

HAA03 SERIES

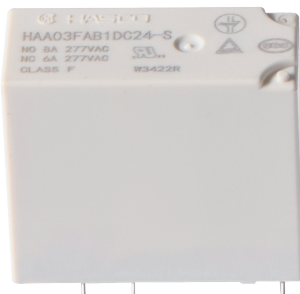
SAFETY RELAY



File No.:R 50562547



File No.:CQC22002369669



FEATURES

- Multi contact arrangements: 2 Form C, 1NO+1NC(AB1), 1NO+1NC(AB2)
- Forcibly guided contacts according to IEC 61810-3
- 8A switching capability
- High insulation capability(1.2/50 μ s): 10kV surge voltage between coil & contacts and 6kV between contact sets
- UL insulation system: Class F

CONTACT RATINGS

Contact Arrangement	2C: 2 Form C AB1: 1NO + 1NC(Type 1) AB2: 1NO + 1NC(Type 2)
Forcibly guided contacts Type (according to IEC 61810-3)	AB1, AB2: Type A 2C: Type B
Contact Resistance	$\leq 100\text{m}\Omega$ (1A 6VDC)
Contact Material	Silver Alloy or Silver Alloy+Gold plated
Contact Rating(Resistive)	8A 277VAC/30VDC
Max. Switching Voltage	400VAC/30VDC
Max. Switching Current	8A
Max. Switching Power	2216VA/240W
*Min. Contact Load	With Gold plated: 5VDC 10mA Without Gold plated: 5VDC 100mA
Mechanical Life	1×10^7 OPS
Electrical Life	1×10^5 OPS(1NO: 8A 277VAC/30VDC, Resistive Load, 85°C, 1s on and 9s off) 1×10^5 OPS(1NC: 6A 277VAC/30VDC, Resistive Load, 85°C, 1s on and 9s off)

Note: 1) Min. switching power mentioned above are reference values.

2) If your actual load current is less than 100mA, please perform the confirmation test with actual load before production since reference values may vary according to switching frequencies, environmental conditions and expected reliability levels.

3) It is recommended to avoid using the relay when the temperature is below 0°C.

4) For more information, please contact us.

CHARACTERISTICS

Insulation Resistance		1000M Ω (at 500VDC)
Dielectric Strength	Between coil & contacts	4000VAC 1min
	Between open contacts	1500VAC 1min
	Between contacts sets	3000VAC 1min
Surge voltage	Between coil & contacts	10kV(1.2/50 μ s)
	Between open contacts	2.5kV(1.2/50 μ s)
	Between contacts sets	6kV(1.2/50 μ s)
Operate time (at nomi. volt.)		$\leq 15\text{ms}$
Release time (at nomi. volt.)		$\leq 10\text{ms}$
Humidity		5% to 85% RH
Operation temperature		-40°C~+85°C
UL Class B/F		Insulation System Class B/F
Shock Resistance	Functional	N.O.: 98m/s ² N.C.: 49m/s ²
	Destructive	980m/s ²
Vibration resistance		N.O.: 10Hz to 55Hz 1.6mm DA 55Hz to 200Hz 98m/s ² N.C.: 10Hz to 55Hz 0.4mm DA
Creepage distance	Between coil & contacts	8mm
	Between contacts	5.5mm
Clearance distance	Between coil & contacts	8mm
	Between contacts	5.5mm
Unit weight		Approx. 20g
Construction		Flux Tight Type, Sealed Type

Notes:1) The data shown above are initial values.

2) Please find coil temperature curve in the characteristic curves.

This datasheet is for customers' reference. All the specifications are subject to change without notice.



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RELAYS

HAA03 SERIES

SAFETY RELAY

ORDERING INFORMATION

Model

HAA03 F AB1 DC 24 G - S - XXXX

F: Class F
Blank: Class B

AB1: 1NO+1NC(Type 1)
AB2: 1NO+1NC(Type 2)
2C: 2 Form C

Coil: DC

Coil Voltage

G: Gold plated Blank: No Gold plated

E: Flux Tight Type S: Sealed Type

Customer Code

Notes: 1) PC board assembled with flux tight type relays can not be washed and/or coated.
2) Flux tight type relays can not be used in the environment with dust, or H₂S, SO₂, NO₂ or similar gaseous environment etc.

COIL DATA at 25°C

Nominal Voltage VDC	Operate Voltage (Max.) VDC	Release Voltage (Min.) VDC	*Max. Allowable Voltage VDC	Coil Resistance $\Omega \pm 10\%$
5	3.80	0.50	7.50	35.7
6	4.50	0.60	9.00	51
9	6.80	0.90	13.50	116
12	9.00	1.20	18.00	206
15	11.3	1.50	22.50	321
18	13.5	1.80	27.00	483
21	15.8	2.10	31.50	630
24	18.0	2.40	36.00	823
36	27.0	3.60	54.00	1851
40	30.0	4.00	60.00	2286
48	36.0	4.80	72.00	3291
60	45.0	6.00	90.00	5142
80	64.0	8.00	120.0	9143
110	82.5	11.0	165.0	17285

Note: **Max Allowable Voltage**: The relay coil can endure max allowable voltage for a short period time only.

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SAFETY RELAY

COIL

Coil Power	700mW
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SAFETY APPROVAL RATINGS

UL&CUL	N.O.:8A/6A 277VAC/250VAC/240VAC/125VAC, 85°C, 1×10 ⁵ OPS N.O.:8A/6A 30VDC, 85°C, 1×10 ⁵ OPS N.C.:6A 277VAC/250VAC/240VAC/125VAC, 85°C, 1×10 ⁵ OPS N.C.:6A 30VDC, 85°C, 1×10 ⁵ OPS N.O./N.C.:1A 24VDC, 85°C, 1×10 ⁵ OPS N.O.:Pilot duty A300/240VAC, 70°C, 5×10 ⁴ OPS N.O.:Pilot duty B300/240VAC, 70°C, 12×10 ⁴ OPS N.C.:Pilot duty B300/240VAC, 70°C, 1.5×10 ⁴ OPS
TüV	N.O.:8A/6A 277VAC/250VAC/240VAC/125VAC, 85°C, 1×10 ⁵ OPS N.O.:8A/6A 30VDC, 85°C, 1×10 ⁵ OPS N.O.:4A 60VDC, 85°C, 1×10 ⁵ OPS N.C.:6A 277VAC/250VAC/240VAC/125VAC, 85°C, 1×10 ⁵ OPS N.C.:6A 30VDC, 85°C, 1×10 ⁵ OPS N.O./N.C.:1A 24VDC, 85°C, 1×10 ⁵ OPS N.O.:3A 240VAC(AC-15), 55°C, 5×10 ⁴ OPS N.C.:1.5A 240VAC(AC-15), 55°C, 5×10 ⁴ OPS N.O.:3A 24VDC(DC-13), 55°C, 5×10 ⁴ OPS N.C.:1A 24VDC(DC-13), 55°C, 5×10 ⁴ OPS
CQC	N.O.:8A/6A 277VAC/250VAC/240VAC/125VAC, 85°C, 5×10 ⁴ OPS N.O.:8A/6A 30VDC, 85°C, 5×10 ⁴ OPS N.C.:6A 277VAC/250VAC/240VAC/125VAC, 85°C, 1×10 ⁵ OPS N.C.:6A 30VDC, 85°C, 1×10 ⁵ OPS N.O./N.C.:1A 24VDC, 85°C, 1×10 ⁵ OPS

NOTES: 1) All values without specified temperature are at 25°C.

2) The above lists the typical loads only. Other loads may be available upon request.

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RELAYS

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SAFETY RELAY

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT.

Unit: inch(mm)

Outline Dimensions

Wiring Diagram (Bottom view)

PCB Layout (Bottom view)

2C								
AB1								
Unless otherwise specified tolerances are: <table border="1"> <tr> <td>≤1mm</td><td>> 1mm and ≤5mm</td><td>>5mm</td></tr> <tr> <td>±0.2mm</td><td>±0.3mm</td><td>±0.4mm</td></tr> </table>			≤1mm	> 1mm and ≤5mm	>5mm	±0.2mm	±0.3mm	±0.4mm
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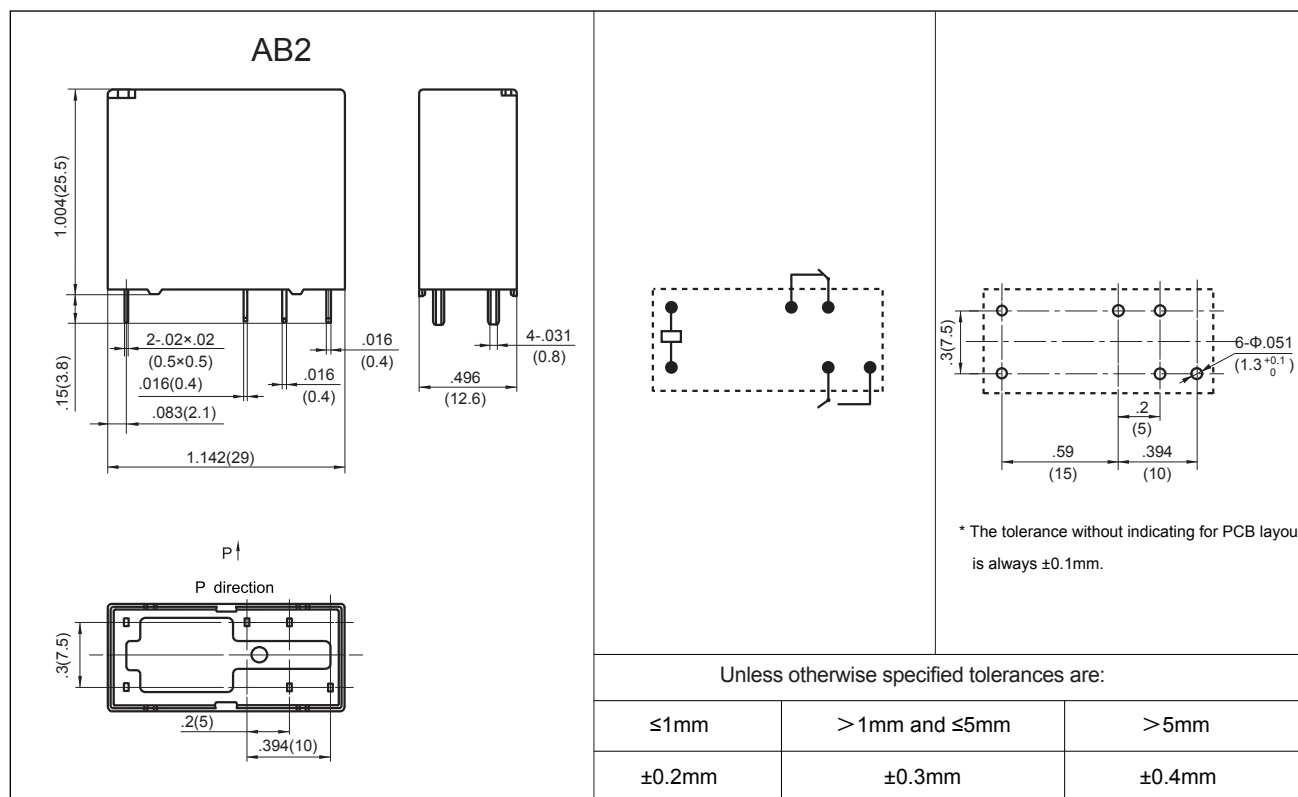
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT.

Unit: inch(mm)

Outline Dimensions

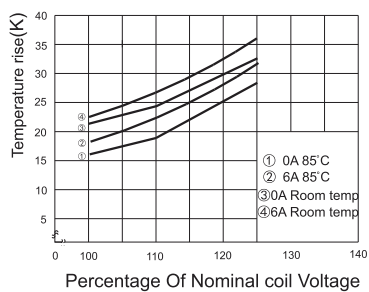
Wiring Diagram
(Bottom view)

PCB Layout
(Bottom view)

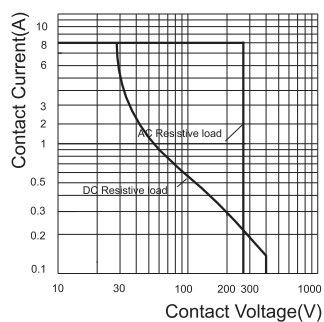


CHARACTERISTIC CURVES

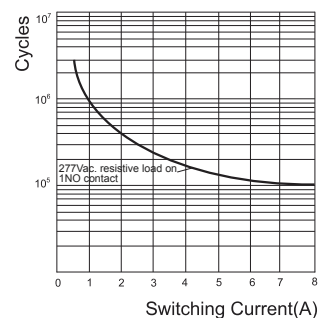
COIL TEMPERATURE RISE



LOAD BREAKING CAPACITY



ELECTRICAL ENDURANCE



Test conditions:
1NO, Resistive load, 277VAC,
Room temp., 1s on 9s off
The data shown above are typical values.

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PACKAGING SPECIFICATION

BLISTER BOX	OUTER CARTON	OUTER CARTON SIZE
40PCS	800PCS	L400mm*W400mm*H190mm

APPLICATION GUIDELINES

Automatic Wave Soldering

- * Wave solder is the optimum method for soldering.
- * Adjust the level of solder so that it does not overflow onto the top of the PC board.
- * Unless otherwise specified, solder under the following conditions depending on the type of relay.

Preheat time 20°C-100°C	Rising slope 20°C-120°C	Decreasing slope Peak-150°C	Soldering temperature 255°C-265°C
90±5 seconds	<3°C/s	<4°C/s	3~5s

Hand Soldering

- * Keep the tip of the soldering iron clean.

Solder Iron	30W or 60W
Iron Tip Temperature	Approx. 350°C 662°F
Solder Time	Within approx. 3 seconds

- * Immediate air cooling is recommended to prevent deterioration of the relay and surrounding parts due to soldering heat.
- * Although the sealed type relay can be cleaned, avoid immersing the relay into cold liquid (such as washing solvent) immediately after soldering. Doing so may deteriorate the sealing performance.

Discard the dropped product

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