



|                        | <b>LDA110</b> | <b>Units</b> |
|------------------------|---------------|--------------|
| Break Down Voltage     | 20            | V            |
| Current Transfer Ratio | 1000          | %            |
| Saturation Voltage     | .8            | V            |
| Input Control Current  | 2             | mA           |

### Description

LDA110 is an optocoupler with a single or darlington transistor output. A bi-directional or uni-directional input is available depending on which model you choose. Current transfer ratios range from 33% to 1000%

### Features

- AC and DC Input Versions Available
- Small 6 Pin DIP Package
- 100mA Continuous Load Rating
- 3750V<sub>RMS</sub> Input/Output Isolation
- Machine Insertable, Wave Solderable
- Surface Mount and Tape & Reel Versions Available

### Applications

- Telecom Switching
- Tip/Ring Circuits
- Modem Switching (Laptop, Notebook, Pocket Size)
- Loop Detect
- Ring Detect
- Current Sensing

### Approvals

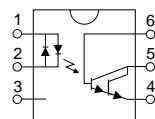
- UL Recognized: File Number E76270
- CSA Certified: File Number LR 43639-10
- BSI Certified:
  - BS EN 60950:1992 (BS7002:1992)  
Certificate #:7344
  - BS EN 41003:1993  
Certificate #:7344

### Ordering Information

| <b>Part #</b> | <b>Description</b>              |
|---------------|---------------------------------|
| LDA110        | 6 Pin DIP (50/Tube)             |
| LDA110S       | 6 Pin Surface Mount (50/Tube)   |
| LDA110STR     | 6 Pin Surface Mount (1000/Reel) |

### Pin Configuration

**LDA110 Pinout**



**Absolute Maximum Ratings (@ 25° C)**

| Parameter                                      | Min  | Typ | Max              | Units            |
|--|------|-----|------------------|------------------|
| Input Power Dissipation                        | -    | -   | 150 <sup>1</sup> | mW               |
| Input Control Current<br>Peak (10ms)           | -    | -   | 100<br>1         | mA<br>A          |
| Reverse Input Voltage                          | -    | -   | 5                | V                |
| Phototransistor                                | -    | -   | 150 <sup>2</sup> | mW               |
| Power Dissipation<br>Total Package Dissipation | -    | -   | 800 <sup>3</sup> | mW               |
| Isolation Voltage                              |      |     |                  |                  |
| Input to Output                                | 3750 | -   | -                | V <sub>RMS</sub> |
| Operational Temperature                        | -40  | -   | +85              | °C               |
| Storage Temperature                            | -40  | -   | +125             | °C               |
| Soldering Temperature<br>DIP Package           | -    | -   | +260             | °C               |
| Surface Mount Package<br>(10 Seconds Max.)     | -    | -   | +220             | °C               |

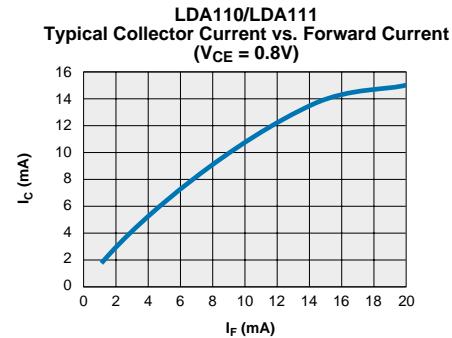
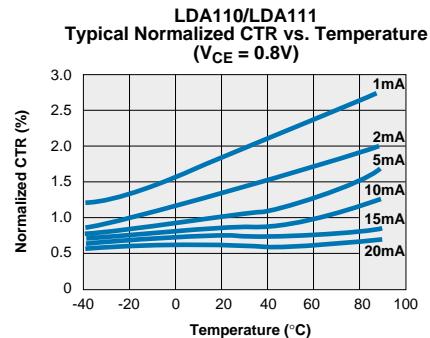
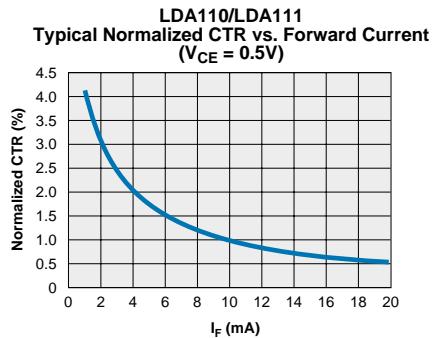
<sup>1</sup> Derate Linearly 1.33 mW/°C<sup>2</sup> Derate Linearly 2.0 mW/°C<sup>3</sup> Derate Linearly 6.67 mW/°C

*Absolute Maximum Ratings are stress ratings. 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**

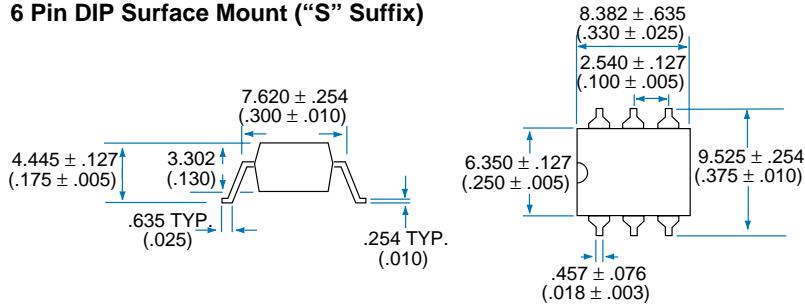
| PARAMETER                                 | CONDITIONS                                   | SYMBOL            | MIN  | TYP  | MAX | UNITS            |
|---|--|-------------------|------|------|-----|------------------|
| <b>Output Characteristics @ 25°C</b>      |  |                   |      |      |     |                  |
| Phototransistor Blocking Voltage          | I <sub>C</sub> =10µA                         | BV <sub>CEO</sub> | 20   | 50   | -   | V                |
| Phototransistor Output Current            | V <sub>CE</sub> =5V, I <sub>F</sub> =0mA     | I <sub>CEO</sub>  | -    | 50   | 500 | nA               |
| Saturation Voltage                        | I <sub>C</sub> =2mA, I <sub>F</sub> =16mA    | V <sub>SAT</sub>  | -    | -    | -   | V                |
|   | I <sub>C</sub> =.15mA, I <sub>F</sub> =.05mA |                   | -    | 0.5  | 0.5 | V                |
| Current Transfer Ratio                    | I <sub>F</sub> =6mA, V <sub>CE</sub> =0.5V   | CTR               | 300  | 1000 | -   | %                |
| Output Capacitance                        | 50V, f=1 MHz                                 | C <sub>OUT</sub>  | -    | 3    | -   | pF               |
| Capacitance<br>Input to Output            | -  | -                 | -    | -    | -   | -pF              |
| <b>Input Characteristics @ 25°C</b>       |  |                   |      |      |     |                  |
| Input Control Current                     | I <sub>C</sub> =2mA, V <sub>CE</sub> =0.5V   | I <sub>F</sub>    | 2    | 1    | 100 | mA               |
| Input Voltage Drop                        | I <sub>F</sub> =5mA                          | V <sub>F</sub>    | 0.9  | 1.2  | 1.4 | V                |
| Input Reverse Voltage<br>(LDA101, LDA111) | -  | V <sub>R</sub>    | -    | -    | 5   | V                |
| Input Reverse Current<br>(LDA101, LDA111) | V <sub>R</sub> =5V                           | I <sub>R</sub>    | -    | -    | 10  | nA               |
| <b>Common Characteristics @ 25°C</b>      |  |                   |      |      |     |                  |
| Input to Output Isolation                 | -  | V <sub>I/O</sub>  | 3750 | -    | -   | V <sub>RMS</sub> |

## Performance Data

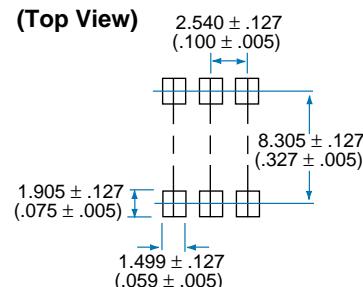


### Mechanical Dimensions

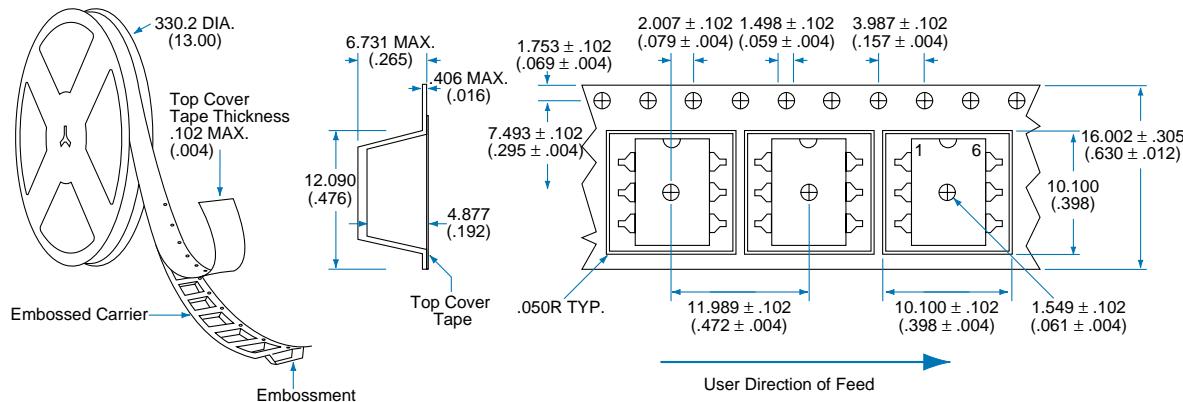
#### 6 Pin DIP Surface Mount ("S" Suffix)



#### PC Board Pattern



#### Tape and Reel Packaging for 6 Pin Surface Mount Package



Dimensions  
mm  
(inches)



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