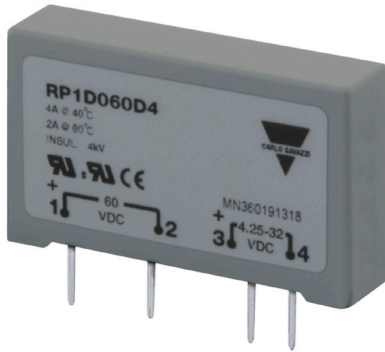


# RP1D



## 1-phase PCB mount DC switching solid state relays



### Main features

- DC Solid State Relay for PCB mounting
- Rated operational current: Up to 8 ADC
- Rated operational voltage: Up to 350 VDC
- Surface mount technology
- Flexible encapsulation for extended life
- Control voltage: 4.25 to 32 VDC
- Isolation (Input to Output): 4000 VACrms

### Description

The DC switching relay for PCB mounting is used in applications where there is a need for fast switching of small DC loads with a high input/output insulation of more than 4000 VACrms.

The DC switching relay always switches on and off in accordance with the applied control voltage.

### Applications

These relays can be used to switch heaters, motors, valves or solenoids

### Main functions

- DC switching
- Ratings up to 8 ADC / 60 VDC, 1 ADC / 350 VDC
- DC control voltage

**Order code**

 RP1D  D

Enter the code entering the corresponding option instead of

| Code                     | Option | Description                               | Comments    |
|--------------------------|--------|---|-------------|
| R                        | -      | Solid State Relay (PCB) with DC switching |             |
| P                        | -      |   |             |
| 1                        | -      |   |             |
| D                        | -      |   |             |
| <input type="checkbox"/> | 060    | Rated voltage: 60 VDC                     |             |
|                          | 350    | Rated voltage: 350 VDC                    |             |
| D                        | -      | Control voltage: 4.25-32 VDC              |             |
| <input type="checkbox"/> | 1      | Rated current: 1 ADC                      |             |
|                          | 4      | Rated current: 4 ADC                      |             |
|                          | 8      | Rated current: 8 ADC                      |             |
| <input type="checkbox"/> | Mx     | M1 = Mounting on DIN EN adaptor RPM1      | Up to 250 V |
|                          |        | M2 = Mounting on DIN EN adaptor RPM2      | Up to 600 V |

**Selection guide**

| Max. rated voltage | Control voltage | Rated operational current @ 40°C |           |           |
|--------------------|-----------------|----------------------------------|-----------|-----------|
|                    |                 | 1 ADC                            | 4 ADC     | 8 ADC     |
| 60 VDC             | 4.25 - 32 VDC   | -                                | RP1D060D4 | RP1D060D8 |
| 350 VDC            |                 | RP1D350D1                        | -         | -         |

**Selection guide (mounted on DIN EN adaptor)**

| Max. rated voltage | Control voltage | Rated operational current @ 40°C |             |             |
|--------------------|-----------------|----------------------------------|-------------|-------------|
|                    |                 | 1 ADC                            | 4 ADC       | 8 ADC       |
| 60 VDC             | 6.25 - 34 VDC   | -                                | RP1D060D4M1 | RP1D060D8M1 |
| 350 VDC            |                 | RP1D350D1M2                      | -           | -           |

**Carlo Gavazzi compatible components**

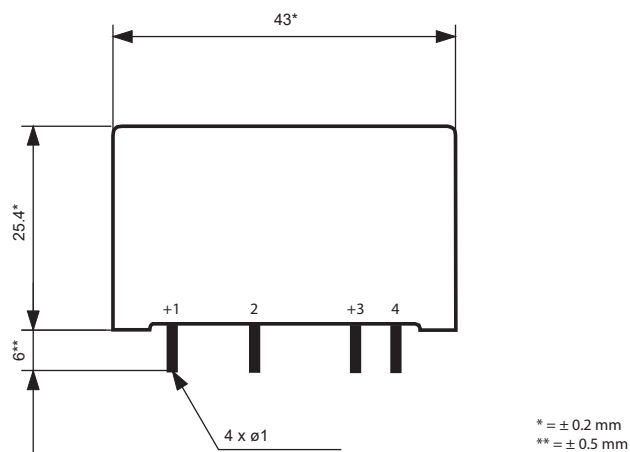
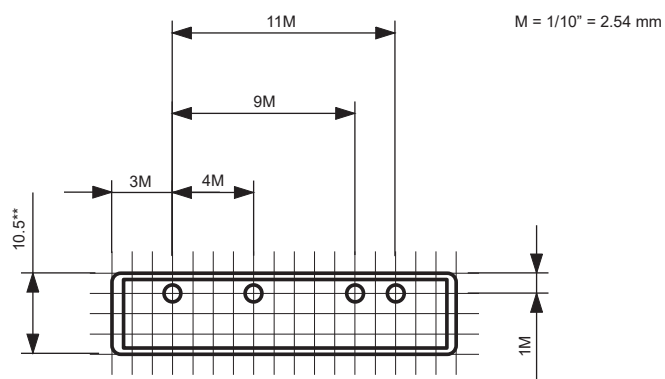
| Description      | Component code | Notes   |
|------------------|----------------|---|
| DIN rail adaptor | RPM1           | DIN adaptor 250 V with LED                            |
| DIN rail adaptor | RPM1P          | DIN adaptor 250 V with pins for removal of RP         |
| DIN rail adaptor | RPM1PD         | DIN adaptor 250 V with pins for removal of RP and LED |
| DIN rail adaptor | RPM2           | DIN adaptor 600 V                                     |

# Features

## General data

|                  |  |
|------------------|--|
| Material         | PBT, RAL7035                             |
| Potting compound | Flame-retardant flexible silicone rubber |
| Weight           | Approx. 20 g                             |
| Isolation        | Input to Output: 4000 VACrms             |

## Dimensions



## Performance

### Mains supply

|                           | RP1D060... | RP1D350...  |
|---------------------------|------------|-------------|
| Operational voltage range | 1 - 60 VDC | 1 - 350 VDC |
| Blocking voltage          | 60 VDC     | 350 VDC     |

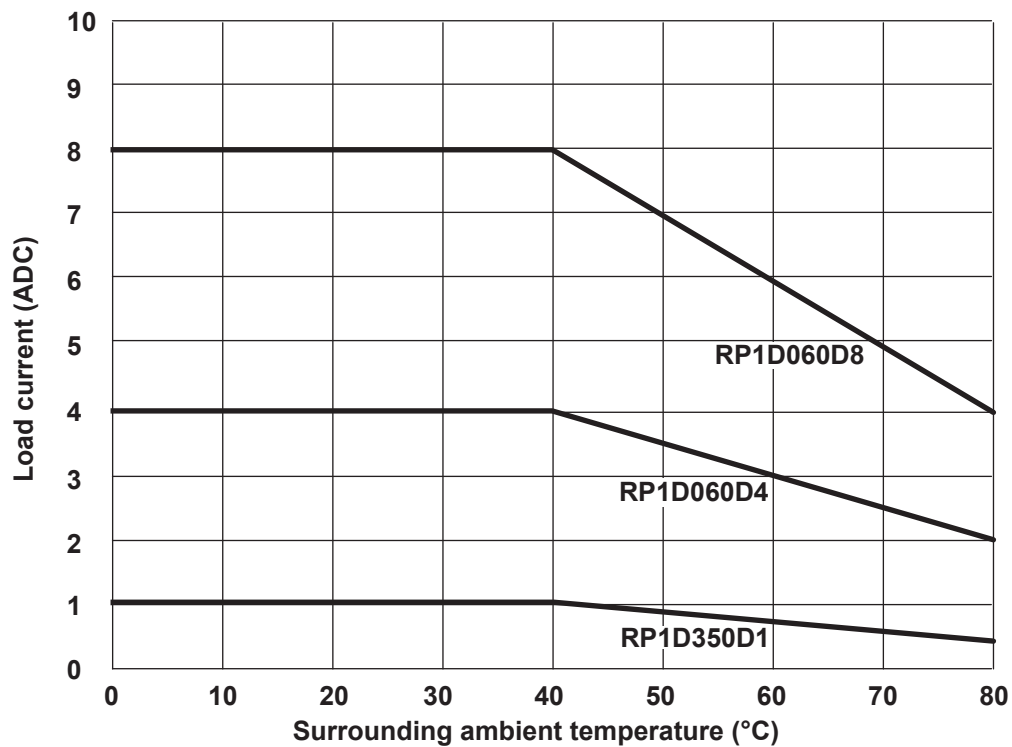
### Outputs

|  | RP1D350D1   | RP1D060D4 | RP1D060D8 |
|--|-------------|-----------|-----------|
| Rated operational current<br>@ Ta=40°C       | DC1         | 1 ADC     | 8 ADC     |
|  | DC5         | 1 ADC     | 8 ADC     |
|  | DC13        | 1 ADC     | 8 ADC     |
| Min. operational load current                | 1 mADC      |           |           |
| Rep. overload current t=1 s                  | 20 ADC      | 15 ADC    | 60 ADC    |
| Off-state leakage current @<br>rated voltage | < 0.01 mADC |           |           |
| On-state voltage drop @ rated<br>current     | < 0.5 VDC   | < 0.5 VDC | < 1.0 VDC |


### Inputs

|   |               |
|---|---------------|
| Control voltage range (Uc)                                | 4.25 - 32 VDC |
| Pick-up voltage @ Ta = 25°C                               | 3.3 VDC       |
| Drop-out voltage  | 1 VDC         |
| Reverse voltage   | 32 VDC        |
| Switching frequency                                       | < 100 Hz      |
| Response time pick-up @ V <sub>in</sub> ≥<br>5 VDC        | < 100 μs      |
| Response time drop-out @ V <sub>in</sub><br>≤ 24 VDC max. | < 250 μs      |
| Input current   | 15 mA         |

▶ Derating curve




**Compatibility and conformance**

|                             |  |
|-----------------------------|--|
| <b>Standards compliance</b> | LVD: EN 60947-4-3 / EE: BS 60947-4-3<br>EMCD: EN 61000-6-2, EN 61000-6-4 / EMC: BS 61000-6-2, BS 61000-6-4<br>UL 508<br>C22.2 No. 14 |
| <b>Approvals</b>            |   |

| <b>Electromagnetic compatibility (EMC) - Immunity</b> |   |
|---|---|
| <b>Electrostatic discharge (ESD)</b>                  | EN/IEC 61000-4-2<br>8 kV air discharge, 4 kV contact (PC1)  |
| <b>Radiated radio frequency</b>                       | EN/IEC 61000-4-3<br>10 V/m, from 80 MHz to 2700 MHz (PC1) <sup>2</sup>  |
| <b>Electrical fast transient (burst)</b>              | EN/IEC 61000-4-4<br>Output: 2 kV, 5 kHz (PC2)<br>Input: 1 kV, 5 kHz (PC2)   |
| <b>Conducted radio frequency</b>                      | EN/IEC 61000-4-6<br>10V/m, from 0.15 to 80 MHz (PC1) <sup>2</sup>   |
| <b>Electrical surge</b>                               | EN/IEC 61000-4-5<br>Line to earth: 500 V (PC2)<br>Line to line: 500 V (PC2)   |
| <b>Voltage dips, interrupts and variations</b>        | EN 61000-4-29<br>0, 30, 40, 60, 70, 80, 120%<br>1, 3, 10, 30, 100, 300, 1000ms<br>(PC2)   |
| <b>Voltage interruptions</b>                          | EN/IEC 61000-4-11<br>0% for 10 ms (PC2)<br>0% for 20 ms (PC2)<br>0% for 40 ms (PC2)<br>0% for 100 ms (PC2)<br>0% for 200 ms (PC2)<br>0% for 5000 ms (PC2) |

| <b>Electromagnetic compatibility (EMC) - Emissions</b>  |  |
|---|--|
| <b>Radio interference field emission (radiated)</b>     | EN 55011<br>Class A <sup>1</sup> : from 30 to 1000 MHz |
| <b>Radio interference voltage emissions (conducted)</b> | EN 55011<br>Class A <sup>1</sup> : from 0.15 to 30 MHz |

**Environmental specifications**

|                              |   |
|------------------------------|---|
| <b>Operating temperature</b> | -20° to +80°C (-4° to +176°F)   |
| <b>Storage temperature</b>   | -40° to +100°C (-40° to +212°F)   |
| <b>Pollution degree</b>      | 2   |
| <b>EU RoHS compliant</b>     | Yes   |
| <b>China RoHS</b>            |  |

The declaration in this section is prepared in compliance with People’s Republic of China Electronic Industry Standard SJ/T11364-2014: Marking for the Restricted Use of Hazardous Substances in Electronic and Electrical Products.

| Part Name                  | Toxic or Harardous Substances and Elements |              |              |                              |                                |                                       |
|----------------------------|--|--------------|--------------|------------------------------|--------------------------------|---------------------------------------|
|                            | Lead (Pb)                                  | Mercury (Hg) | Cadmium (Cd) | Hexavalent Chromium (Cr(VI)) | Polybrominated biphenyls (PBB) | Polybrominated diphenyl ethers (PBDE) |
| <b>Power Unit Assembly</b> | x  | 0            | 0            | 0                            | 0                              | 0                                     |

O: Indicates that said hazardous substance contained in homogeneous materials for this part are below the limit requirement of GB/T 26572.

X: Indicates that said hazardous substance contained in one of the homogeneous materials used for this part is above the limit requirement of GB/T 26572.

这份申明根据中华人民共和国电子工业标准 SJ/T11364-2014：标注在电子电气产品中限定使用的有害物质

| 零件名称        | 有毒或有害物质与元素 |        |        |              |             |              |
|-------------|------------|--------|--------|--------------|-------------|--------------|
|             | 铅 (Pb)     | 汞 (Hg) | 镉 (Cd) | 六价铬 (Cr(VI)) | 多溴化联苯 (PBB) | 多溴联苯醚 (PBDE) |
| <b>功率单元</b> | x          | 0      | 0      | 0            | 0           | 0            |

O:此零件所有材料中含有的该有害物低于GB/T 26572的限定。

X: 此零件某种材料中含有的该有害物高于GB/T 26572的限定。

Note:

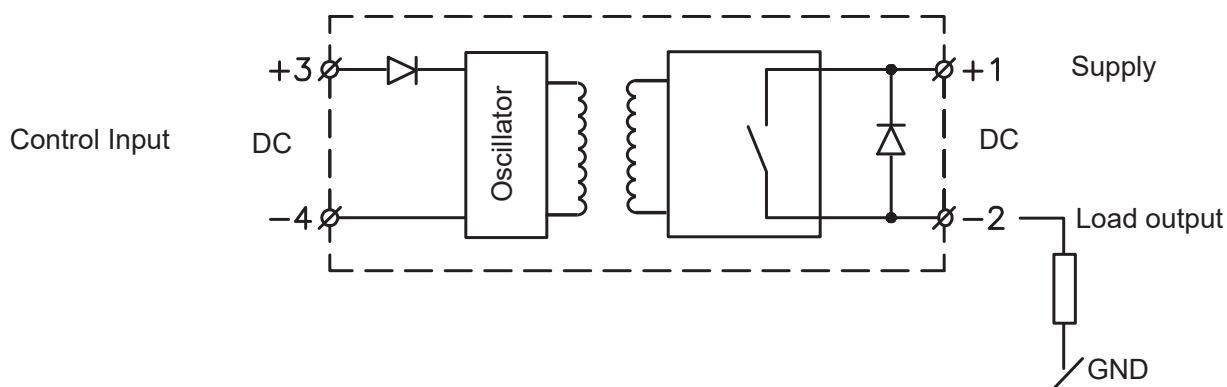
1. A filter is required to meet the Class A limits of EN55011: A filter (capacitor or snubber) could be necessary from 60 / 350 VDC supply to chassis Ground. A filter (capacitor or snubber) could be necessary from 24 VDC input to chassis Ground.

Attention: This product has been designed for class A equipment. Use of the product in domestic environments may cause radio interference, in which case the user may be required to employ additional mitigation methods.

2. It is recommended that the control input lines are installed together (i.e. a 2 core cable) to ensure acceptable susceptibility to RF (Radio Frequency) is maintained. The manufacturer has set a maximum allowable deviation when under RF exposure of <1% FSD.

- Performance Criteria 1 (PC1): No degradation of performance or loss of function is allowed when the product is operated as intended.
- Performance Criteria 2 (PC2): During the test, degradation of performance or partial loss of function is allowed. However when the test is complete the product should return operating as intended by itself.
- Performance Criteria 3 (PC3): Temporary loss of function is allowed, provided the function can be restored by manual operation of the controls.

**Functional diagram**



**Connection specifications**

|                                       |                          |
|---------------------------------------|--------------------------|
| <b>Terminals</b>                      | Copper alloy, tin-plated |
| <b>Terminal soldering temperature</b> | Max. 300°C for 5 seconds |



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