

LCA120

Single Pole OptoMOS[®] Relay



CLARE

	LCA120	Units
Load Voltage	250	V
Load Current	170	mA
Max R _{ON}	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_{RMS} Input/Output Isolation
- FCC Compatible
- VDE Compatible
- No EMI/RFI Generation
- Machine Insertable, Wave Solderable
- 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, 170mA, 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

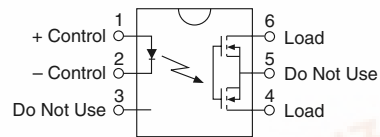
Ordering Information

Part #	Description
LBA120	6 Pin DIP (50/Tube)
LBA120LS	6 Pin Surface Mount (50/Tube)
LBA120STR	6 Pin Surface Mount (1000/Reel)

Pin Configuration

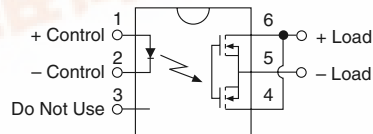
LCA120 Pinout

AC/DC Configuration

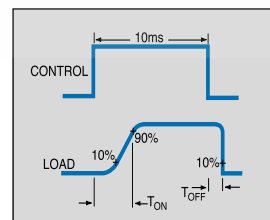


LCA120 Pinout

DC Only Configuration



Switching Characteristics of Normally Open (Form A) Devices



**LCA120****Absolute Maximum Ratings (@ 25° C)**

Parameter	Min	Typ	Max	Units
Input Power Dissipation	-	-	150 ¹	mW
Input Control Current Peak (10ms)	-	-	50 1	mA A
Reverse Input Voltage	-	-	5	V
Total Power Dissipation	-	-	800 ²	mW
Isolation Voltage Input to Output	3750	-	-	V _{RMS}
Operational Temperature	-40	-	+85	°C
Storage Temperature	-40	-	+125	°C
Soldering Temperature DIP Package	-	-	+260	°C
Surface Mount Package (10 Seconds Max.)	-	-	+220	°C

¹ Derate Linearly 1.33 mw/°C

² Derate Linearly 6.67 mw/°C

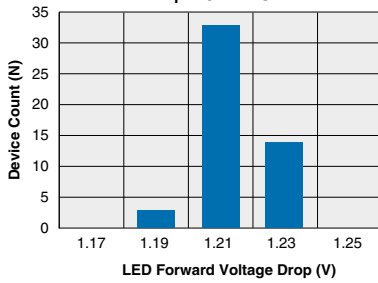
Absolute Maximum Ratings are stress ratings. Stresses in excess of these ratings can cause permanent damage to the device. Functional operation of the device at these or any other conditions beyond those indicated in the operational sections of this data sheet is not implied. Exposure of the device to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

Electrical Characteristics

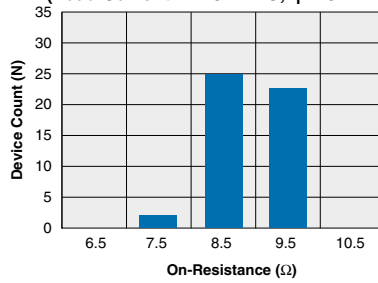
Parameter	Conditions	Symbol	Min	Typ	Max	Units
Output Characteristics @ 25°C						
Load Voltage (Peak)	-	V _L	-	-	250	V
Load Current (Continuous)	-	I _L	-	-	150	mA
AC/DC Configuration	-	I _L	-	-	200	mA
DC Configuration	-	I _L	-	-	200	mA
Peak Load Current	10ms	I _{LPK}	-	-	-	mA
On-Resistance	-	R _{ON}	-	-	-	Ω
AC/DC Configuration	I _L =Load Current	R _{ON}	-	15	20	Ω
DC Configuration	I _L =Load Current	R _{ON}	-	5	6	Ω
Off-State Leakage Current	V _L =250V	I _{LEAK}	-	-	1	μA
Switching Speeds	-	-	-	-	-	-
Turn-On	I _F =5mA, V _L =10V	T _{ON}	-	-	3	ms
Turn-Off	I _F =5mA, V _L =10V	T _{OFF}	-	-	3	ms
Output Capacitance	50V; f=1MHz	C _{OUT}	-	50	-	pF
Input Characteristics @ 25°C						
Input Control Current	I _L =Load Current	I _F	5	-	50	mA
Input Dropout Current	-	I _F	0.4	0.7	-	mA
Input Voltage Drop	I _F =5mA	V _F	0.9	1.2	1.4	V
Reverse Input Voltage	-	V _R	-	-	5	V
Reverse Input Current	V _R =5V	I _R	-	-	10	μA
Input to Output Capacitance	-	C _{I/O}	-	3	-	pF
Input to Output Isolation	-	V _{I/O}	3750	-	-	V _{RMS}

PERFORMANCE DATA*

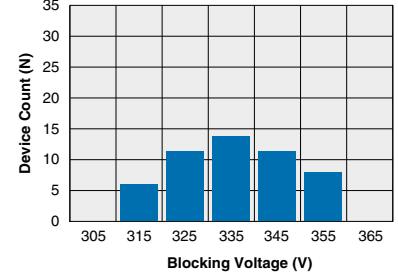
LCA120
Typical LED Forward Voltage Drop
(N=50 Ambient Temperature = 25°C)
 $I_F = 5\text{mADC}$



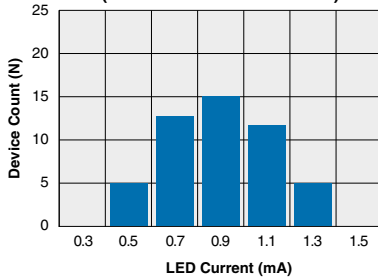
LCA120
Typical On-Resistance Distribution
(N=50 Ambient Temperature = 25°C)
(Load Current = 170mADC; $I_F = 5\text{mADC}$)



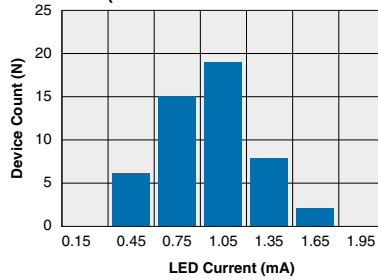
LCA120
Typical Blocking Voltage Distribution
(N=50 Ambient Temperature = 25°C)



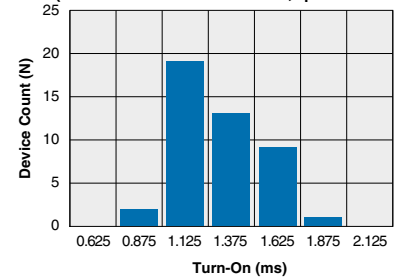
LCA120
Typical I_F for Switch Operation
(N=50 Ambient Temperature = 25°C)
(Load Current = 170mADC)



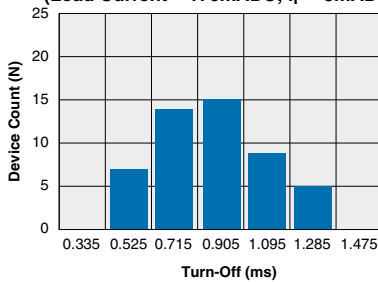
LCA120
Typical I_F for Switch Dropout
(N=50 Ambient Temperature = 25°C)
(Load Current = 170mADC)



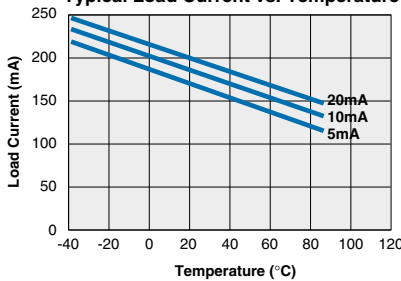
LCA120
Typical Turn-On Time
(N=50 Ambient Temperature = 25°C)
(Load Current = 170mADC; $I_F = 5\text{mADC}$)



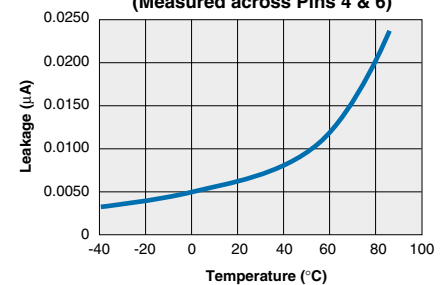
LCA120
Typical Turn-Off Time
(N=50 Ambient Temperature = 25°C)
(Load Current = 170mADC; $I_F = 5\text{mADC}$)



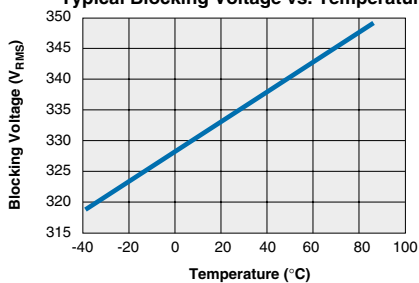
LCA120
Typical Load Current vs. Temperature



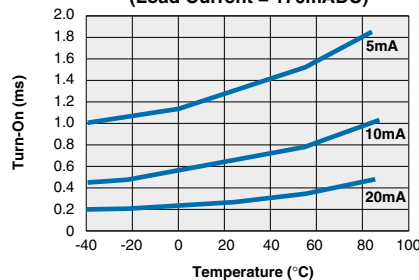
LCA120
Typical Leakage vs. Temperature
(Measured across Pins 4 & 6)



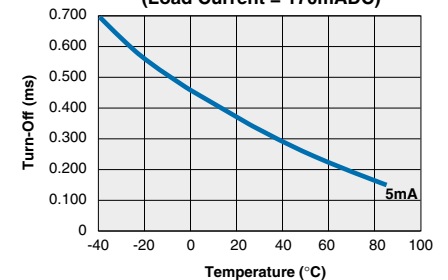
LCA120
Typical Blocking Voltage vs. Temperature



LCA120
Typical Turn-On vs. Temperature
(Load Current = 170mADC)



LCA120
Typical Turn-Off vs. Temperature
(Load Current = 170mADC)



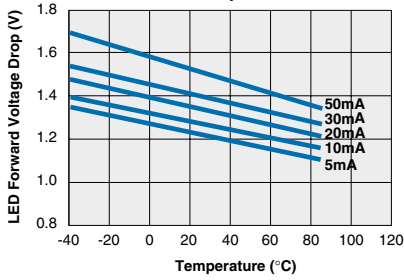
*The Performance data shown in the graphs above is typical of device performance. For guaranteed parameters not indicated in the written specifications, please contact our application department.



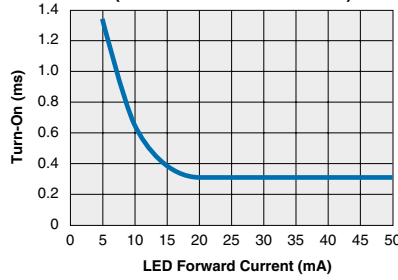
LCA120

PERFORMANCE DATA*

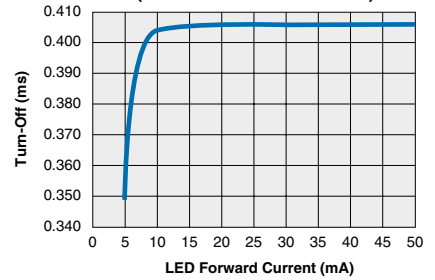
LCA120
Typical LED Forward Voltage Drop vs. Temperature



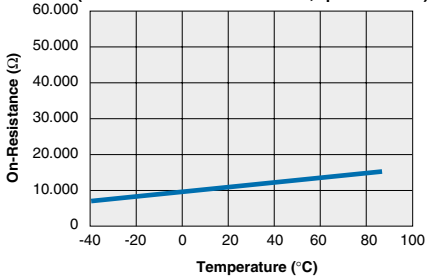
LCA120
Typical Turn-On vs. LED Forward Current (Load Current = 170mADC)



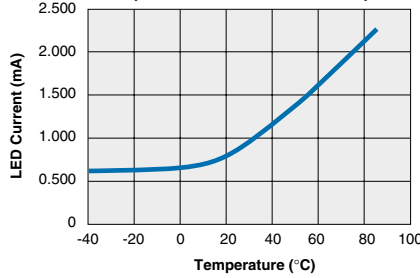
LCA120
Typical Turn-Off vs. LED Forward Current (Load Current = 170mADC)



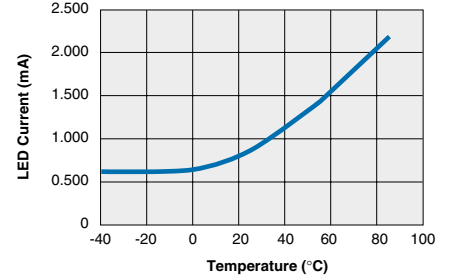
LCA120
Typical On-Resistance vs. Temperature (Load Current = 170mADC; I_F = 5mADC)



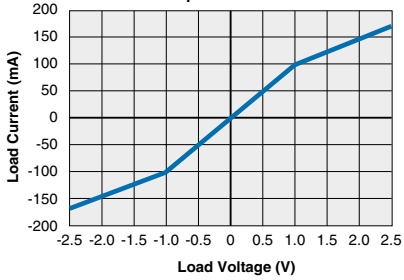
LCA120
Typical I_F for Switch Operation vs. Temperature (Load Current = 170mADC)



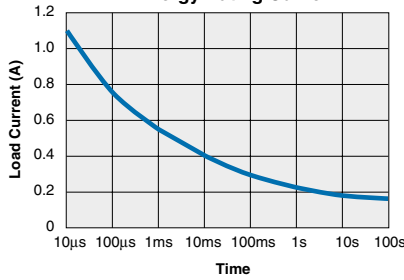
LCA120
Typical I_F for Switch Dropout vs. Temperature (Load Current = 170mADC)



LCA120
Typical Load Current vs. Load Voltage (Ambient Temperature = 25°C) I_F = 5mADC



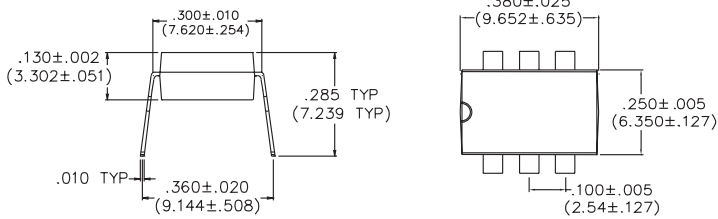
LCA120
Energy Rating Curve



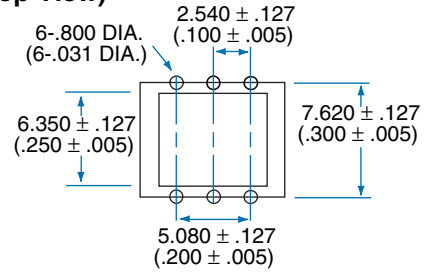
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MECHANICAL DIMENSIONS

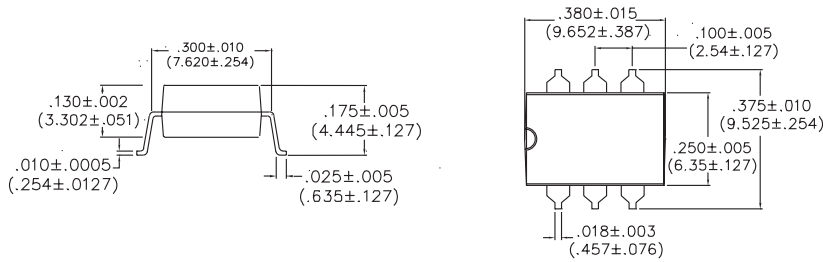
6 Pin Power DIP Through Hole (Standard)



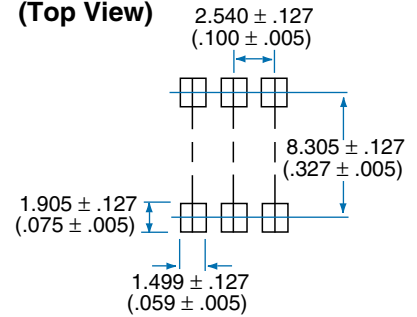
PC Board Pattern (Top View)



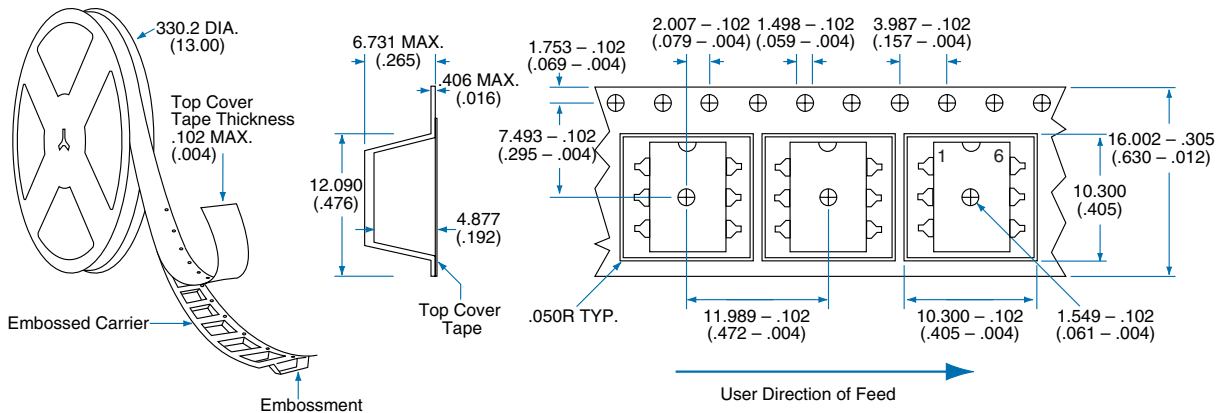
6 Pin Power DIP Surface Mount ("S" Suffix)



PC Board Pattern (Top View)



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





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