

Solid State Relays

Industrial, 1-Phase ZS

Types RA 24.. -D 06 T, RA 24.. HA 06 T

CARLO GAVAZZI



- AC Solid State Relay
- Zero switching
- Low-cost triac type
- Rated operational current: 25 AACrms
- Blocking voltage: Up to 650 Vp
- Rated operational voltage: 230 VACrms
- Input ranges: 3 to 32 VDC, 90 to 280 VAC/DC
- Isolation: OPTO (input-output) 4000 VACrms



Product Description

The triac version of the zero switching relay is an inexpensive solution for resistive loads. The zero switching relay switches ON when the AC sine curve just crosses zero, and switches OFF when the current crosses zero.

Ordering Key

RA 24 25 -D 06 T

Solid State Relay
 Switching mode
 Rated operational voltage
 Rated operational current
 Control voltage
 Blocking voltage
 Output

Type Selection

Switching mode	Rated operational voltage	Rated operational current	Control voltage	Blocking voltage	Output
A: Zero switching	24: 230 VACrms	25: 25 AACrms	D: 3 to 32 VDC HA: 90 to 280 VAC/VDC	06: 650 V _p	T: Triac

Selection Guide

Rated operational voltage	Blocking voltage	Terminal type	Control voltage	Rated operational current 25 AACrms
230 VACrms	650 V _p	Rivet terminals	3 to 32 VDC	RA 2425 -D06T
		Rivet terminals	90 to 280 VAC/VDC	RA 2425 HA06T

General Specifications

Operational voltage range	24 to 280 VACrms
Blocking voltage	≥ 650 Vp
Operational frequency range	45 to 65 Hz
Power factor	≥ 0.5 @ 230 VACrms
Approvals	CE, cURus, CSA, EAC
CE-marking	Yes

Output Specifications

Rated operational current AC 51	25 Arms
Minimum operational current	20 mArms
Rep. overload current $t = 1$ s	≤ 50 A _p
Non-rep. surge current $t = 20$ ms	200 A _p
Off-state leakage current @ rated voltage and frequency	≤ 5 mArms
I ² t for fusing $t = 10$ ms	≤ 200 A ² s
Critical di/dt	≥ 10 A/ μ s
On-state voltage drop @ rated current	≤ 1.6 Vrms
Critical dV/dt commutating	≥ 10 V/ μ s
Critical dV/dt off-state	≥ 250 V/ μ s

Input Specifications

	RA 2425 -D 06 T	RA 2425 HA 06 T
Control voltage range	3 to 32 VDC	90 to 280 VAC/DC
Pick-up voltage	≥ 3 V	≥ 90 VAC/DC
Drop-out voltage	≤ 1 V	≤ 10 VAC/DC
Reverse voltage	≤ 32 VDC	-
Input impedance	1.5 k Ω	44 k Ω
Response time pick-up	$\leq 1/2$ cycle	≤ 1 cycle
Response time drop-out	$\leq 1/2$ cycle	$\leq 1/2$ cycle

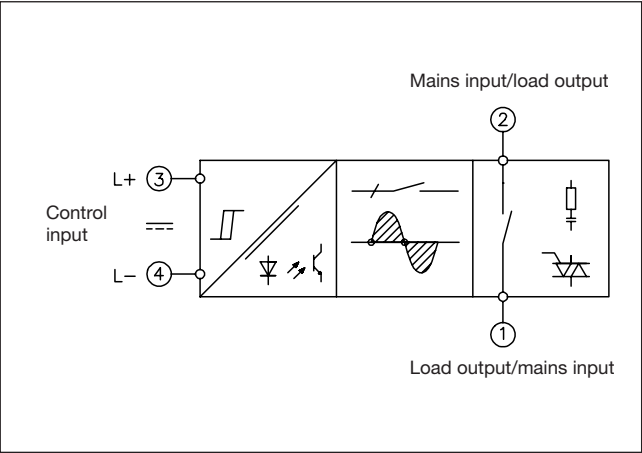
Isolation

Rated isolation voltage	
Input to output	≥ 4000 VACrms
Output to case	≥ 4000 VACrms
Insulation resistance	
Input to output	$\geq 10^{10}$ Ω
Output to case	$\geq 10^{10}$ Ω
Insulation capacitance	
Input to output	≤ 8 pF
Output to case	≤ 25 pF

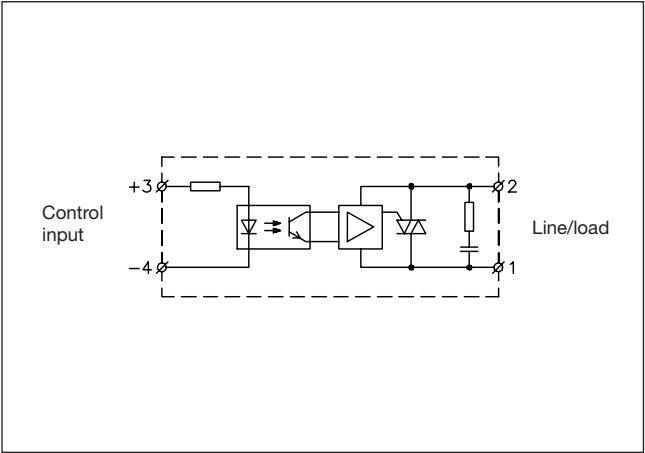
Housing Specifications

Weight	Approx. 110 g
Housing material	Noryl GFN 1, black
Base plate	Aluminium
Potting compound	Polyurethane
Relay	
Mounting screws	M5
Mounting torque	≤ 1.5 Nm
Control terminal	
Mounting screws	M3 x 6
Mounting torque	≤ 0.5 Nm
Power terminal	
Mounting screws	M5 x 6
Mounting torque	≤ 2.4 Nm

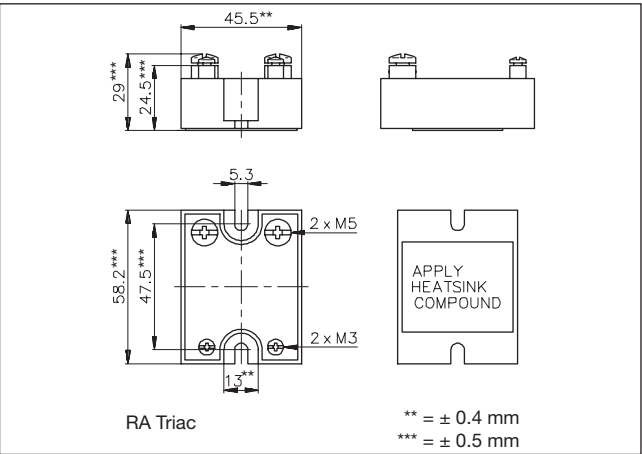
Functional Diagram



Wiring Diagram



Dimensions

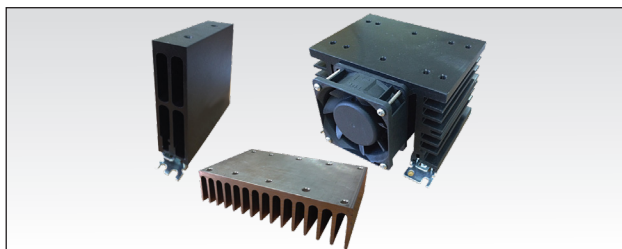


Heatsink Dimensions (load current versus ambient temperature)

Load current [A]	Thermal resistance [°C/W]						Power dissipation [W]
	RA 24.. -D 06 T			RA 24.. HA 06 T			
25	1.4	1.1	0.77	0.45	-	-	32
23	1.9	1.5	1.2	0.79	1.43	-	28
20	2.5	2.1	1.6	1.2	0.81	0.39	24
18	3.3	2.8	2.3	1.8	1.3	0.8	20
15	4.3	3.7	3.1	2.5	2	1.4	17
13	5.8	5.1	4.4	3.6	2.8	2.2	14
10	7.6	6.7	5.7	4.8	3.8	2.9	11
8	10.5	9.2	7.9	6.6	5.3	4	8
5	-	14.4	12.3	10.3	8.2	6.2	5
3	-	-	-	-	17.1	12.8	3

T_A

Heatsink Selection



Heatsink Range Overview:
http://www.productselection.net/PDF/UK/ssr_accessories.pdf

Heatsink Selector Tool:
<http://www.productselection.net/heatsink/heatsinkselector.php?LANG=UK>

Ordering Key

RHS..

- Heatsinks and fans
- 5.40°C/W to 0.12°C/W thermal resistance
- DIN, panel or thru wall mounting
- Single or multiple SSR mounting

Thermal Specifications

Operating temperature	-20° to +70°C (-4° to +158°F)
Storage temperature	-40° to +100°C (-40° to +212°F)
Junction temperature	≤ 125°C (≤ 257°F)
R _{th} junction to case	≤ 1.8°C/W
R _{th} junction to ambient	≤ 12.5°C/W

Environmental Specifications

Pollution degree	2 (non-conductive pollution with possibilities of condensation)
EU RoHS compliant	Yes
China RoHS compliant	Refer to Environmental Information (Page 5)



Environmental Information

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)
Power Unit Assembly	x	O	O	O	O	O
O: Indicates that said hazardous substance contained in homogeneous materials fot this part are below the limit require- ment 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.						

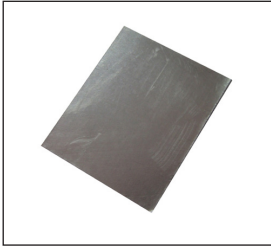
环境特性

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)
功率单元	x	O	O	O	O	O
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。						



Accessories



- Graphite thermal pad with adhesive on one side
- Type KK071CUT
- Dimensions: 35 x 43 x 0.25 mm
- Packing quantity: 50 pcs.

All accessories can be ordered pre-assembled with Solid State Relays.
Other accessories include DIN rail adaptors and varistors

For further information refer to Accessories datasheets at:
www.productselection.net/PDF/UK/SSR_Accessories.pdf

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[RA2425HA06T](#) [RA2425-D06T](#)