



| | LCA220 | Units |
|---------------------|---------------|--------------|
| Load Voltage | 250 | V |
| Load Current | 120 | mA |
| Max R _{ON} | 20 | Ω |

Features

- Small 8 Pin DIP Package
- Low Drive Power Requirements (TTL/CMOS Compatible)
- No Moving Parts
- High Reliability
- Arc-Free With No Snubbing Circuits
- 3750V_{RMS} Input/Output Isolation
- FCC Compatible
- VDE Compatible
- No EMI/RFI Generation
- Machine Insertable, Wave Solderable
- Surface Mount and Tape & Reel Versions Available

Applications

- Telecommunications
 - Telecom Switching
 - Tip/Ring Circuits
 - Modem Switching (Laptop, Notebook, Pocket Size)
 - Hookswitch
 - Dial Pulsing
 - Ground Start
 - Ringer 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

LCA220 is a common input 1- Form 2A solid state relay which has two independent optically couple MOSFETs controlled by a common input signal. The efficient MOSFET switches and photovoltaic die use Clare's patented OptoMOS architecture to provide 3750 V_{RMS} of input to output isolation. The optically coupled input is controlled by highly efficient GaAIAs infrared LEDs. Common input OptoMOS relays can replace standard dual pole relays in a variety of applications. The common input relay eliminates the need to make an external circuit connection when both poles are controlled by a common signal.

Approvals

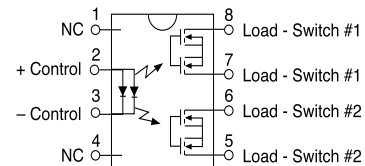
- UL Recognized: File Number E76270
- CSA Certified: File Number LR 43639-10
- BSI Certified to:
 - BS EN 60950:1992 (BS7002:1992) Certificate #: 7344
 - BS EN 41003:1993 Certificate #: 7344

Ordering Information

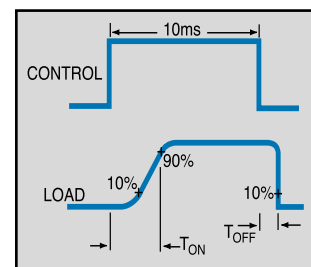
| Part # | Description |
|---------------|----------------------------------|
| LCA220 | 8 Pin DIP (50/Tube) |
| LCA220S | 8 Pin Surface Mount (50/Tube) |
| LCA220STR | 8 Pin Surface Mount (1,000/Reel) |

Pin Configuration

LCA220 Pinout



Switching Characteristics of Normally Open (Form A) Devices



Absolute Maximum Ratings (@ 25° C)

| Parameter | Min | Typ | Max | Units |
|--|------|-----|------------------|------------------|
| Input Power Dissipation | - | - | 150 ¹ | mW |
| Input Control Current Peak (10ms) | - | - | 100 1 | mA A |
| Reverse Input Voltage | - | - | 5 | V |
| Total Power Dissipation | - | - | 800 ² | mW |
| Isolation Voltage Input to Output | 3750 | - | - | V _{RMS} |
| Operational Temperature | -40 | - | +85 | °C |
| Storage Temperature | -40 | - | +125 | °C |
| Soldering Temperature DIP Package | - | - | +260 | °C |
| Flatpack/Surface Mount Package (10 Seconds Max.) | - | - | +220 | °C |

¹ Derate Linearly 1.33 mw/°C

² Derate Linearly 6.67 mw/°C

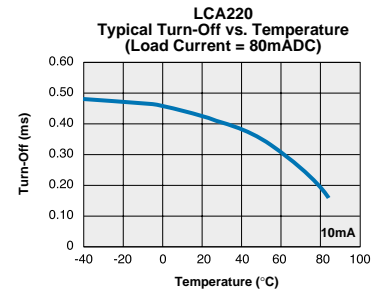
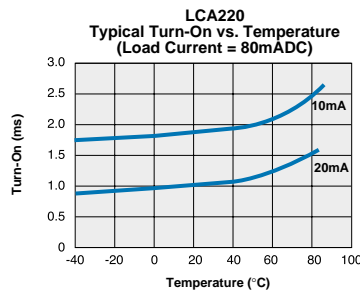
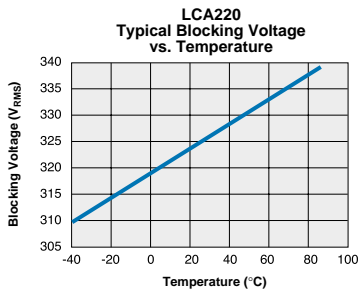
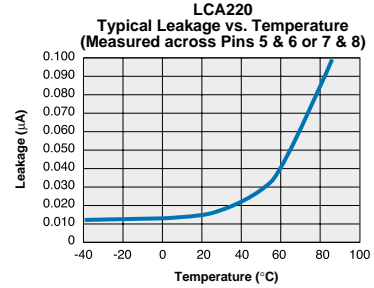
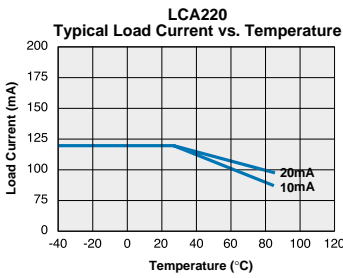
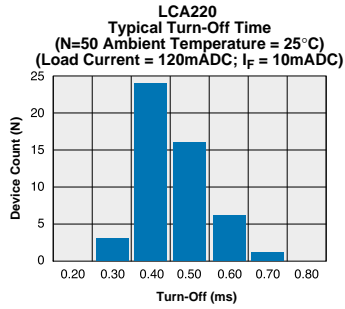
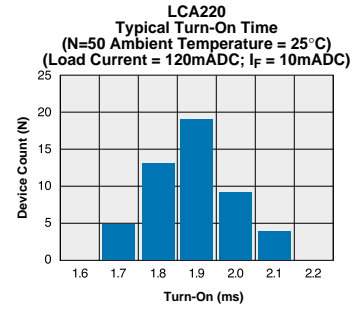
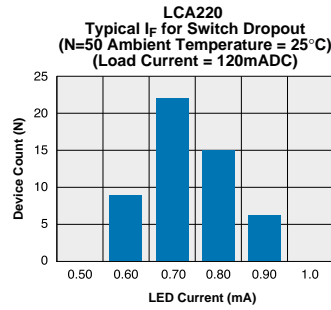
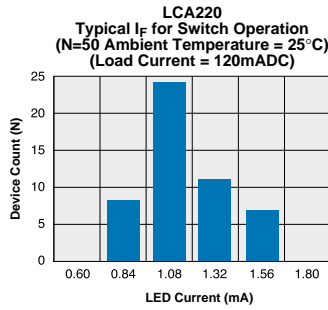
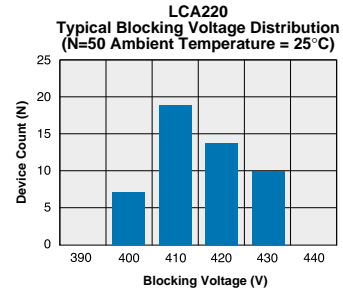
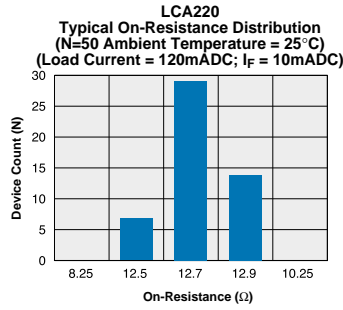
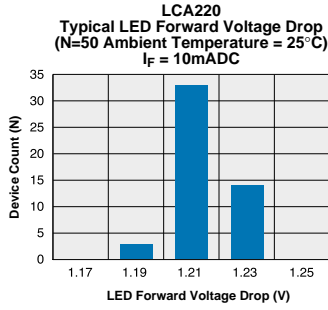
Absolute Maximum Ratings are stress ratings. Stresses in excess of these ratings can cause permanent damage to the device. Functional operation of the device at these or any other conditions beyond those indicated in the operational sections of this data sheet is not implied. Exposure of the device to the absolute maximum ratings for an extended period may degrade the device and effect its reliability.

Electrical Characteristics

| Parameter | Conditions | Symbol | Min | Typ | Max | Units |
|--------------------------------------|---|-------------------|------|-----|-----|------------------|
| Output Characteristics @ 25°C | | | | | | |
| Load Voltage (Peak) | - | V _L | - | - | 250 | V |
| Load Current (Continuous) | - | I _L | - | - | 120 | mA |
| Peak Load Current | 10ms max | I _{LPK} | - | - | 340 | mA |
| On-Resistance | I _L =120 mA | R _{ON} | - | - | 20 | W |
| Off-State Leakage Current | V _L =250V | I _{LEAK} | - | - | 1 | mA |
| Switching Speeds | | | | | | |
| Turn-On | I _F =10mA, V _L =10V | T _{ON} | - | - | 5 | mS |
| Turn-Off | I _F =10mA, V _L =10V | T _{OFF} | - | - | 5 | mS |
| Output Capacitance | 50V; f=1MHz | C _{OUT} | - | 50 | - | pF |
| *Input Characteristics @ 25°C | | | | | | |
| Input Control Current | I _L =120mA | I _F | 10 | - | 100 | mA |
| Input Dropout Current | - | - | 0.8 | 1.4 | - | mA |
| Input Voltage Drop | I _F =10mA | V _F | 0.9 | 1.2 | 1.4 | V |
| Reverse Input Voltage | - | V _R | - | - | 5 | V |
| Reverse Input Current | V _R =5V | I _R | - | - | 20 | mA |
| Input to Output Capacitance | - | C _{I/O} | - | 3 | - | pF |
| Input to Output Isolation | - | V _{I/O} | 3750 | - | - | V _{RMS} |

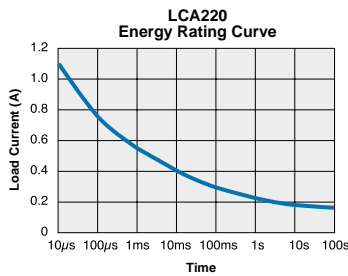
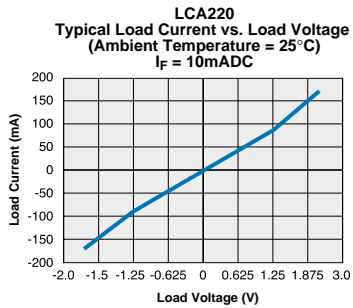
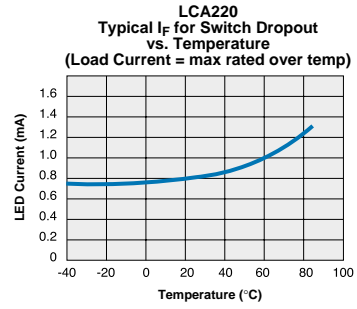
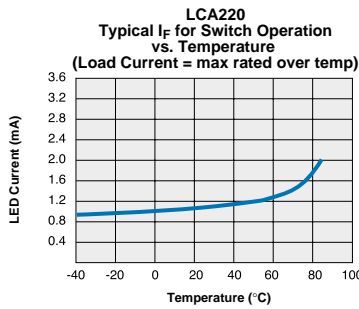
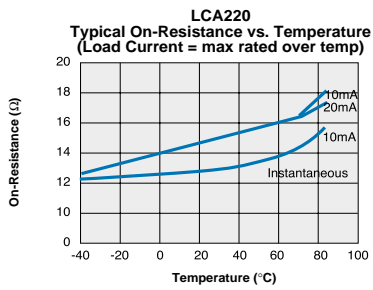
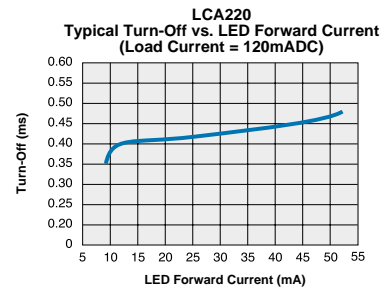
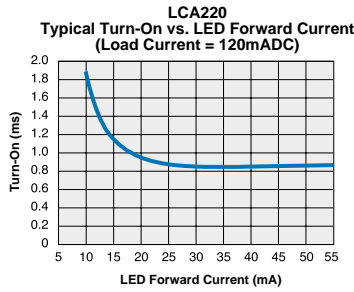
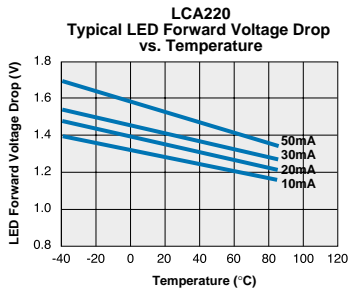
*Input characteristics represent requirements of two parallel connected LEDs.

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.

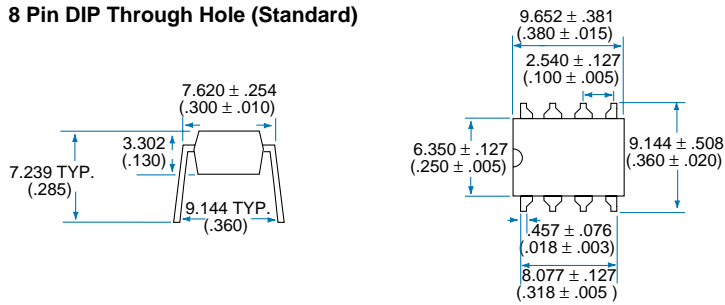
PERFORMANCE DATA*



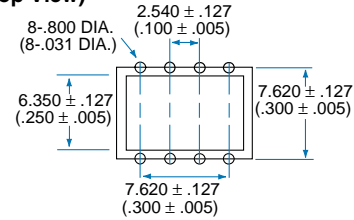
*The Performance data shown in the graphs above is typical of device performance. For guaranteed parameters not indicated in the written specifications, please contact our application department.

Mechanical Dimensions

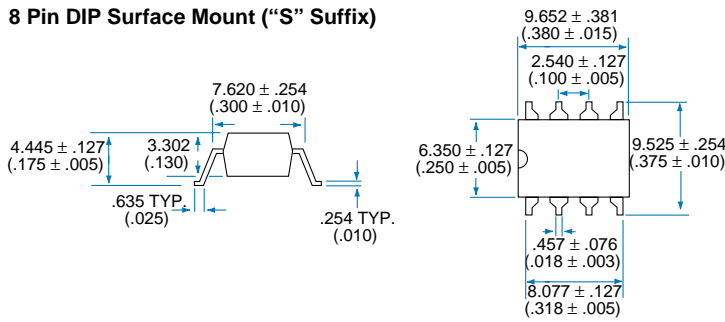
8 Pin DIP Through Hole (Standard)



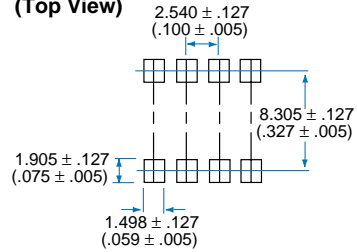
PC Board Pattern (Top View)



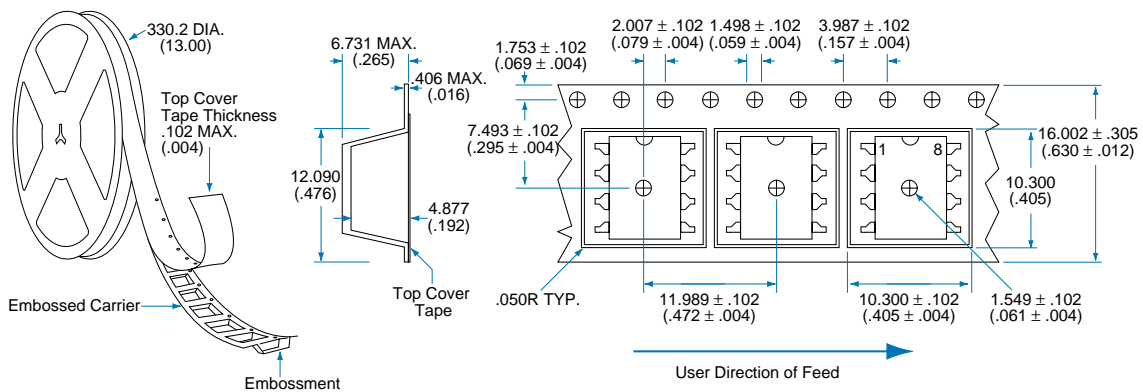
8 Pin DIP Surface Mount ("S" Suffix)



PC Board Pattern (Top View)



Tape and Reel Packaging for 8 Pin Surface Mount Package



Dimensions
mm
(inches)



CLARE

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Worldwide Sales Offices

CLARE LOCATIONS

Clare Headquarters
78 Cherry Hill Drive
Beverly, MA 01915
Tel: 1-978-524-6700
Fax: 1-978-524-4900
Toll Free: 1-800-27-CLARE

Clare Micronix Division
145 Columbia
Aliso Viejo, CA 92656-1490
Tel: 1-949-831-4622
Fax: 1-949-831-4628

SALES OFFICES

AMERICAS

Americas Headquarters

Clare
78 Cherry Hill Drive
Beverly, MA 01915
Tel: 1-978-524-6700
Fax: 1-978-524-4900
Toll Free: 1-800-27-CLARE

Eastern Region

Clare
P.O. Box 856
Mahwah, NJ 07430
Tel: 1-201-236-0101
Fax: 1-201-236-8685
Toll Free: 1-800-27-CLARE

Central Region

Clare Canada Ltd.
3425 Harvester Road, Suite 202
Burlington, Ontario L7N 3N1
Tel: 1-905-333-9066
Fax: 1-905-333-1824

Western Region

Clare
1852 West 11th Street, #348
Tracy, CA 95376
Tel: 1-209-832-4367
Fax: 1-209-832-4732
Toll Free: 1-800-27-CLARE

Canada

Clare Canada Ltd.
3425 Harvester Road, Suite 202
Burlington, Ontario L7N 3N1
Tel: 1-905-333-9066
Fax: 1-905-333-1824

EUROPE

European Headquarters

CP Clare nv
Bampslaan 17
B-3500 Hasselt (Belgium)
Tel: 32-11-300868
Fax: 32-11-300890

France

Clare France Sales
Lead Rep
99 route de Versailles
91160 Champlan
France
Tel: 33 1 69 79 93 50
Fax: 33 1 69 79 93 59

Germany

Clare Germany Sales
ActiveComp Electronic GmbH
Mitterstrasse 12
85077 Manching
Germany
Tel: 49 8459 3214 10
Fax: 49 8459 3214 29

Italy

C.L.A.R.E.s.a.s.
Via C. Colombo 10/A
I-20066 Melzo (Milano)
Tel: 39-02-95737160
Fax: 39-02-95738829

Sweden

Clare Sales
Comptronic AB
Box 167
S-16329 Spånga
Tel: 46-862-10370
Fax: 46-862-10371

United Kingdom

Clare UK Sales
Marco Polo House
Cook Way
Bindon Road
Taunton
UK-Somerset TA2 6BG
Tel: 44-1-823 352541
Fax: 44-1-823 352797

ASIA PACIFIC

Asian Headquarters

Clare
Room N1016, Chia-Hsin, Bldg II,
10F, No. 96, Sec. 2
Chung Shan North Road
Taipei, Taiwan R.O.C.
Tel: 886-2-2523-6368
Fax: 886-2-2523-6369

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