

# HAT905 SERIES

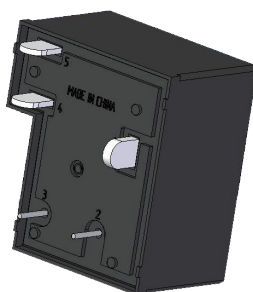
## POWER RELAY



File No.:E75887



File No.:R 50290157



### FEATURES

- 4000VAC high dielectric strength between contacts and coil is available
- Max. switch capacity up to 60A

### CONTACT RATINGS

|                           |                                                             |
|---------------------------|-------------------------------------------------------------|
| Contact Arrangement       | 1A, 1B, 1C                                                  |
| Contact Resistance        | ≤50mΩ (1A 24VDC)                                            |
| Contact Material          | AgCdO, AgSnO                                                |
| Contact Rating(Resistive) | 50A/277VAC, 30A/28VDC<br>60A/277VAC(P/N with the code 5451) |
| Max. Switching Voltage    | 277VAC/28VDC                                                |
| Max. Switching Current    | 60A                                                         |
| Max. Switching Power      | 16620VA/840W                                                |
| Mechanical Life           | 1×10 <sup>7</sup> operations                                |
| Electrical Life           | See more details at "safety approval ratings"               |

### CHARACTERISTICS

|                               |                         |                                                          |
|-------------------------------|-------------------------|----------------------------------------------------------|
| Insulation Resistance         |                         | 100MΩ (at 500VDC)                                        |
| Dielectric Strength           | Between coil & contacts | 2000VAC 1min                                             |
|                               | Between open contacts   | 1500VAC 1min                                             |
| Operate time (at nomi. volt.) |                         | ≤15ms                                                    |
| Release time (at nomi. volt.) |                         | ≤10ms                                                    |
| Humidity                      |                         | 98% RH                                                   |
| Operation temperature         |                         | -40°C~+85°C                                              |
| UL Class B/F/H                |                         | Insulation System Class B/F/H                            |
| Shock Resistance              | Functional              | 98m/s <sup>2</sup>                                       |
|                               | Destructive             | 980m/s <sup>2</sup>                                      |
| Vibration resistance          |                         | 10Hz ~ 55Hz 1.5mm DA                                     |
| Unit weight                   |                         | Approx. 27g                                              |
| Construction                  |                         | Sealed Type, Dust Cover Type, Open type, Flux Tight Type |

Notes: The data shown above are initial values.

### ORDERING INFORMATION

| HAT                                     | F | 905 | C | S | DC12 | - 2 | - 4K | - ISN | - XXXX |
|-----------------------------------------|---|-----|---|---|------|-----|------|-------|--------|
| Model                                   |   |     |   |   |      |     |      |       |        |
| F:Class F                               |   |     |   |   |      |     |      |       |        |
| H:Class H                               |   |     |   |   |      |     |      |       |        |
| Blank:Class B                           |   |     |   |   |      |     |      |       |        |
| 905:PCB Pins Only                       |   |     |   |   |      |     |      |       |        |
| A:SPST-NO B:SPST-NC                     |   |     |   |   |      |     |      |       |        |
| C:SPDT                                  |   |     |   |   |      |     |      |       |        |
| C:Dust Cover Type                       |   |     |   |   |      |     |      |       |        |
| S:Sealed Type E:Flux Tight Type         |   |     |   |   |      |     |      |       |        |
| Blank:Open Type                         |   |     |   |   |      |     |      |       |        |
| Coil Voltage                            |   |     |   |   |      |     |      |       |        |
| Contact Gap:2=2mm Blank:Standard(0.5mm) |   |     |   |   |      |     |      |       |        |
| 1.5=1.5mm 3=2.6mm                       |   |     |   |   |      |     |      |       |        |
| 4K:4KV breakdown voltage                |   |     |   |   |      |     |      |       |        |
| Blank:Cd ISN:Non-Cd                     |   |     |   |   |      |     |      |       |        |
| 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 H<sub>2</sub>S, SO<sub>2</sub>, NO<sub>2</sub> or similar gaseous environment etc.

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



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# RELAYS

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### 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                   | 3.75                       | 0.50                       | 6.50                        | 21                                |
| 6                   | 4.50                       | 0.60                       | 7.80                        | 30                                |
| 9                   | 6.75                       | 0.90                       | 11.70                       | 67.5                              |
| 12                  | 9.00                       | 1.20                       | 15.60                       | 120                               |
| 15                  | 11.25                      | 1.50                       | 19.50                       | 187.5                             |
| 18                  | 13.50                      | 1.80                       | 23.40                       | 270                               |
| 22                  | 16.50                      | 2.20                       | 28.60                       | 400                               |
| 24                  | 18.00                      | 2.40                       | 31.20                       | 480                               |
| 48                  | 36.00                      | 4.80                       | 62.40                       | 1920                              |
| 110                 | 82.50                      | 11.00                      | 143.00                      | 10800                             |

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

### COIL

|            |        |
|------------|--------|
| Coil Power | 1200mW |
|------------|--------|

### SAFETY APPROVAL RATINGS

| UL&CUL | Cd Contact     | N.O. | 50A 277VAC, 6×10 <sup>3</sup> OPS<br>40A 277VAC, 50°C, 6×10 <sup>3</sup> OPS<br>45A 277VAC, 65°C, 6×10 <sup>3</sup> OPS<br>30A 28VDC, 6×10 <sup>3</sup> OPS<br>5A 277VAC, Electronic Ballast, 6×10 <sup>3</sup> OPS |
|--------|----------------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        |                | N.C. | 30A 28VDC, 6×10 <sup>3</sup> OPS                                                                                                                                                                                    |
|        | Non-Cd Contact | N.O. | 50A 277VAC, G.P., 65°C, 6×10 <sup>3</sup> OPS<br>20A 277VAC, Ballast, 6×10 <sup>3</sup> OPS<br>30A 28VDC, G.P., 6×10 <sup>3</sup> OPS<br>60A 277VAC(P/N with the code 5451), 40°C 6×10 <sup>3</sup> OPS             |
|        |                | N.C. | 20A 277VAC, G.P., 6×10 <sup>3</sup> OPS<br>30A 28VDC, G.P., 6×10 <sup>3</sup> OPS                                                                                                                                   |

| TüV | Non-Cd Contact | N.O.:35A 250VAC, 85°C, 1×10 <sup>4</sup> OPS<br>N.O.:40A 230VAC, 70°C, 1×10 <sup>4</sup> OPS<br>N.O.:50A 277VAC, 85°C, 6×10 <sup>3</sup> OPS<br>N.O.:30A 277VAC, 85°C, 1×10 <sup>4</sup> OPS<br>N.O.:50A 28VDC, 85°C, 1×10 <sup>4</sup> OPS<br>N.O.:40A 28VDC, 70°C, 1×10 <sup>4</sup> OPS<br>N.C.:15A 250VAC, 85°C, 1×10 <sup>4</sup> OPS<br>N.C.:30A 277VAC, 85°C, 1×10 <sup>4</sup> OPS<br>N.C.:30A 28VDC, 85°C, 1×10 <sup>4</sup> OPS<br>N.C.:20A 28VDC, 70°C, 1×10 <sup>4</sup> OPS<br>N.O./N.C.:20A/15A 250VAC, 85°C, 1×10 <sup>4</sup> OPS<br>N.O./N.C.:40A/20A 277VAC, 25°C, 6×10 <sup>3</sup> OPS<br>N.O./N.C.:50A/30A 28VDC, 85°C, 1×10 <sup>4</sup> 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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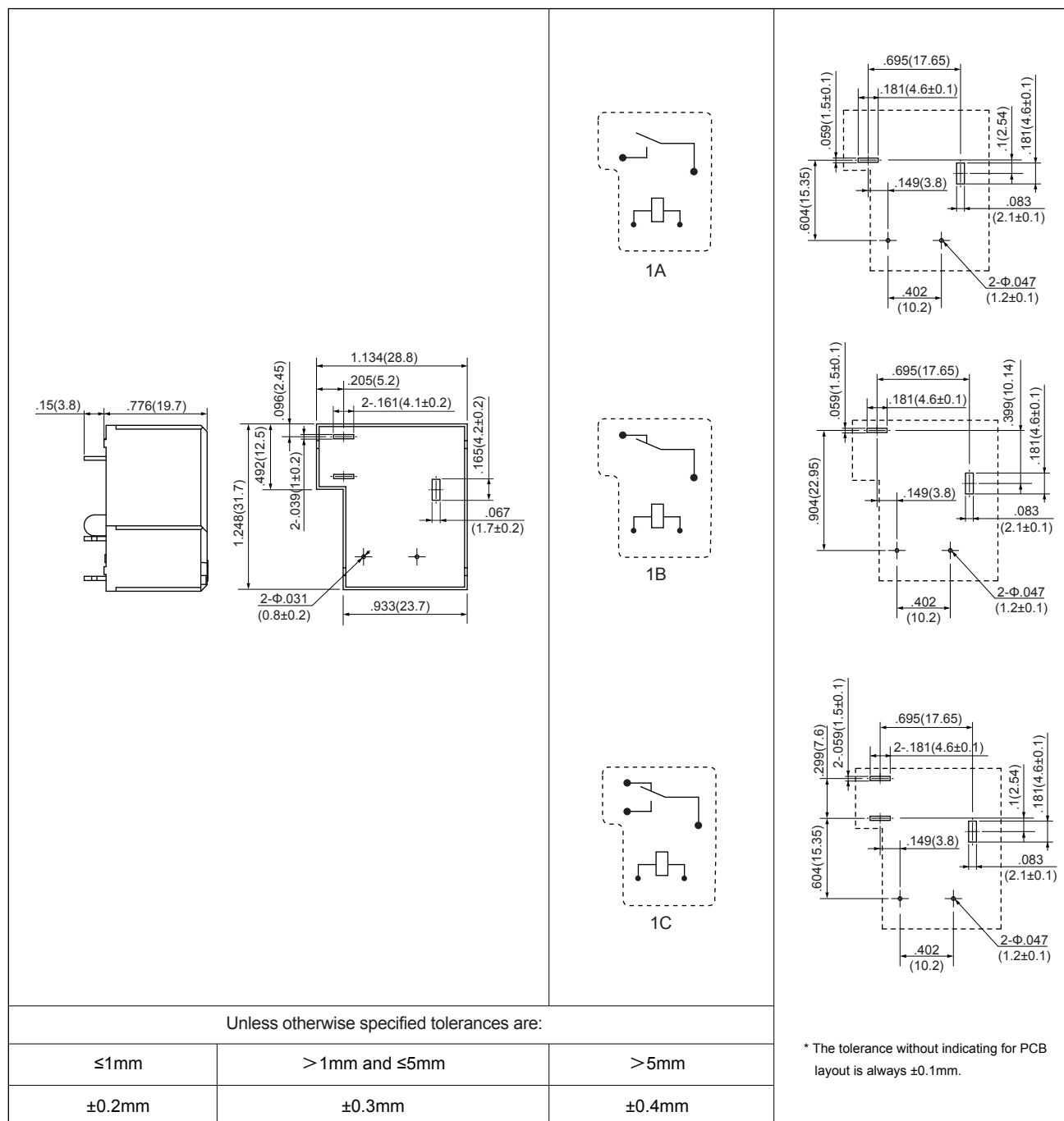
### OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT.

Unit: inch(mm)

#### Outline Dimensions

#### Wiring Diagram (Bottom view)

#### PCB Layout (Bottom view)



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### PACKAGING SPECIFICATION

| TUBE  | OUTER CARTON | OUTER CARTON SIZE    |
|-------|--------------|----------------------|
| 19PCS | 475PCS       | L590mm*W205mm*H175mm |

### 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<br>20°C-100°C | Rising slope<br>20°C-120°C | Decreasing slope<br>Peak-150°C | Soldering temperature<br>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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