

Solid State Relays

PCB 1-Phase ZS/IO

Types RP1A..D10, RP1B..D10



- 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 600 VACrms
- Surface mount technology
- Flexible encapsulation for extended life
- Control voltage: 4 to 32 VDC*
- Opto-isolation: > 4000 VACrms
- Non-repetitive peak voltage: up to 1200 V_p
- Non-repetitive surge current: up to 250 A_p

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 600VACrms. 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 1200V, making the RP1..D10 series suitable to drive AC loads such as loaded induction motors.

Ordering Key

RP 1 A 60 D 10

Solid State Relay (PCB) _____
 Number of poles _____
 Switching mode _____
 Rated operational voltage _____
 Control voltage _____
 Rated operational current _____

Type Selection

Switching mode	Rated operational voltage	Rated operational current	Control voltage
A: Zero switching B: Instant-On switching	23: 230 VACrms 40: 400 VACrms 48: 480 VACrms 60: 600 VACrms	10: 10 AACrms	D: 4-32 VDC * 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 _p	3-32 VDC	RP1A23D10
400 VACrms	850 V _p	4-32 VDC	RP1A40D10
480 VACrms	1000 V _p		RP1A48D10
600 VACrms	1200 V _p		RP1A60D10

General Specifications

	RP1.23D10	RP1.40D10	RP1.48D10	RP1.60D10
Operational voltage range RP1A RP1B	12-265 Vrms 12-265 Vrms	20- 440 Vrms 12- 440 Vrms	20-530 Vrms 12-530 Vrms	20-660 Vrms 12-660 Vrms
Non-rep. peak voltage	< 650 V _p	< 850 V _p	< 1000 V _p	< 1200 V _p
Rated insulation input to output	4 kVArms	4 kVArms	4 kVArms	4 kVArms
Operational frequency range	45 - 65 Hz	45 - 65 Hz	45 - 65 Hz	45 - 65 Hz
Power factor	> 0.5	> 0.5	> 0.5	> 0.5
Zero voltage turn-on	< 10 VACrms	< 10 VACrms	< 10 VACrms	< 10 VACrms
Approvals	UL, cUL	UL, cUL	UL, cUL	UL, cUL
CE-marking	Yes	Yes	Yes	Yes

Output Specifications

	RP1.23D10, RP1.40D10 RP1.48D10	RP1.60D10
Rated operational current AC51 @ Ta=25°C AC53a @ Ta=25°C	10 AACrms 7 AACrms	10 AACrms 6 AACrms
Min. operational load current	10 mAACrms	10 mAACrms
Rep. overload current t=1 s	16 AACrms	35 AACrms
Non-rep. surge current t=20 ms	250 A _p	250 A _p
Off-state leakage current @ rated voltage and frequency	< 3 mAACrms	< 3 mAACrms
I ² t for fusing t=10 ms	340 A ² s	450 A ² s
Critical dI/dt @ 50 Hz	50 A/μs	50 A/μs
Critical dV/dt off-state min.	1000 V/μs	500 V/μs
On-state voltage drop max.@ rated current	< 1.5 VACrms	< 1.5 VACrms

Input Specifications

Control voltage DC RP1.23D10 RP1.40D10, RP1.48D10, RP1.60D10	3 - 32 VDC 4 - 32 VDC
Pick-up voltage RP1.23D10 RP1.40D10, RP1.48D10, RP1.60D10	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

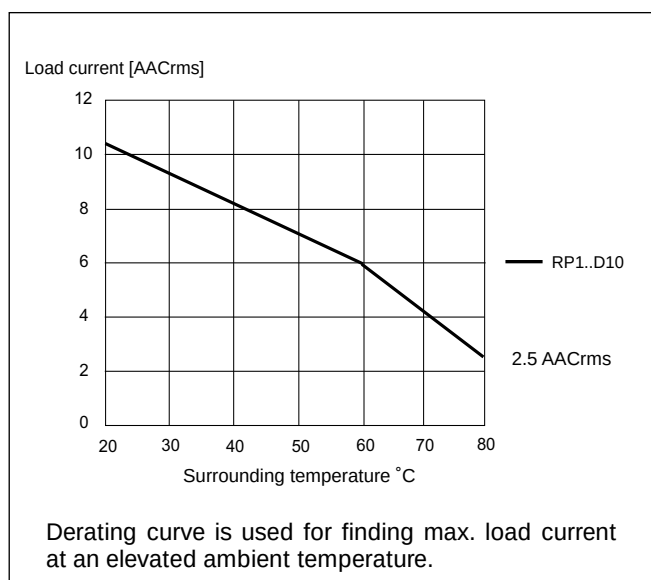
Thermal Specifications

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

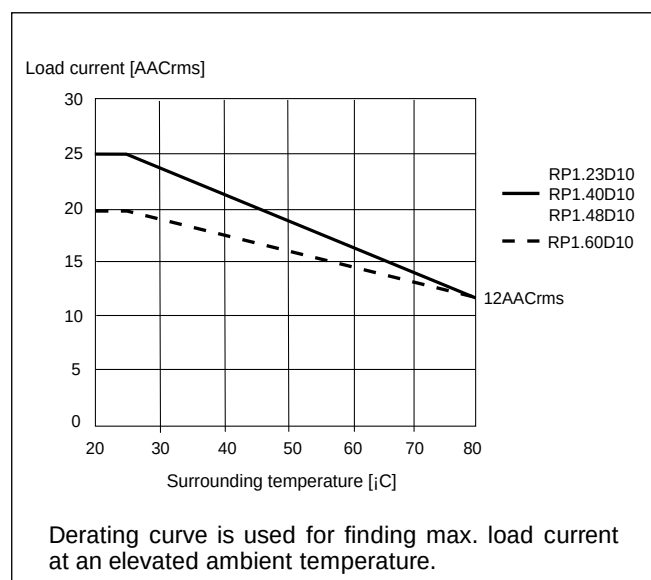
Housing Specifications

Weight	Approx. 40 g
Housing material	Black Epoxy coating
Terminals	Copper alloy, tin-plated

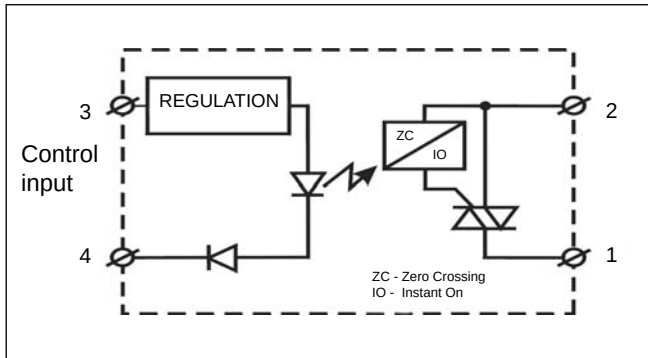
Derating Curve (convection cooling)



Derating Curve (forced air cooling at 15m³/h)



Functional Diagram

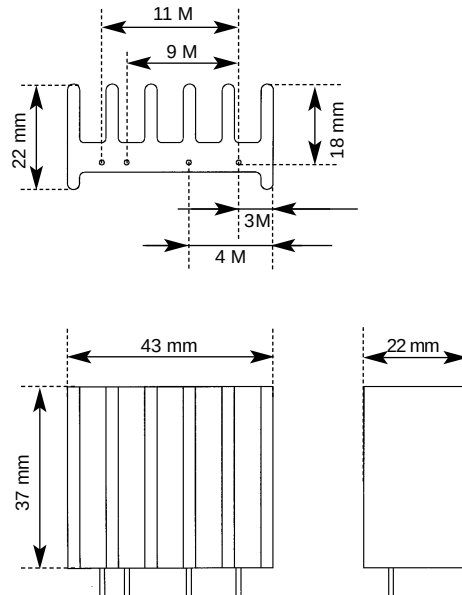


Applications

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



M = 2.54 mm = 1/10 "