



Parameter	Rating	Units
Blocking Voltage	100	V _P
Load Current	150	mA
Max On-resistance	8	Ω

Features

- Small 4-Pin SOP Package
- Low Drive Power Requirements (TTL/CMOS Compatible)
- No Moving Parts
- High Reliability
- Arc-Free With No Snubbing Circuits
- 1500V_{rms} Input/Output Isolation
- No EMI/RFI Generation
- Machine Insertable, Wave Solderable
- Tape & Reel Version Available

Applications

- Instrumentation
 - Multiplexers
 - Data Acquisition
 - Electronic Switching
 - I/O Subsystems
 - Meters (Watt-Hour, Water, Gas)
- Medical Equipment—Patient/Equipment Isolation
- Security Systems
- Aerospace
- Industrial Controls
- Reed Relay Replacement

Description

CPC1008N is a miniature, low-voltage, low on-resistance 1-Form-A solid state relay in a 4-Pin SOP package. The relay uses optically coupled MOSFET technology to provide 1500V_{rms} of input/output isolation. The efficient MOSFET switches and photovoltaic die use Clare's patented OptoMOS architecture. The optically coupled output is controlled by a highly efficient GaAlAs infrared LED. The CPC1008N uses Clare's state of the art double-molded vertical construction packaging to produce one of the world's smallest relays. The CPC1008N is ideal for replacing larger, less-reliable reed and electromechanical relays.

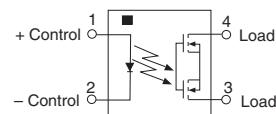
Approvals

- UL Recognized Component: File # E76270
- EN/IEC 60950-1 Compliant
- CSA Certified Component: Certificate # 1172007

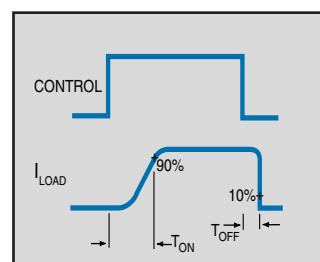
Ordering Information

Part #	Description
CPC1008N	4-Pin SOP (100/tube)
CPC1008NTR	4-Pin SOP (2000/reel)

Pin Configuration



Switching Characteristics of Normally Open (Form A) Devices



Absolute Maximum Ratings (@ 25°C)

Parameter	Ratings	Units
Blocking Voltage	100	V _P
Reverse Input Voltage	5	V
Input Control Current Peak (10ms)	50	mA
	1	A
Input Power Dissipation	70	mW
Total Power Dissipation ¹	400	mW
Capacitance Input to Output	1	pF
Isolation Voltage, Input to Output	1500	V _{rms}
Operational Temperature	-40 to +85	°C
Storage Temperature	-40 to +125	°C

¹ Derate Linearly 3.33 mW / °C

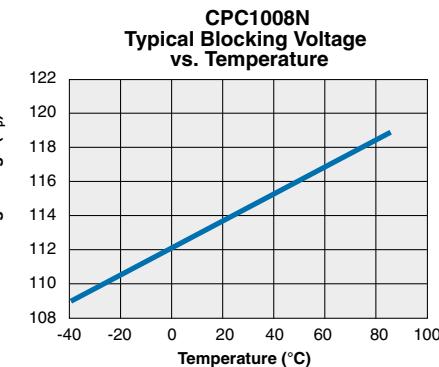
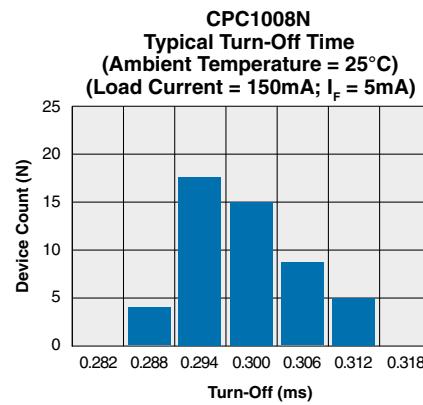
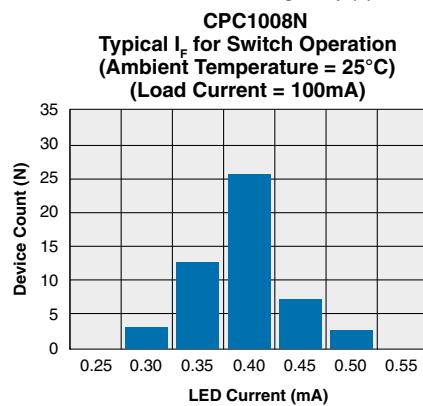
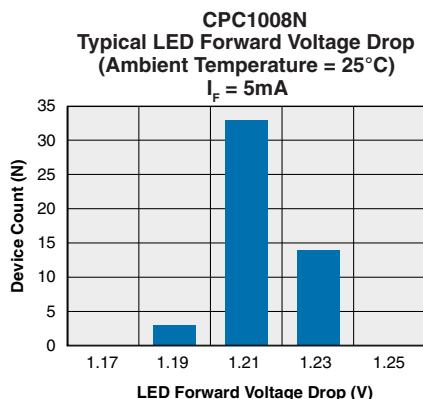
Absolute Maximum Ratings are stress ratings. Stresses in excess of these ratings can cause permanent damage to the device. Functional operation of the device at conditions beyond those indicated in the operational sections of this data sheet is not implied.

Electrical Characteristics

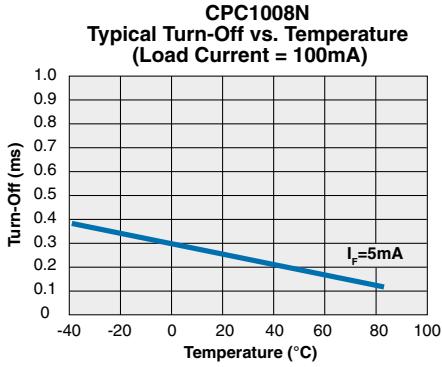
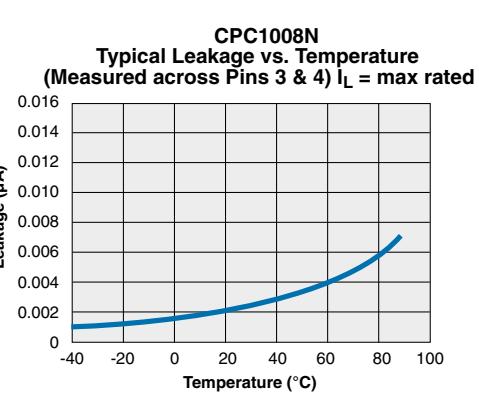
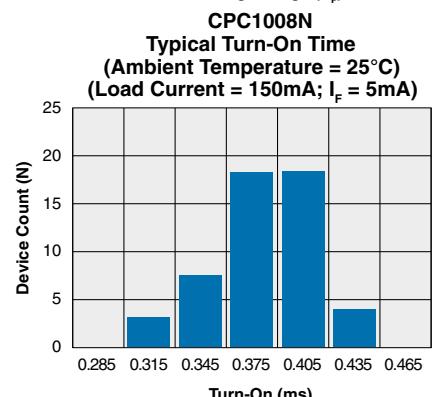
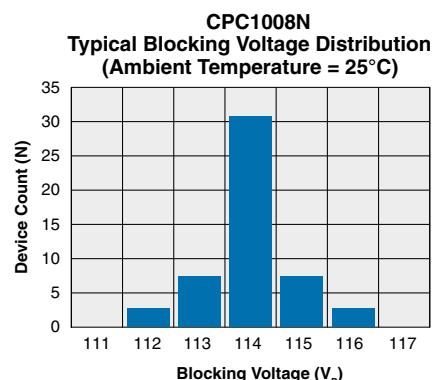
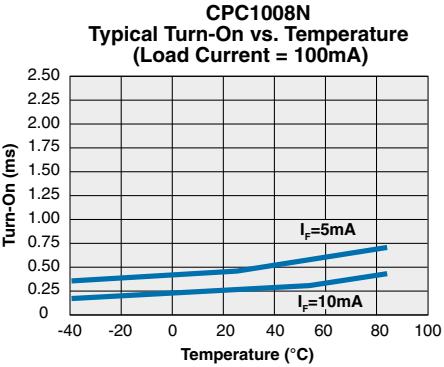
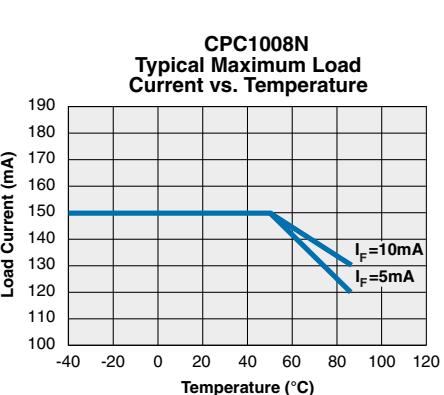
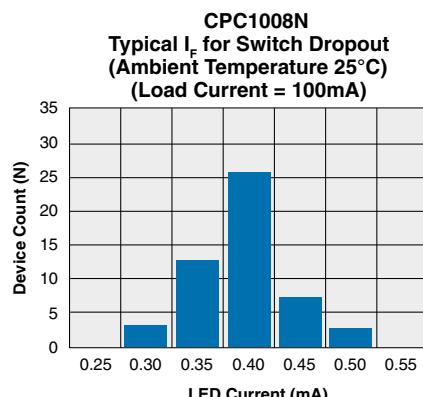
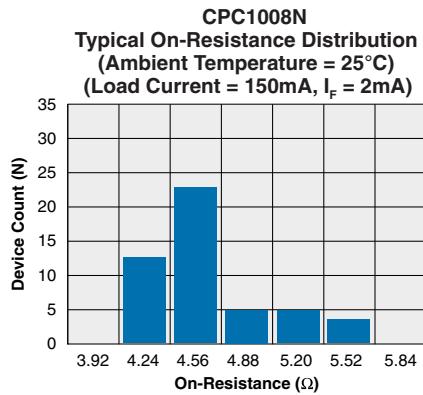
Parameter	Conditions	Symbol	Min	Typ	Max	Units
Output Characteristics @ 25°C						
Load Current Continuous ¹	-	I _L			150	mA
	t=10ms	I _{LPK}	-	-	350	
On-Resistance ²	I _L =150mA	R _{ON}	-	4.7	8	Ω
Off-State Leakage Current	V _L =100V	I _{LEAK}	-	-	1	μA
Switching Speeds						
	Turn-On I _F =5mA, V _L =10V	T _{ON}	-	-	2	ms
		T _{OFF}	-	-	0.5	
Output Capacitance	50V; f=1MHz	C _{OUT}	-	25	-	pF
Input Characteristics @ 25°C						
Input Control Current	I _L =150mA	I _F	-	-	2	mA
Input Dropout Current	-	I _F	0.3	0.4	-	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 150mA @ 25°C to 120mA @ 85°C.

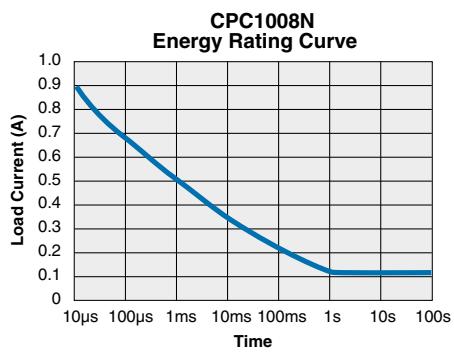
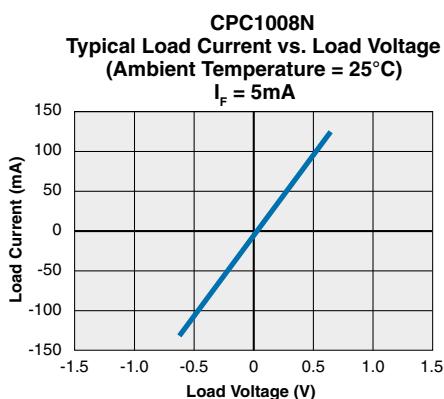
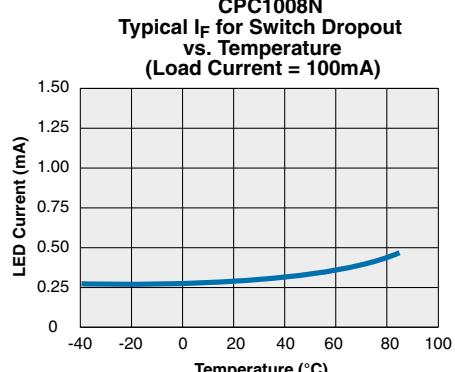
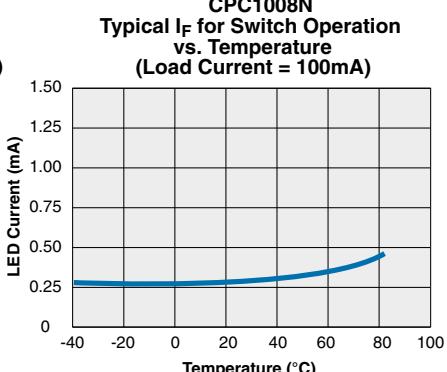
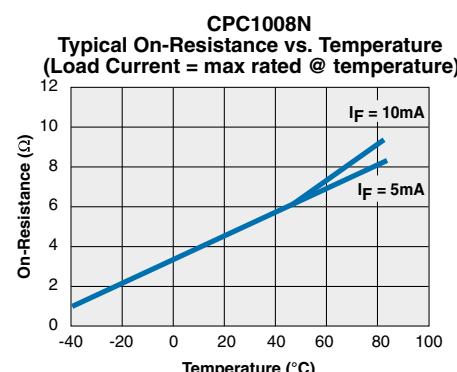
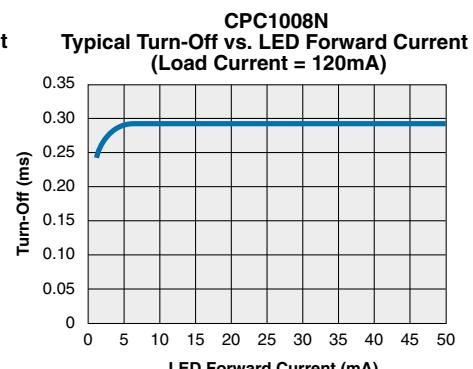
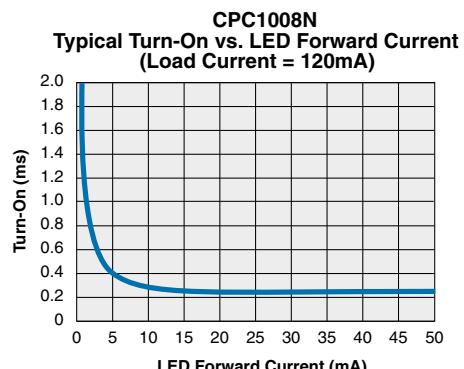
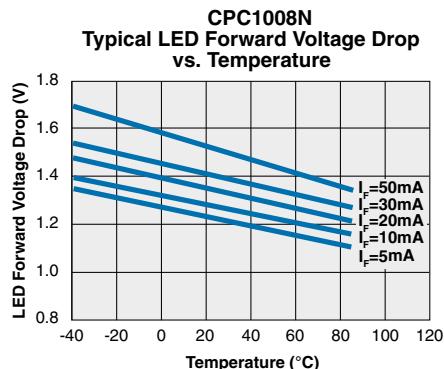
² Measurement taken within 1 second of on time.



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.

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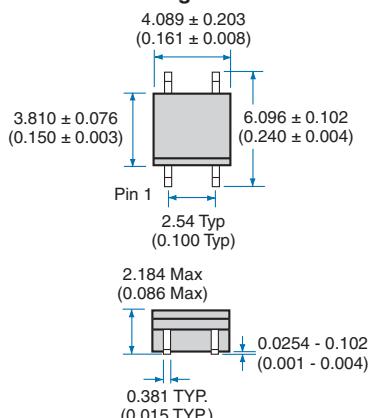
MANUFACTURING INFORMATION

Moisture Sensitivity

Clare has characterized the moisture reflow sensitivity of this package, and has determined that this component must be handled in accordance with IPC/JEDEC standard J-STD-033 moisture sensitivity level (MSL), level 3 classification.

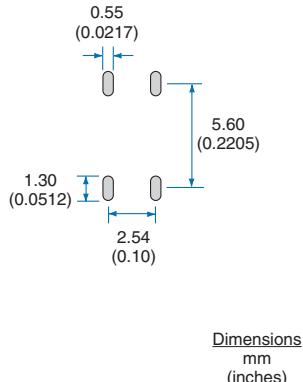


4-Pin SOP Package



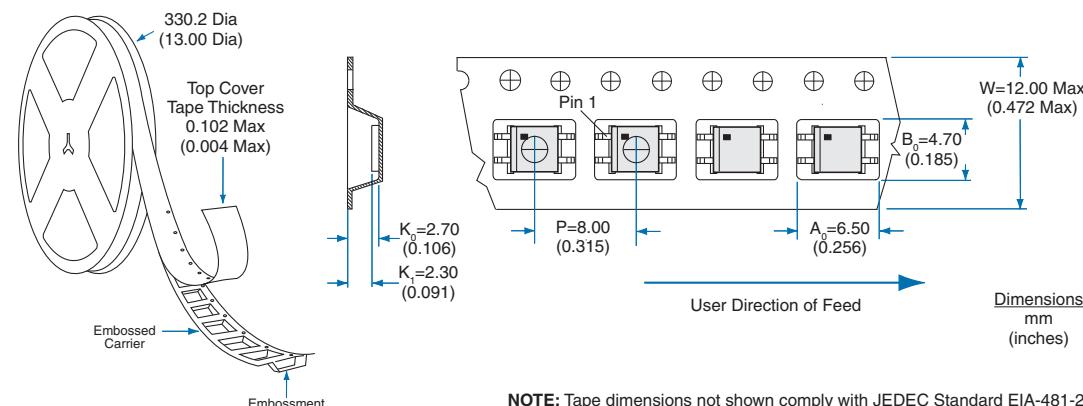
MECHANICAL DIMENSIONS

Recommended PCB Land Pattern



Dimensions
mm
(inches)

Tape and Reel Packaging for 4-Pin SOP Package



Dimensions
mm
(inches)

NOTE: Tape dimensions not shown comply with JEDEC Standard EIA-481-2

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