



	LCA712	Units
Load Voltage	60	V
Load Current	1	A
Max R <sub>ON</sub>	0.5	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
- 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

The LCA712 is a 1-Form-A solid state relay which uses optically coupled MOSFET technology to provide 3750V of input to output isolation. The efficient MOSFET switches and photovoltaic die use Clare's patented OptoMOS architecture. The optically-coupled input is controlled by a highly efficient GaAlAs infrared LED. The LCA712 can be used to replace mechanical relays and offers the superior reliability associated with semiconductor devices. Because they have no moving parts, they can offer faster, bounce-free switching in a more compact surface mount or through hole package.

### Approvals

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

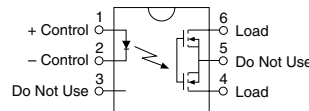
### Ordering Information

Part #	Description
LCA712	6 Pin DIP (50/Tube)
LCA712S	6 Pin Surface Mount (50/Tube)
LCA712STR	6 Pin Surface Mount (1000/Reel)

### Pin Configuration

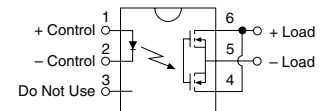
#### LCA712 Pinout

AC/DC Configuration

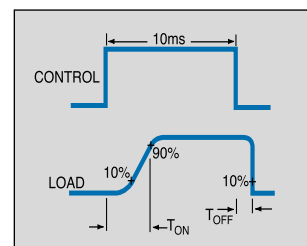


#### LCA712 Pinout

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
Blocking Voltage	-	-	60	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

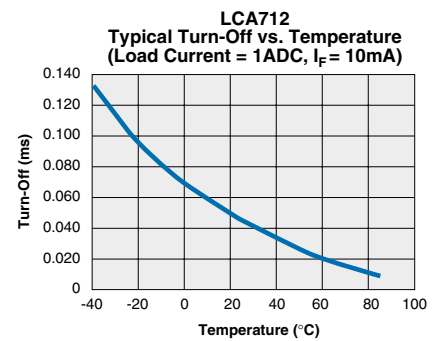
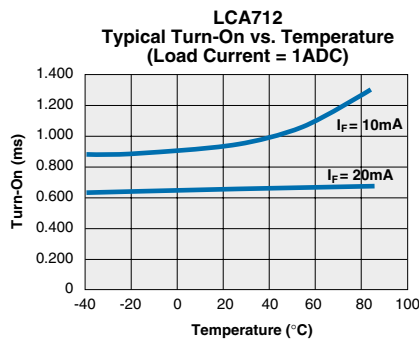
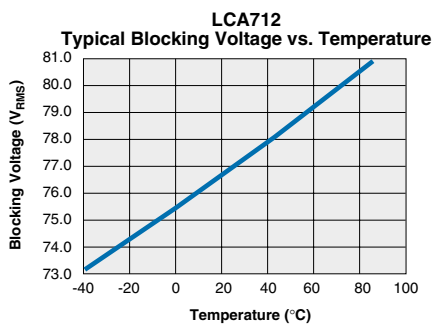
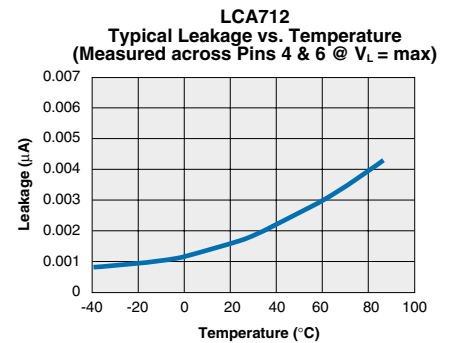
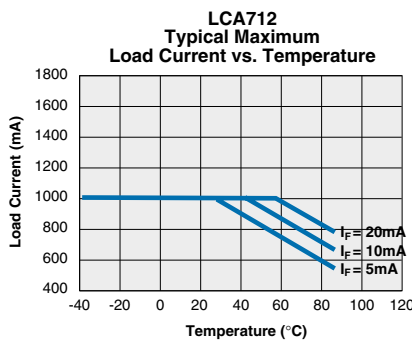
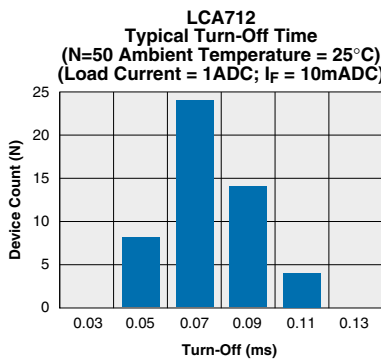
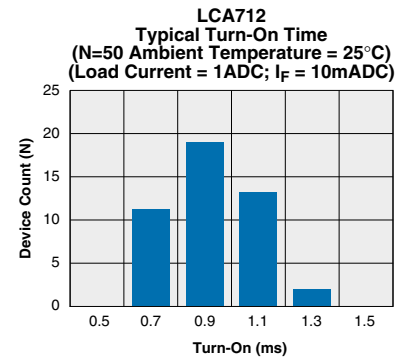
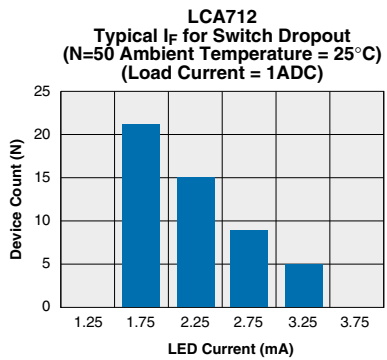
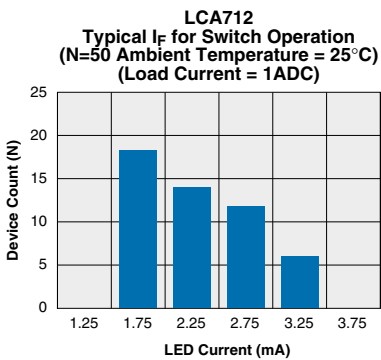
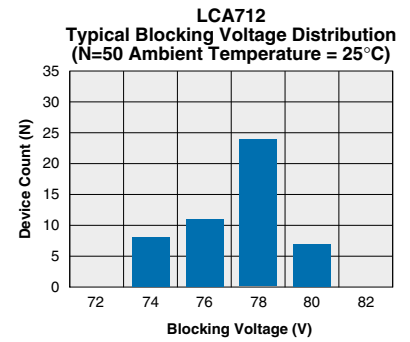
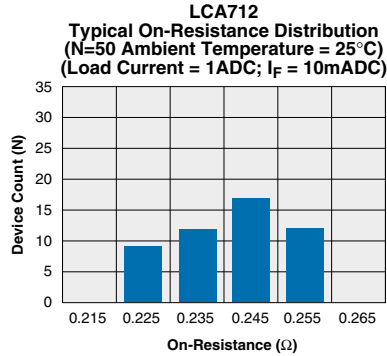
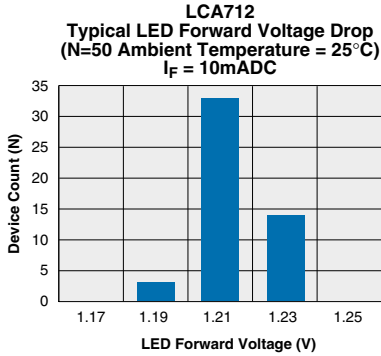
<sup>2</sup> Derate Linearly 6.67 mw/°C

*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

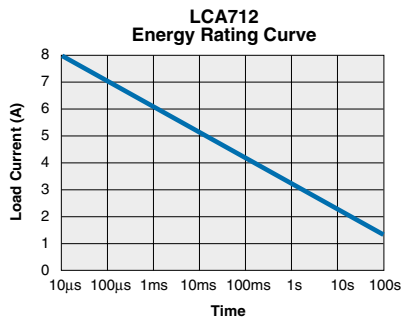
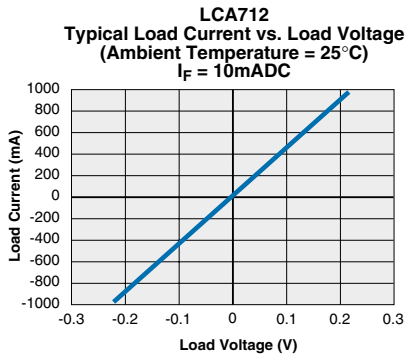
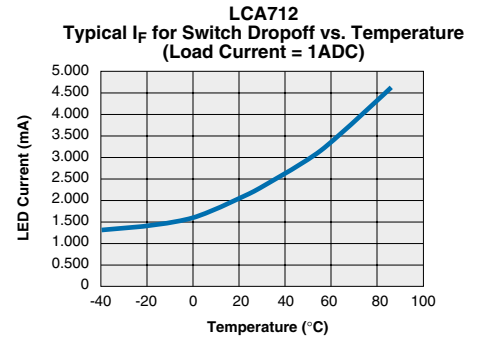
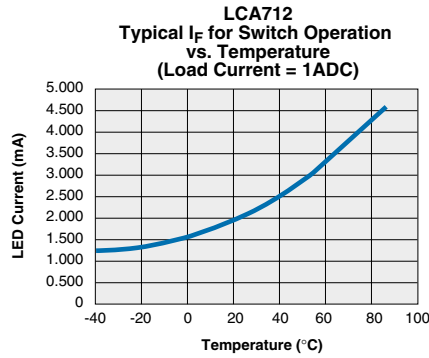
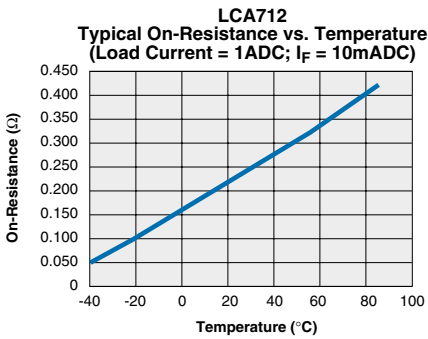
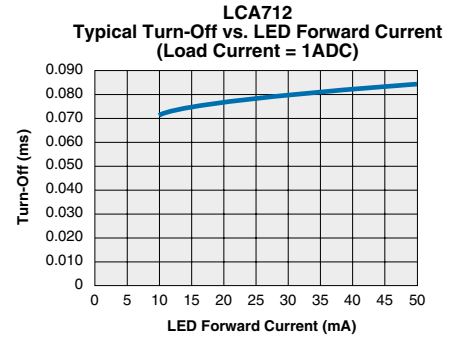
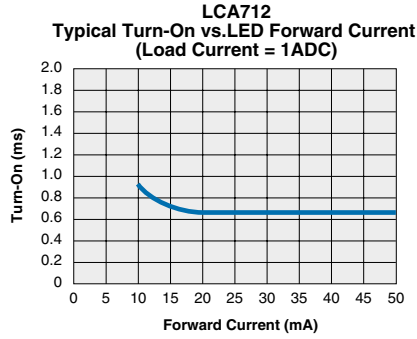
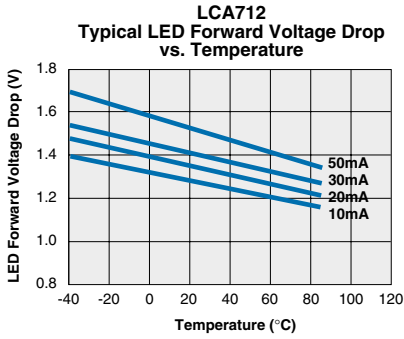
Parameter	Conditions	Symbol	Min	Typ	Max	Units
<b>Output Characteristics @ 25°C</b>						
Load Current (Continuous) AC/DC Configuration	-	$I_L$	-	-	1.0	A
DC Configuration	-	$I_L$	-	-	1.8	A
Peak Load Current	10ms	$I_{LPK}$	-	-	5.0	A
On-Resistance AC/DC Configuration	$I_L=1A$	$R_{ON}$	-	0.3	0.5	$\Omega$
DC Configuration	$I_L=1.8A$	$R_{ON}$	-	0.1	0.15	$\Omega$
Off-State Leakage Current	$V_L=60V, T=85^\circ C$	$I_{L-FAK}$	-	-	10	nA
Switching Speeds Turn-On	$I_F=10mA, V_L=10V$	$T_{ON}$	-	-	2.5	ms
Turn-Off	$I_F=10mA, V_L=10V$	$T_{OFF}$	-	-	0.35	ms
Output Capacitance	50V; f=1MHz	-	-	220	-	pF
Capacitance input to Output	-	-	-	3	-	pF
<b>Input Characteristics @ 25°C</b>						
Input Control Current	$I_L=1A$	$I_F$	10	-	50	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 Voltage	-	$V_R$	-	-	5	V
Reverse Input Current	$V_R=5V$	$I_R$	-	-	10	$\mu A$
<b>Common Characteristics @ 25°C</b>						
Input to Output Capacitance	-	$C_{I/O}$	-	3	-	pF

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.

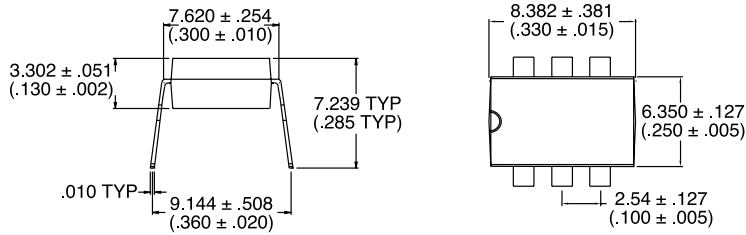
PERFORMANCE DATA\*



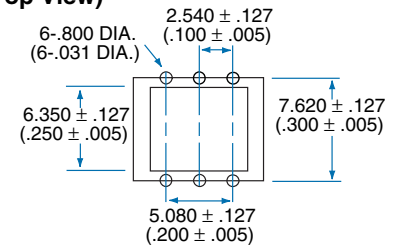
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**MECHANICAL DIMENSIONS**

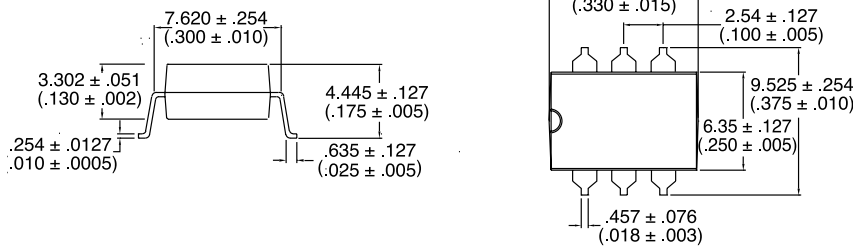
**6Pin DIP Through Hole (Standard)**



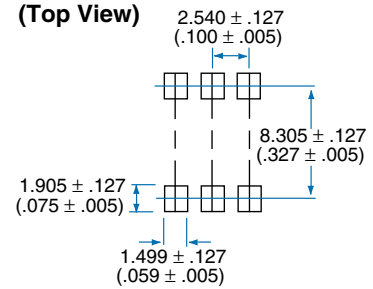
**PC Board Pattern (Top View)**



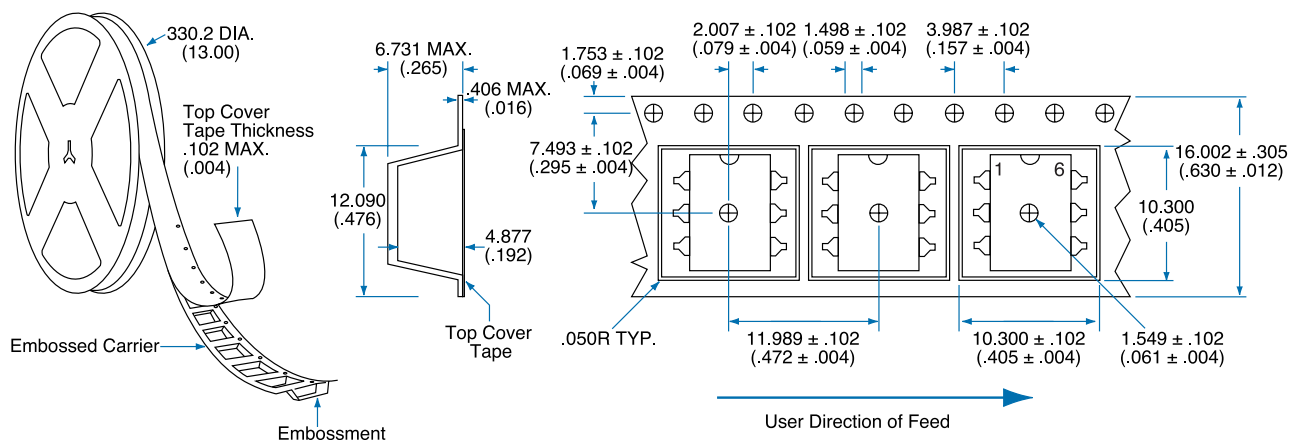
**6Pin DIP Surface Mount ("S" Suffix)**



**PC Board Pattern (Top View)**



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



Dimensions  
mm  
(inches)



# CLARE

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