PLA140

Single Pole OptoMOS® Relay

	PLA140	Units
Load Voltage	400	V
Load Current	250	mA
Max R_{ON}	8	Ω

Description

PLA140 is a 400V, 250mA, 8Ω 1-Form-A relay. This performance leader combines high peak load voltage capability, high peak load current capability, and very low on-resistance to provide superior performance.

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
- FCC Compatible
- VDE Compatible
- 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
- BSI Certified to:
  - BS EN 60950:1992 (BS7002:1992) Certificate #: 7344
  - BS EN 41003:1993 Certificate #: 7344

Applications

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

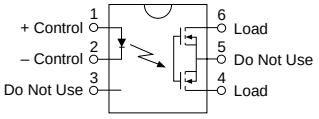
Ordering Information

Part #	Description
PLA140	6 Pin DIP (50/Tube)
PLA140S	6 Pin Surface Mount (50/Tube)
PLA140STR	6 Pin Surface Mount (1,000/Reel)

Pin Configuration

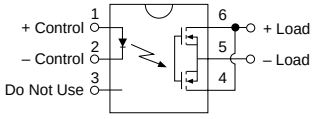
PLA140 Pinout

AC/DC Configuration

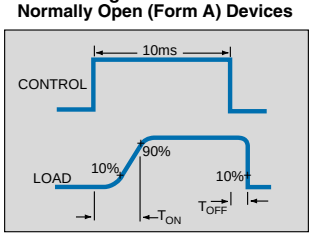


PLA140 Pinout

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

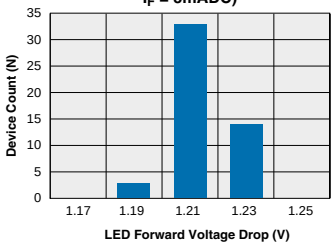
Absolute Maximum Ratings are stress ratings. Stresses in excess of these ratings can cause permanent damage to the device. Functional operation of the device at these or any other conditions beyond those indicated in the operational sections of this data sheet is not implied. Exposure of the device to the absolute maximum ratings for an extended period may degrade the device and effect its reliability.

Electrical Characteristics

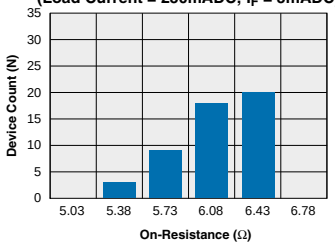
Parameter	Conditions	Symbol	Min	Typ	Max	Units
Output Characteristics @ 25°C						
Load Voltage (Peak)	-	V_L	-	-	400	V
Load Current (Continuous)						
AC/DC Configuration	-	I_L	-	-	250	mA
DC Configuration	-	I_L	-	-	350	mA
Peak Load Current	10ms	I_L	-	-	500	mA
On-Resistance						
AC/DC Configuration	I_L=250mA	R_{ON}	-	6	8	Ω
DC Configuration	I_L=350mA	R_{ON}	-	2	3	Ω
Off-State Leakage Current	V_L=400V	I_{LEAK}	-	-	1	µA
Switching Speeds						
Turn-On	I_F=5mA, V_L=10V	T_{ON}	-	-	3.0	ms
Turn-Off	I_F=5mA, V_L=10V	T_{OFF}	-	-	1.0	ms
Output Capacitance	50V; f=1MHz	C_{OUT}	-	65	-	pF
Input Characteristics @ 25°C						
Input Control Current	I_L=250mA	I_F	5	-	50	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 Voltage	-	V_R	-	-	5	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	-	$V_{I/O}$	3750	-	-	V_{RMS}

PERFORMANCE DATA*

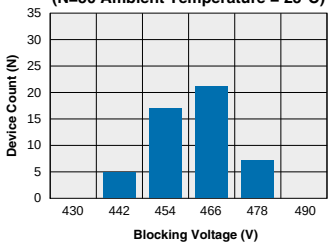
PLA140
Typical LED Forward Voltage Drop
(N=50 Ambient Temperature = 25°C;
I_F = 5mADC)



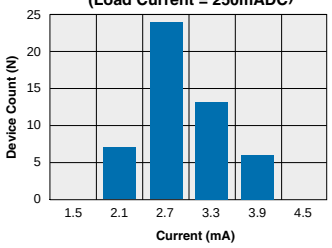
PLA140
Typical On-Resistance Distribution
(N=50 Ambient Temperature = 25°C)
(Load Current = 250mADC; I_F = 5mADC)



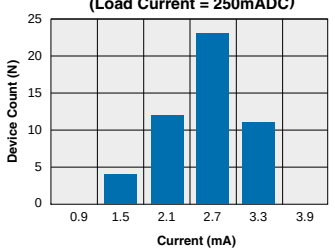
PLA140
Typical Blocking Voltage Distribution
(N=50 Ambient Temperature = 25°C)



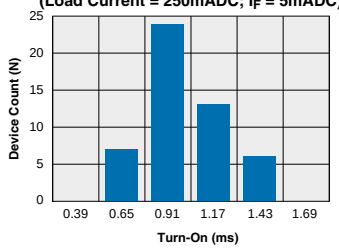
PLA140
Typical I_F for Switch Operation
(N=50 Ambient Temperature = 25°C)
(Load Current = 250mADC)



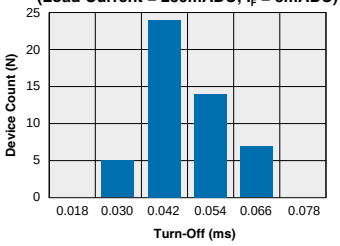
PLA140
Typical I_F for Switch Dropout
(N=50 Ambient Temperature = 25°C)
(Load Current = 250mADC)



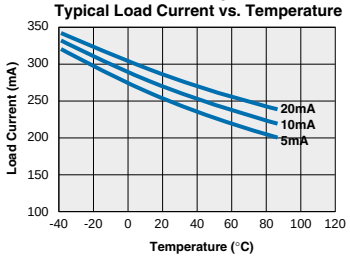
PLA140
Typical Turn-On Time
(N=50 Ambient Temperature = 25°C)
(Load Current = 250mADC; I_F = 5mADC)



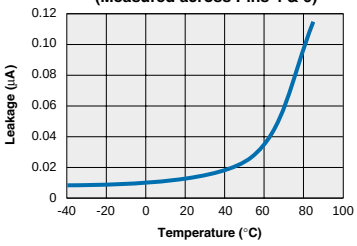
PLA140
Typical Turn-Off Time
(N=50 Ambient Temperature = 25°C)
(Load Current = 250mADC; I_F = 5mADC)



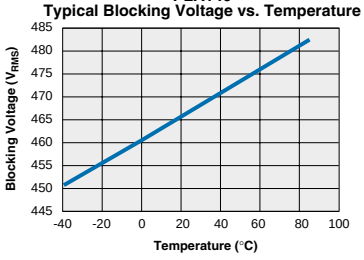
PLA140
Typical Load Current vs. Temperature



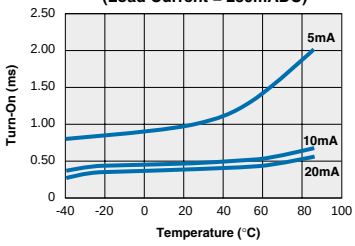
PLA140
Typical Leakage vs. Temperature
(Measured across Pins 4 & 6)



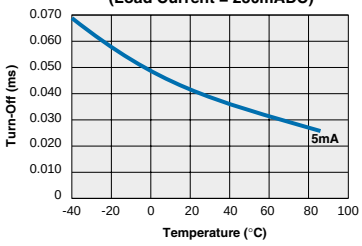
PLA140
Typical Blocking Voltage vs. Temperature



PLA140
Typical Turn-On vs. Temperature
(Load Current = 250mADC)



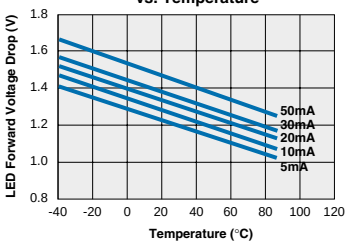
PLA140
Typical Turn-Off vs. Temperature
(Load Current = 250mADC)



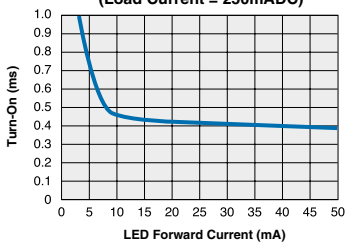
The Performance data shown in the graphs above is typical of device performance. For guaranteed parameters not indicated in the written specifications, please contact our application department.

PERFORMANCE DATA*

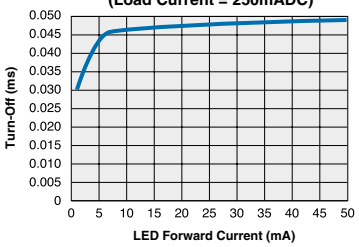
PLA140
Typical LED Forward Voltage Drop vs. Temperature



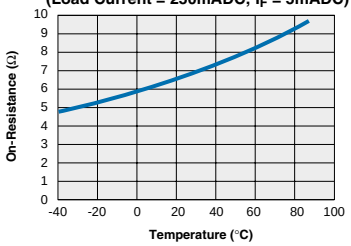
PLA140
Typical Turn-On vs. LED Forward Current (Load Current = 250mADC)



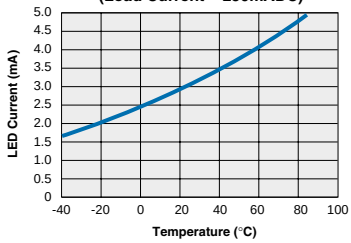
PLA140
Typical Turn-Off vs. LED Forward Current (Load Current = 250mADC)



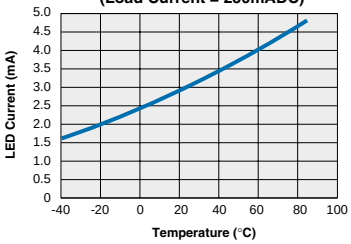
PLA140
Typical On-Resistance vs. Temperature (Load Current = 250mADC; I_F = 5mADC)



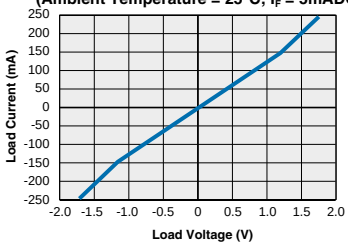
PLA140
Typical I_F for Switch Operation vs. Temperature (Load Current = 250mADC)



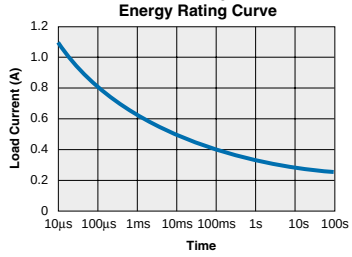
PLA140
Typical I_F for Switch Dropout vs. Temperature (Load Current = 250mADC)



PLA140
Typical Load Current vs. Load Voltage (Ambient Temperature = 25°C; I_F = 5mADC)



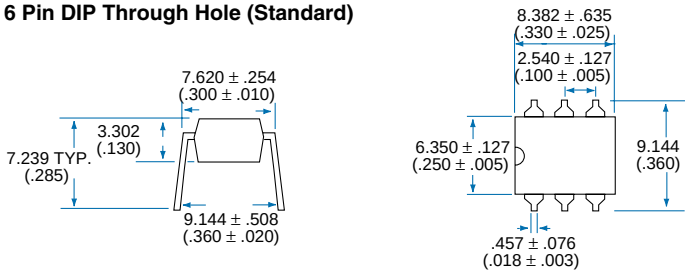
PLA140
Energy Rating Curve



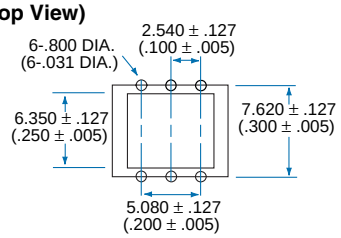
*The Performance data shown in the graphs above is typical of device performance. For guaranteed parameters not indicated in the written specifications, please contact our application department.

Mechanical Dimensions

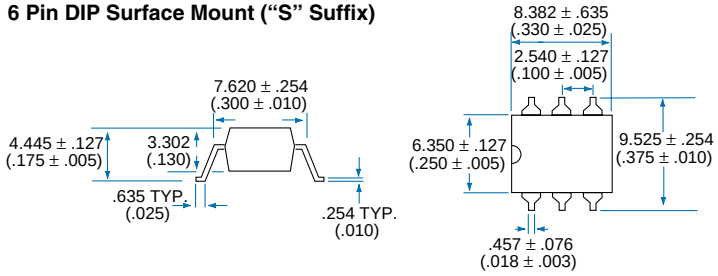
6 Pin DIP Through Hole (Standard)



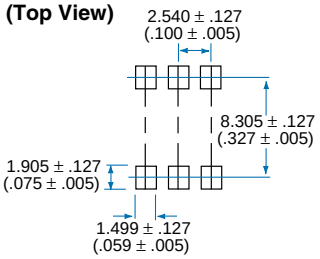
PC Board Pattern (Top View)



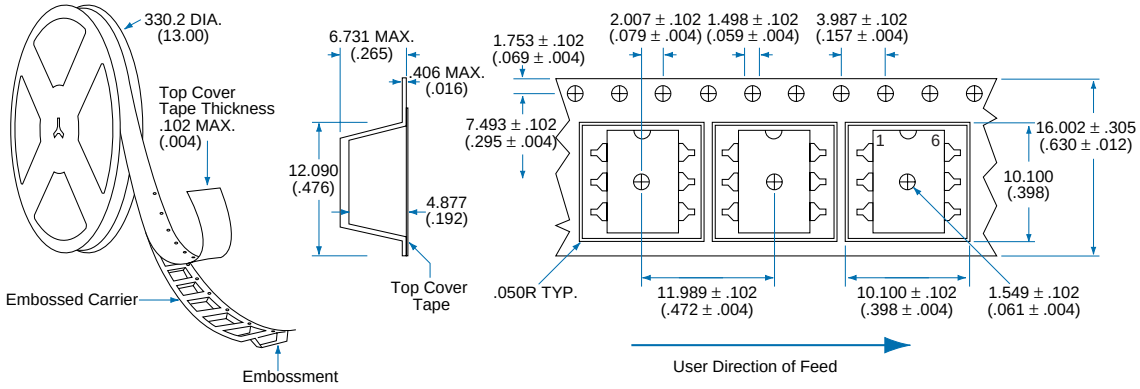
6 Pin DIP Surface Mount ("S" Suffix)



PC Board Pattern (Top View)



Tape and Reel Packaging for 6 Pin Surface Mount Package



Dimensions
mm
(inches)

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