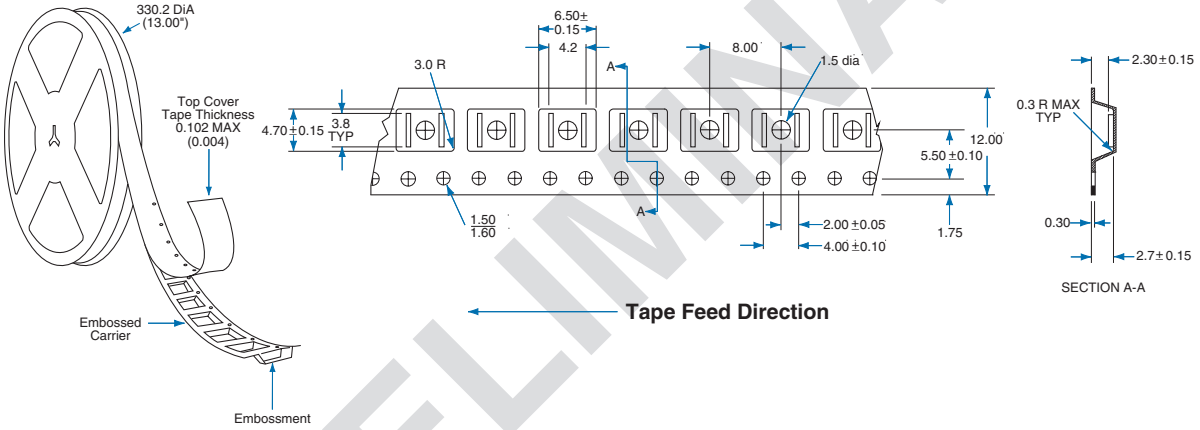
4 Pin SOIC Narrow ("N" Suffix)



PC Board Pattern (Top View)



Tape and Reel Packaging for 4 pin SOIC package



Dimensions:
mm
(inches)

For additional information please visit our website at: www.clare.com

Specification: DS-CPC1018N-R00A.2

8/2/04