

Single Pole OptoMOS® Relays



| | LAA126L | Units |
|---------------------|---------|-------|
| Blocking Voltage | 250 | V |
| Load Current | 170 | mA |
| Max R _{ON} | 20 | Ω |

Features

- · Small 8 Pin DIP Package
- Current Limit
- 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

LAA126L is a Dual 1 Form-A solid state relay that has two independently controlled optically coupled MOSFETs with an additional current limiting circuit. The efficient MOSFET switches and photovoltaic die use Clare's patented OptoMOS architecture to provide 3750 V_{RMS} of input to output isolation. The optically coupled inputs are controlled by highly efficient GaAlAs infrared LEDs. Dual pole OptoMOS relays provide a more compact design solution than discrete single pole relays in a variety of applications. The dual pole relays save board space by incorporating both relays in a single 8-pin package.

Approvals

- UL Recognized: File Number E76270
- CSA Certified: File Number LR 43639-10
- Certified to:
 - EN 60950
 - EN 41003
 - **IEC 950**
 - AS/NZS 3260

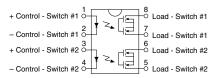
Ordering Information

| Part # | Description | | |
|------------|---------------------------------|--|--|
| LAA126L | 8 Pin DIP (50/Tube) | | |
| LAA126LS | 8 Pin Surface Mount (50/Tube) | | |
| LAA126LSTR | 8 Pin Surface Mount (1000/Reel) | | |

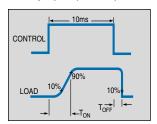
Pin Configuration

LAA126L Pinout

AC/DC Configuration



Switching Characteristics of Normally Open (Form A) Devices





Absolute Maximum Ratings (@ 25° C)

| Parameter | Min | Тур | Max | Units |
|--|------|-----|------------------|-----------|
| Input Power Dissipation | - | - | 150 ¹ | mW |
| Input Control Current | - | - | 50 | mA |
| Peak (10ms) | - | - | 1 | Α |
| Blocking Voltage DC or AC Peak | - | - | 250 | V |
| 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 |
| Flatpack/Surface Mount Package (10 Seconds Max.) | - | - | +220 | °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 | Тур | Max | Units |
|---|--|-------------------|-----|-----|-----|-------|
| Output Characteristics @ 25° | С | | | | | |
| Load Current (Continuous) AC/DC Configuration | - | I _L | | | 170 | |
| Peak Load Current | 10ms max | I _{LPK} | - | - | 400 | mA |
| On-Resistance AC/DC Configuration | I _L =170mA | R _{ON} | - | - | 20 | Ω |
| Off-State Leakage Current | V _L =250V | 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 |
| Load Current Limiting | | I _{CL} | 170 | 235 | 280 | mA |
| Input Characteristics @ 25°C | | | | | | |
| Input Control Current | I _L =170mA | I _F | 5 | - | 50 | mA |
| Input Dropout Current | - | - | 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 | μ |
| Common Characteristics @ 2 | 5°C | | | | | |
| Input to Output Capacitance | - | C _{I/O} | - | 3 | - | pF |

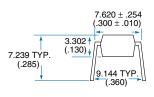
¹ Derate Linearly 1.33 mw/°C

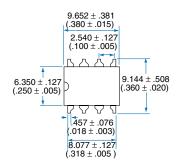
² Derate Linearly 6.67 mw/°C

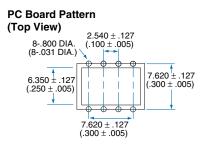


MECHANICAL DIMENSIONS

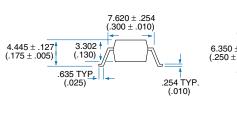
8 Pin DIP Through Hole (Standard)

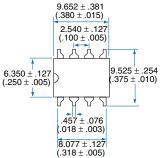


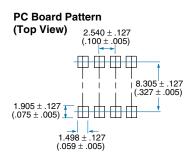




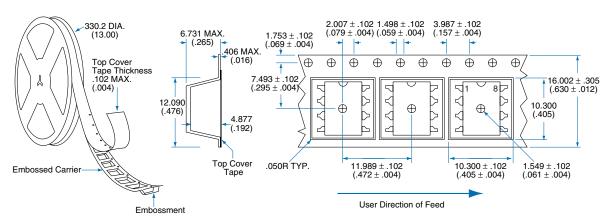
8 Pin DIP Surface Mount ("S" Suffix)







Tape and Reel Packaging for 8 Pin Surface Mount Package



Dimensions mm (inches)



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