

	PLA193	Units
Load Voltage	600	V
Load Current	100	mA
Max R _{ON}	50	Ω

Features

- 5000V_{RMS} Input/Output Isolation
- Small 6 Pin DIP Package
- Low Drive Power Requirements (TTL/CMOS Compatible)
- No Moving Parts
- High Reliability
- Arc-Free With No Snubbing Circuits
- No EMI/RFI Generation
- Machine Insertable, Wave Solderable
- 600 Volt 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 PLA193 is a 1-Form-A solid state relay that uses optically coupled relay technology to provide an enhanced 5000V_{RMS} isolation barrier between the input and output of the relay. The efficient MOSFET switches use Clare's patented OptoMOS architecture. The optically coupled input is controlled by a highly efficient GaAlAs infrared LED.

Approvals

- UL Approved to UL1577
- CSA Certified
- Complies with EN60950

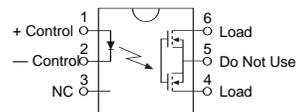
Ordering Information

Part #	Description
PLA193	6 Pin DIP (50/Tube)
PLA193S	6 Pin Surface Mount (50/Tube)
PLA193STR	6 Pin Surface Mount (1000/Reel)

Pin Configuration

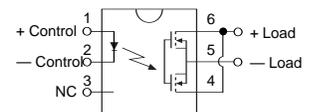
PLA193 Pinout

AC/DC Configuration

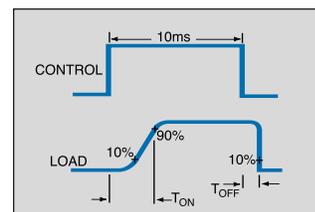


PLA193 Pinout

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
Total Power Dissipation	800 ²	mW
Peak Blocking Voltage	600	V
Isolation Voltage Input to Output (60 seconds)	5000	V _{RMS}
Operational Temperature	-40 to +85	°C
Storage Temperature	-40 to +125	°C
Soldering Temperature DIP Package (10 Seconds Max.)	+260	°C
Surface Mount Package	+220	°C

¹ Derate Linearly 1.33 mw/°C

² Derate Linearly 6.67 mw/°C

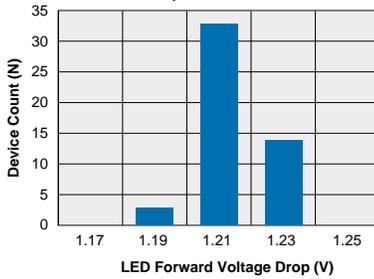
Absolute Maximum Ratings are stress ratings. Stresses in excess of these ratings can cause permanent damage to the device. Functional operation of the device at conditions beyond those indicated in the operational sections of this data sheet is not implied.

Electrical Characteristics

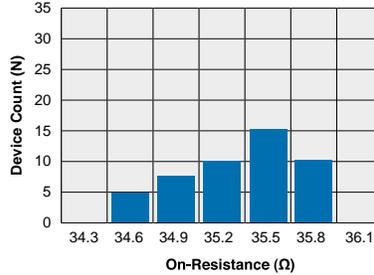
Parameter	Conditions	Symbol	Min	Typ	Max	Units
Output Characteristics @ 25°C						
Load Current (Continuous)						
AC/DC Configuration	-	I _L	-	-	100	mA
DC Configuration	-	I _L	-	-	170	mA
Peak Load Current	10ms	I _{LPK}	-	-	350	A
On-Resistance						
AC/DC Configuration	I _L =150mA	R _{ON}	-	-	50	Ω
DC Configuration	I _L =220mA	-	-	-	14	Ω
Off-State Leakage Current	V _L =600V	I _{LEAK}	-	-	10	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	I _L =100mA	I _F	5	-	-	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 Current	V _R =5V	I _R	-	-	10	μA
Common Characteristics @ 25°C						
Input to Output Capacitance	-	C _{I/O}	-	3	-	pF

PERFORMANCE DATA*

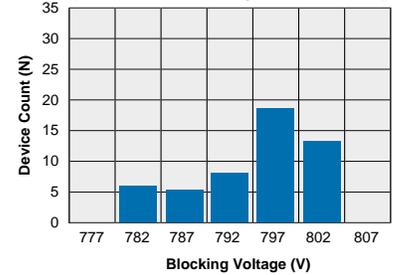
PLA193
Typical LED Forward Voltage Drop
(N=50 Ambient Temperature = 25°C)
 $I_F = 5\text{mADC}$



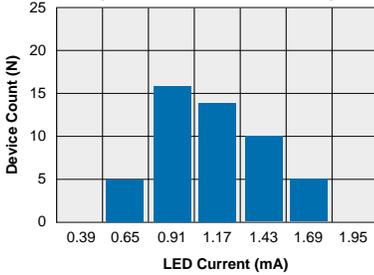
PLA193
Typical On-Resistance Distribution
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC)



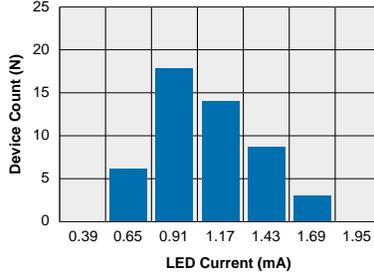
PLA193
Typical Blocking Voltage Distribution
(N=50 Ambient Temperature = 25°C)



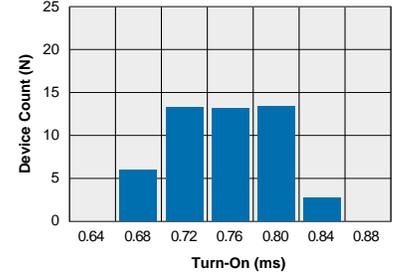
PLA193
Typical I_F for Switch Operation
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC)



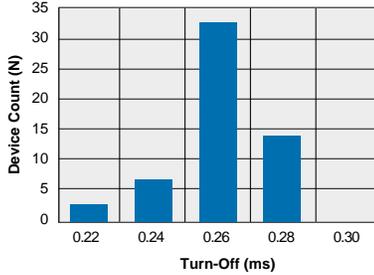
PLA193
Typical I_F for Switch Dropout
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC)



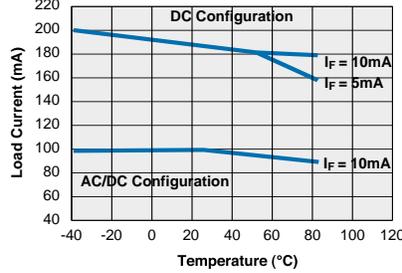
PLA193
Typical Turn-On Time
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC; $I_F = 2\text{mADC}$)



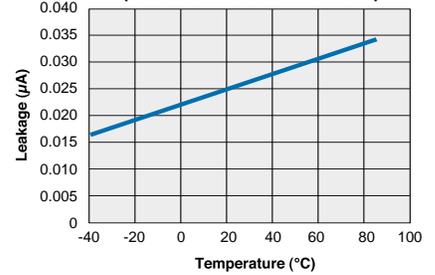
PLA193
Typical Turn-Off Time
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC; $I_F = 2\text{mADC}$)



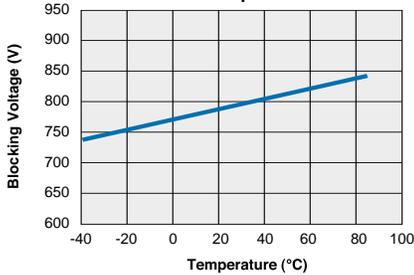
PLA193
Typical Load Current vs. Temperature



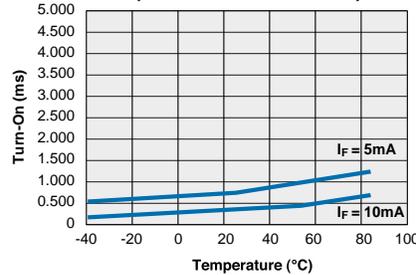
PLA193
Typical Leakage vs. Temperature
(Measured across Pins 4 & 6)



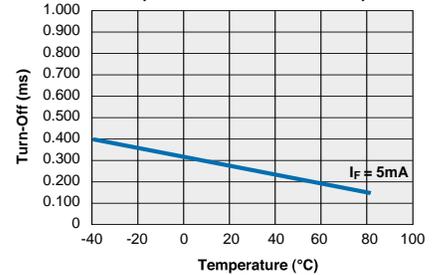
PLA193
Typical Blocking Voltage vs. Temperature



PLA193
Typical Turn-On vs. Temperature
(Load Current = 70mADC)

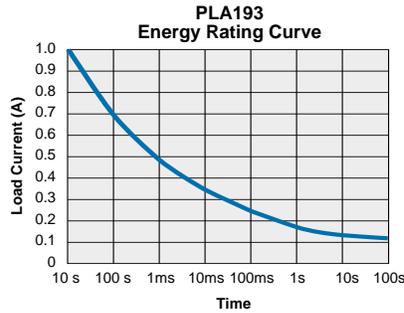
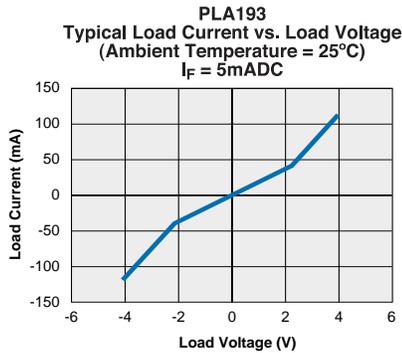
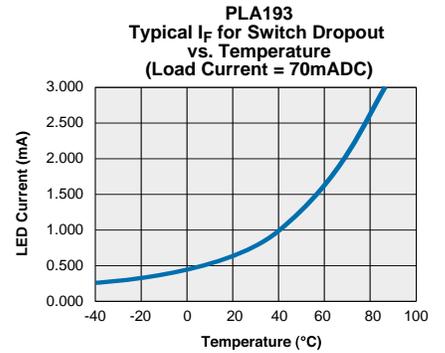
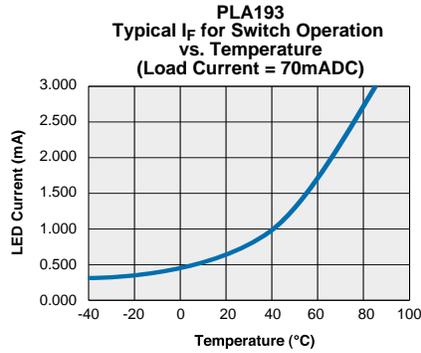
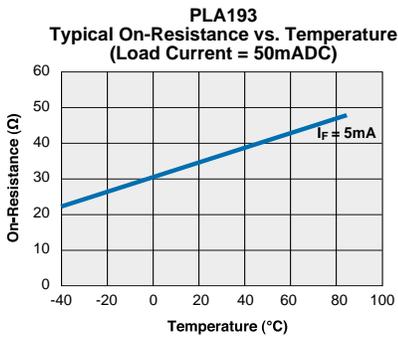
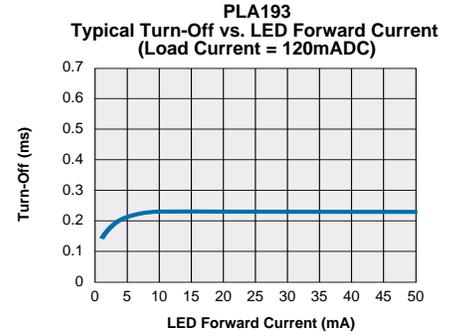
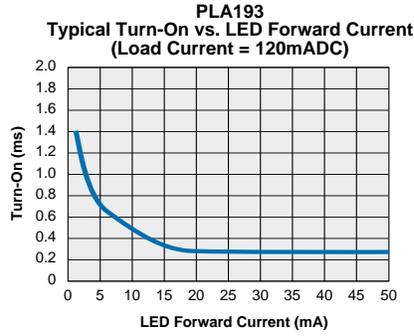
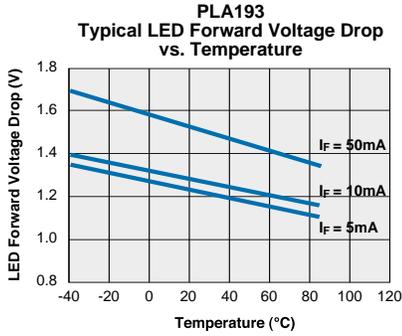


PLA193
Typical Turn-Off vs. Temperature
(Load Current = 70mADC)



*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.

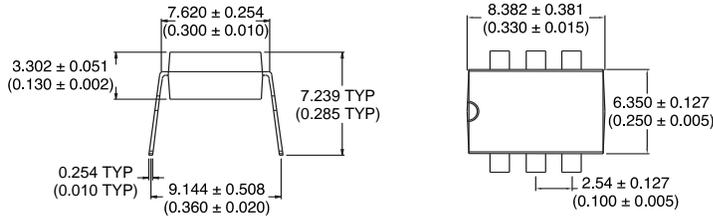
PERFORMANCE DATA*



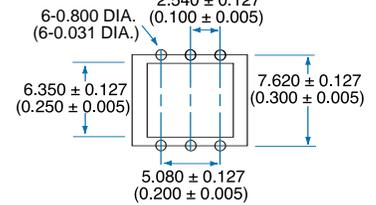
*The Performance data shown in the graphs above is typical of device performance. For guaranteed parameters not indicated in the written specifications, please contact our application department.

MECHANICAL DIMENSIONS

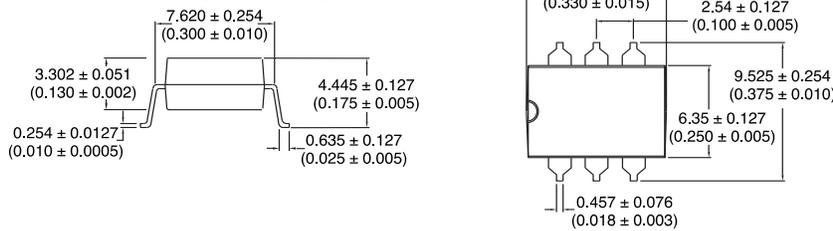
6Pin DIP Through Hole (Standard)



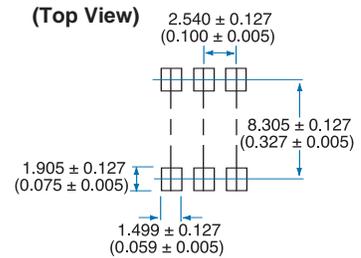
PC Board Pattern (Top View)



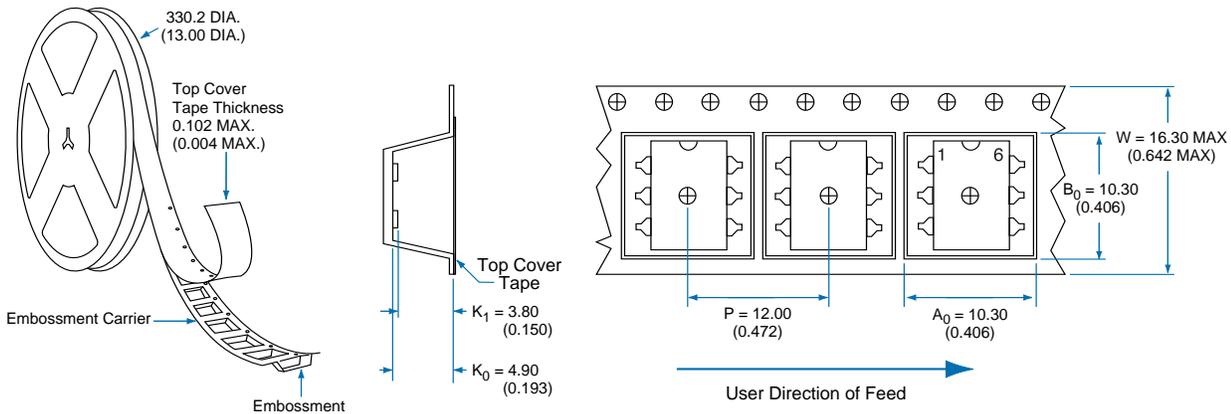
6Pin Surface Mount ("S" Suffix)



PC Board Pattern (Top View)



Tape and Reel Packaging for 6 Pin Surface Mount Package



Dimensions
mm
(inches)

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