

HF105F-2

MINIATURE HIGH POWER RELAY



File No.:E134517



File No.:40025518 (DC type)



File No.: CQC10002049165(DC type)
CQC16002140270(DC type)



Features

- 40A switching capability
- Heavy load up to 7200VA
- PCB coil terminals, ideal for heavy duty load
- Plastic sealed and dust protected types available

RoHS compliant

CONTACT DATA

| | | | | |
|----------------------------------|---|-------------------------|-------------------------|-------------------------|
| Contact arrangement | 1A | 1B | 1C (NO) | 1C (NC) |
| Contact resistance ¹⁾ | 50mΩ max.(at 1A 24VDC) | | | |
| Contact material | AgSnO ₂ , AgCdO | | | |
| Max. switching capacity | 7200VA/560W | 3600VA/280W | 4800VA/560W | 2400VA/280W |
| Max. switching voltage | 277VAC/28VDC | | | |
| Max. switching current | 40A ²⁾ | 15A | 20A | 10A |
| Max. continuous current | When PCB terminals carry current ≤30A | | | |
| | When PCB terminals do not carry current (only QC terminals carry current) ≤25A | | | |
| HF105F-2 rating | 30A 240VAC 20A 28VDC | 15A 240VAC 10A 28VDC | 20A 240VAC 20A 28VDC | 10A 240VAC 10A 28VDC |
| HF105F-2L rating | 25A 240VAC 20A 28VDC | 15A 240VAC 10A 28VDC | 20A 240VAC 20A 28VDC | 10A 240VAC 10A 28VDC |
| Mechanical endurance | 1 x 10 ⁷ Ops | | | |
| Electrical endurance | 1H type(Non-plastic sealed): 1 x 10 ⁵ Ops (28A 277VAC, Resistive load, AgCdO, Room temp., 1s on 9s off) | | | |

Notes: 1) The data shown above are initial values.
2) Long time current-carrying under 40A condition is prohibited.

CHARACTERISTICS

| | | |
|--------------------------------|-----------------------------------|---------------------|
| Insulation resistance | 1000MΩ (at 500VDC) | |
| Dielectric strength | Between coil & contacts | 2500VAC 1min |
| | Between open contacts | 1500VAC 1min |
| Operate time (at rated. volt.) | DC type: 15ms max. | |
| Release time (at rated. volt.) | DC type: 10ms max. | |
| Ambient temperature | DC: -55°C to 85°C | |
| | AC: -55°C to 60°C | |
| Shock resistance | Functional | 98m/s ² |
| | Destructive | 980m/s ² |
| Vibration resistance | 10Hz to 55Hz 1.5mm DA | |
| Humidity | 5% to 85% RH | |
| Termination | PCB & QC | |
| Unit weight | Approx. 36g | |
| Construction | Plastic sealed, Dust protected | |

Notes: 1) For plastic sealed type, the venting-hole should be opened in test.
2) The data shown above are initial values.
3) Please find coil temperature curve in the characteristic curves below.
4) UL insulation system: Class F, Class B.

COIL

| | |
|------------|---|
| Coil power | DC type: Approx. 900mW; AC type: Approx. 2VA |
|------------|---|

SAFETY APPROVAL RATINGS

| | | | |
|------------|----------|--------------------|---|
| UL/ CUL | 1 Form A | AgSnO ₂ | 30A 277VAC 40A 277VAC 2HP 250VAC 1HP 125VAC |
| | | AgCdO | 30A 28VDC 28A 277VAC 277VAC(FLA=20)(LRA=60) |
| | 1 Form B | AgCdO | 15A 277VAC 10A 28VDC 1/2HP 250VAC 1/4HP 125VAC 277VAC(FLA=10)(LRA=33) |
| | | NO | 30A 277VAC 2HP 250VAC 1HP 125VAC |
| | 1 Form C | AgCdO | 20A 277VAC 20A 28VDC 277VAC(FLA=20)(LRA=60) |
| | | NC | 20A 277VAC 1/2HP 250VAC 1/4HP 125VAC 10A 277VAC 10A 28VDC 277VAC(FLA=10)(LRA=33) |

Notes: 1) All values unspecified are at room temperature.
2) Only typical loads are listed above. Other load specifications can be available upon request.



HONGFA RELAY

ISO9001, ISO/TS16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2019 Rev. 1.02

COIL DATA

at 23°C

DC type

| Nominal Voltage VDC | Pick-up Voltage VDC max. ³⁾ | Drop-out Voltage VDC min. ³⁾ | Max. Voltage VDC * ⁴⁾ | Coil Resistance Ω |
|---------------------|--|---|----------------------------------|-------------------|
| 5 | 3.75 | 0.5 | 6.5 | 27 x (1±10%) |
| 6 | 4.50 | 0.6 | 7.8 | 40 x (1±10%) |
| 9 | 6.75 | 0.9 | 11.7 | 97 x (1±10%) |
| 12 | 9.00 | 1.2 | 15.6 | 155 x (1±10%) |
| 15 | 11.25 | 1.5 | 19.5 | 256 x (1±10%) |
| 18 | 13.50 | 1.8 | 23.4 | 380 x (1±10%) |
| 24 | 18.00 | 2.4 | 31.2 | 660 x (1±10%) |
| 48 | 36.00 | 4.8 | 62.4 | 2560 x (1±10%) |
| 70 | 52.50 | 7.0 | 91 | 5500 x (1±10%) |
| 110 | 82.50 | 11 | 143 | 13450 x (1±10%) |

AC type

| Nominal Voltage VAC | Pick-up Voltage VAC max. ³⁾ | Drop-out Voltage VAC min. ³⁾ | Max. Voltage VDC * ⁴⁾ | Coil Resistance Ω |
|---------------------|--|---|----------------------------------|-------------------|
| 12 | 9.6 | 2.4 | 15.6 | 25 x (1±10%) |
| 24 | 19.2 | 4.8 | 31.2 | 100 x (1±10%) |
| 120 | 96.0 | 24.0 | 156 | 2500 x (1±10%) |
| 208 | 166.4 | 41 | 270.4 | 11000 x (1±10%) |
| 220 | 176 | 44 | 286 | 13490 x (1±10%) |
| 240 | 192 | 48 | 286 | 13490 x (1±10%) |
| 277 | 220 | 54 | 360.1 | 15000 x (1±10%) |

- Notes:**
- 1) When requiring pick-up voltage < 80% of nominal voltage, special order allowed.
 - 2) The data shown above are initial values at 50Hz. When requiring 60Hz, special order allowed.
 - 3) The data shown above are initial values.
 - 4) *Maximum voltage refers to the maximum voltage which relay coil could endure in a short period of time.

ORDERING INFORMATION

| | | | | | | | | | | |
|-----------------------------------|---|--|-------|-------------|---|---------------------|-------------|---|---|-------|
| | HF105F-2 / 018 | | | | D | -1H | S | T | F | (XXX) |
| Type | HF105F-2: 30A HF105F-2L: 25A | | | | | | | | | |
| Coil voltage | DC: 5VDC to 110VDC AC: 12VAC to 277VAC | | | | | | | | | |
| Coil voltage form | D: DC | | A: AC | | | | | | | |
| Contact arrangement | 1H:1 Form A | | | 1D:1 Form B | | | 1Z:1 Form C | | | |
| Construction ¹⁾ | S: Plastic sealed | | | | | Nil: Dust protected | | | | |
| Contact material | T: AgSnO ₂ | | | | | Nil: AgCdO | | | | |
| Insulation standard | F: Class F | | | | | Nil: Class B | | | | |
| Special code ³⁾ | XXX: Customer special requirement | | | | | Nil: Standard | | | | |

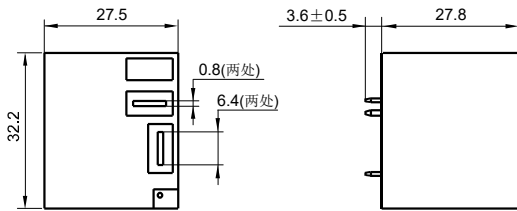
- Notes:**
- 1) We recommend dust protected types for a clean environment (free from contaminations like H₂S, SO₂, NO₂, dust, etc.). We suggest to choose plastic sealed types and validate it in real application for an unclean environment (with contaminations like H₂S, SO₂, NO₂, dust, etc.).
 - 2) Contact is recommended for suitable condition and specifications if water cleaning or surface process is involved in assembling relays on PCB.
 - 3) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

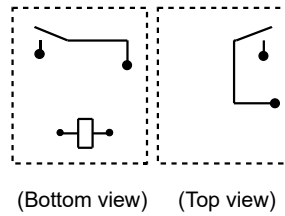
Unit: mm

1 Form A

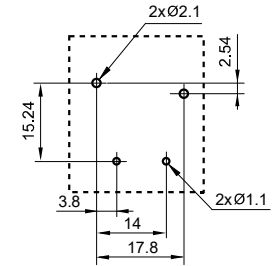
Outline Dimensions



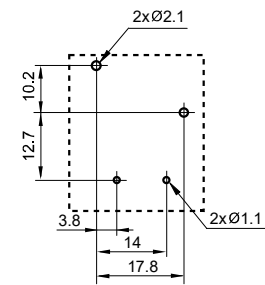
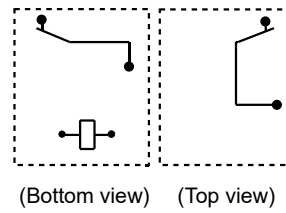
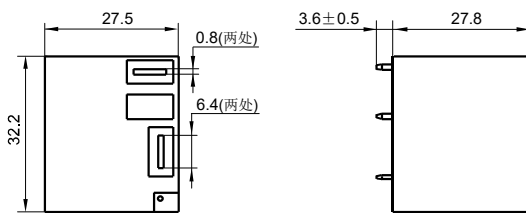
Wiring Diagram



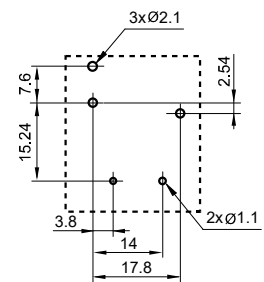
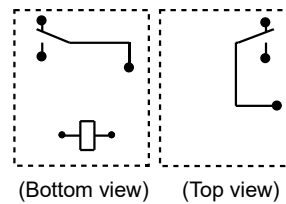
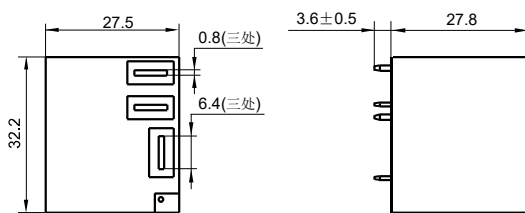
PCB Layout
(Bottom view)



1 Form B



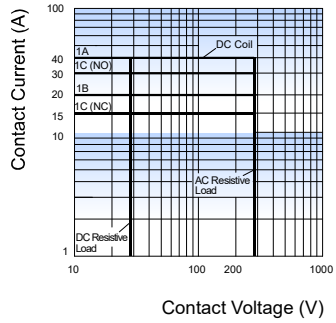
1 Form C



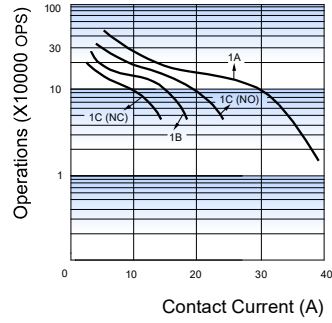
- Remark: 1) In case of no tolerance shown in outline dimension: outline dimension $\leq 1\text{mm}$, tolerance should be $\pm 0.2\text{mm}$; outline dimension $> 1\text{mm}$ and $\leq 5\text{mm}$, tolerance should be $\pm 0.3\text{mm}$; outline dimension $> 5\text{mm}$, tolerance should be $\pm 0.4\text{mm}$.
2) The tolerance without indicating for PCB layout is always $\pm 0.1\text{mm}$.

CHARACTERISTIC CURVES

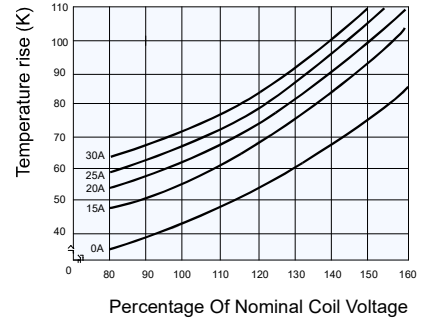
MAXIMUM SWITCHING POWER



ENDURANCE CURVE



COIL TEMPERATURE RISE



Test conditions:
Resistive load, Dust protected,
AgCdO, Room temp., 1s on 9s off.

Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

© Xiamen Hongfa Electroacoustic Co., Ltd. All rights of Hongfa are reserved.