



| Parameter | Rating | Units |
|-------------------|--------|----------------|
| Blocking Voltage | 350 | V _p |
| Load Current | 120 | mA |
| Max On-resistance | 35 | 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

- Telecommunications
 - Telecom Switching
 - Tip/Ring Circuits
 - Modem Switching (Laptop, Notebook, Pocket Size)
 - Hook Switch
 - Dial Pulsing
 - Ground Start
 - Ringing Injection
- Instrumentation
 - Multiplexers
 - Data Acquisition
 - Electronic Switching
 - I/O Subsystems
 - Meters (Watt-Hour, Water, Gas)
- Medical Equipment-Patient/Equipment Isolation
- Security
- Aerospace
- Industrial Controls

Description

The CPC1135N is a miniature 1-Form-B solid state relay which uses optically coupled MOSFET technology to provide 1500V_{rms} of input to output isolation. The 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 CPC1135N uses Clare's state of the art double molded vertical construction packaging to produce one of the world's smallest 4-Pin SOP relays. The CPC1135N offers board space savings over competitive 4-Pin SOP solid state relays.

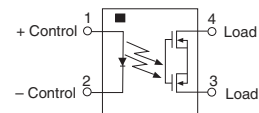
Approvals

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

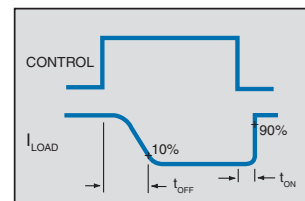
Ordering Information

| Part # | Description |
|------------|-----------------------|
| CPC1135N | 4-Pin SOP (100/tube) |
| CPC1135NTR | 4-Pin SOP (2000/reel) |

Pin Configuration



Switching Characteristics of Normally Closed (Form B) Devices



Absolute Maximum Ratings (@ 25°C)

| Parameter | Ratings | Units |
|--------------------------------------|-------------|------------------|
| Blocking Voltage | 350 | V _P |
| Reverse Input Voltage | 5 | V |
| Input Control Current | 50 | mA |
| Peak (10ms) | 1 | A |
| Input Power Dissipation | 150 | 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

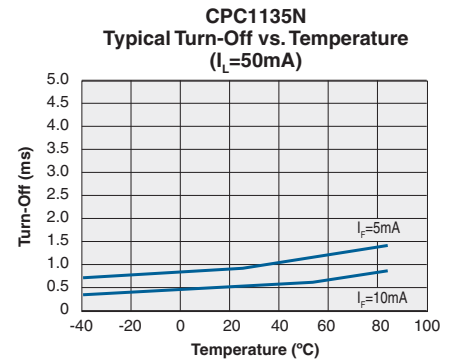
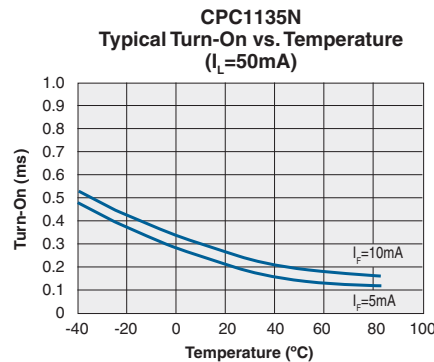
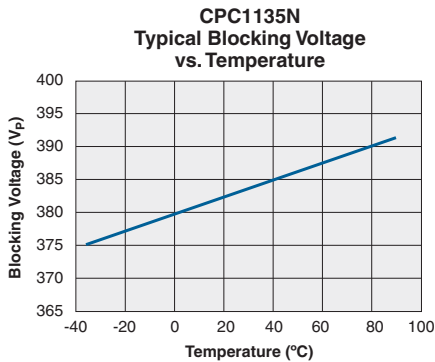
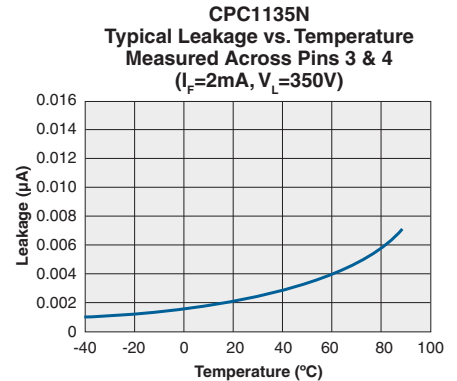
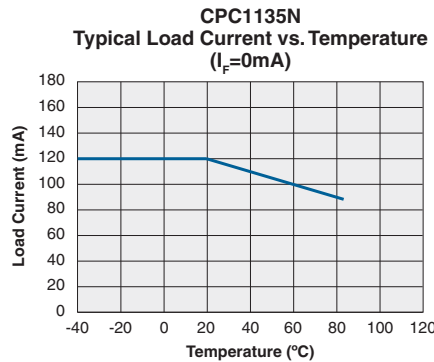
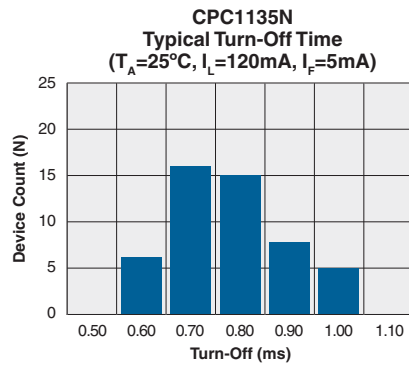
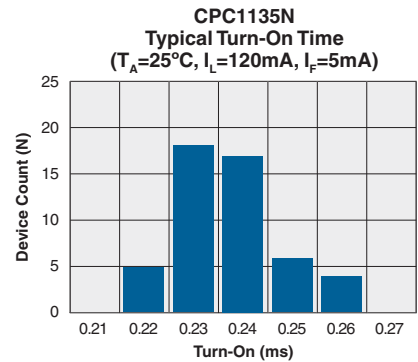
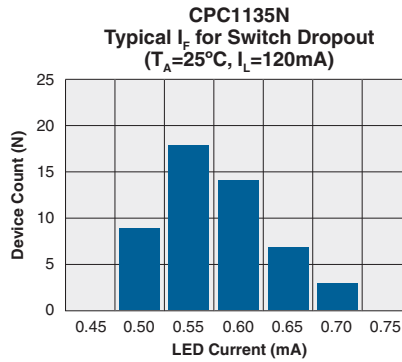
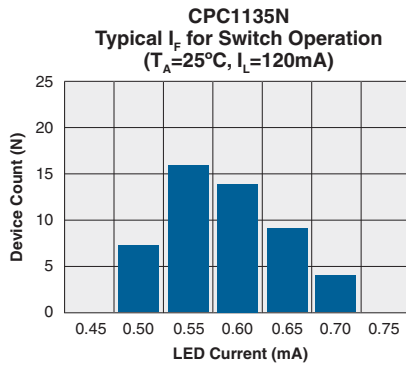
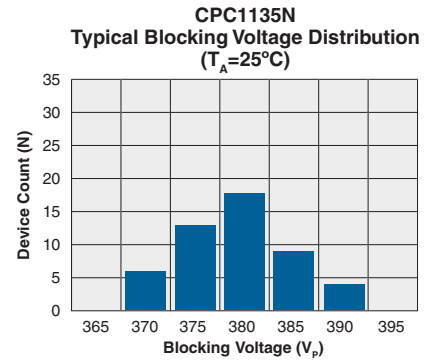
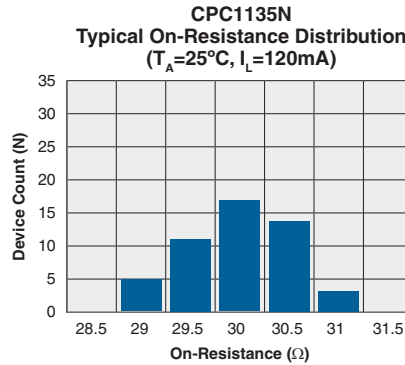
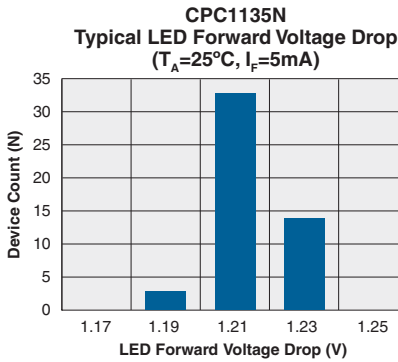
| Parameter | Conditions | Symbol | Min | Typ | Max | Units |
|--------------------------------------|---|-------------------|-----|------|-----|-------|
| Output Characteristics @ 25°C | | | | | | |
| Load Current | | | | | | |
| Continuous ¹ | - | I _L | - | - | 120 | mA |
| Peak | t = 10ms | I _{LPK} | - | - | 350 | |
| On-Resistance ² | I _L = 120mA | R _{ON} | - | - | 35 | Ω |
| Off-State Leakage Current | V _L = 350V, I _F = 2mA | I _{LEAK} | - | - | 5 | μA |
| Switching Speeds | | | | | | |
| Turn-On | I _F = 5mA, V _L = 10V | t _{ON} | - | - | 2 | ms |
| Turn-Off | | t _{OFF} | - | - | 2 | |
| Output Capacitance | 50V; f = 1MHz | C _{OUT} | - | 25 | - | pF |
| Input Characteristics @ 25°C | | | | | | |
| Input Control Current ³ | I _L = 120mA | I _F | - | 0.6 | 2 | mA |
| Input Dropout Current | - | I _F | 0.3 | 0.55 | - | 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 120mA @ 25°C to 80mA @ 85°C.

² Measurement taken within 1 second of on time.

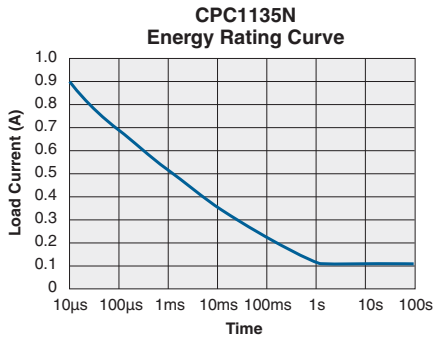
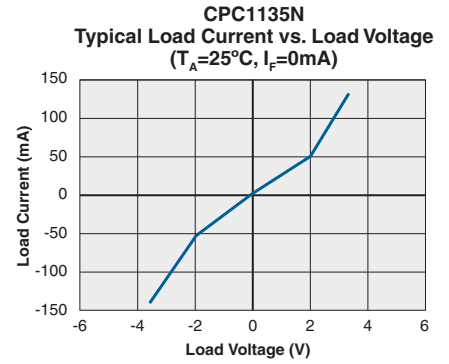
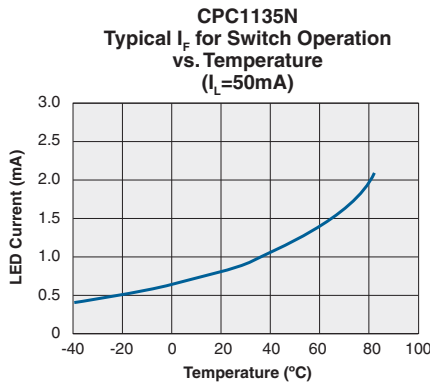
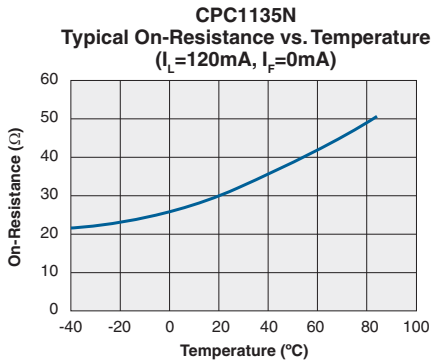
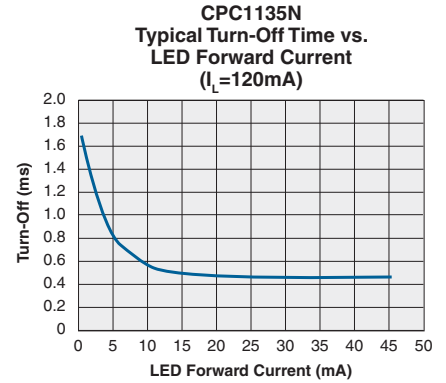
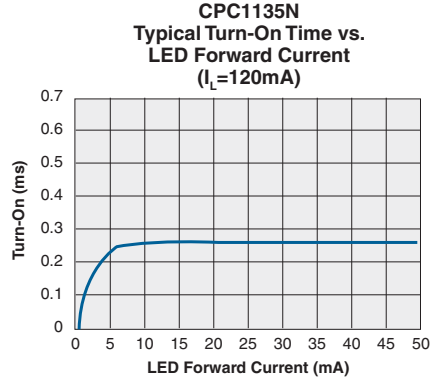
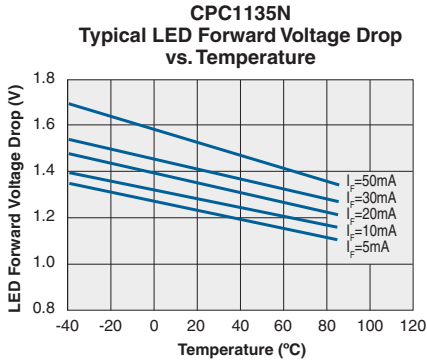
³ For applications requiring high temperature operation (greater than 60°C) an LED drive current of 4mA is recommended.

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.

Soldering Reflow Profile

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.

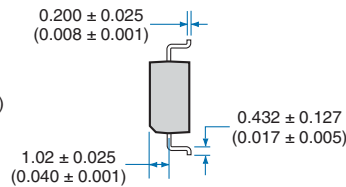
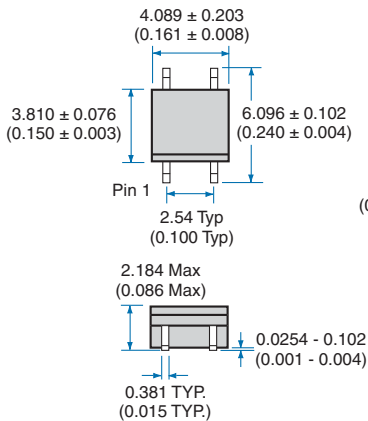


Washing

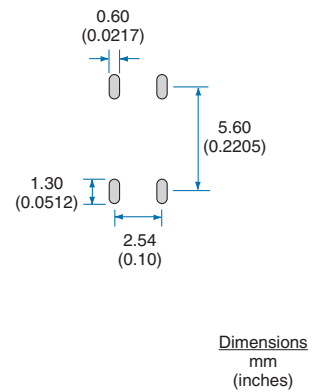
Clare does not recommend ultrasonic cleaning or the use of chlorinated solvents.

MECHANICAL DIMENSIONS

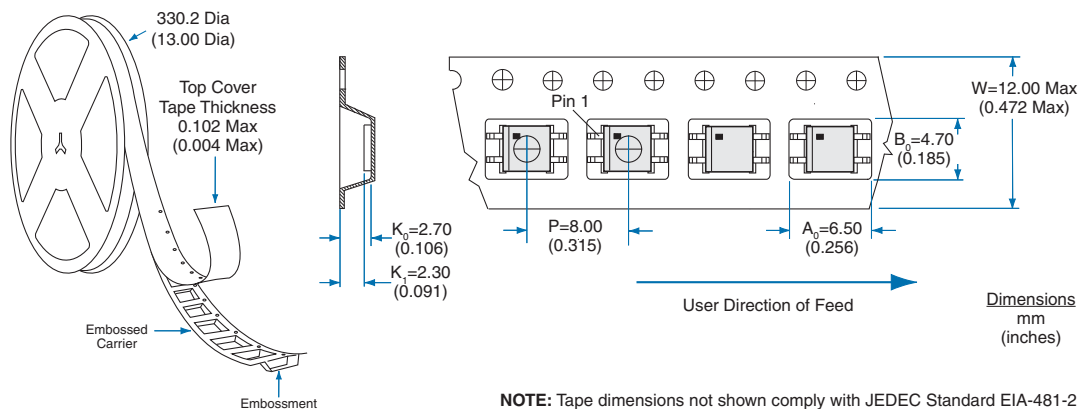
4-Pin SOP Package



Recommended PCB Land Pattern



Tape and Reel Packaging for 4-Pin SOP Package



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

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