HAG01 SERIES

POWER RELAY

c UL us
File No.:E75887

File No.:R 50471143

RoHS Compliant

FEATURES

- High capacity: Max. switching current 160A
- SPDM contact configuration with large contact gap 3.0mm
- Coil holding voltage can be reduced to 50~55% V of the nominal coil voltage for saving energy

CONTACT RATINGS

Contact Arrangement	1A
Contact Resistance	Max.10mΩ (by voltage drop 6VDC 20A)
Contact Material	AgSnO
Contact Rating (Resistive)	Making 40A Carrying 140A Breaking 40A/400VAC, 85°C
Max. Switching Voltage	800VAC
Max. Switching Current	160A
Max. Switching Power	48000VA
Mechanical Life	1×10^6 operations
Electrical Life	Making 40A, Carrying 140A, Breaking 40A, On 1s/Off 9s, at 85°C, 50K OPS

ORDERING INFORMATION

HAG01 F A S DC 12

Model

F:Class F H:Class H

A:SPDM
single-pole, double-make

C:Dust Cover Type S:Sealed Type Washable
E:Sealed Type
Blank:Flux Tight Type(with vent hole opened)

Coil:DC

Coil Voltage

Notes:
1. PC board assembled with dust cover type and flux tight type relays can not be washed and/or coated.
2. Dust cover type and flux tight type relays can not be used in the environment with dust, or H_2S, SO_2, NO_2 or similar gaseous environment etc.

CHARACTERISTICS

Insulation Resistance		1000MΩ (at 500VDC)
Dielectric Strength	Between coil & contacts	5000VAC 1min
	Between open contacts	2000VAC 1min
Surge Voltage		10kV(1.2/50μs)
Operate time (at nomi. volt.)		≤30ms
Release time (at nomi. volt.)		≤10ms
Humidity		5%~85% RH
Operation temperature		-40°C~+85°C
Shock Resistance	Functional	98m/s²
	Destructive	980m/s²
Vibration resistance		10Hz ~ 55Hz 1.5mm DA
Unit weight		Approx. 130g
Construction		Sealed Type Washable, Sealed Type Dust Cover Type, Flux Tight Type

Notes: The data shown above are initial values.

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	0.30	6.60	14.4
9	6.75	0.45	9.90	32.4
12	9.00	0.60	13.20	57.6
24	18.00	1.20	26.40	230.4

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

COIL

Coil Power	Approx. 2.5W
Holding Voltage	40% to 100% Un (at 25°C) 50% to 60% Un (at 85°C)

Notes: 1) The coil holding voltage applied to coil 100ms after the rated voltage.
2) To avoid overheating and buming, the coil can not be consistently applied to with voltage larger than maximum holding voltage.

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

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SAFETY APPROVAL RATINGS

UL&CUL	Making 60A, carrying 140A, breaking 60A 277VAC at 85°C, 5×10^4 OPS Making 60A, carrying 150A, breaking 60A 277VAC at 65°C, 5×10^4 OPS Making 40A, carrying 140A, breaking 40A 400VAC at 85°C, 5×10^4 OPS Making 45A, carrying 160A, breaking 45A 690VAC at 65°C, 5×10^4 OPS Making 30A, carrying 140A, breaking 30A 800VAC at 85°C, 5×10^4 OPS Making 60A, carrying 160A, breaking 60A 800VAC at 25°C, 1×10^4 OPS 277VAC 80A at 85°C, 7×10^4 OPS 48VDC 100A at 85°C, 6×10^3 OPS 60VDC 150A at 25°C, 6×10^3 OPS 60VDC 80A at 85°C, 1×10^5 OPS

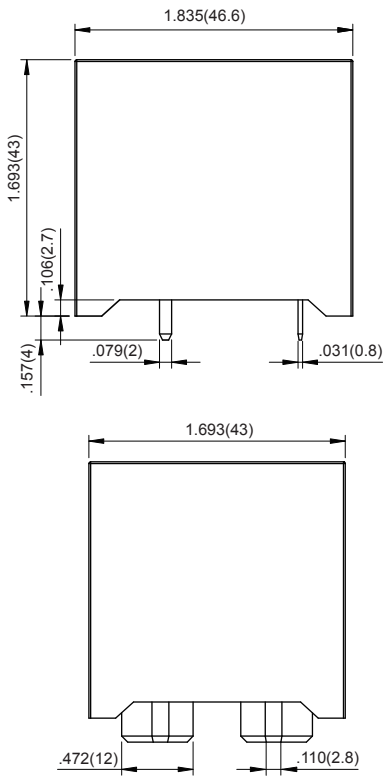
TüV	Making 60A, carrying 140A, breaking 60A 277VAC at 85°C, 5×10^4 OPS Making 60A, carrying 150A, breaking 60A 277VAC at 65°C, 5×10^4 OPS Making 40A, carrying 140A, breaking 40A 400VAC at 85°C, 5×10^4 OPS Making 45A, carrying 160A, breaking 45A 690VAC at 65°C, 5×10^4 OPS Making 30A, carrying 140A, breaking 30A 800VAC at 85°C, 5×10^4 OPS Making 60A, carrying 160A, breaking 60A 800VAC at 25°C, 1×10^4 OPS 277VAC 80A at 85°C, 7×10^4 OPS 48VDC 100A at 85°C, 6×10^3 OPS 60VDC 150A at 25°C, 6×10^3 OPS 60VDC 80A at 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.

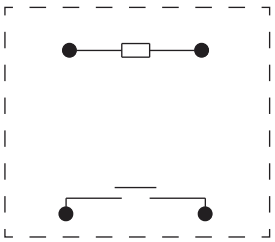
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT.

Unit: inch(mm)

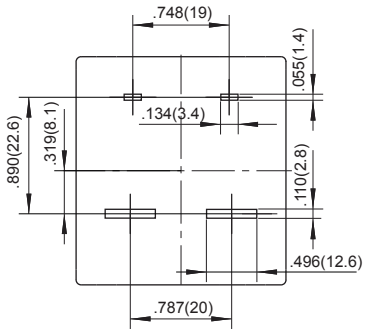
Outline Dimensions



Wiring Diagram (Bottom view)



PCB Layout (Bottom view)



* The tolerance without indicating for PCB layout is always ±0.1mm.

Unless otherwise specified tolerances are:		
≤1mm	＞1mm and ≤5mm	＞5mm
±0.2mm	±0.3mm	±0.4mm

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PACKAGING SPECIFICATION

BLISTER BOX	OUTER CARTON	OUTER CARTON SIZE
9PCS	54PCS	L455mm*W220mm*H185mm

APPLICATION GUIDELINES

Automatic Soldering

* Flow 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	Welding 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