



	LCA120L	Units
Load Voltage	250	V
Load Current	150	mA
Max R <sub>ON</sub>	20	Ω

### 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)
- 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

LCA120 is a 250V, 150mA, 20Ω 1-Form-A relay. It features enhanced peak load current capability. Current limiting version is available. ("L" suffix)

### 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

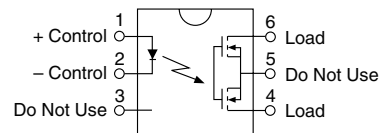
### Ordering Information

Part #	Description
LBA120L	6 Pin DIP (50/Tube)
LBA120LS	6 Pin Surface Mount (50/Tube)
LBA120LSTR	6 Pin Surface Mount (1000/Reel)

### Pin Configuration

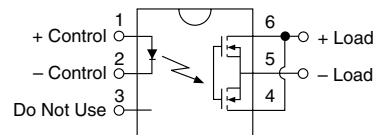
#### LCA120 Pinout

AC/DC Configuration

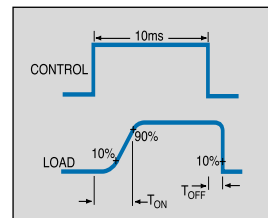


#### LCA120 Pinout

DC Only Configuration



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



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

Parameter	Min	Typ	Max	Units
Input Power Dissipation	-	-	150 <sup>1</sup>	mW
Input Control Current	-	-	50	mA
Peak (10ms)	-	-	1	A
Reverse Input Voltage	-	-	5	V
Total Power Dissipation	-	-	800 <sup>2</sup>	mW
Isolation Voltage Input to Output	3750	-	-	V <sub>RMS</sub>
Operational Temperature	-40	-	+85	°C
Storage Temperature	-40	-	+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

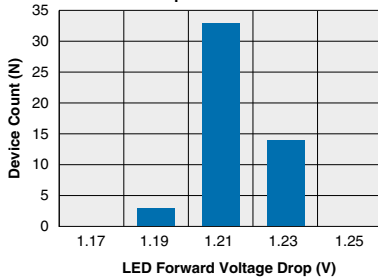
*Absolute Maximum Ratings are stress ratings. Stresses in excess of these ratings can cause permanent damage to the device. Functional operation of the device at these or any other conditions beyond those indicated in the operational sections of this data sheet is not implied. Exposure of the device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

**Electrical Characteristics**

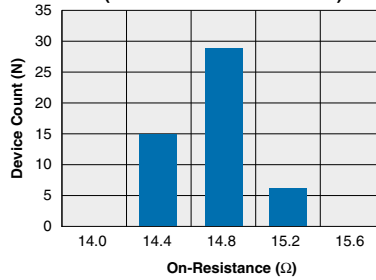
Parameter	Conditions	Symbol	Min	Typ	Max	Units
<b>Output Characteristics @ 25°C</b>						
Load Voltage (Peak)	-	V <sub>L</sub>	-	-	250	V
Load Current (Continuous)	-	I <sub>L</sub>	-	-	150	mA
AC/DC Configuration	-	I <sub>L</sub>	-	-	200	mA
DC Configuration	-	I <sub>L</sub>	-	-	200	mA
Peak Load Current	10ms	I <sub>L</sub> PK	-	-	-	mA
On-Resistance	-	R <sub>ON</sub>	-	-	-	Ω
AC/DC Configuration	I <sub>L</sub> =Load Current	R <sub>ON</sub>	-	15	20	Ω
DC Configuration	I <sub>L</sub> =Load Current	R <sub>ON</sub>	-	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
Load Current Limiting	-	I <sub>CL</sub>	190	235	280	mA
<b>Input Characteristics @ 25°C</b>						
Input Control Current	I <sub>L</sub> =Load Current	I <sub>F</sub>	5	-	50	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 Voltage	-	V <sub>R</sub>	-	-	5	V
Reverse Input Current	V <sub>R</sub> =5V	I <sub>R</sub>	-	-	10	μA
Input to Output Capacitance	-	C <sub>I/O</sub>	-	3	-	pF
Input to Output Isolation	-	V <sub>I/O</sub>	3750	-	-	V <sub>RMS</sub>

PERFORMANCE DATA\*

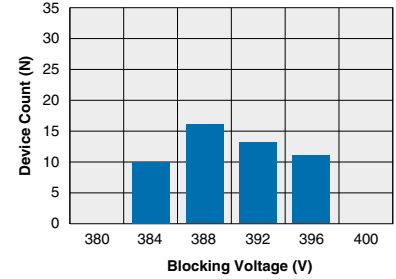
**LCA120L**  
Typical LED Forward Voltage Drop  
(N=50 Ambient Temperature = 25°C)  
 $I_F = 5\text{mADC}$



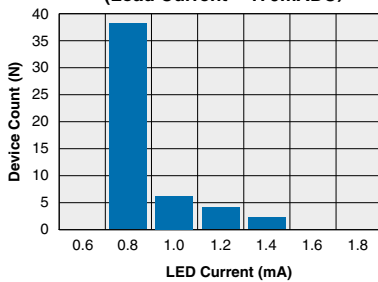
**LCA120L**  
Typical On-Resistance Distribution  
(N=50 Ambient Temperature = 25°C)  
(Load Current = 170mADC)



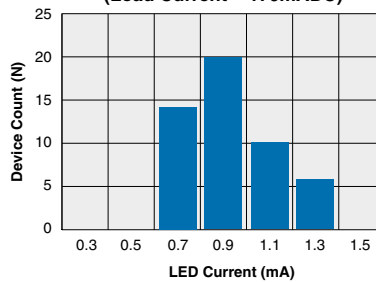
**LCA120L**  
Typical Blocking Voltage Distribution  
(N=50 Ambient Temperature = 25°C)



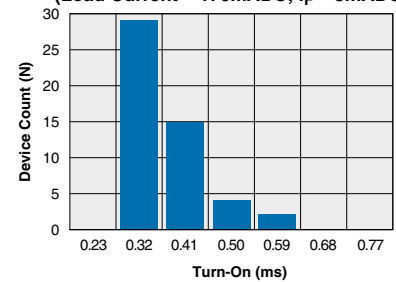
**LCA120L**  
Typical  $I_F$  for Switch Operation  
(N=50 Ambient Temperature = 25°C)  
(Load Current = 170mADC)



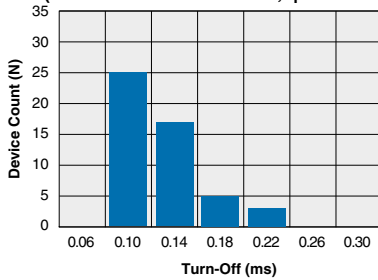
**LCA120L**  
Typical  $I_F$  for Switch Dropout  
(N=50 Ambient Temperature = 25°C)  
(Load Current = 170mADC)



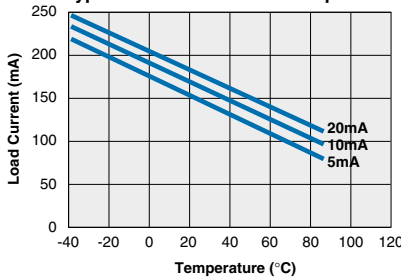
**LCA120L**  
Typical Turn-On Time  
(N=50 Ambient Temperature = 25°C)  
(Load Current = 170mADC;  $I_F = 5\text{mADC}$ )



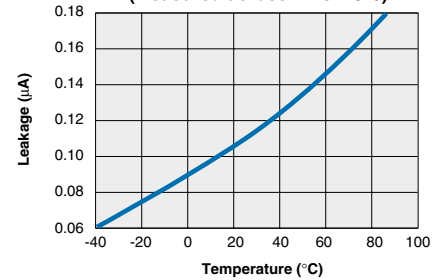
**LCA120L**  
Typical Turn-Off Time  
(N=50 Ambient Temperature = 25°C)  
(Load Current = 170mADC;  $I_F = 5\text{mADC}$ )



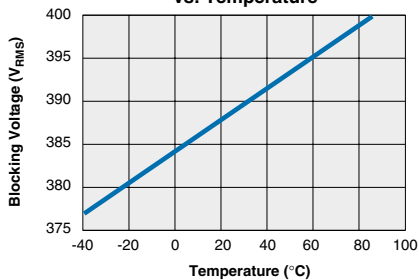
**LCA120L**  
Typical Load Current vs. Temperature



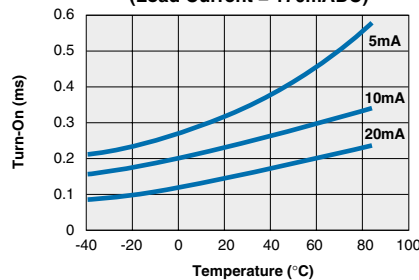
**LCA120L**  
Typical Leakage vs. Temperature  
(Measured across Pins 4 & 6)



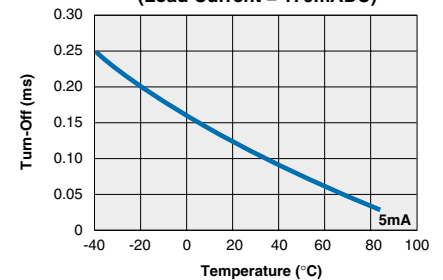
**LCA120L**  
Typical Blocking Voltage vs. Temperature



**LCA120L**  
Typical Turn-On vs. Temperature  
(Load Current = 170mADC)

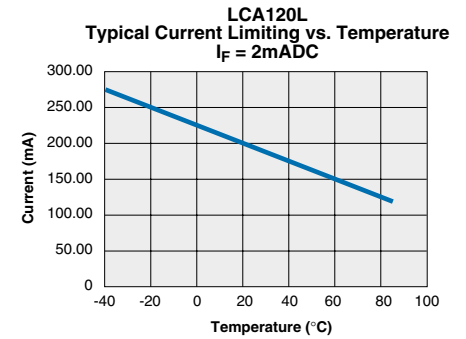
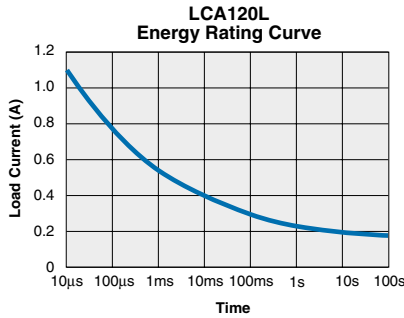
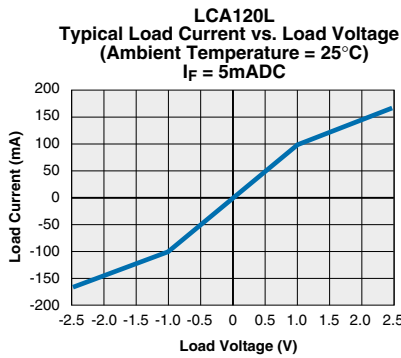
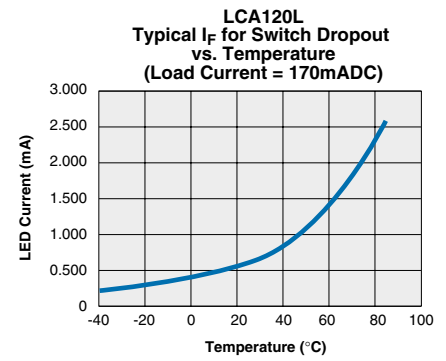
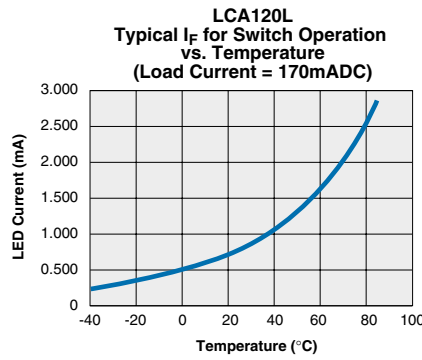
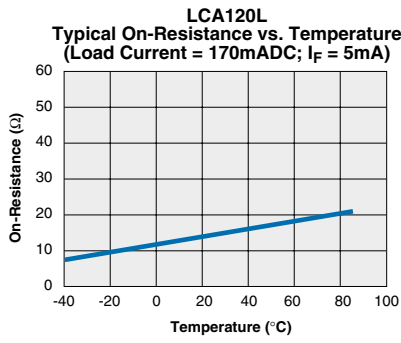
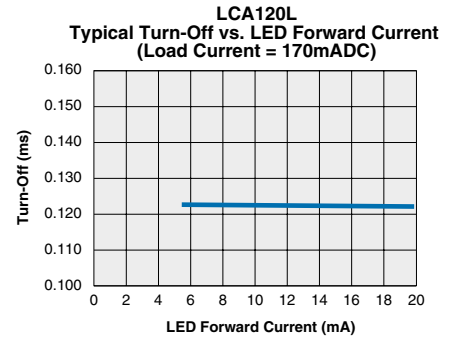
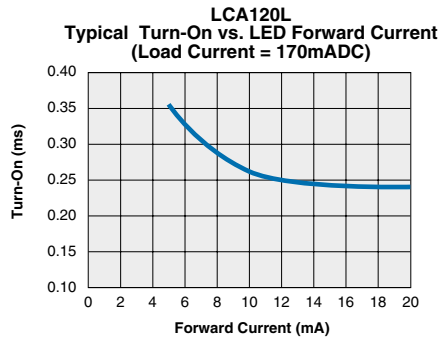
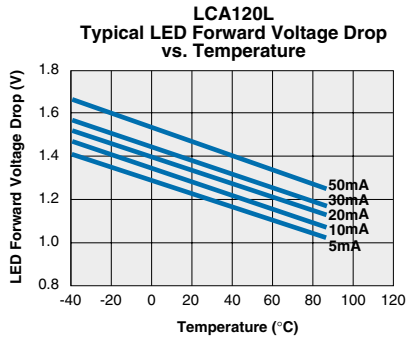


**LCA120L**  
Typical Turn-Off vs. Temperature  
(Load Current = 170mADC)



\*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.

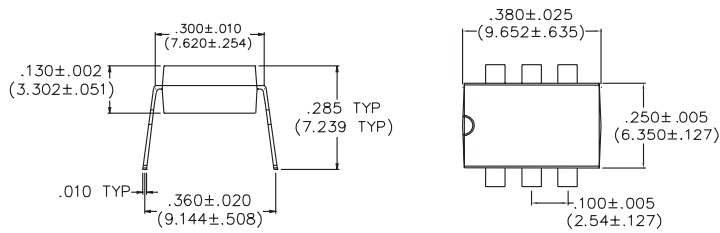
PERFORMANCE DATA\*



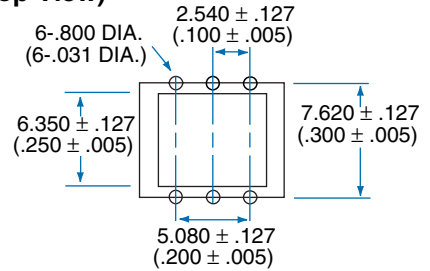
\*The Performance data shown in the graphs above is typical of device performance. For guaranteed parameters not indicated in the written specifications, please contact our application department.

**MECHANICAL DIMENSIONS**

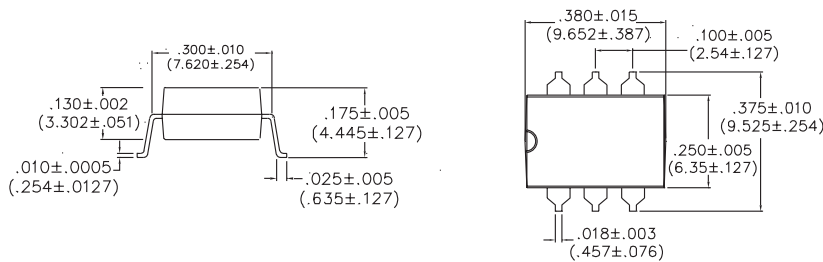
**6 Pin Power DIP Through Hole (Standard)**



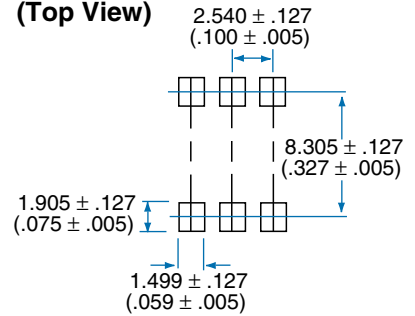
**PC Board Pattern (Top View)**



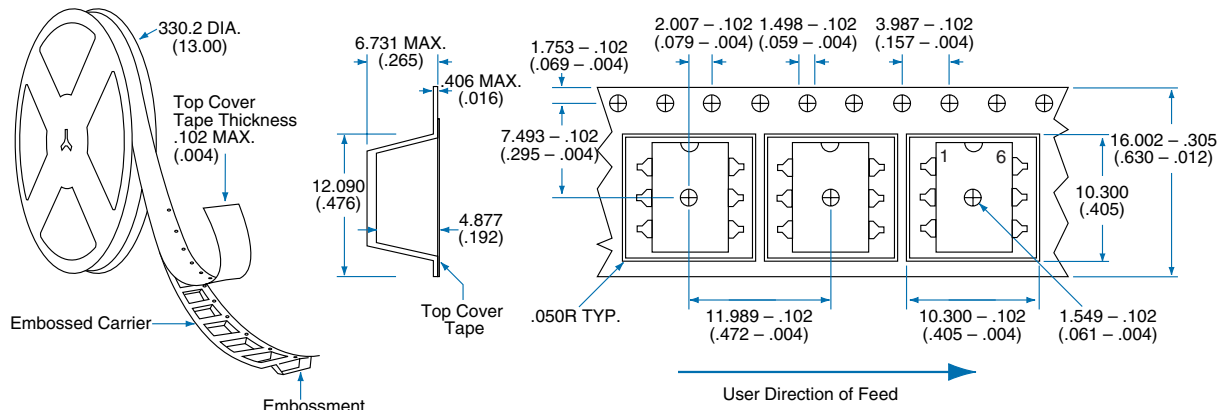
**6 Pin Power DIP Surface Mount ("S" Suffix)**



**PC Board Pattern (Top View)**



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



Dimensions  
mm  
(inches)



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