IXYS
INTEGRATED CIRCUITS DIVISION

PLA150
Single-Pole, Normally Open OptoMOS® Relay

Parameters	Ratings	Units
Blocking Voltage	250	V_P
Load Current	250	mA_{rms} / mA_{DC}
On-Resistance (max)	7	Ω

Features
- 3750V_{rms} Input/Output Isolation
- Low Drive Power Requirements (TTL/CMOS Compatible)
- No Moving Parts
- High Reliability
- Arc-Free With No Snubbing Circuits
- FCC Compatible
- VDE Compatible
- No EMI/RFI Generation
- Small 6-Pin Package
- Machine Insertable, Wave Solderable

Applications
- Telecommunications
  - Telecom Switching
  - Tip/Ring Circuits
  - Modem Switching (Laptop, Notebooks, Pocket Size)
  - Hook Switch
  - Dial Pulsing
  - Ground Start
  - Ringing 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
PLA150 is a 250V, 250mA, 7Ω, single-pole, normally open (1-Form-A) solid state relay that uses optically coupled MOSFET technology to provide 3750V_{rms} input to output isolation.

Its optically coupled outputs, which use the patented OptoMOS architecture, are controlled by a highly efficient GaAIAs infrared LED.

This performance leader features high peak load current handling capability with a very low on-resistance.

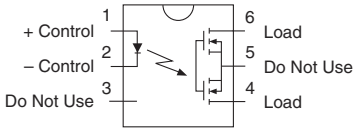
Approvals
- UL Recognized Component: File E76270
- CSA Certified Component: Certificate 1175739
- EN/IEC 60950-1 Certified Component: TUV Certificate B 09 07 49410 004

Ordering Information

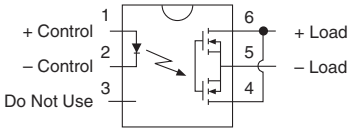
Part #	Description
PLA150	6-Pin DIP (50/Tube)
PLA150S	6-Pin Surface Mount (50/Tube)
PLA150STR	6-Pin Surface Mount (1000/Reel)

Pin Configuration

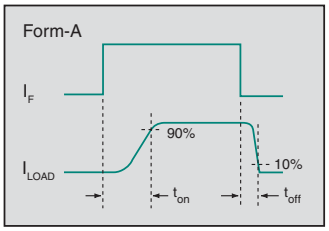
AC/DC Configuration



DC Only Configuration



Switching Characteristics of Normally Open Devices



Absolute Maximum Ratings @ 25ºC

Parameter	Ratings	Units
Peak Blocking Voltage	250	V_P
Reverse Input Voltage	5	V
Input Control Current	50	mA
Peak (10ms)	1	A
Input Power Dissipation [1]	150	mW
Total Package 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 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 @ 25ºC

Parameters	Conditions	Symbol	Min	Typ	Max	Units
Output Characteristics						
Load Current, Continuous						
AC/DC Configuration	-	I_L	-	-	250	mA_{rms} / mA_{DC}
DC Configuration	-	I_L	-	-	350	mA_{DC}
Peak Load Current	10ms	I_{LPK}	-	-	±500	mA_P
On-Resistance [1]						
AC/DC Configuration	I_L=250mA	R_{ON}	-	-	7	Ω
DC Configuration	I_L=350mA	R_{ON}	-	2	3	Ω
Off-State Leakage Current	V_L=250V_P	I_{LEAK}	-	-	1	µA
Switching Speeds						
Turn-On	I_F=5mA, V_L=10V	t_{on}	-	-	2.5	ms
Turn-Off	I_F=5mA, V_L=10V	t_{off}	-	-	0.5	ms
Output Capacitance	V_L=50V, f=1MHz	C_{OUT}	-	110	-	pF
Input Characteristics						
Input Control Current to Activate	I_L=250mA	I_F	-	-	5	mA
Input Control Current to Deactivate	-	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						
Input to Output Capacitance	-	$C_{I/O}$	-	3	-	pF

[1] Measurement taken within 1 second of on-time.

Manufacturing Information

Moisture Sensitivity

All plastic encapsulated semiconductor packages are susceptible to moisture ingression. IXYS Integrated Circuits Division classified all of its plastic encapsulated devices for moisture sensitivity according to the latest version of the joint industry standard, **IPC/JEDEC J-STD-020**, in force at the time of product evaluation. We test all of our products to the maximum conditions set forth in the standard, and guarantee proper operation of our devices when handled according to the limitations and information in that standard as well as to any limitations set forth in the information or standards referenced below.

Failure to adhere to the warnings or limitations as established by the listed specifications could result in reduced product performance, reduction of operable life, and/or reduction of overall reliability.

This product carries a **Moisture Sensitivity Level (MSL) rating** as shown below, and should be handled according to the requirements of the latest version of the joint industry standard **IPC/JEDEC J-STD-033**.

Device	Moisture Sensitivity Level (MSL) Rating
PLA150 / PLA150S	MSL 1

ESD Sensitivity

This product is **ESD Sensitive**, and should be handled according to the industry standard **JESD-625**.

Reflow Profile

This product has a maximum body temperature and time rating as shown below. All other guidelines of **J-STD-020** must be observed.

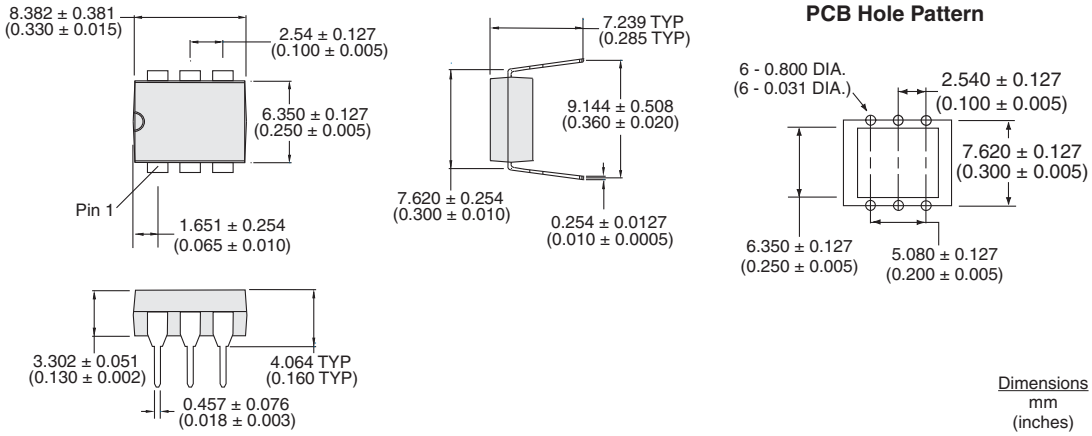
Device	Maximum Temperature x Time
PLA150 / PLA150S	250°C for 30 seconds

Board Wash

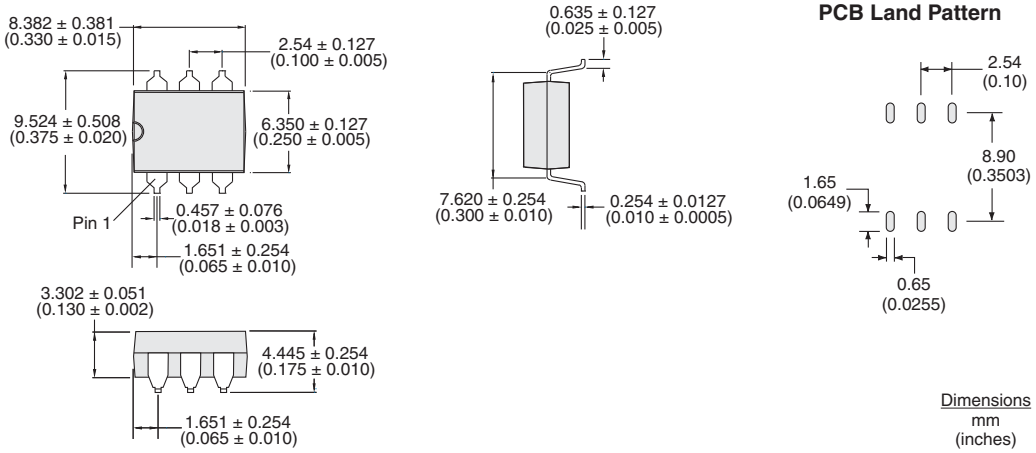
IXYS Integrated Circuits Division recommends the use of no-clean flux formulations. However, board washing to remove flux residue is acceptable. Since IXYS Integrated Circuits Division employs the use of silicone coating as an optical waveguide in many of its optically isolated products, the use of a short drying bake could be necessary if a wash is used after solder reflow processes. Chlorine- or Fluorine-based solvents or fluxes should not be used. Cleaning methods that employ ultrasonic energy should not be used.

Mechanical Dimensions

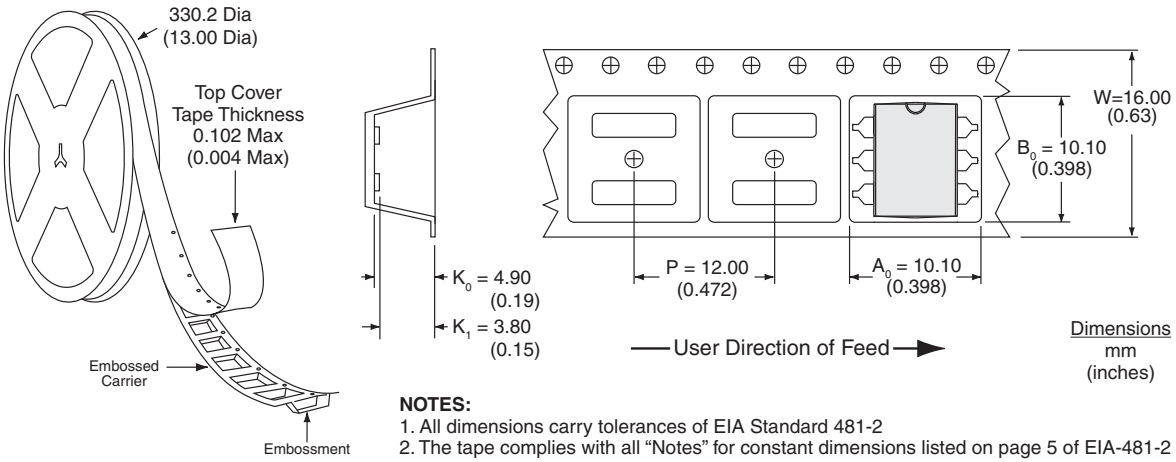
PLA150



PLA150S



PLA150STR Tape & Reel



NOTES:
1. All dimensions carry tolerances of EIA Standard 481-2
2. The tape complies with all "Notes" for constant dimensions listed on page 5 of EIA-481-2

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

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Specification: DS-PLA150-R06
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12/22/2012