LCA710
Single Pole OptMOS® Relay

	LCA710	Units
Blocking Voltage	60	V_P
Load Current	1	A
Max R_{ON}	0.5	Ω

Description

LCA710 is a 60V, 1A, 0.5Ω 1-Form-A relay. It features the highest peak load current capability available in an OptoMOS relay.

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
- No EMI/RFI Generation
- Machine Insertable, Wave Solderable
- Surface Mount and Tape & Reel Versions Available

Approvals

- UL Recognized: File Number E76270
- CSA Certified: File Number LR 43639-10
- Certified to:
  - EN 60950
  - EN 41003

Ordering Information

Part #	Description
LCA710	6 Pin DIP (50/Tube)
LCA710S	6 Pin Surface Mount (50/Tube)
LCA710STR	6 Pin Surface Mount (1000/Reel)

Datasheet.Live

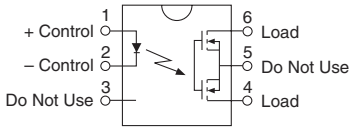
Applications

- Instrumentation
  - Multiplexers
  - Data Acquisition
  - Electronic Switching
  - I/O Subsystems
  - Meters (Watt-Hour, Water, Gas)
- Medical Equipment—Patient/Equipment Isolation
- Security
- Aerospace
- Industrial Controls

Pin Configuration

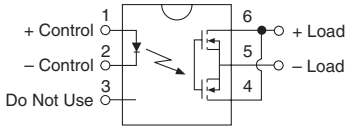
LCA710 Pinout

AC/DC Configuration

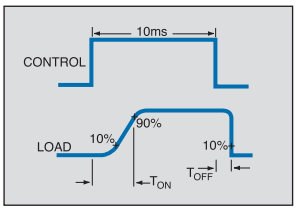


LCA710 Pinout

DC Only Configuration



Switching Characteristics of Normally Open (Form A) Devices



Absolute Maximum Ratings (@ 25˚C)

Parameter	Ratings	Units
Blocking Voltage	60	V_P
Reverse Input Voltage	5	V
Input Control Current	50	mA
Peak (10ms)	1	A
Input Power Dissipation [1]	150	mW
Total Power Dissipation [2]	800	mW
Isolation Voltage Input to Output	3750	V_{rms}
Operational Temperature	-40 to +85	°C
Storage Temperature	-40 to +125	°C

[1] Derate Linearly 1.33 mw/°C

[2] Derate Linearly 6.67 mw/°C

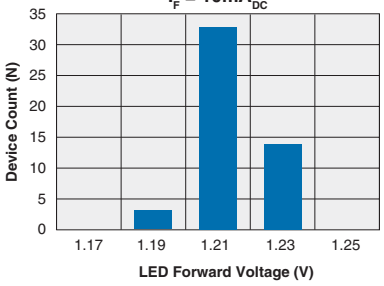
Absolute Maximum Ratings are stress ratings. Stresses in excess of these ratings can cause permanent damage to the device. Functional operation of the device at conditions beyond those indicated in the operational sections of this data sheet is not implied.

Electrical Characteristics

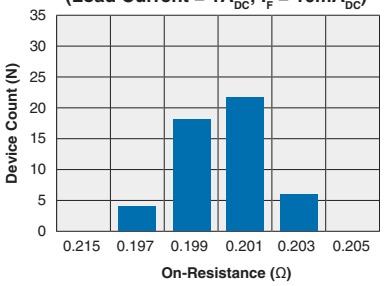
Parameter	Conditions	Symbol	Min	Typ	Max	Units
Output Characteristics @ 25°C						
Load Current						
AC/DC Configuration	Continuous	I_L	-	-	1.0	A
DC Configuration					1.8	
Peak Load Current	10ms	I_{LPK}	-	-	5.0	A
On-Resistance						
AC/DC Configuration	I_L=1A	R_{ON}	-	0.3	0.5	Ω
DC Configuration	I_L=1.8A			0.1	0.15	
Off-State Leakage Current	V_L=60V	I_{LEAK}	-	-	1	µA
Switching Speeds						
Turn-On	I_F=10mA, V_L=10V	T_{ON}	-	-	2.5	ms
Turn-Off	I_F=10mA, V_L=10V	T_{OFF}			0.25	
Output Capacitance	50V; f=1MHz	-	-	220	-	pF
Input Characteristics @ 25°C						
Input Control Current	I_L=1A	I_F	10	-	-	mA
Input Dropout Current	-	I_F	0.4	0.7	-	mA
Input Voltage Drop	I_F=10mA	V_F	0.9	1.2	1.4	V
Reverse Input Current	V_R=5V	I_R	-	-	10	µA
Common Characteristics @ 25°C						
Input to Output Capacitance	-	$C_{I/O}$	-	3	-	pF

PERFORMANCE DATA*

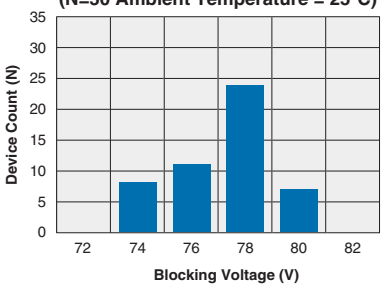
LCA710
Typical LED Forward Voltage Drop
(N=50 Ambient Temperature = 25°C)
I_F = 10mA$_{DC}$



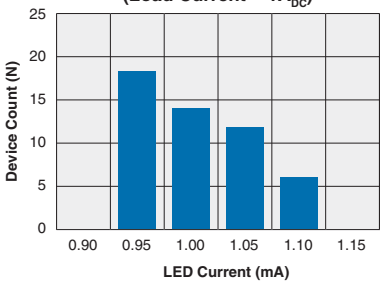
LCA710
Typical On-Resistance Distribution
(N=50 Ambient Temperature = 25°C)
(Load Current = 1A$_{DC}$; I_F = 10mA$_{DC}$)



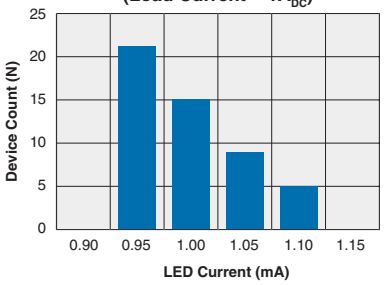
LCA710
Typical Blocking Voltage Distribution
(N=50 Ambient Temperature = 25°C)



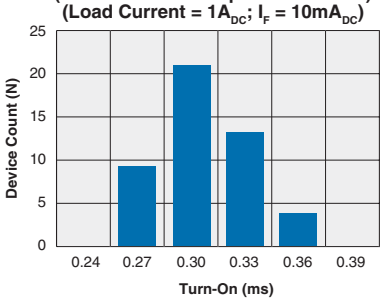
LCA710
Typical I_F for Switch Operation
(N=50 Ambient Temperature = 25°C)
(Load Current = 1A$_{DC}$)



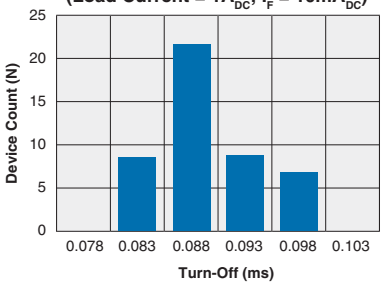
LCA710
Typical I_F for Switch Dropout
(N=50 Ambient Temperature = 25°C)
(Load Current = 1A$_{DC}$)



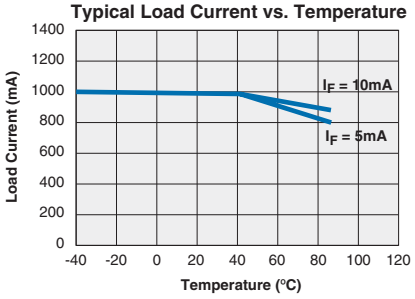
LCA710
Typical Turn-On Time
(N=50 Ambient Temperature = 25°C)
(Load Current = 1A$_{DC}$; I_F = 10mA$_{DC}$)



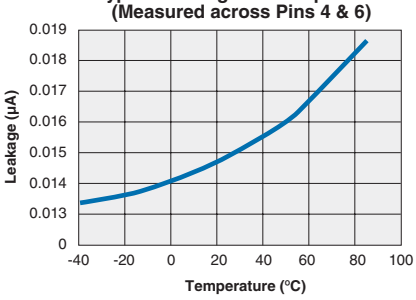
LCA710
Typical Turn-Off Time
(N=50 Ambient Temperature = 25°C)
(Load Current = 1A$_{DC}$; I_F = 10mA$_{DC}$)



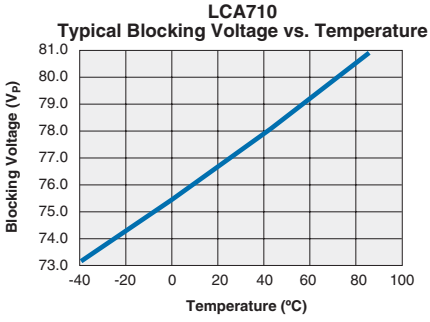
LCA710
Typical Load Current vs. Temperature



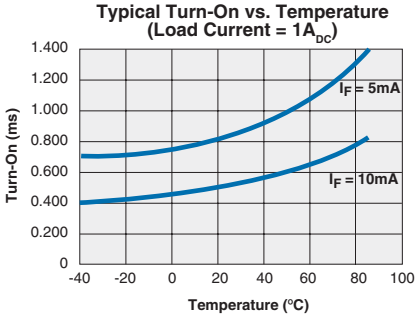
LCA710
Typical Leakage vs. Temperature
(Measured across Pins 4 & 6)



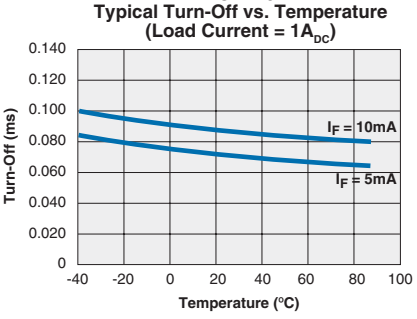
LCA710
Typical Blocking Voltage vs. Temperature



LCA710
Typical Turn-On vs. Temperature
(Load Current = 1A$_{DC}$)



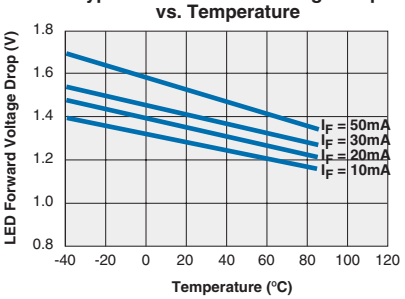
LCA710
Typical Turn-Off vs. Temperature
(Load Current = 1A$_{DC}$)



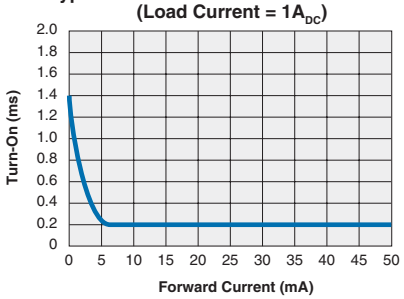
*The Performance data shown in the graphs above is typical of device performance. For guaranteed parameters not indicated in the written specifications, please contact our application department.

PERFORMANCE DATA*

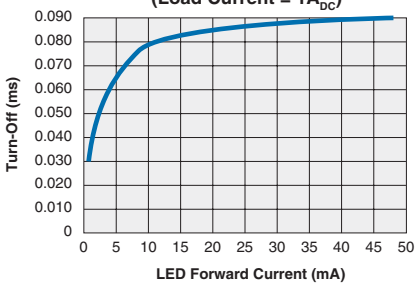
LCA710
Typical LED Forward Voltage Drop vs. Temperature



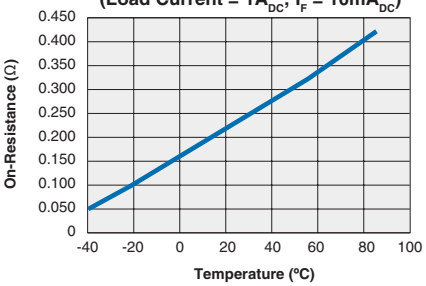
LCA710
Typical Turn-On vs.LED Forward Current (Load Current = $1A_{DC}$)



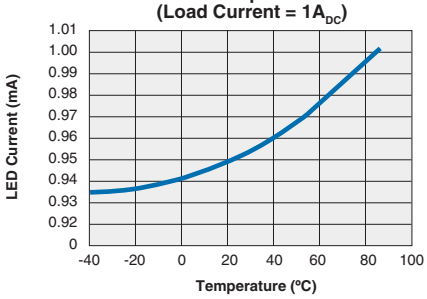
LCA710
Typical Turn-Off vs. LED Forward Current (Load Current = $1A_{DC}$)



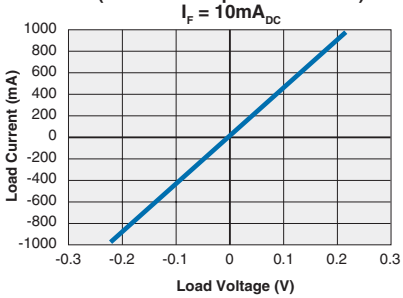
LCA710
Typical On-Resistance vs. Temperature (Load Current = $1A_{DC}$; I_F = $10mA_{DC}$)



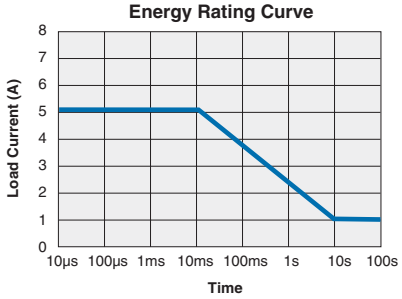
LCA710
Typical I_F for Switch Operation vs. Temperature (Load Current = $1A_{DC}$)



LCA710
Typical Load Current vs. Load Voltage (Ambient Temperature = 25ºC)
I_F = $10mA_{DC}$



LCA710
Energy Rating Curve



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Manufacturing Information

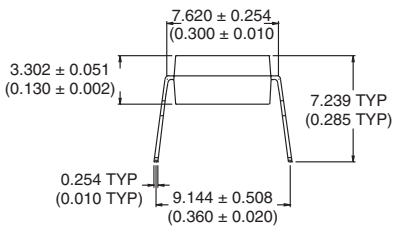
Soldering
For proper assembly, the component must be processed in accordance with the current revision of IPC/JEDEC standard J-STD-020. Failure to follow the recommended guidelines may cause permanent damage to the device resulting in impaired performance and/or a reduced lifetime expectancy.

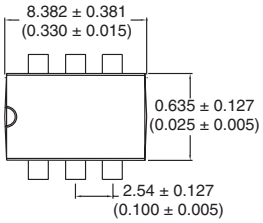
Recommended soldering processes are limited to 260ºC component body temperature for 10 seconds.

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

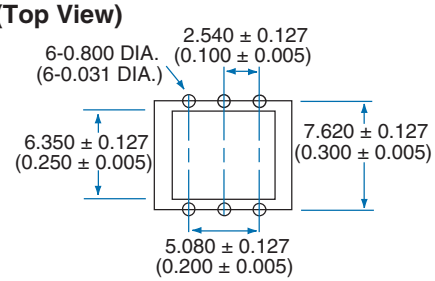
MECHANICAL DIMENSIONS

6 Pin DIP Through Hole (Standard)

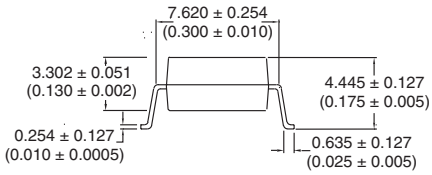


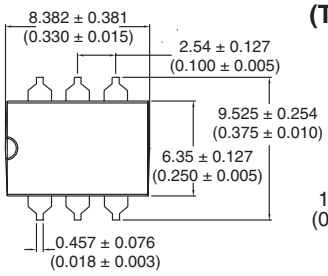


PC Board Pattern (Top View)

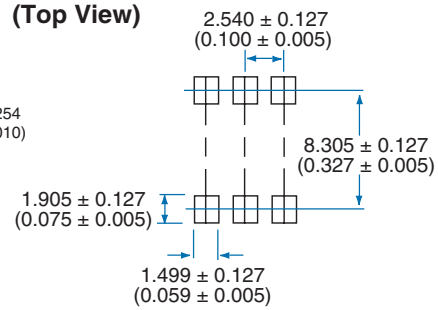


6 Pin Surface Mount ("S" Suffix)

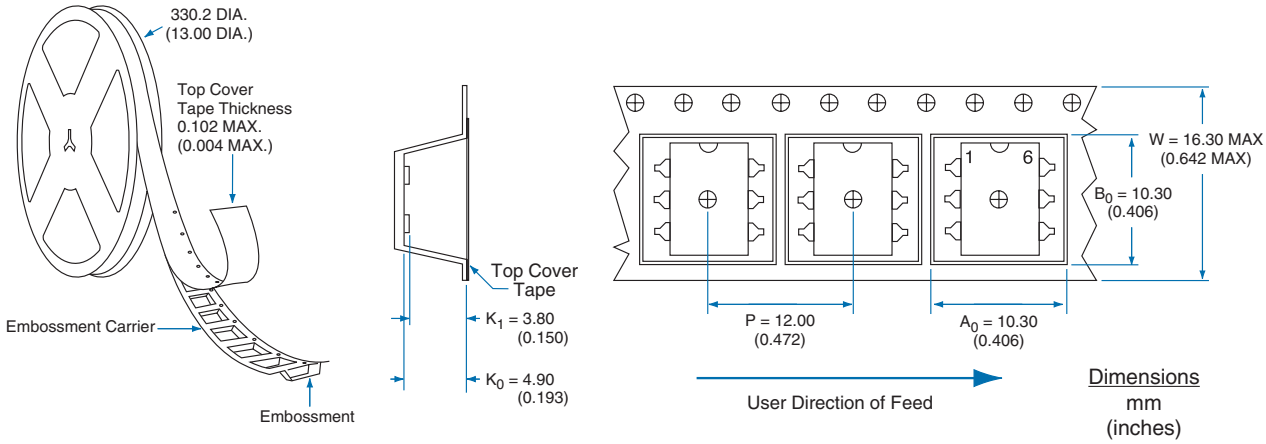




PC Board Pattern (Top View)



Tape and Reel Packaging for Surface Mount Package



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