

HAP03 SERIES

POWER RELAY



File No.:E75887



File No.:R 50486804



FEATURES

- 4.5kV dielectric strength
(between coil and contacts)
- Heavy load up to 6925VA
- Ideal for motor switching
- PCB layouts available
- Outline Dimensions: 30.4mm×15.9mm×23.3mm

CONTACT RATINGS

Contact Arrangement	1A
Contact Resistance	≤100mΩ (1A 6VDC)
Contact Material	AgSnO
Contact Rating	Resistive: 20A/277VAC Motor: 2HP/277VAC
Max. Switching Voltage	277VAC
Max. Switching Current	25A
Max. Switching Power	6925VA
Mechanical Life	2×10 ⁶ operations
Electrical Life	20A/277VAC, Resistive load, 85°C, ON:OFF=1.5s:1.5s, 1×10 ⁵ OPS 25A/277VAC, Resistive load, 85°C, ON:OFF=1s:9s, 1×10 ⁵ OPS

CHARACTERISTICS

Insulation Resistance		1000MΩ (at 500VDC)
Dielectric Strength	Between coil & contacts	4500VAC 1min
	Between open contacts	1000VAC 1min
Surge Voltage(Between coil & contacts)		10kV(1.2/50μs)
Operate time (at nomi. volt.)		≤20ms
Release time (at nomi. volt.)		≤10ms
Humidity		5% to 85% RH
Operation temperature		-40°C~+85°C
UL Class F		Insulation System Class F
Shock Resistance	Operating extremes	196m/s ²
	Damage limits	980m/s ²
Vibration resistance		10Hz ~ 50Hz 1.5mm DA
Unit weight		Approx. 21g
Construction		Sealed Type, Flux Tight 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.

ORDERING INFORMATION

	HAP03	F	A	E	DC12	-XXXX
Model						
F:Class F						
A:1 Form A						
S:Sealed Type E:Flux Tight Type						
Coil Voltage						
Customer code						

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 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 Ω±10%
5	3.5	0.50	6.0	27.8
12	8.4	1.20	14.4	160
24	16.8	2.40	28.8	640
48	33.6	4.80	57.6	2560

Note:

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

COIL

Coil Power	Approx. 900mW
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RELAYS

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HAP03 SERIES

POWER RELAY

SAFETY APPROVAL RATINGS

UL&CUL	20A/277VAC, 25°C, ON:OFF=1.5s:1.5s, 1×10 ⁵ OPS 20A/30VDC, 85°C, ON:OFF=1s:9s, 1×10 ⁵ OPS 25A/277VAC, 85°C, ON:OFF=1s:9s, 1×10 ⁵ OPS 2HP 277VAC, 85°C, ON:OFF=1s:9s, 1×10 ⁵ OPS
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TüV	20A/277VAC, 25°C, ON:OFF=1.5s:1.5s, 1×10 ⁵ OPS 20A/30VDC, 85°C, ON:OFF=1s:9s, 1×10 ⁵ OPS 25A/277VAC, 85°C, ON:OFF=1s:9s, 1×10 ⁵ OPS
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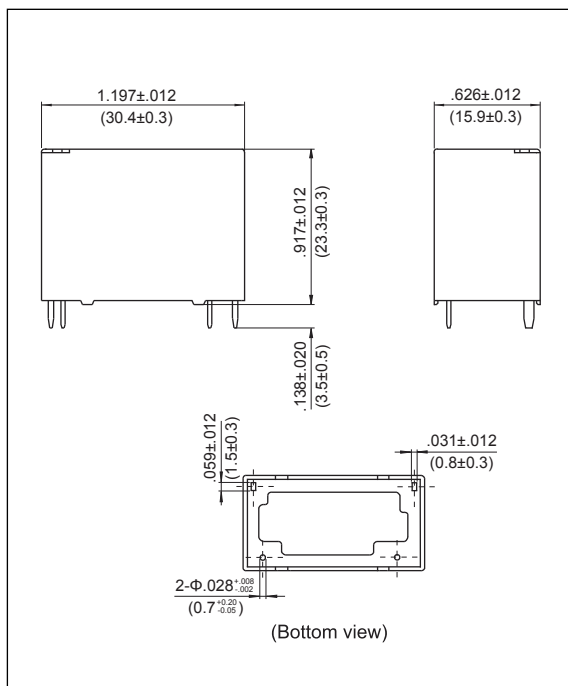
NOTES:

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.

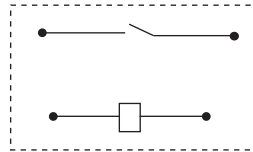
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT.

Unit: inch(mm)

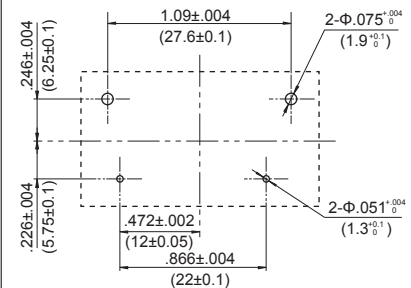
Outline Dimensions



Wiring Diagram (Bottom view)



PCB Layout (Bottom view)



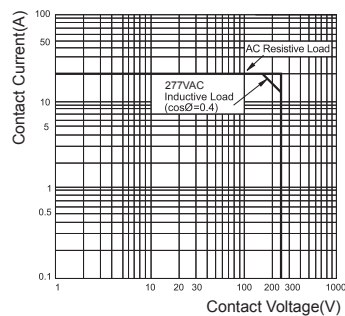
* The tolerance without indicating for PCB layout is always ±0.1mm.

Unless otherwise specified tolerances are:

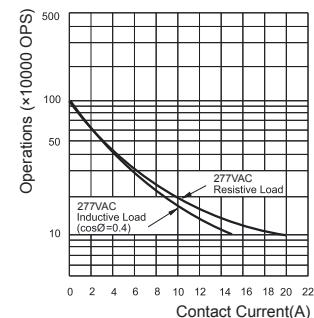
≤1mm	>1mm and ≤5mm	>5mm
±0.2mm	±0.3mm	±0.4mm

CHARACTERISTIC CURVES

MAXIMUM SWITCHING POWER



ENDURANCE CURVE



Test conditions:

Room temp., 1s on 9s off.

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RELAYS

PACKAGING SPECIFICATION

TUBE	OUTER CARTON	OUTER CARTON SIZE
25PCS	625PCS	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.

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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