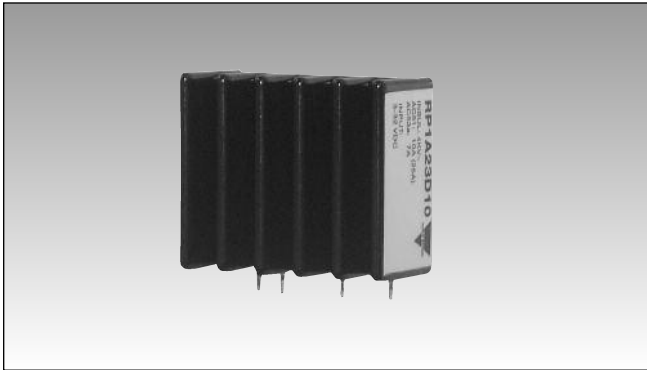


# Solid State Relays PCB 1-Phase ZS/IO Types RP1A..D10, RP1B..D10

CARLO GAVAZZI



- AC Solid State Relay primarily for PCB mounting
- Zero switching or instant-on
- Rated operational current: 10 AACrms (25 AACrms with forced air cooling)
- Rated operational voltage: Up to 480 VACrms
- Surface mount technology
- Flexible encapsulation for extended life
- Control voltage: 4 to 32 VDC\*
- Opto-isolation: > 4000 VACrms
- Blocking voltage: up to 1000 V.
- Non-repetitive surge current: up to 250 A.

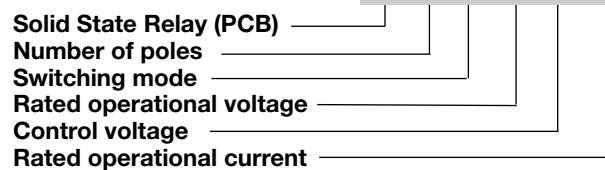
## Product Description

The RP1..D10 is a SSR series for socket or PCB-mounting, providing an ideal interface between logic controls and AC loads. The RP1..D10 is designed for resistive and inductive load switching up to 480VACrms. The integral heatsink allows switching of a high current in this compact package. Opto-isolation and

load switching are performed by individual components, providing higher reliability. This relay can also drive high AC53a loads up to 7 AACrms. The Solid State technology used can withstand peak voltages of 1000V, making the RP1..D10 series suitable to drive AC loads such as loaded induction motors.

## Ordering Key

**RP 1 A 48 D 10**



## Type Selection

Switching mode	Rated operational voltage	Rated operational current	Control voltage
A: Zero switching	23: 230 VACrms	10: 10 AACrms	D: 4-32 VDC
B: Instant-On switching	40: 400 VACrms 48: 480 VACrms		* 3-32 VDC for RP1.23D10

## Selection Guide

Rated operational voltage	Non-rep. voltage	Control voltage	Rated operational current 10 AACrms
230 VACrms	650 V <sub>p</sub>	3-32 VDC	<b>RP1A23D10</b>
400 VACrms	850 V <sub>p</sub>	4-32 VDC	<b>RP1A40D10</b>
480 VACrms	1000 V <sub>p</sub>		<b>RP1A48D10</b>

## General Specifications

	RP1.23D10	RP1.40D10	RP1.48D10
Operational voltage range			
RP1A	12-265 Vrms	20- 440 Vrms	20-530 Vrms
RP1B	12-265 Vrms	12- 440 Vrms	12-530 Vrms
Blocking voltage	< 650 V <sub>p</sub>	< 850 V <sub>p</sub>	< 1000 V <sub>p</sub>
Rated insulation input to output	4 kVArms	4 kVArms	4 kVArms
Operational frequency range	45 - 65 Hz	45 - 65 Hz	45 - 65 Hz
Power factor	> 0.5	> 0.5	> 0.5
Zero voltage turn-on	< 10 VACrms	< 10 VACrms	< 10 VACrms
Approvals	UL, cUL	UL, cUL	UL, cUL
CE-marking	Yes	Yes	Yes



## Input Specifications

Control voltage DC RP1.23D10 RP1.40D10, RP1.48D10	3 - 32 VDC 4 - 32 VDC
Pick-up voltage RP1.23D10 RP1.40D10, RP1.48D10	2.8 VDC 3.8 VDC
Drop-out voltage	1.2 VDC
Reverse voltage	32 VDC
Max. input current RP1A..D10 RP1B..D10	10 mA 17 mA
Response time pick-up RP1A..D10 RP1A..D10 @ Vin 5VDC	≤ 1/2 cycle ≤ 200 μs
Response time drop-out RP1B..D10 RP1B..D10 @ Vin 5VDC	≤ 1/2 cycle ≤ 1/2 cycle

## Thermal Specifications

Operating temperature	-30° to +80°C (-22° to +176° F)
Storage temperature	-40° to +100°C (-40° to +212° F)

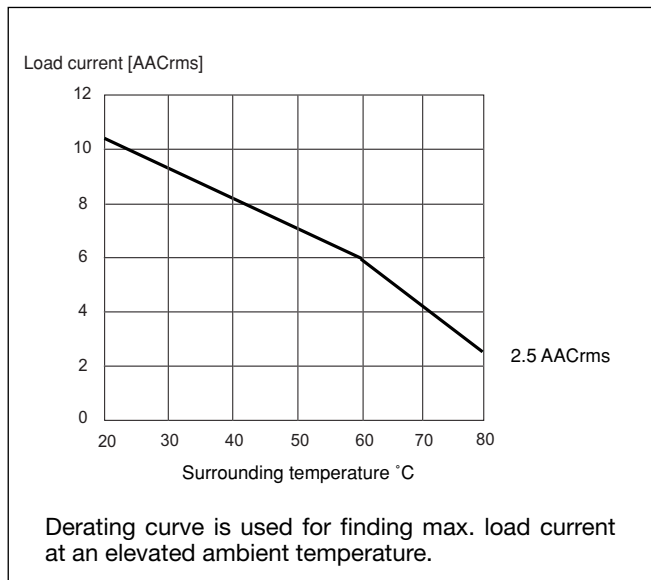
## Output Specifications

Rated operational current AC51 @ Ta=25°C AC53a @ Ta=25°C	10 AACrms 7 AACrms
Min. operational load current	10 mAACrms
Rep. overload current t=1 s	16 AACrms
Non-rep. surge current t=20 ms	250 A <sub>p</sub>
Off-state leakage current @ rated voltage and frequency	< 3 mAACrms
I <sup>2</sup> t for fusing t=10 ms	340 A <sup>2</sup> s
Critical dV/dt off-state min.	1000 V/μs
On-state voltage drop max. @ rated current	< 1.5 VACrms

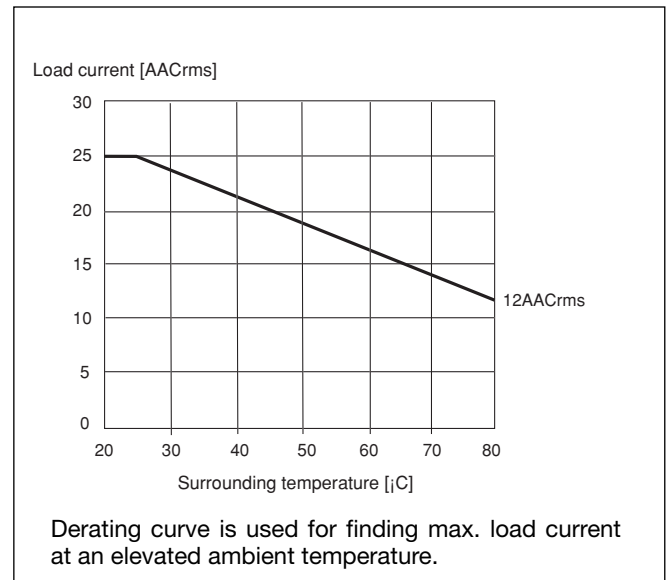
## Housing Specifications

Weight	Approx. 40 g
Housing material	Black Epoxy coating
Terminals	Copper alloy, tin-plated
Terminals soldering temperature	max. 300°C for 5 sec.

## Derating Curve (convection cooling)

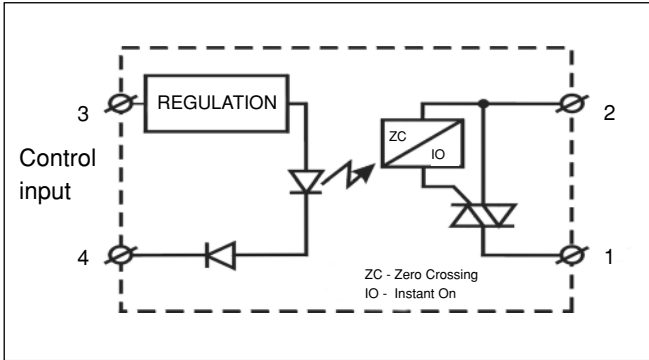


## Derating Curve (forced air cooling at 15m<sup>3</sup>/h)



Note: the above indicated current ratings apply only for the RP.10 mounted with fins in the vertical orientation to allow airflow through the heatsink fins. For other mounting orientations please consult your Carlo Gavazzi Sales representative.

## Functional Diagram



## Applications

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

If more than one relay is mounted, please allow a minimum distance of 20 mm in between for sufficient air cooling.

## Dimensions

