

HAA02 SERIES

SAFETY RELAY

C **UL** US
File No.:E75887



File No.:R 50507988



File No.:CQC21002307826



FEATURES

- Multi contact arrangements: 3NO+1NC, 2NO+2NC
- Forcibly guided contacts according to IEC 61810-3
- 6A switching capability
- Low input power: 360mW
- Reinforced insulation between input and output, and some reinforced insulation between different poles
- UL insulation system: Class F

CONTACT RATINGS

Contact Arrangement	3A1B, 2A2B
Forcibly guided contacts Type (according to IEC 61810-3)	Type A
Contact Resistance	≤100mΩ (1A 6VDC)
Contact Material	Gold Flash+Silver Alloy
Contact Rating(Resistive)	6A 277VAC/30VDC
Max. Switching Voltage	400VAC/30VDC
Max. Switching Current	6A
Max. Switching Power	1662VA/180W
*Min. Switching Power	5VDC 10mA
Mechanical Life	1×10 ⁷ OPS
Electrical Life	1×10 ⁵ OPS(1NO: 6A 30VDC, Resistive Load, 85°C, 1s on and 9s off) 1×10 ⁵ OPS(1NO: 6A 277VAC, 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 cofirmation 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		1000MΩ (at 500VDC)
Dielectric Strength	Between coil & contacts	4000VAC 1min
	Between open contacts	1500VAC 1min
	Between contacts sets	2500VAC 1 min(7-8/9-10) 4000VAC 1 min(Other)
Surge voltage	Between coil & contacts	10kV(1.2/50μs)
	Between contacts sets	5kV(1.2/50μs)
Operate time (at nomi. volt.)		≤20ms
Release time (at nomi. volt.)		≤20ms
Humidity		5% to 85% RH
Operation temperature		-40°C~+85°C
UL Class F		Insulation System Class F
Shock Resistance	Functional	98m/s ²
	Destructive	980m/s ²
Vibration resistance		N.O./N.C.: 10Hz to 55Hz 1.5mm DA N.O.: 55Hz to 200Hz, 98m/s ² N.C.: 55Hz to 200Hz, 49m/s ²
Creepage distance	Between coil & contacts	8mm
	Between contacts	5.5mm
Clearance distance	Between coil & contacts	8mm
	Between contacts	5.5mm
Unit weight		Approx. 22g
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

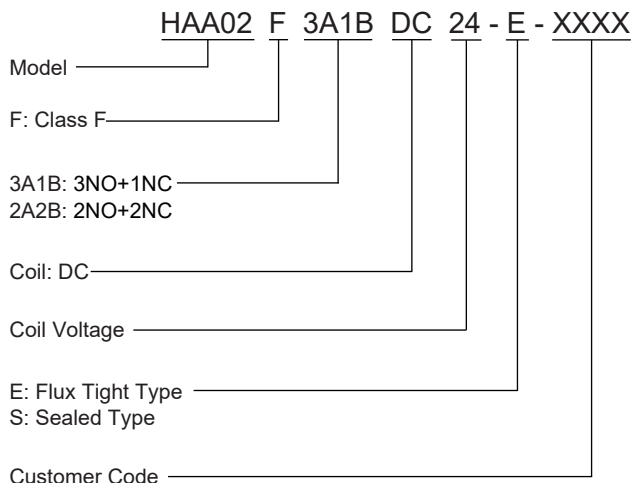
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SAFETY RELAY

ORDERING INFORMATION



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.

SAFETY APPROVAL RATINGS

UL&CUL	N.O./N.C.: 6A 277VAC/250VAC/240VAC/125VAC, 85°C, 1×10 ⁵ OPS N.O./N.C.: 6A 30VDC, 85°C, 1×10 ⁵ OPS N.O./N.C.: 2A 240VAC(AC-15), 55°C, 1.5×10 ⁴ OPS N.O./N.C.: 1A 24VDC(DC-13), 40°C, 5×10 ⁴ OPS
TüV	N.O./N.C.: 6A 277VAC/250VAC/125VAC, 85°C, 1×10 ⁵ OPS N.O./N.C.: 6A 30VDC, 85°C, 1×10 ⁵ OPS N.O./N.C.: 2A/1.5A 240VAC(AC-15), 40°C, 1×10 ⁴ OPS N.O./N.C.: 1A 24VDC(DC-13), 40°C, 5×10 ⁴ OPS
CQC	N.O./N.C.: 6A 277VAC/250VAC/125VAC, 85°C, 1×10 ⁵ OPS N.O./N.C.: 6A 30VDC, 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.

COIL DATA

at 25°C

Nominal Voltage VDC	Operate Voltage (Max.) VDC	Release Voltage (Min.) VDC	*Max. Allowable Voltage VDC	Coil Resistance Ω±10%
6	4.50	0.60	6.60	100
9	6.75	0.90	9.90	225
12	9.00	1.20	13.20	400
18	13.50	1.80	19.80	900
21	15.75	2.10	23.10	1225
24	18.00	2.40	26.40	1600
36	27.00	3.60	39.60	3600
48	36.00	4.80	52.80	6400
110	82.50	11.00	121.00	28810

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

COIL

Coil Power	360mW(110V: Approx. 420mW)
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SAFETY RELAY

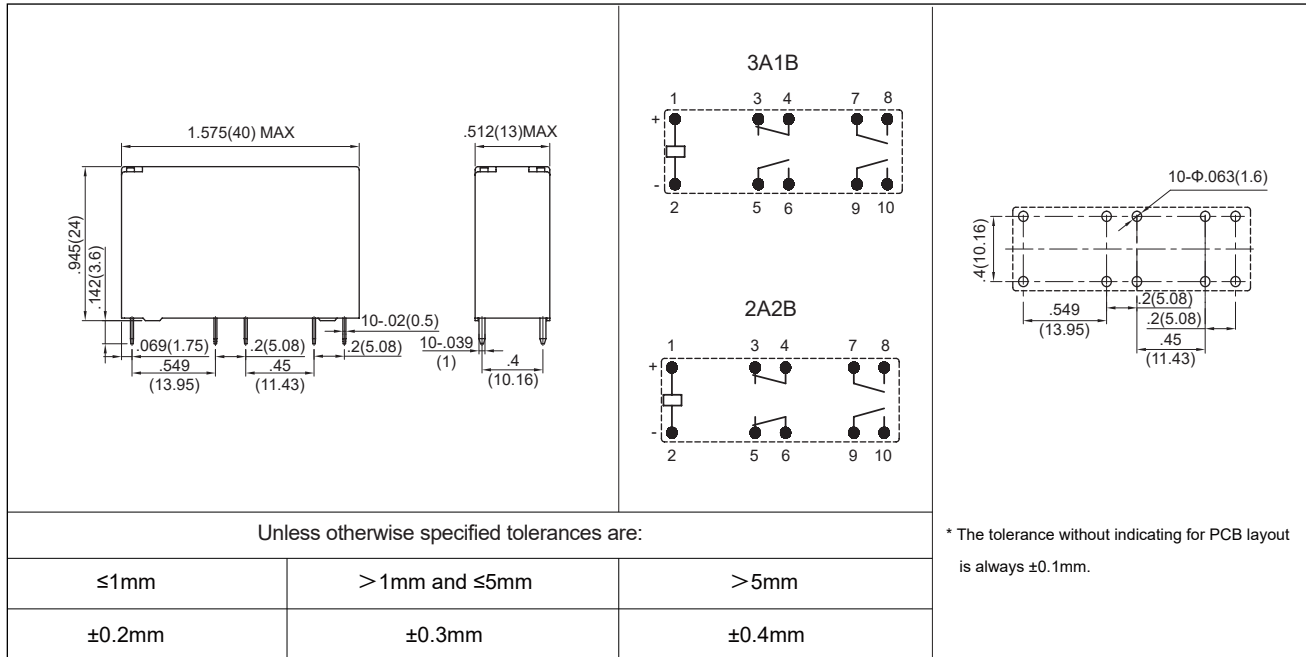
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT.

Unit: inch(mm)

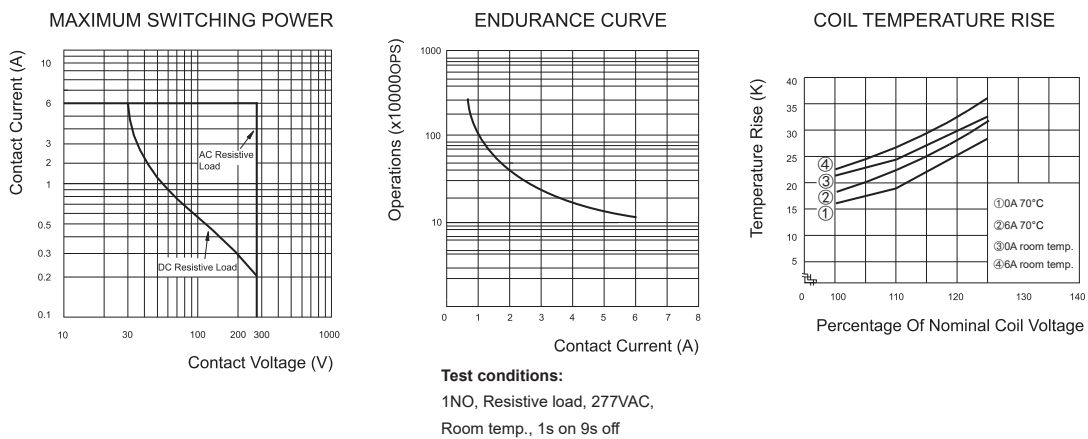
Outline Dimensions

Wiring Diagram
(Bottom view)

PCB Layout
(Bottom view)



CHARACTERISTIC CURVES



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PACKAGING SPECIFICATION

BLISTER BOX	OUTER CARTON	OUTER CARTON SIZE
30PCS	600PCS	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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