

HF2160

MINIATURE HIGH POWER RELAY



File No.:E134517



File No.: R50153835



File No.:CQC10002049166

CQC16002139675



Features

- 30A switching capability
- PCB coil terminals, ideal for heavy duty load
- 2.5kV dielectric strength (between coil and contacts)
- Plastic sealed and Dust protected types available

CONTACT DATA

| | | | | |
|----------------------------------|--|-------------------------|-------------------------|-------------------------|
| Contact arrangement | 1A | 1B | 1C (NO) | 1C (NC) |
| Contact resistance ¹⁾ | 50mΩ max.(at 1A 24VDC) | | | |
| Contact material | AgSnO ₂ , AgCdO | | | |
| Contact rating (Res. load) | 30A 240VAC 20A 30VDC | 15A 240VAC 10A 30VDC | 20A 240VAC 20A 30VDC | 10A 240VAC 10A 30VDC |
| Max. switching power | 11080VA 1200W | 4155VA 450W | 5540VA 600W | 2770VA 300W |
| Max. switching voltage | 277VAC / 30VDC | | | |
| 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 | | | |
| Mechanical endurance | 1 x 10 ⁷ ops | | | |
| Electrical endurance | 1A type(Non-plastic sealed): 1 x 10 ⁵ ops (30A 240VAC, Resistive load, AgCdO, Room temp., 1s on 9s off) 1B type(Non-plastic sealed): 1 x 10 ⁵ ops (15A 240VAC, 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.) | 15ms max. | |
| Release time (at rated. volt.) | 10ms max. | |
| Ambient temperature | -55°C to 85°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. 30g | |
| 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.

5) It is recommended that the terminal of the process QC cannot pass through more than 25a current for a long period of time .



HONGFA RELAY

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

2019 Rev. 1.00

COIL

| | |
|------------|---------------|
| Coil power | Approx. 900mW |
|------------|---------------|

COIL DATA

at 23°C

| Nominal Voltage VDC | Pick-up Voltage VDC max.1) | Drop-out Voltage VDC min.1) | Max. Voltage VDC*2) | 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 | 91.0 | 5500 x (1±10%) |
| 110 | 82.50 | 11.0 | 143.0 | 13450 x (1±10%) |

Notes:1) The data shown above are initial values.

2) *Maximum voltage refers to the maximum voltage which relay coil could endure in a short period of time.

SAFETY APPROVAL RATINGS

UL/CUL

| Contact material | Load type | Volts | 1 Form A | 1 Form B | 1 Form C (NO) | 1 Form C (NC) | |
|------------------|---|-----------------|------------------|--------------|------------------|---------------|----|
| AgCdO | General purpose | 125/240VAC | 30A | 15A | 30A | 15A | |
| | | 277VAC | 30A | 30A | 30A | 30A | |
| | Resistive | 125/240VAC | 30A | 15A | -- | -- | |
| | | 30VDC | 20A | 10A | 20A | 10A | |
| | | 277VAC | 20A | -- | -- | -- | |
| | | 240VAC | 15A | -- | -- | -- | |
| | | 250VAC | 40A | | 40A | | |
| | Ballast | 125/240/277VAC | 6A | 3A | 6A | 3A | |
| | Pilot duty | 125VAC | 800VA | 290VA | 800VA | 290VA | |
| | | 125VAC | 690VA | -- | 690VA | -- | |
| | | 125VAC | 800VA | -- | 800VA | -- | |
| | | 240VAC | 1152VA | 768VA | 1152VA | 768VA | |
| | | 277VAC | 764VA | -- | 764VA | -- | |
| | Motor load | 125VAC | 1HP | 1/4HP | 1HP | 1/4HP | |
| | | 240VAC | 2HP | 1HP | 2HP | 1HP | |
| | | 125VAC | 1HP | -- | 1HP | -- | |
| | | 125/277VAC | 3/4HP | -- | 3/4HP | -- | |
| | Definite purpose (LRA-loaded rotor) (FLA-full load) | 120VAC | 82.8LRA, 13.8FLA | -- | 82.8LRA, 13.8FLA | -- | |
| | | 125VAC | 96LRA, 30FLA | 33LRA, 10FLA | 60LRA, 20FLA | 33LRA, 10FLA | |
| | | 125VAC | 60LRA, 20FLA | 30LRA, 12FLA | 60LRA, 20FLA | 30LRA, 12FLA | |
| | | 125VAC | 82.8LRA, 27FLA | -- | 82.8LRA, 27FLA | -- | |
| | | 240VAC | 80LRA, 30FLA | 33LRA, 10FLA | 60LRA, 20FLA | 33LRA, 10FLA | |
| | | 240VAC | 41.4LRA, 6.9FLA | -- | 41.4LRA, 6.9FLA | -- | |
| | | 277VAC | 60LRA, 20FLA | -- | 60LRA, 20FLA | -- | |
| | Tungsten | 125VAC | 15A | -- | 15A | -- | |
| | | 240VAC | 5A | -- | 5A | 3A | |
| | | 120VAC | -- | 3A | -- | -- | |
| | | 240VAC | -- | 3A | -- | -- | |
| | AgSnO ₂ | General purpose | 125/240VAC | 30A | -- | -- | -- |
| | | Resistive | 250VAC | 40A | -- | -- | -- |
| General purpose | | 240VAC | -- | 15A | -- | -- | |

Notes: 1) All values unspecified are at room temperature.

2) Only typical loads are listed above. Other load specifications can be available upon request.

ORDERING INFORMATION

| | | | | | | | |
|------------------------------|---|-----|---------------------|---|---|---|-------|
| Type | HF2160 | -1A | -12D | E | T | F | (XXX) |
| Contact arrangement | 1A: 1 Form A 1B: 1 Form B 1C: 1 Form C | | | | | | |
| Coil voltage | 5, 6, 9, 12, 15, 18, 24, 48, 70, 110VDC | | | | | | |
| Construction ¹⁾²⁾ | E: 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 | | | | |

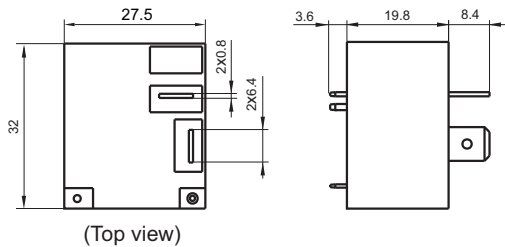
- Notes:** 1) We recommend dust protected types for a clean environment (free from contaminations like H₂S, SO₂, NO₂, dust, etc.). We suggest to choose plastic sealed types and validate it in real application for an unclean environment (with contaminations like H₂S, SO₂, NO₂, dust, etc.).
- 2) Contact 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

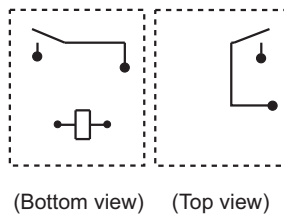
Unit: mm

1 Form A

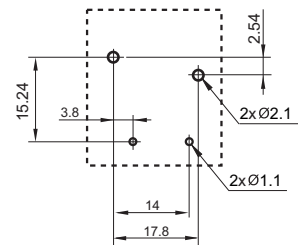
Outline Dimensions



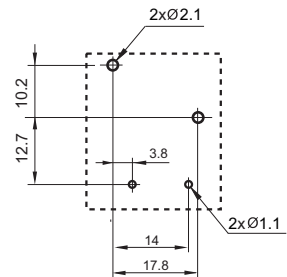
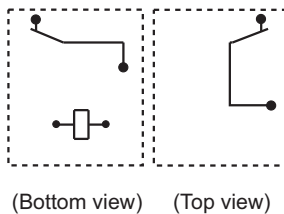
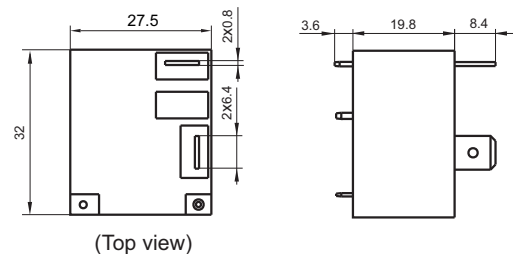
Wiring Diagram



PCB Layout
(Bottom view)



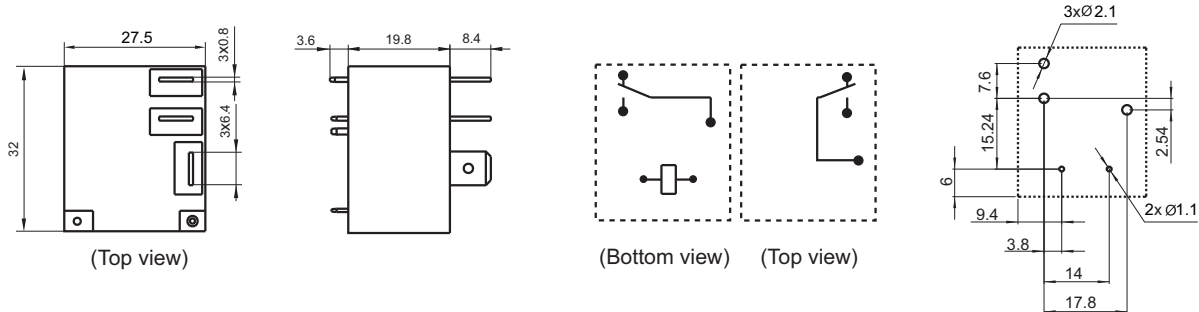
1 Form B



OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

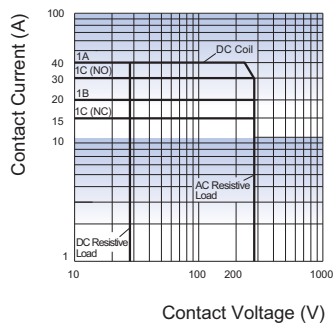
1 Form C



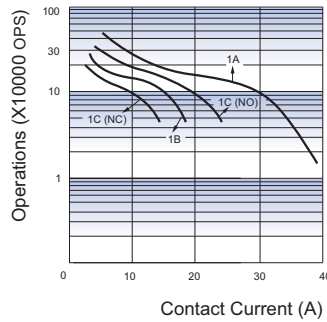
Remark: 1) In case of no tolerance shown in outline dimension: outline dimension $\leq 1\text{mm}$, tolerance should be $\pm 0.2\text{mm}$; outline dimension $> 1\text{mm}$ and $\leq 5\text{mm}$, tolerance should be $\pm 0.3\text{mm}$; outline dimension $> 5\text{mm}$, tolerance should be $\pm 0.4\text{mm}$.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

CHARACTERISTIC CURVES

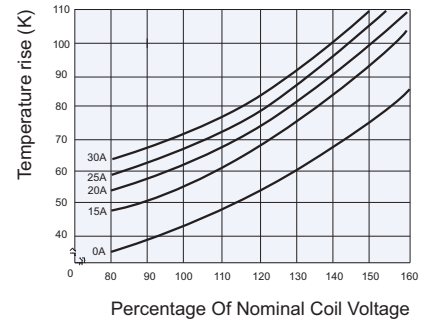
MAXIMUM SWITCHING POWER



ENDURANCE CURVE



COIL TEMPERATURE RISE



Test conditions:
 Resistive load, AgCdO, Dust protected,
 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.