



	LCA120L	Units
Blocking Voltage	250	V
Load Current	150	mA
Max On Resistance	20	$\Omega$

### Features

- Small 6 Pin DIP Package
- 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
- FCC Compatible
- VDE Compatible
- No EMI/RFI Generation
- Machine Insertable, Wave Solderable
- Current Limiting Surface Mount and Tape & Reel Versions 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

LCA120 is a 250V, 150mA, 20 $\Omega$  Current Limiting 1-Form-A relay.

### 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

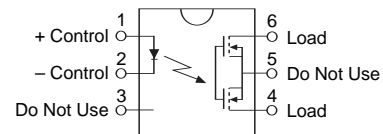
### Ordering Information

Part #	Description
LCA120L	6 Pin DIP (50/Tube)
LCA120LS	6 Pin Surface Mount (50/Tube)
LCA120LSTR	6 Pin Surface Mount (1000/Reel)

### Pin Configuration

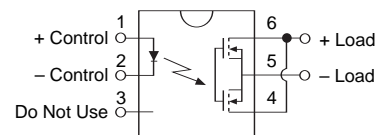
#### LCA120L Pinout

AC/DC Configuration

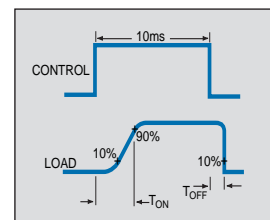


#### LCA120L Pinout

DC Only Configuration



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



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

Parameter	Ratings	Units
Blocking Voltage	250	V <sub>P</sub>
Reverse Input Voltage	5	V
Input Control Current	50	mA
Peak (10ms)	1	A
Input Power Dissipation	150 <sup>1</sup>	mW
Total Power Dissipation	800 <sup>2</sup>	mW
Isolation Voltage		
Input to Output	3750	V <sub>rms</sub>
Operational Temperature	-40 to +85	°C
Storage Temperature	-40 to +125	°C
Soldering Temperature		
DIP Package	+260	°C
Surface Mount Package (10 Seconds Max.)	+220	°C

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

<sup>2</sup> Derate Linearly 6.67 mW/°C

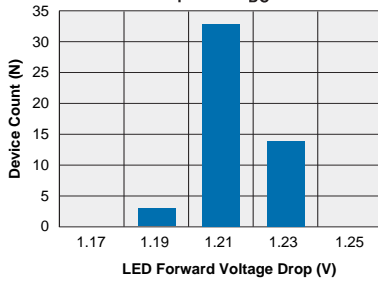
*Absolute Maximum Ratings are stress ratings. Stresses in excess of these ratings can cause permanent damage to the device. Functional operation of the device at conditions beyond those indicated in the operational sections of this data sheet is not implied.*

### Electrical Characteristics

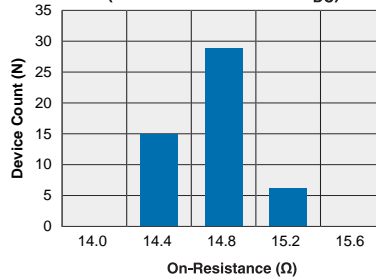
Parameter	Conditions	Symbol	Min	Typ	Max	Units
<b>Output Characteristics @ 25°C</b>						
Load Current (Continuous)						
AC/DC Configuration	-	I <sub>L</sub>	-	-	150	mA
DC Configuration	-	I <sub>L</sub>	-	-	200	mA
Load Current Limiting		I <sub>CL</sub>	190	235	280	mA
On-Resistance						
AC/DC Configuration	I <sub>L</sub> =Load Current	R <sub>ON</sub>	-	15	20	Ω
DC Configuration	I <sub>L</sub> =Load Current		-	5	6	Ω
Off-State Leakage Current	V <sub>L</sub> =250V	I <sub>LEAK</sub>	-	-	1	μA
Switching Speeds						
Turn-On	I <sub>F</sub> =5mA, V <sub>L</sub> =10V	T <sub>ON</sub>	-	-	3	ms
Turn-Off	I <sub>F</sub> =5mA, V <sub>L</sub> =10V	T <sub>OFF</sub>	-	-	3	ms
Output Capacitance	50V; f=1MHz	C <sub>OUT</sub>	-	50	-	pF
<b>Input Characteristics @ 25°C</b>						
Input Control Current	I <sub>L</sub> =Load Current	I <sub>F</sub>	5	-	-	mA
Input Dropout Current	-	I <sub>F</sub>	0.4	0.7	-	mA
Input Voltage Drop	I <sub>F</sub> =5mA	V <sub>F</sub>	0.9	1.2	1.4	V
Reverse Input Current	V <sub>R</sub> =5V	I <sub>R</sub>	-	-	10	μA
<b>Common Characteristics</b>						
Input to Output Capacitance	-	C <sub>I/O</sub>	-	3	-	pF

**PERFORMANCE DATA\***

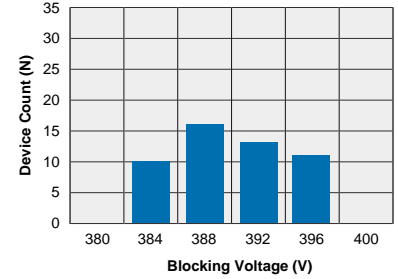
**LCA120L**  
Typical LED Forward Voltage Drop  
(N=50 Ambient Temperature = 25°C)  
 $I_F = 5\text{mA}_{DC}$



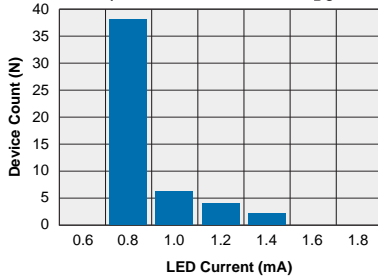
**LCA120L**  
Typical On-Resistance Distribution  
(N=50 Ambient Temperature = 25°C)  
(Load Current = 170mA<sub>DC</sub>)



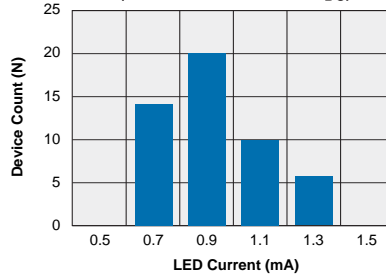
**LCA120L**  
Typical Blocking Voltage Distribution  
(N=50 Ambient Temperature = 25°C)



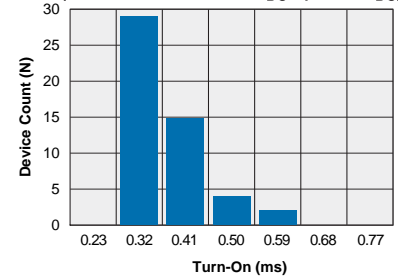
**LCA120L**  
Typical  $I_F$  for Switch Operation  
(N=50 Ambient Temperature = 25°C)  
(Load Current = 170mA<sub>DC</sub>)



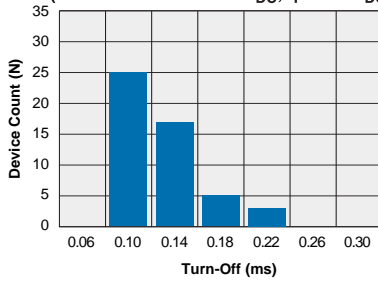
**LCA120L**  
Typical  $I_F$  for Switch Dropout  
(N=50 Ambient Temperature = 25°C)  
(Load Current = 170mA<sub>DC</sub>)



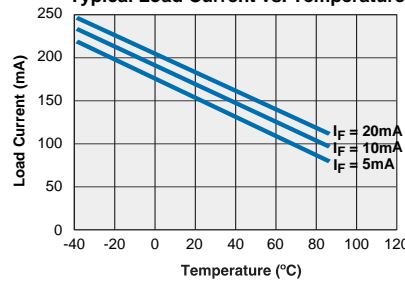
**LCA120L**  
Typical Turn-On Time  
(N=50 Ambient Temperature = 25°C)  
(Load Current = 170mA<sub>DC</sub>;  $I_F = 5\text{mA}_{DC}$ )



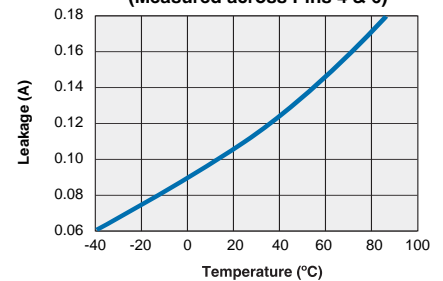
**LCA120L**  
Typical Turn-Off Time  
(N=50 Ambient Temperature = 25°C)  
(Load Current = 170mA<sub>DC</sub>;  $I_F = 5\text{mA}_{DC}$ )



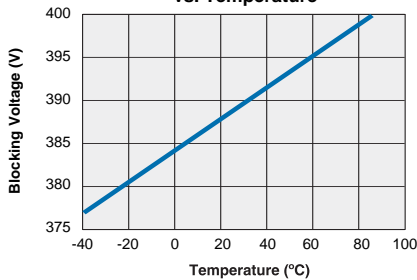
**LCA120L**  
Typical Load Current vs. Temperature



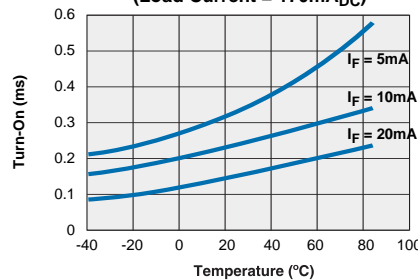
**LCA120L**  
Typical Leakage vs. Temperature  
(Measured across Pins 4 & 6)



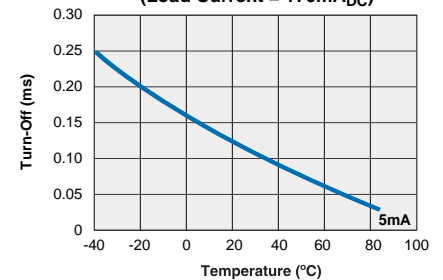
**LCA120L**  
Typical Blocking Voltage vs. Temperature



**LCA120L**  
Typical Turn-On vs. Temperature  
(Load Current = 170mA<sub>DC</sub>)

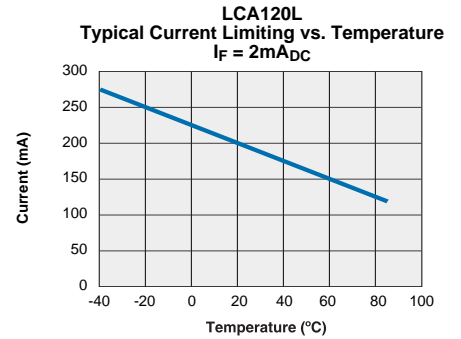
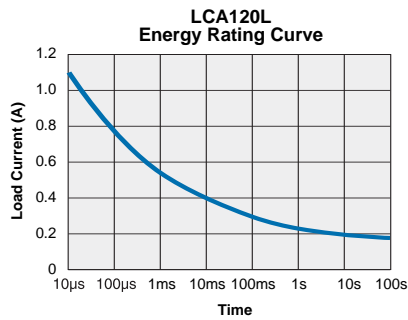
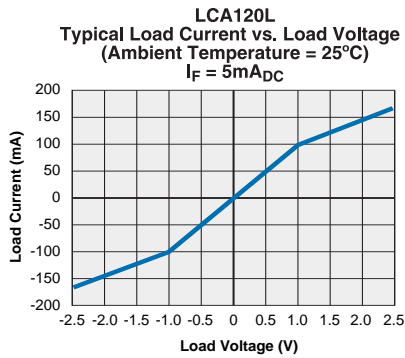
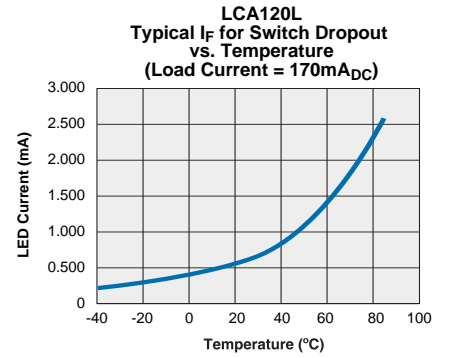
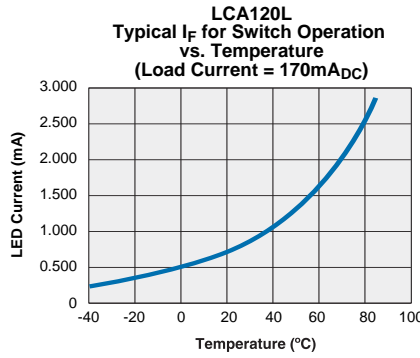
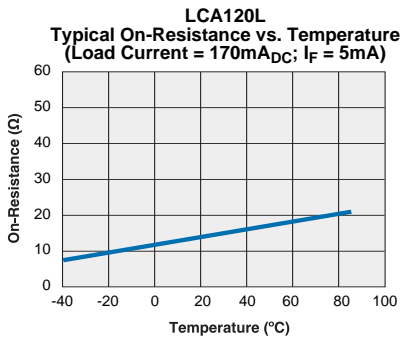
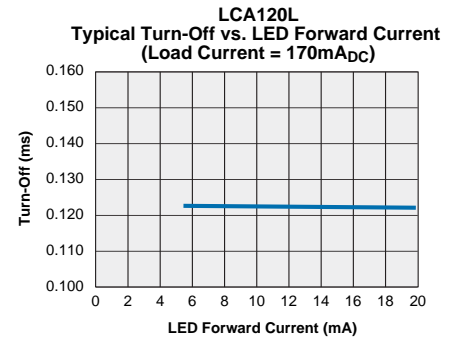
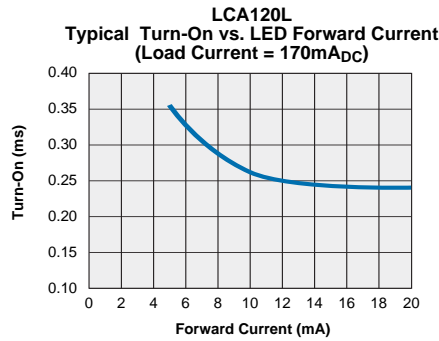
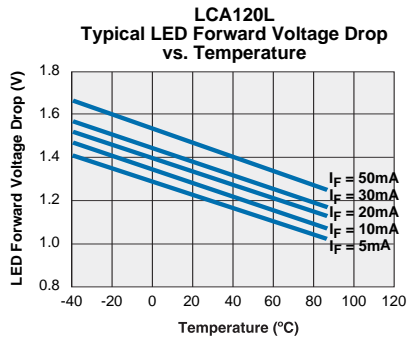


**LCA120L**  
Typical Turn-Off vs. Temperature  
(Load Current = 170mA<sub>DC</sub>)



\*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.

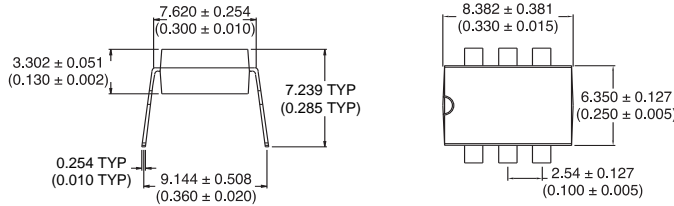
PERFORMANCE DATA\*



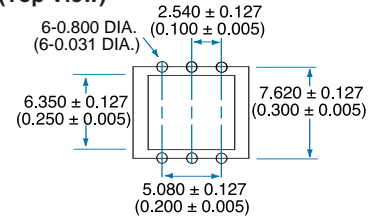
\*The Performance data shown in the graphs above is typical of device performance. For guaranteed parameters not indicated in the written specifications, please contact our application department.

**MECHANICAL DIMENSIONS**

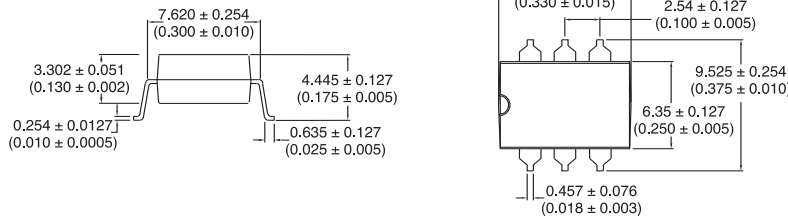
**6Pin DIP Through Hole (Standard)**



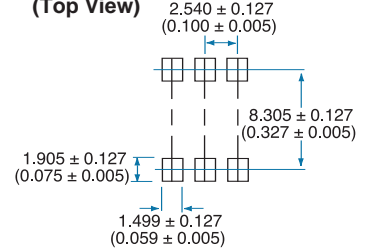
**PC Board Pattern (Top View)**



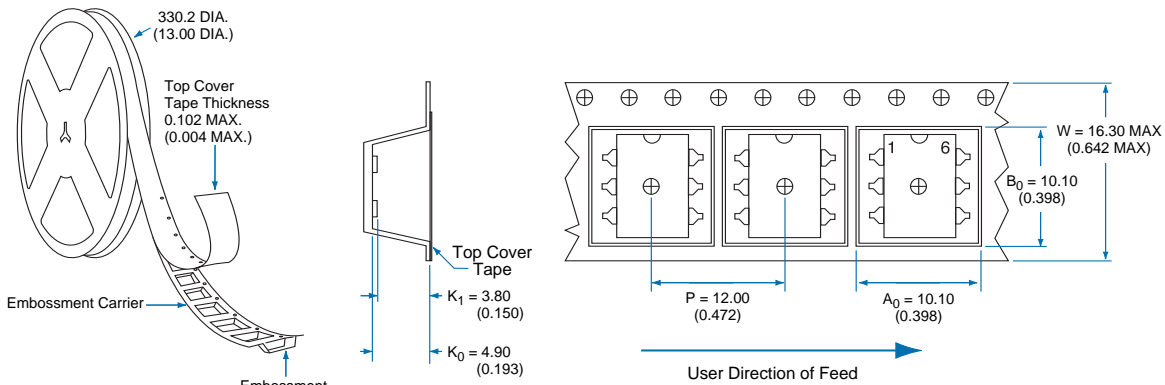
**6Pin Surface Mount ("S" Suffix)**



**PC Board Pattern (Top View)**



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



Dimensions:  
mm  
(inches)

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