HAG12 SERIES

POWER RELAY

Agency Approval Pending

File No.:R 50574994

RoHS Compliant

FEATURES

- Application: telecommunication equipment, solar, construction machinery, electrical vehicle, electric forklift, train, UPS
- Heavy load capacity: 120A contact switching capacity

CONTACT RATINGS

Contact Arrangement	1A
Contact Resistance	≤10mΩ(by voltage drop 20A 6VDC)
Contact Material	AgSnO
Contact Rating(Resistive)	120A/305VAC, 120A/60VDC
Contact Gap	3mm
Max. Switching Voltage	600VAC/60VDC
Max. Switching Current	120A
Max. Switching Power	48000VA/7200W
Mechanical Life	1×10^5 operations
Electrical Life	1×10^4 operations

CHARACTERISTICS

Insulation Resistance		1000MΩ (at 500VDC)
Dielectric Strength	Between coil & contacts	5000VAC 1min (50Hz/60Hz)
	Between open contacts	2000VAC 1min (50Hz/60Hz)
Surge Voltage(Between coil & contacts)		10kV(1.2/50μs)
Impulse Current		400A/350VDC/4ms
Operate time (at nomi. volt.)		≤30ms
Release time (at nomi. volt.)		≤15ms
Humidity		5%~85% RH
Operation temperature		-40°C~+85°C
UL Class F		Insulation System Class F
Shock Resistance	Functional	98m/s²
	Destructive	980m/s²
Temperature Rise		130K Max(contact Load 120A, 110% rated current excitation, @25°C)
Vibration resistance		10Hz to 55Hz 1.5mm DA
Unit weight		Approx. 165g
Construction		Flux Tight Type

Notes: The data shown above are initial values.

ORDERING INFORMATION

HAG12 A DC 24 - XXXX

- Model: HAG12
- A:SPDM single-pole, double-make
- Coil:DC
- Coil Voltage: 24
- Customer Code: XXXX

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 H_2S, SO_2, NO_2 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 Ω±10%
12	9.00	0.60	13.20	30.0
18	13.50	0.90	19.80	67.5
24	18.00	1.20	26.40	120.0

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

COIL

Coil Power	4.8W

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

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TECHNICAL DATA

Category of protection according to IEC 61810-1		RT II
Flammability class according to UL94		V-0
Insulation material group		IIIa
Pollution degree		2
Insulation between open contacts	Type of disconnection	Full-disconnection
	Overvoltage category	II
	Rated impulse voltage	2.5kV (1.2/50 μs)
	Creepage distance	11 mm
	Clearance distance	3 mm
Insulation between coil and contact	Type of insulation	Reinforced
	Overvoltage category	III
	Rated impulse voltage	6kV (1.2/50 μs)
	Creepage distance	18.6 mm
	Clearance distance	15 mm

SAFETY APPROVAL RATINGS

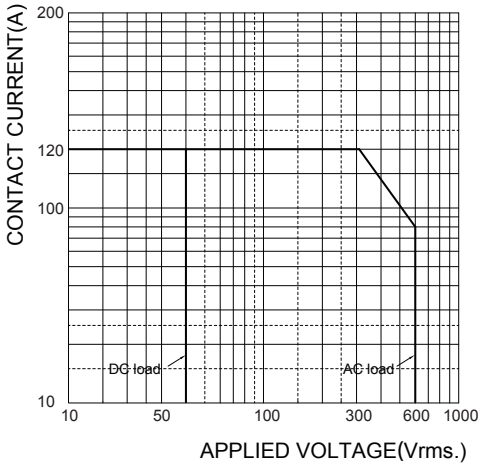
	Load Type	Voltage AC/DC		Current	Surrounding air Temp.	Operations
Other agency approval (Pending)	Resistive load AC	120/220/250/277/288/305/320/400/600	AC	80A	85°C	30,000 ops
		120/220/250/277/288/305	AC	120A	65°C	10,000 ops
	Resistive load DC	30	DC	100A	85°C	100,000 ops
		60	DC	120A	65°C	3,000 ops
	Motor	250	AC	5HP	85°C	10,000 ops
	GP load AC	120/220/250/277/288/305	AC	120A	65°C	10,000 ops
	TV load	120/240	AC	TV-20	85°C	100,000 ops
TüV	Resistive load AC	120/220/250/277/288/305/320/400/600	AC	80A	85°C	30,000 ops
		120/220/250/277/288/305	AC	120A	65°C	10,000 ops
	Resistive load DC	30	DC	100A	85°C	100,000 ops
		60	DC	120A	65°C	3,000 ops

NOTES:

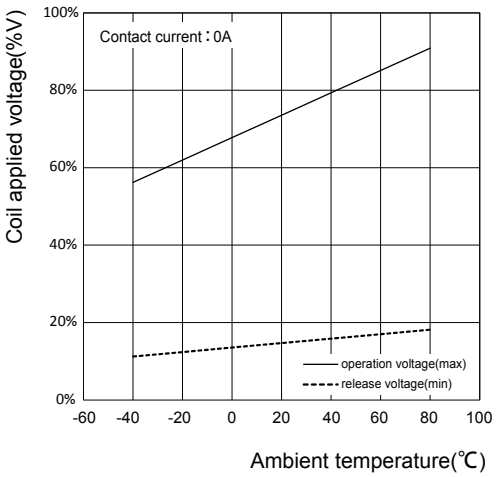
1. All values without specified temperature are at 25°C.
2. The above lists the typical loads only. Other loads may be available upon request.

CHARACTERISTIC CURVES

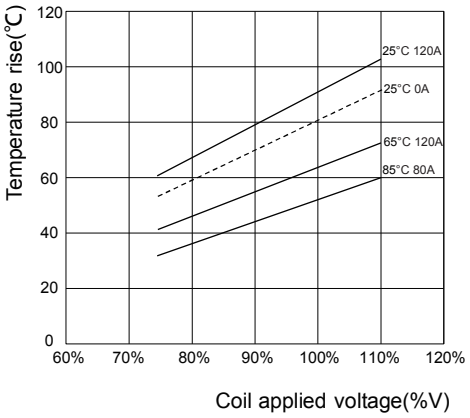
MAXIMUM SWITCHING CURRENT OF RELAY



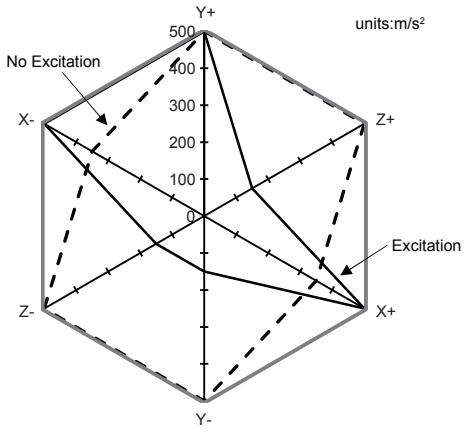
AMBIENT TEMPERATURE CHARACTERISTICS AND COIL APPLIED

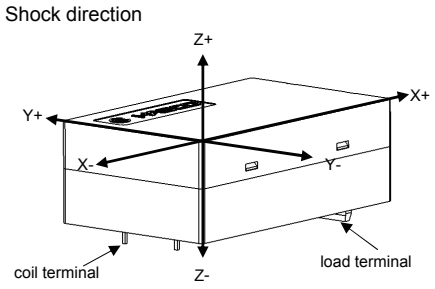


COIL TEMPERATURE RISE



MALFUNCTION SHOCK





Measure the value of contact malfunction happening by applying 3 axes with 6 direction 3 times each.

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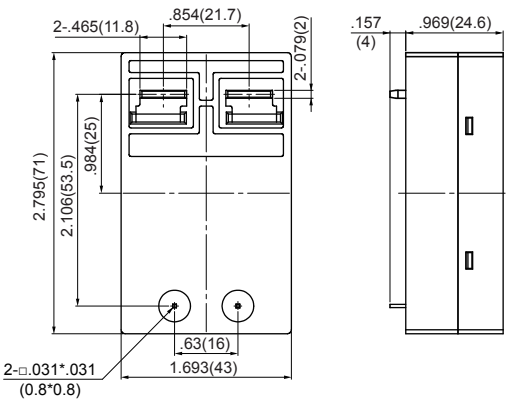
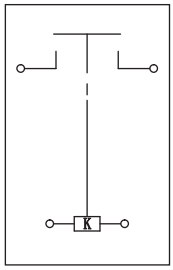
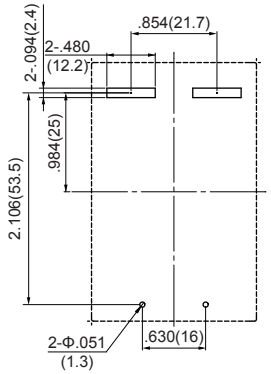
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT.

Unit: inch(mm)

Outline Dimensions	Wiring Diagram (Bottom view)	PCB Layout (Bottom view)







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

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

PACKAGING SPECIFICATION

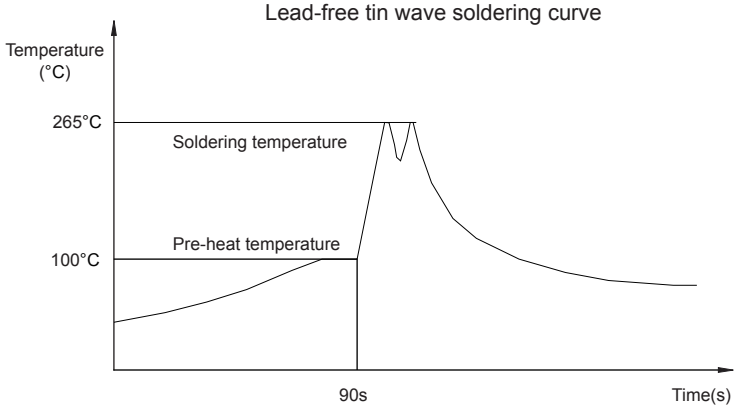
BLISTER BOX	OUTER CARTON	OUTER CARTON SIZE
8PCS	48PCS	L455mm*W220mm*H185mm

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.

Lead-free tin wave soldering curve



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