

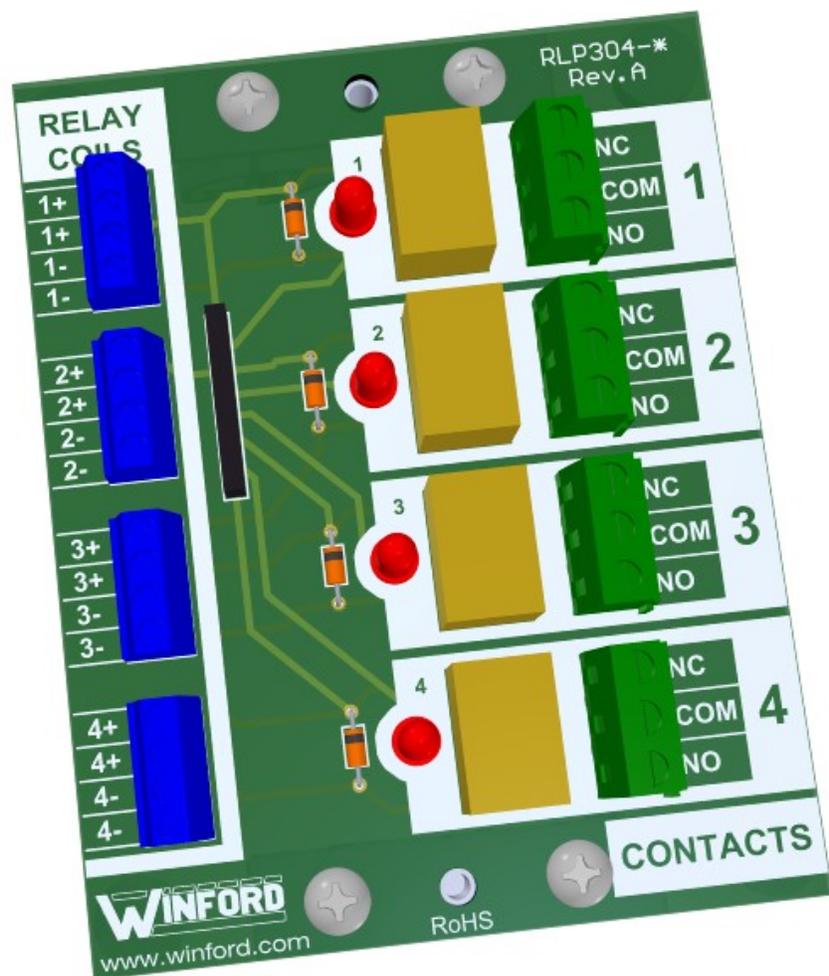
RLP304 Datasheet

Overview

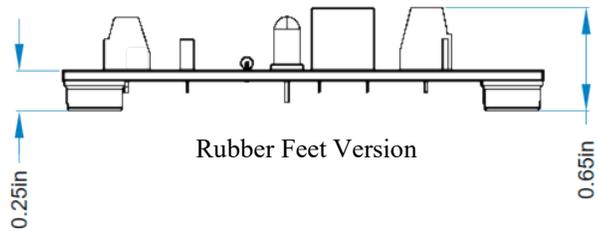
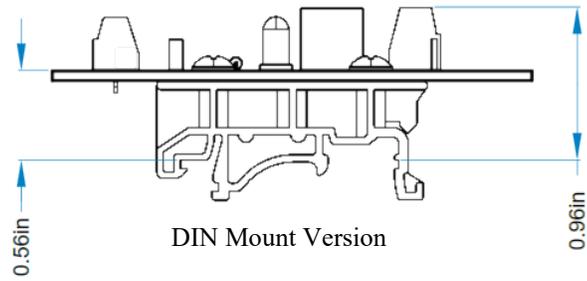
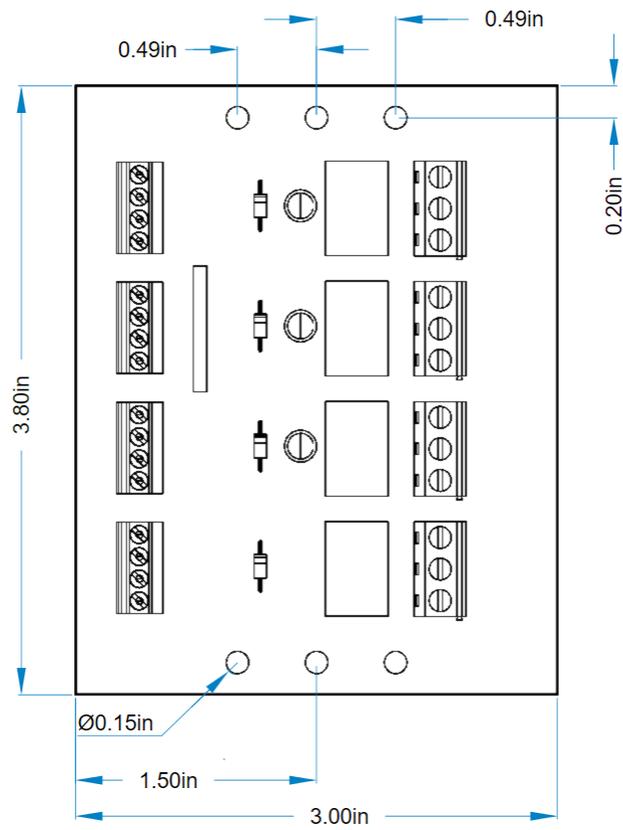
The RLP304 provides four SPDT signal relays with convenient screw terminal connections for the coils and contacts. The input screw terminals are wired directly to the relay coils with no active driver circuitry (in contrast to the RLY304), and each relay channel is independent and electrically isolated. To protect the external device controlling the relays, clamp diodes are included on the relay coils to clamp the inductive spike generated when a relay is turned off. LEDs provide visual indication of the status of each relay.

Due to the gold plating on the relay contacts, this relay board is suitable for switching very low-power signals (down to 10uA @ 10mV DC).

The relays used on this board are rated for resistive loads.



Dimensions (typical shown)



Part Number Ordering Information

RLP304 - -
 1 2

1. Relay Coil Voltage (DC)

- 5V
- 12V
- 24V

2. Mounting Option

- **FT** Rubber Feet on bottom side of PCB
- **DIN** DIN Rail Mounting Clips

RLP304 Stocked Part Numbers

The following part numbers represent standard options and are normally stocked:

- RLP304-5V-FT • RLP304-12V-FT • RLP304-24V-FT
- RLP304-5V-DIN • RLP304-12V-DIN • RLP304-24V-DIN

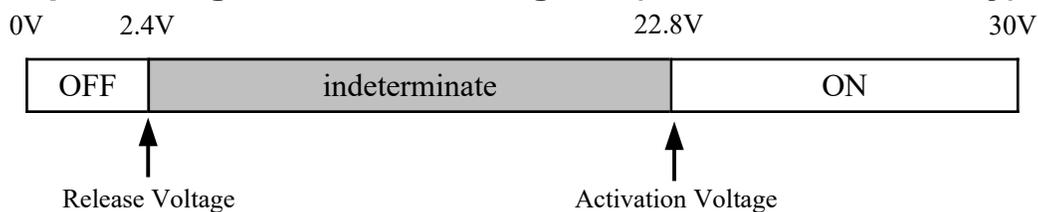
Electrical Characteristics

Specifications at 25°C

<i>Specification</i>	<i>RLP304-5V</i>	<i>RLP304-12V</i>	<i>RLP304-24V</i>	<i>Unit</i>
Nominal coil voltage	5	12	24	V
Relay coil maximum allowed voltage	6.5	15.5	30	V
Relay Activation Voltage:* relay coil input voltage lower limit for ensuring the relay activates (see diagram below)	4.6	11.3	22.8	V
Nominal input current per activated relay, at nominal coil voltage (coil current + LED current)	46	20	12	mA
Relay Release Voltage: relay coil input voltage upper limit for ensuring the relay de-activates (see diagram below)	0.5	1.2	2.4	V
Relay contact max switching voltage	220V DC, 250V AC			V
Relay contact max switching power (DC, resistive load)	60			W
Relay contact max switching current (DC, resistive load)	2			A
Relay contact max switching power (AC, resistive load)	125			VA
Relay contact max carrying current rating	3			A

**It is assumed that the coil voltage is stable. If the coil voltage is changing significantly with time and temperature, then this may impact the operation of the relays. For example, if a relay is continuously operated at max allowed coil voltage and max temperature, it is possible that it will need to cool down before operating at minimum coil voltage. This is because a relay coil at high temperature will have relatively high resistance, in which case a low coil voltage may not be sufficient to achieve the relay coil current necessary to activate the relay.*

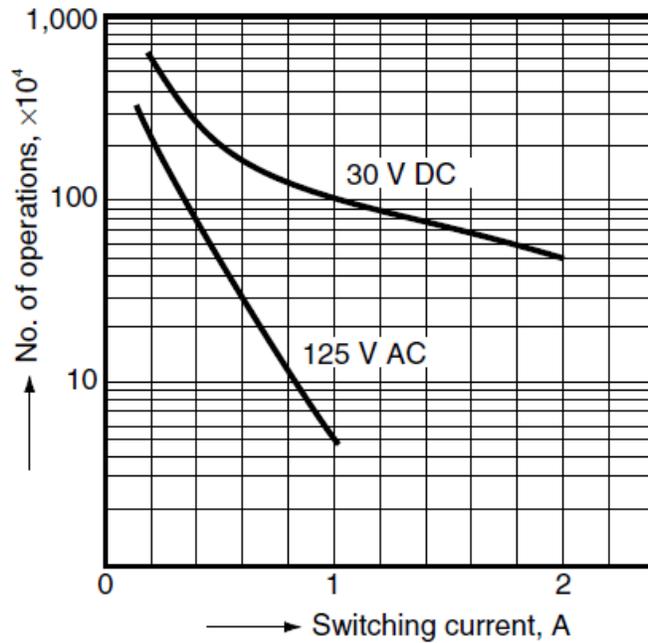
Relay Coil Input Voltage Thresholds Diagram (shown for 24V Relay)



As the relay coil voltage ramps up, the relay will activate at a coil voltage somewhere in the indeterminate region, at a voltage not exceeding the Activation Voltage. As the relay coil voltage is then ramped back down, the relay will release at a coil voltage somewhere in the indeterminate region, at a voltage not less than the Release Voltage.

The figure shows numbers for the 24V relay. See the chart above for the numbers applicable to the 5V and 12V relays.

Life Curve – AC and DC (resistive load)



Operating Conditions

Ambient Temperature Range	-25°C to 50°C
Relative Humidity Range - not freezing or condensing	5% to 85% RH

Screw Terminal Wire Sizes

- Input control signals and Power: 16-26 AWG
- Relay contacts: 16-30 AWG

Component Part Numbers

- Relays: (xx = voltage)
 - Panasonic Electric Works DS1E-S-DCxxV
 - Omron G6E-134P-US xxDC
 - Omron G6E-134P-ST-US-DCxx

Note About Inductive Loads

It is of primary importance to ensure that the relay used in a given application is rated for the given load type (e.g., resistive, inductive) as well as the load current. Although the relays used on this particular product (RLP304) may function properly in various inductive-load applications, please note that they are only rated for resistive loads.

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