

	LCA182	Units
Load Voltage	350	V
Load Current	120	mA
Max R _{ON}	35	Ω
Input Control Current	0.25	mA

Features

- Lowest available input control current (0.25mA)
- 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

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 LCA182 is a 1-Form-A solid state relay which uses optically coupled MOSFET technology to provide 3750V_{RMS} of input to output isolation. It features an extremely low input control current of only 0.25mA, the lowest available in the Clare Solid State Relay Family. 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 LCA182 can be used to replace mechanical relays and offers the superior reliability associated with semiconductor devices. Because they have no moving parts, they offer faster, bounce-free switching in a more compact surface mount or through hole package.

Regulatory Information

- UL Recognized: E76270
- CSA Certified: LR43639-10
- Certified to:
 - EN 60950
 - EN 41003

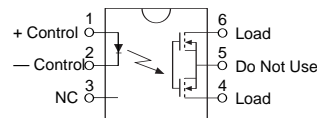
Ordering Information

Part #	Description
LCA182	6 Pin DIP (50/Tube)
LCA182S	6 Pin Surface Mount (50/Tube)
LCA182STR	6 Pin Surface Mount (1000/Reel)

Pin Configuration

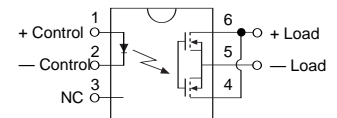
LCA182 Pinout

AC/DC Configuration

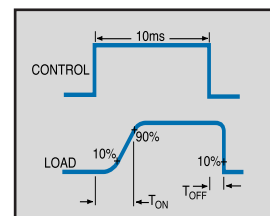


LCA182 Pinout

DC Only Configuration



Switching Characteristics of Normally Open (Form A) Devices



Absolute Maximum Ratings (@ 25° C)

Parameter	Ratings	Units
Input Power Dissipation	150 ¹	mW
Input Control Current	50	mA
Peak (10ms)	1	A
Reverse Input Voltage	5	V
Blocking Voltage	350	V
Total Power Dissipation	800 ²	mW
Isolation Voltage Input to Output	3750	V _{RMS}
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

¹ Derate Linearly 1.33 mW/°C

² Derate Linearly 6.67 mW/°C

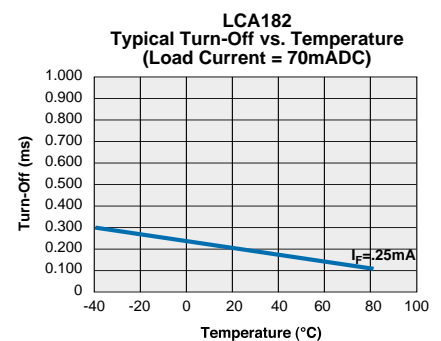
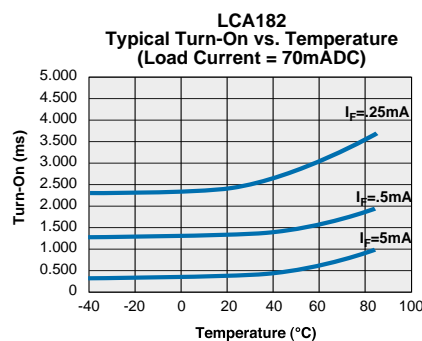
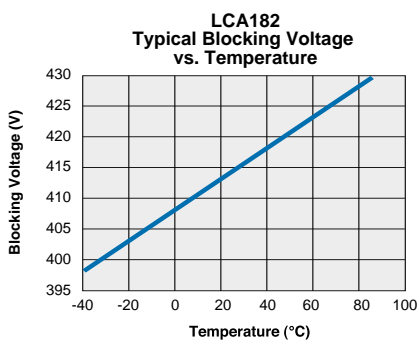
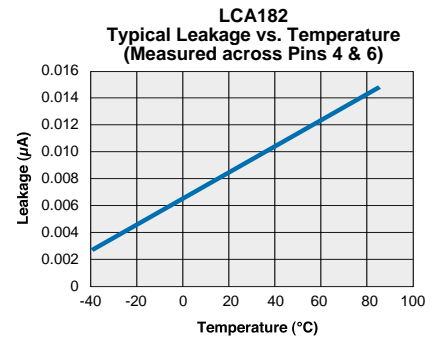
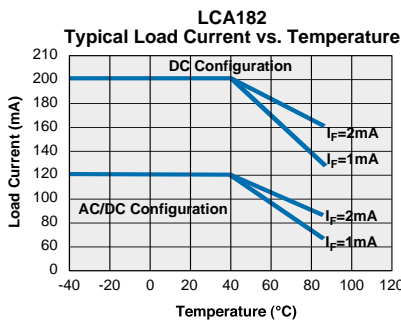
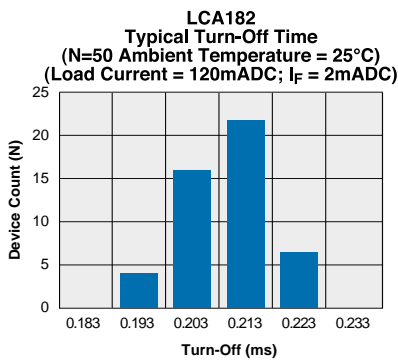
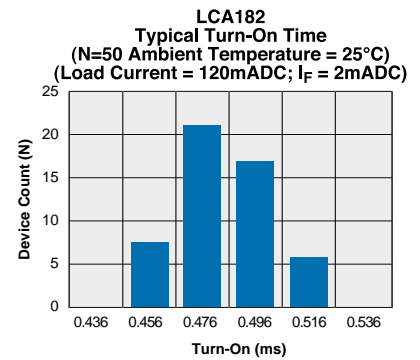
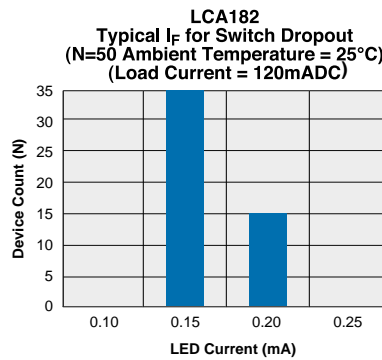
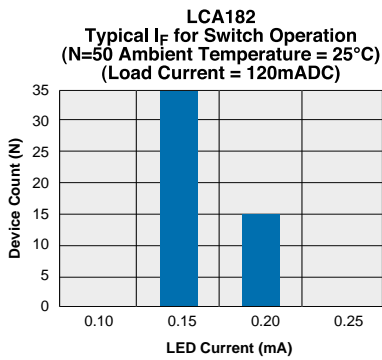
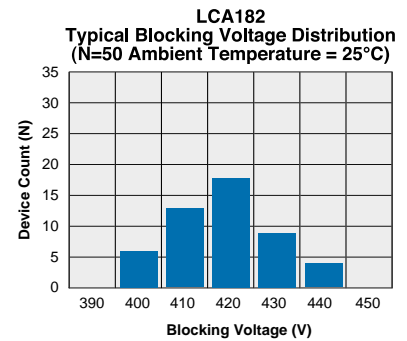
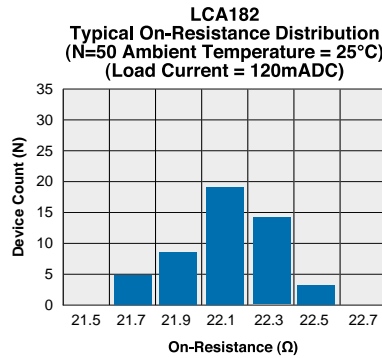
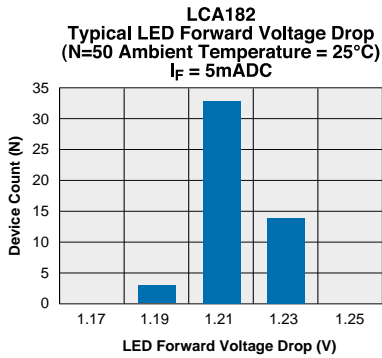
Absolute Maximum Ratings are stress ratings. Stresses in excess of these ratings can cause permanent damage to the device. Functional operation of the device at conditions beyond those indicated in the operational sections of this data sheet is not implied.

Electrical Characteristics

Parameter	Conditions	Symbol	Min	Typ	Max	Units
Output Characteristics @ 25°C						
Load Current (Continuous)						
AC/DC Configuration	-	I _L	-	-	120	mA
DC Configuration	-	I _L	-	-	200	mA
Peak Load Current	10ms	I _{LPK}	-	-	350	mA
On-Resistance						
AC/DC Configuration	I _L =120mA	R _{ON}	-	23	35	Ω
DC Configuration	I _L =200mA	R _{ON}	-	7	10	Ω
Off-State Leakage Current	V _L =350V	I _{LEAK}	-	-	1	μA
Switching Speeds						
Turn-On	I _F =1mA, V _L =10V	T _{ON}	-	-	3	ms
Turn-Off	I _F =1mA, V _L =10V	T _{OFF}	-	-	3	ms
Output Capacitance	50V; f=1MHz	C _{OUT}	-	25	-	pF
Input Characteristics @ 25°C						
Input Control Current ¹	I _L =120mA	I _F	0.25	-	-	mA
Input Dropout Current	-	I _F	0.05	-	-	mA
Input Voltage Drop	I _F =1mA	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

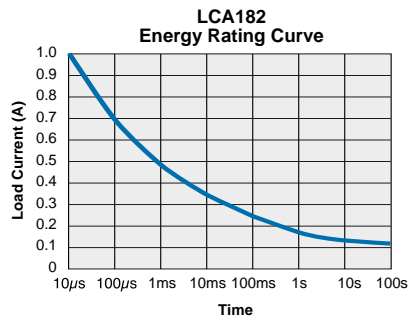
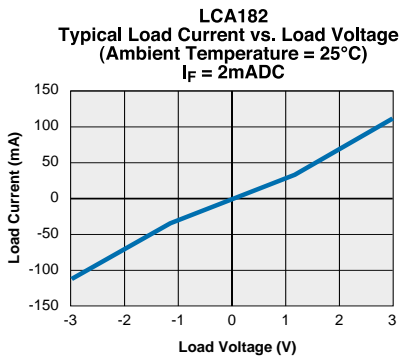
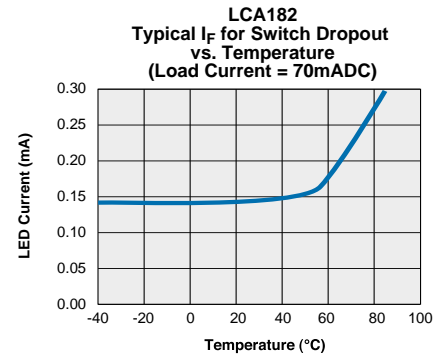
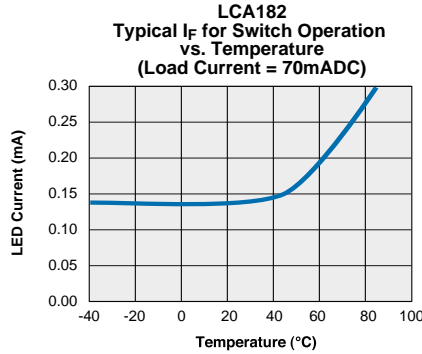
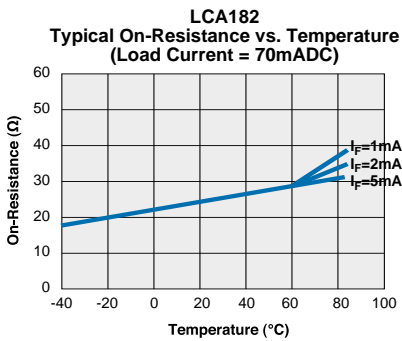
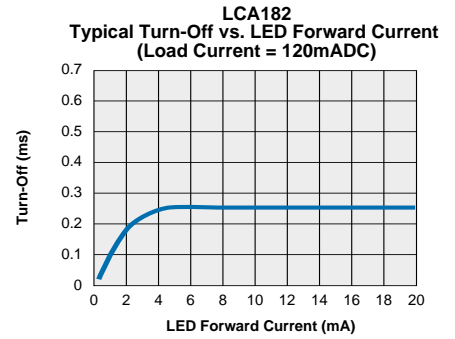
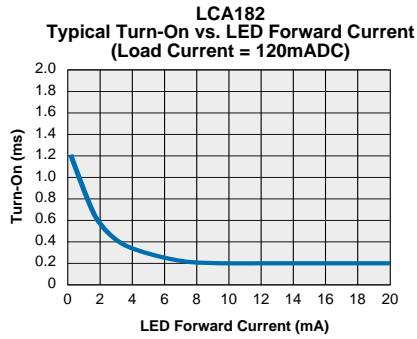
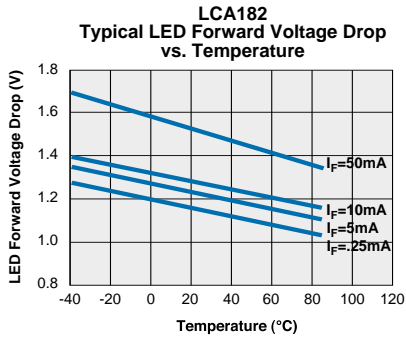
¹ It is recommended that the input control current be increased to 1mA in high temperature (over+55°C) operation.

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.

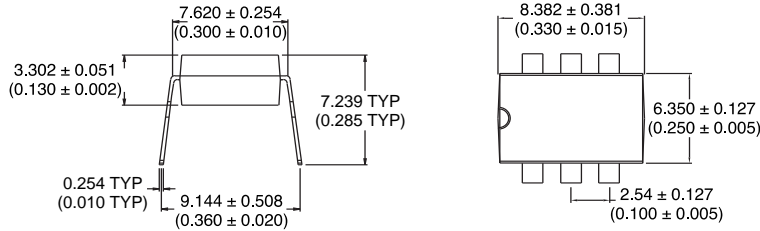
PERFORMANCE DATA*



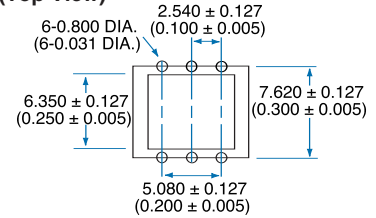
*The Performance data shown in the graphs above is typical of device performance. For guaranteed parameters not indicated in the written specifications, please contact our application department.

MECHANICAL DIMENSIONS

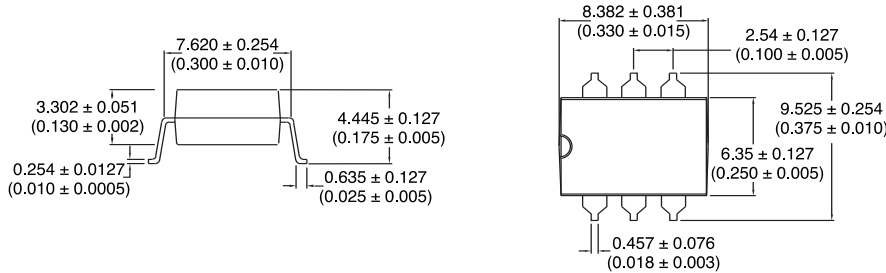
6Pin DIP Through Hole (Standard)



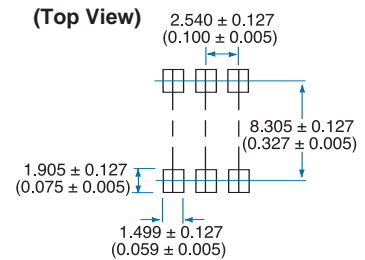
PC Board Pattern (Top View)



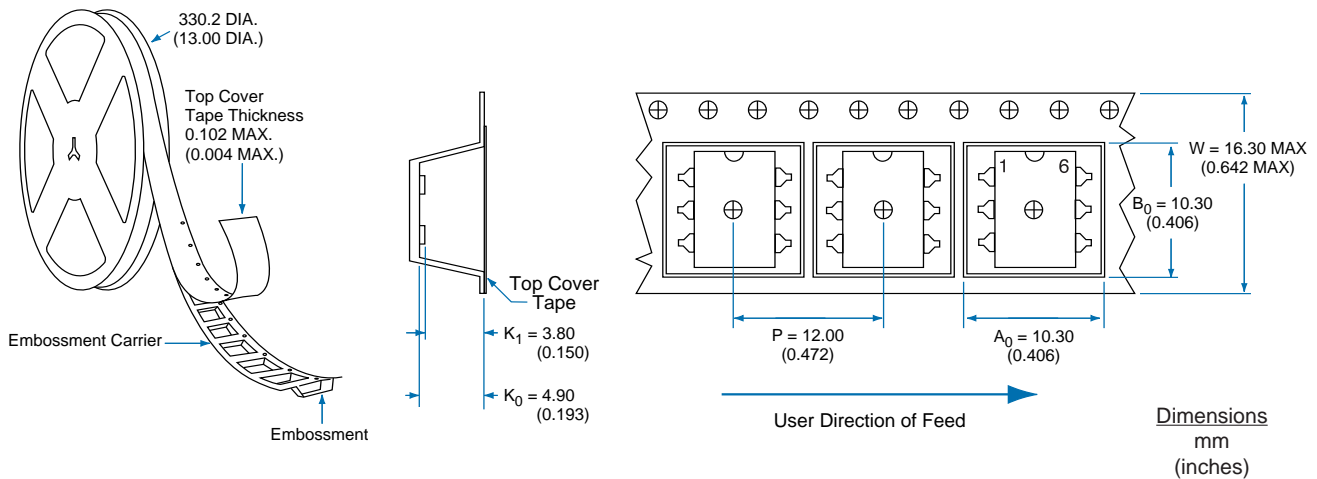
6Pin Surface Mount ("S" Suffix)



PC Board Pattern (Top View)



Tape and Reel Packaging for 6 Pin DIP Surface Mount Package



For additional information please visit our website at: www.clare.com

Clare, Inc. makes no representations or warranties with respect to the accuracy or completeness of the contents of this publication and reserves the right to make changes to specifications and product descriptions at any time without notice. Neither circuit patent licenses nor indemnity are expressed or implied. Except as set forth in Clare's Standard Terms and Conditions of Sale, Clare, Inc. assumes no liability whatsoever, and disclaims any express or implied warranty, relating to its products including, but not limited to, the implied warranty of merchantability, fitness for a particular purpose, or infringement of any intellectual property right.

The products described in this document are not designed, intended, authorized or warranted for use as components in systems intended for surgical implant into the body, or in other applications intended to support or sustain life, or where malfunction of Clare's product may result in direct physical harm, injury, or death to a person or severe property or environmental damage. Clare, Inc. reserves the right to discontinue or make changes to its products at any time without notice.