

Parameter	Rating	Units
Breakdown Voltage $V_{CEO}$	30	$V_P$
Current Transfer Ratio (Typical)	300	%
Saturation Voltage	0.5	V
Input Control Current	1	mA

## Features

- Small 6-Pin Package, Thru-Hole or Surface Mount
- Low Drive Power Requirements (TTL/CMOS Compatible)
- No Moving Parts
- High Reliability
- Arc-Free With No Snubbing Circuits
- 3750V<sub>rms</sub> Input/Output Isolation
- No EMI/RFI Generation
- Machine Insertable, Wave Solderable
- Surface Mount Tape & Reel Version Available

## Applications

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

## Description

The LDA100 is a bidirectional-input optocoupler with a single transistor output. Optically coupled technology provides a 3750V<sub>rms</sub> isolation barrier between the input and the output.

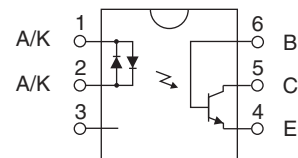
## Approvals

- UL Recognized Component: File # E76270
- CSA Certified Component: Certificate # 1175739

## Ordering Information

Part Number	Description
LDA100	6-Pin DIP (50/Tube)
LDA100S	6-Pin Surface Mount (50/Tube)
LDA100STR	6-Pin Surface Mount (1000/Reel)

## Pin Configuration



### Absolute Maximum Ratings

Parameter	Ratings	Units
Breakdown Voltage	30	V <sub>P</sub>
Input Control Current	50	mA
Peak (10ms)	1	A
Power Dissipation		
Input <sup>1</sup>	150	mW
Phototransistors <sup>2</sup>	150	
Isolation Voltage Input to Output	3750	V <sub>rms</sub>
Operational Temperature	-40 to +85	°C
Storage Temperature	-40 to +125	°C

<sup>1</sup> Derate Linearly 1.33 mW/°C

<sup>2</sup> Derate Linearly 2.0 mW/°C

Electrical absolute maximum ratings are at 25°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.

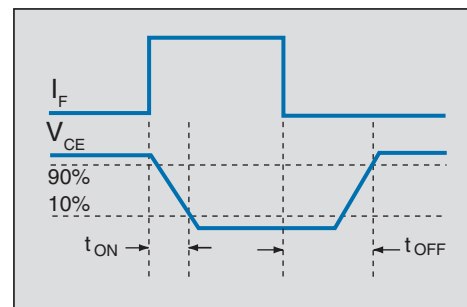
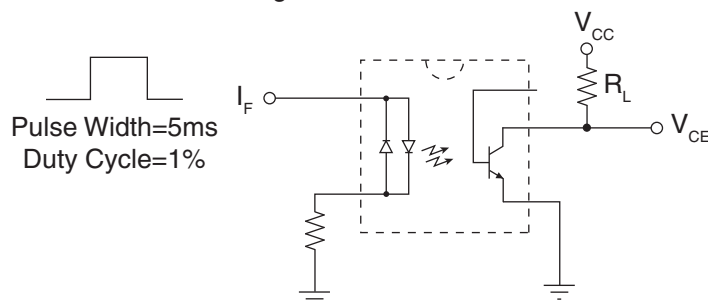
### Electrical Characteristics

Parameters	Conditions	Symbol	Min	Typ	Max	Units
<b>Output Characteristics @ 25°C (unless otherwise noted)</b>						
Phototransistor Breakdown Voltage	I <sub>C</sub> =10μA	BV <sub>CEO</sub>	30	85	-	V
Phototransistor Dark Current	V <sub>CE</sub> =5V, I <sub>F</sub> =0mA	I <sub>CEO</sub>	-	-	500	nA
Saturation Voltage	I <sub>C</sub> =2mA, I <sub>F</sub> =1mA	V <sub>CE(sat)</sub>	-	-	0.5	V
Current Transfer Ratio	I <sub>F</sub> =1mA, V <sub>CE</sub> =0.5V	CTR	33	300	-	%
Output Capacitance	25V, f=1MHz	C <sub>OUT</sub>	-	6	-	pF
<b>Input Characteristics @ 25°C</b>						
Input Control Current	I <sub>C</sub> =0.33mA, V <sub>CE</sub> =0.5V	I <sub>F</sub>	-	-	1	mA
Input Voltage Drop	I <sub>F</sub> =5mA	V <sub>F</sub>	0.9	1.2	1.4	V
<b>Common Characteristics @ 25°C</b>						
Input to Output Capacitance	-	C <sub>I/O</sub>	-	3	-	pF

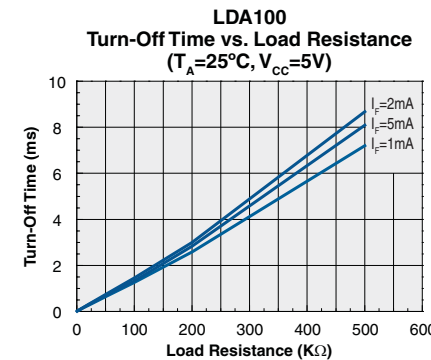
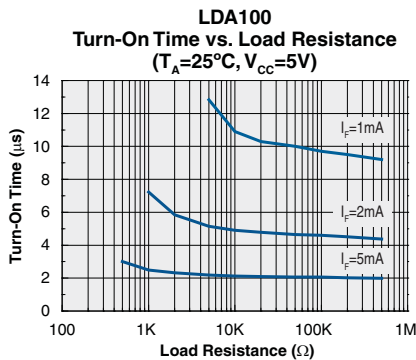
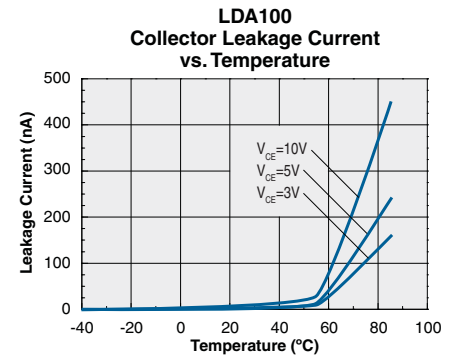
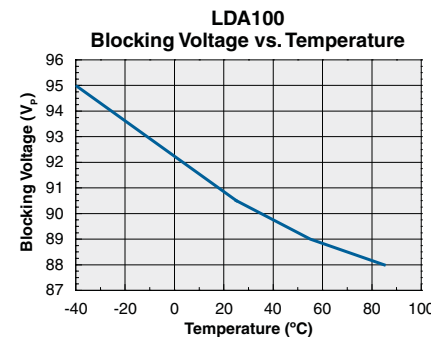
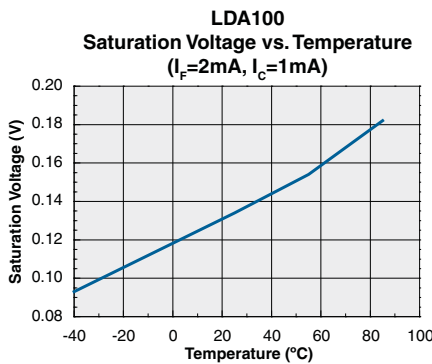
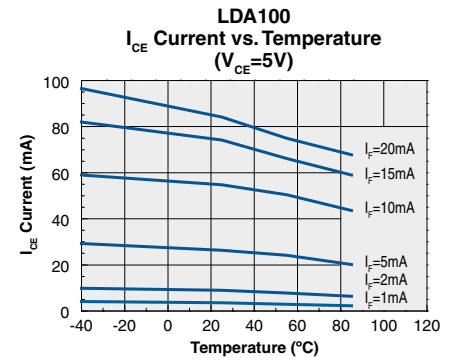
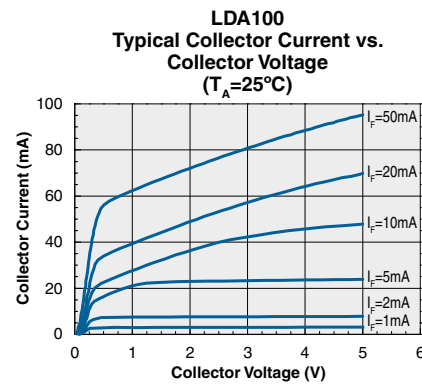
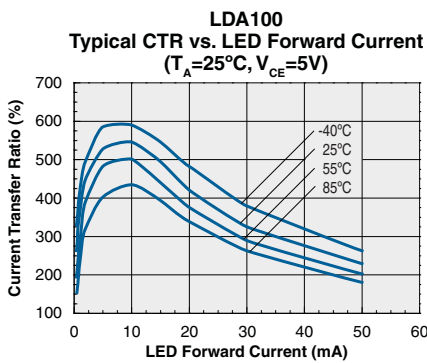
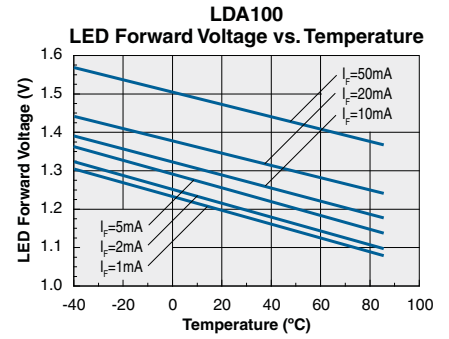
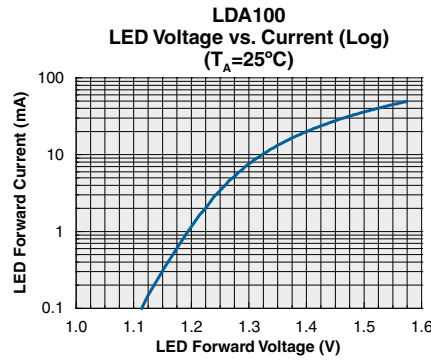
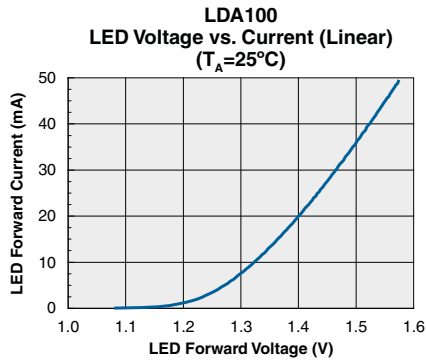
### Switching Characteristics @ 25°C

Characteristic	Symbol	Test Condition	Typ	Units
Turn-On Time	t <sub>ON</sub>	V <sub>CC</sub> =5V, I <sub>F</sub> =2mA, R <sub>L</sub> =1KΩ	7	μs
Turn-Off Time	t <sub>OFF</sub>		20	

Switching Time Test Circuit



**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.

**Manufacturing Information**

**Soldering**

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.

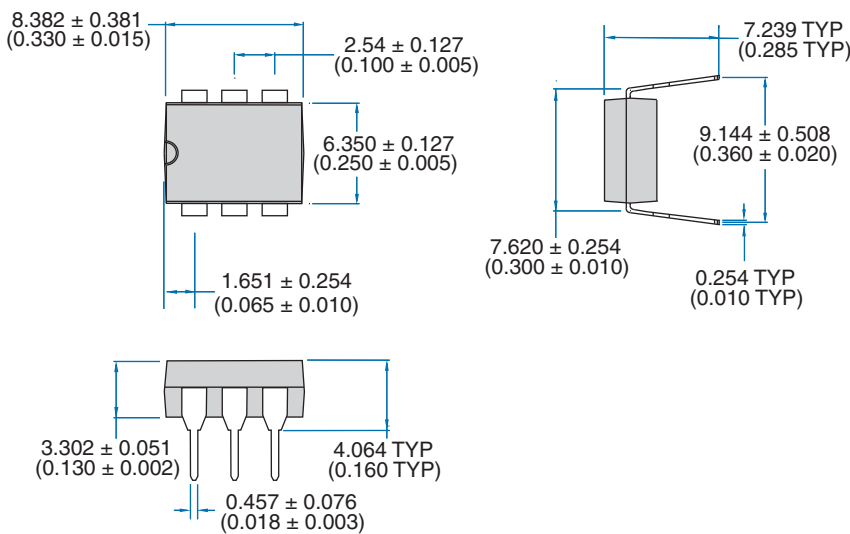
**Washing**

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

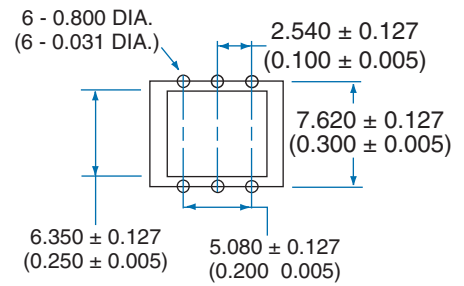


**MECHANICAL DIMENSIONS**

**6-Pin DIP Thru-Hole Package**

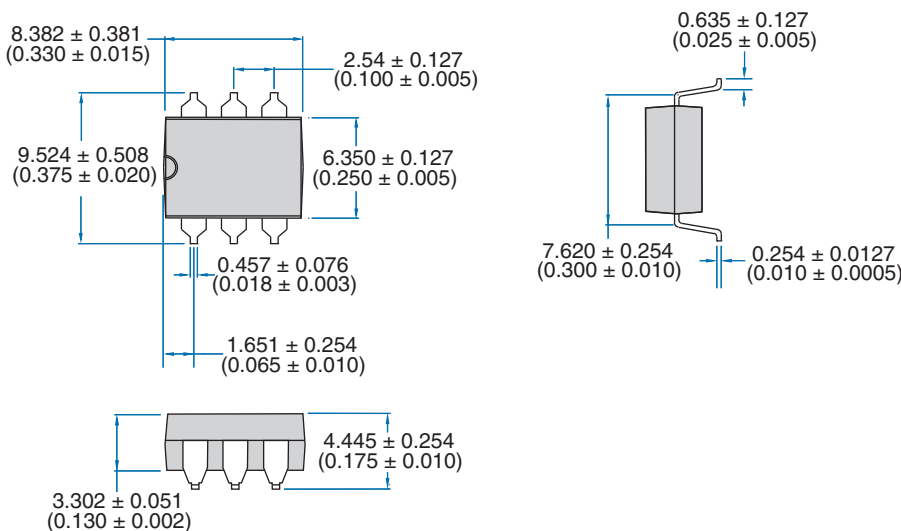


**PC Board Pattern**

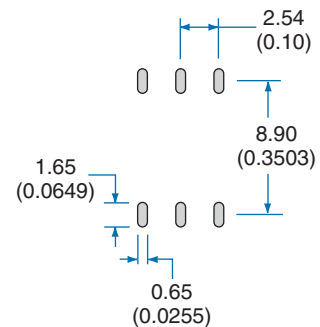


Dimensions  
mm  
(inches)

**6-Pin Surface Mount Package ("S" Suffix)**

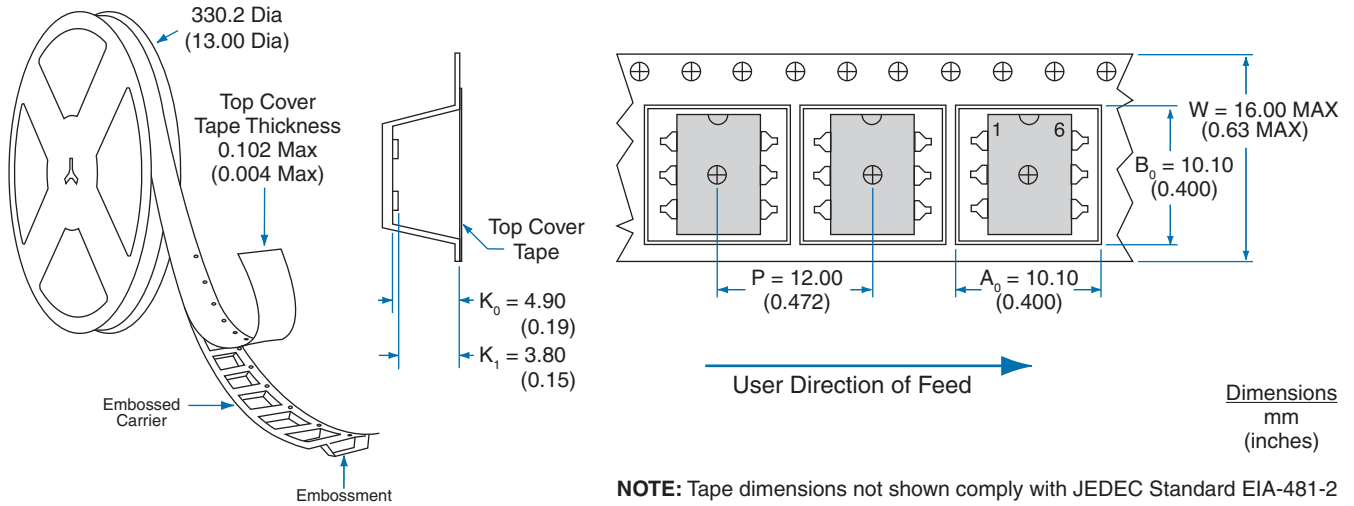


**Recommended PCB Land Pattern**



Dimensions  
mm  
(inches)

**Tape and Reel Packaging for 6-Pin “S” Suffix Parts**



**For additional information please visit our website at: [www.clare.com](http://www.clare.com)**

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