**LCA110**  
Single Pole OptoMOS® Relay

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**Description**
LCA110 is a 350V, 120mA, 35Ω 1-Form-A relay. It provides a perfect solution where high sensitivity is required.

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**Features**

- Small 6 Pin DIP Package
- Low Drive Power Requirements (TTL/CMOS Compatible)
- No Moving Parts
- High Reliability
- Arc-Free With No Snubbing Circuits
- 3750VRMS Input/Output Isolation
- FCC Compatible
- VDE Compatible
- No EMI/RFI Generation
- Machine Insertable, Wave Solderable
- Surface Mount and Tape & Reel Versions Available

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**Approvals**

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

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**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

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**Ordering Information**

<table>
<thead>
<tr>
<th>Part #</th>
<th>Description</th>
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<tbody>
<tr>
<td>LCA110</td>
<td>6 Pin DIP (50/Tube)</td>
</tr>
<tr>
<td>LCA110S</td>
<td>6 Pin Surface Mount (50/Tube)</td>
</tr>
<tr>
<td>LCA110STR</td>
<td>6 Pin Surface Mount (1000/Reel)</td>
</tr>
</tbody>
</table>

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**Pin Configuration**

**LCA110 Pinout**

**AC/DC Configuration**

1. + Control
2. – Control
3. NC
4. Do Not Use
5. Load
6. + Load

**DC Only Configuration**

1. + Control
2. – Control
3. NC
4. + Load
5. 5
6. 4

---

**Switching Characteristics of Normally Open (Form A) Devices**

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Absolute Maximum Ratings (at 25°C)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Conditions</th>
<th>Symbol</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
<th>Units</th>
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<tbody>
<tr>
<td>Input Power Dissipation</td>
<td>-</td>
<td></td>
<td>-</td>
<td>-</td>
<td>150</td>
<td>mW</td>
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<tr>
<td>Input Control Current Peak (10ms)</td>
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<td>-</td>
<td>-</td>
<td>50</td>
<td>mA</td>
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<td>Reverse Input Voltage</td>
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<td>-</td>
<td>-</td>
<td>5</td>
<td>V</td>
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<tr>
<td>Total Power Dissipation</td>
<td>-</td>
<td></td>
<td>-</td>
<td>-</td>
<td>800</td>
<td>mW</td>
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<td>Capacitance</td>
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<td>3</td>
<td>-</td>
<td>-</td>
<td>pF</td>
</tr>
<tr>
<td>Isolation Voltage</td>
<td>3750</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>V&lt;sub&gt;RMS&lt;/sub&gt;</td>
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<tr>
<td>Operational Temperature</td>
<td>-40</td>
<td></td>
<td>-</td>
<td>-</td>
<td>70</td>
<td>°C</td>
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<tr>
<td>Storage Temperature</td>
<td>-40</td>
<td></td>
<td>-</td>
<td>-</td>
<td>125</td>
<td>°C</td>
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<tr>
<td>Soldering Temperature</td>
<td></td>
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<td>-</td>
<td>-</td>
<td>260</td>
<td>°C</td>
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<tr>
<td>DIP Package</td>
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<td>-</td>
<td>-</td>
<td>220</td>
<td>°C</td>
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</table>

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

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>CONDITIONS</th>
<th>SYMBOL</th>
<th>MIN</th>
<th>TYP</th>
<th>MAX</th>
<th>UNITS</th>
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<tbody>
<tr>
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<td>Load Voltage (Peak)</td>
<td>-</td>
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<td>-</td>
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<td>350</td>
<td>V</td>
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<tr>
<td>Load Current (Continuous)</td>
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<td>-</td>
<td>120</td>
<td>mA</td>
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<td>-</td>
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<td>200</td>
<td>mA</td>
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<tr>
<td>DC Configuration</td>
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<td>-</td>
<td>-</td>
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<td>mA</td>
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<td>Peak Load Current</td>
<td>10ms</td>
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<td>-</td>
<td>-</td>
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<td>mA</td>
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<tr>
<td>On-Resistance</td>
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<td>-</td>
<td>V</td>
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<tr>
<td>AC/DC Configuration</td>
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<td>R&lt;sub&gt;ON&lt;/sub&gt;</td>
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<td>23</td>
<td>35</td>
<td>Ω</td>
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<tr>
<td>DC Configuration</td>
<td>l&lt;sub&gt;L&lt;/sub&gt;=200mA</td>
<td>R&lt;sub&gt;ON&lt;/sub&gt;</td>
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<td>7</td>
<td>10</td>
<td>Ω</td>
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<tr>
<td>Off-State Leakage Current</td>
<td>V&lt;sub&gt;L&lt;/sub&gt;=350V</td>
<td>I&lt;sub&gt;LEAK&lt;/sub&gt;</td>
<td></td>
<td>-</td>
<td>1</td>
<td>μA</td>
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<tr>
<td>Switching Speeds</td>
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<tr>
<td>Turn-On</td>
<td>I&lt;sub&gt;F&lt;/sub&gt;=5mA, V&lt;sub&gt;L&lt;/sub&gt;=10V</td>
<td>T&lt;sub&gt;ON&lt;/sub&gt;</td>
<td></td>
<td>-</td>
<td>3</td>
<td>ms</td>
</tr>
<tr>
<td>Turn-Off</td>
<td>I&lt;sub&gt;F&lt;/sub&gt;=5mA, V&lt;sub&gt;L&lt;/sub&gt;=10V</td>
<td>T&lt;sub&gt;OFF&lt;/sub&gt;</td>
<td></td>
<td>-</td>
<td>3</td>
<td>ms</td>
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<td>Output Capacitance</td>
<td>50V, f=1MHz</td>
<td>C&lt;sub&gt;OUT&lt;/sub&gt;</td>
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<td>25</td>
<td>pF</td>
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<tr>
<td>Input Characteristics @ 25°C</td>
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<td></td>
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<td></td>
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<tr>
<td>Input Control Current</td>
<td>I&lt;sub&gt;L&lt;/sub&gt;=120mA</td>
<td>I&lt;sub&gt;F&lt;/sub&gt;</td>
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<td>50</td>
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<td>Input Dropout Current</td>
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<td>I&lt;sub&gt;F&lt;/sub&gt;</td>
<td>0.4</td>
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<td>Input Voltage Drop</td>
<td>I&lt;sub&gt;F&lt;/sub&gt;=5mA</td>
<td>V&lt;sub&gt;F&lt;/sub&gt;</td>
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<td>0.9</td>
<td>1.2</td>
<td>1.4</td>
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<td>Reverse Input Voltage</td>
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<td>V&lt;sub&gt;R&lt;/sub&gt;</td>
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<td>-</td>
<td>5</td>
</tr>
<tr>
<td>Reverse Input Current</td>
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<td>I&lt;sub&gt;R&lt;/sub&gt;</td>
<td></td>
<td>-</td>
<td>10</td>
<td>μA</td>
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<tr>
<td>Common Characteristics @ 25°C</td>
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<tr>
<td>Input to Output Capacitance</td>
<td>-</td>
<td></td>
<td>C&lt;sub&gt;UO&lt;/sub&gt;</td>
<td>-</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>Input to Output Isolation</td>
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<td></td>
<td>V&lt;sub&gt;UO&lt;/sub&gt;</td>
<td>3750</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
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

6 Pin DIP Through Hole (Standard)

- 6.350 ± .127 (250 ± .005)
- 8.382 ± .635 (330 ± .025)
- 2.540 ± .127 (100 ± .005)

Dimensions (Inches)

7.239 TYP. (.285)
3.302 (.130)
2.540 ± .127 (.100 ± .005)
5.080 ± .127 (.200 ± .005)

6 Pin DIP Surface Mount ("S" Suffix)

- 6.350 ± .127 (.250 ± .005)
- 8.382 ± .635 (330 ± .025)
- 2.540 ± .127 (100 ± .005)

Dimensions (Inches)

4.445 ± .127 (.175 ± .005)
3.302 (.130)
2.540 ± .127 (.100 ± .005)

PC Board Pattern (Top View)

- 2.540 ± .127 (.100 ± .005)
- 8.305 ± .127 (.327 ± .005)
- 1.905 ± .127 (.075 ± .005)
- 1.499 ± .127 (.059 ± .005)

Dimensions (Inches)

2.540 ± .127 (.100 ± .005)

Tape and Reel Packaging for 6 Pin Surface Mount Package

- 6.731 MAX. (.263)
- 4.06 MAX. (.161)
- 7.493 ± .102 (.295 ± .004)
- 1.989 ± .102 (.079 ± .004)
- 1.498 ± .102 (.059 ± .004)
- 3.987 ± .102 (.157 ± .004)
- 16.002 ± .305 (.630 ± .012)

Dimensions (Inches)

Embossment

Embosed Carrier
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http://www.clare.com

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