



	PLA170	Units
Load Voltage	800	V _P
Load Current		
AC/DC Configuration	100	mA
DC Configuration	180	mA
Max R _{ON}		
AC/DC Configuration	50	Ω
DC Configuration	14	Ω

Features

- 100% Solid State
- Small 6 Pin Package
- Low Drive Power Requirements (TTL/CMOS Compatible)
- Arc-Free With No Snubbing Circuits
- 3750V_{rms} Input/Output Isolation
- No EMI/RFI Generation
- Machine Insertable, Wave Solderable
- 800V blocking

Applications

- 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 PLA170 is a 1-Form-A Solid State Relay which uses optically coupled MOSFET technology to provide enhanced input-to-output isolation of 3750V_{rms}. The efficient MOSFET switches and photovoltaic die use Clare's patented OptoMOS® architecture.

The optically-coupled output is controlled by a GaAlAs infrared LED. The PLA170 is designed to replace electromechanical relays and offers the superior reliability associated with Solid State devices. This device provides bounce-free switching in a more compact surface mount or through hole package.

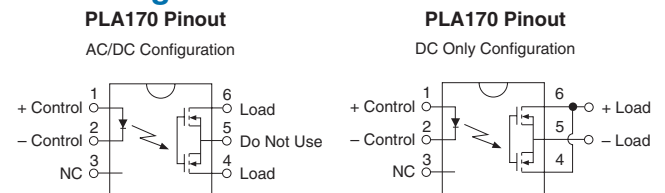
Approvals

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

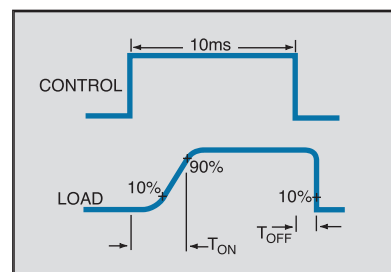
Ordering Information

Part #	Description
PLA170	6 Pin DIP (50/tube)
PLA170S	6 Pin Surface Mount (50/tube)
PLA170STR	6 Pin Surface Mount (1000/Reel)

Pin Configuration



Switching Characteristics of Normally Open (Form A) Devices



Absolute Maximum Ratings (@ 25° C)

Parameter	Ratings	Units
Blocking Voltage	800	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 3.33 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

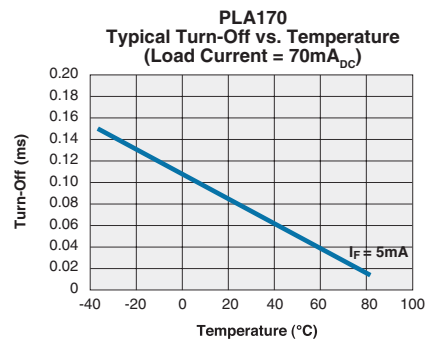
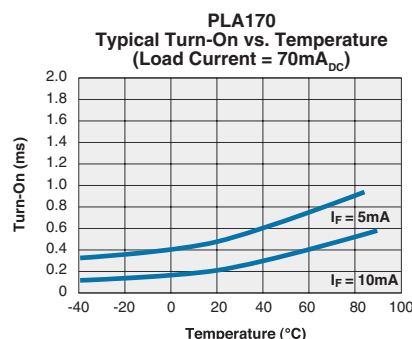
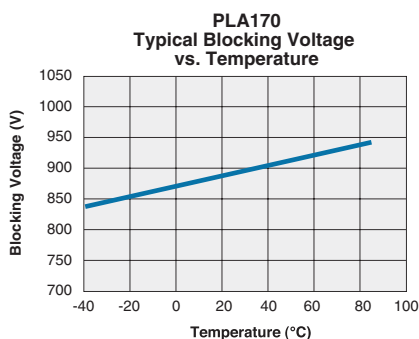
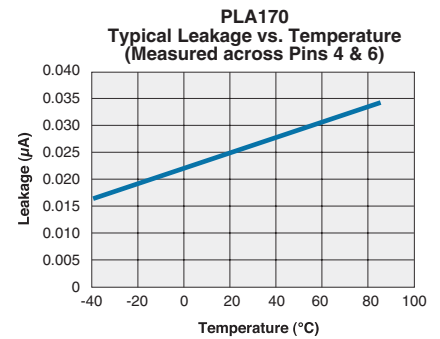
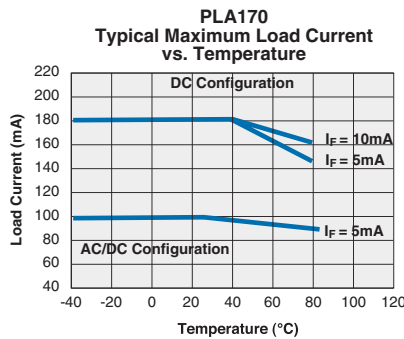
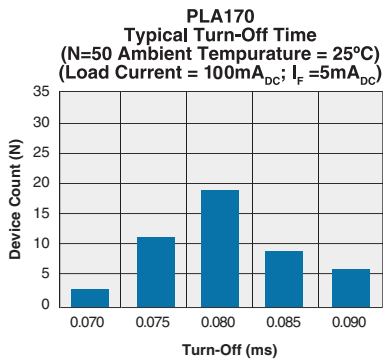
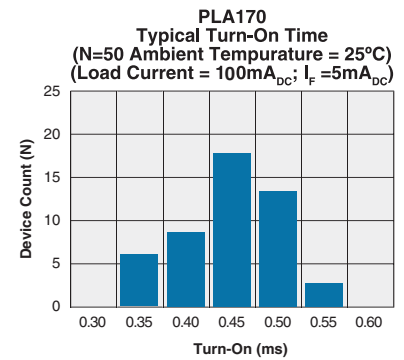
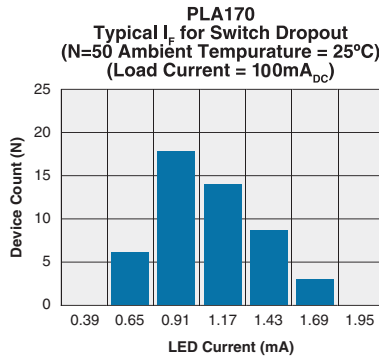
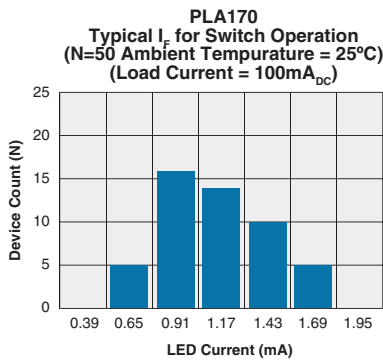
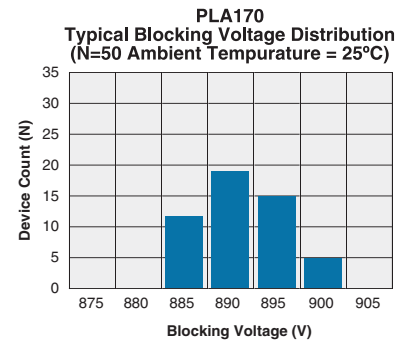
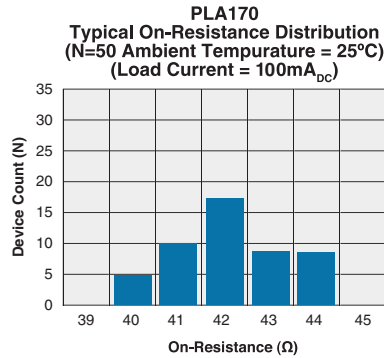
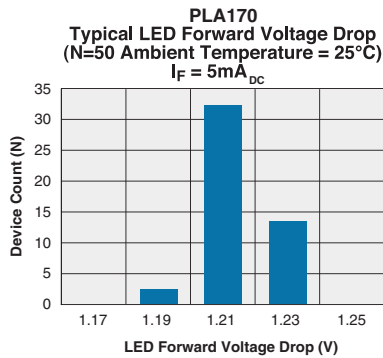
Parameter	Conditions	Symbol	Min	Typ	Max	Units
Output Characteristics @ 25°C						
Load Current						
AC/DC Configuration ¹	Continuous	I _L	-	-	100	mA
DC Configuration					180	
Peak Load Current	10ms	I _{LPK}	-	-	350	mA
On-Resistance ²						
AC/DC Configuration	I _L = Load Current	R _{ON}	-	-	50	Ω
DC Configuration					14	
Off-State Leakage Current	V _L =800V	I _{LEAK}	-	-	1	μA
Switching Speeds						
Turn-On	I _F =5mA, V _L =10V	T _{ON}	-	-	5	ms
Turn-Off	I _F =5mA, V _L =10V	T _{OFF}	-	-	5	ms
Output Capacitance	50V; f=1MHz	C _{OUT}	-	50	-	pF
Input Characteristics @ 25°C						
Input Control Current ³	I _L =Load Current	I _F	5	-	-	mA
Input Dropout Current	-	I _F	0.3	0.7	-	mA
Input Voltage Drop	I _F =5mA	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
Input to Output Isolation	60 Hz, 60 seconds	V _{I/O}	3750	-	-	V _{rms}

¹ Load derates linearly from 100mA @ 25°C to 90mA @ 80°C.

² Measurement taken within 1 second of on time.

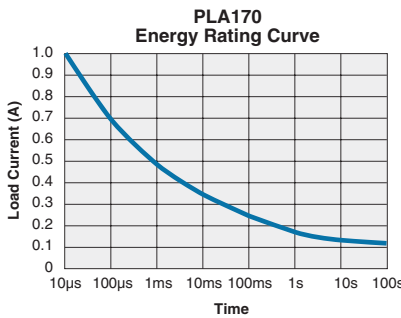
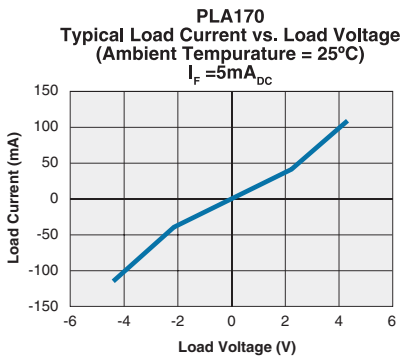
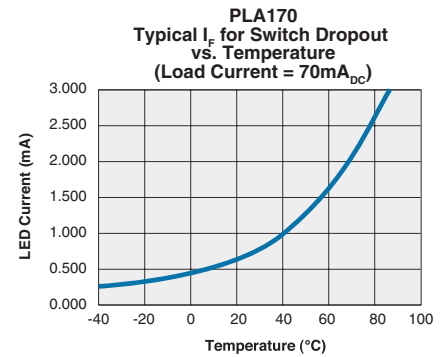
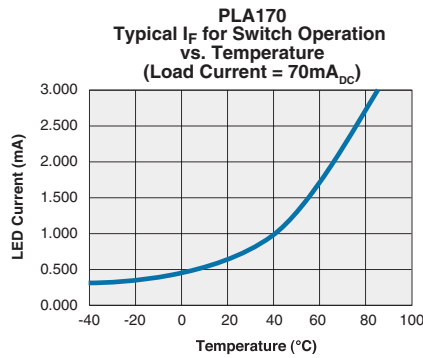
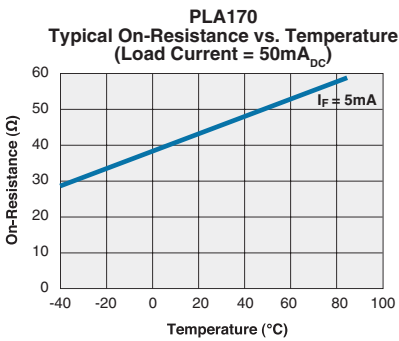
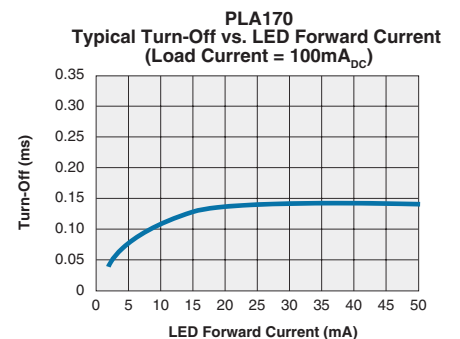
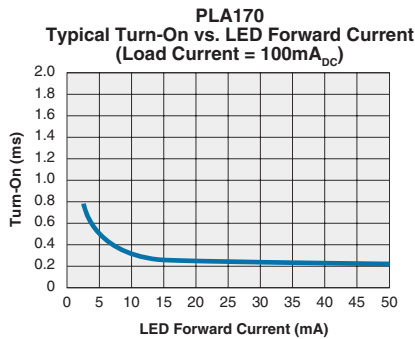
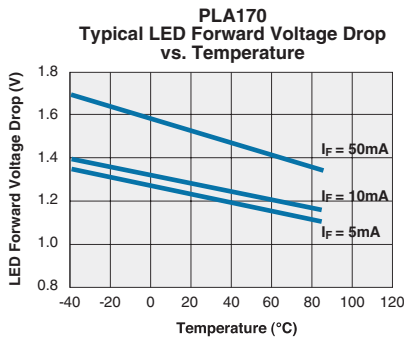
³ For applications requiring high temperature operation (greater than 60°C) an LED drive current of 10mA is recommended.

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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Manufacturing Information

Soldering

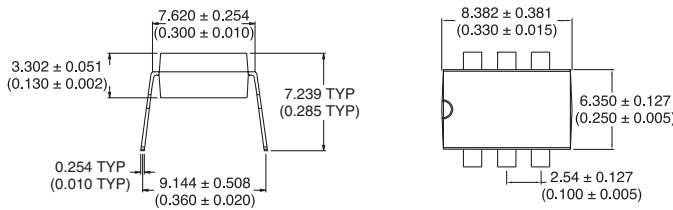
Recommended soldering processes are limited to 245°C component body temperature for 10 seconds.

Washing

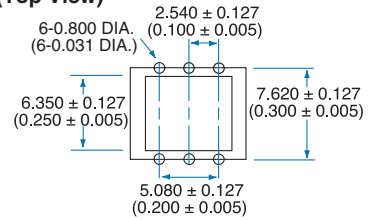
Clare does not recommend ultrasonic cleaning or the use of chlorinated solvents.

MECHANICAL DIMENSIONS

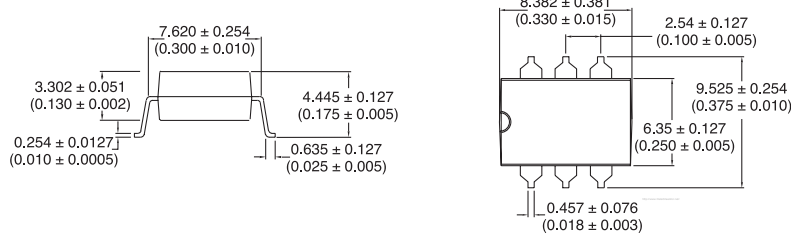
6 Pin DIP Through Hole (Standard)



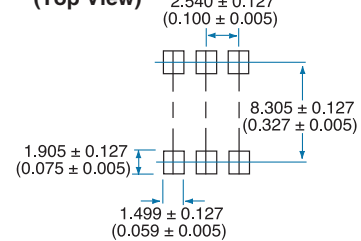
PC Board Pattern (Top View)



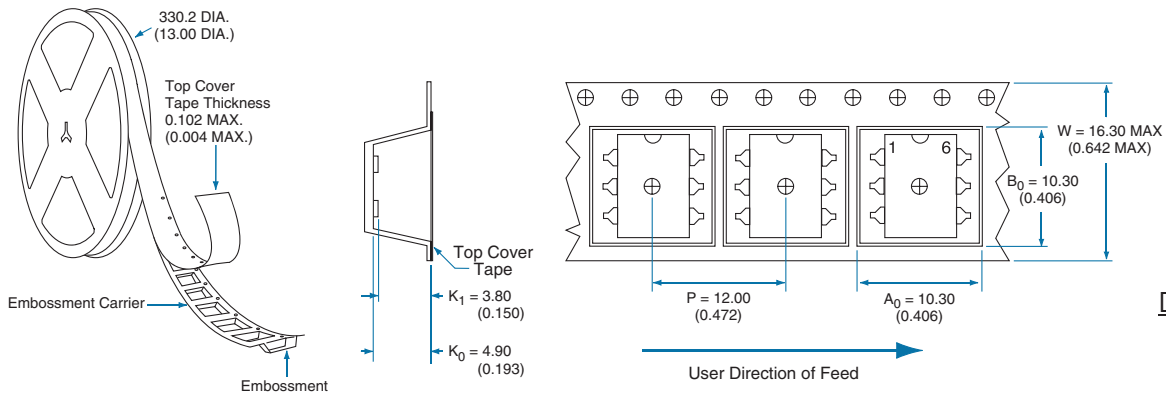
6 Pin Surface Mount ("S" Suffix)



PC Board Pattern (Top View)



Tape and Reel Packaging for 6 Pin Surface Mount Package



Dimensions:
mm
(inches)

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