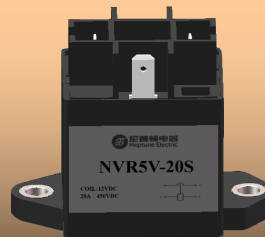




尼普顿电器
Neptune Electric

HVDC Relay NVR5V-20S



Medium
Voltage
Series

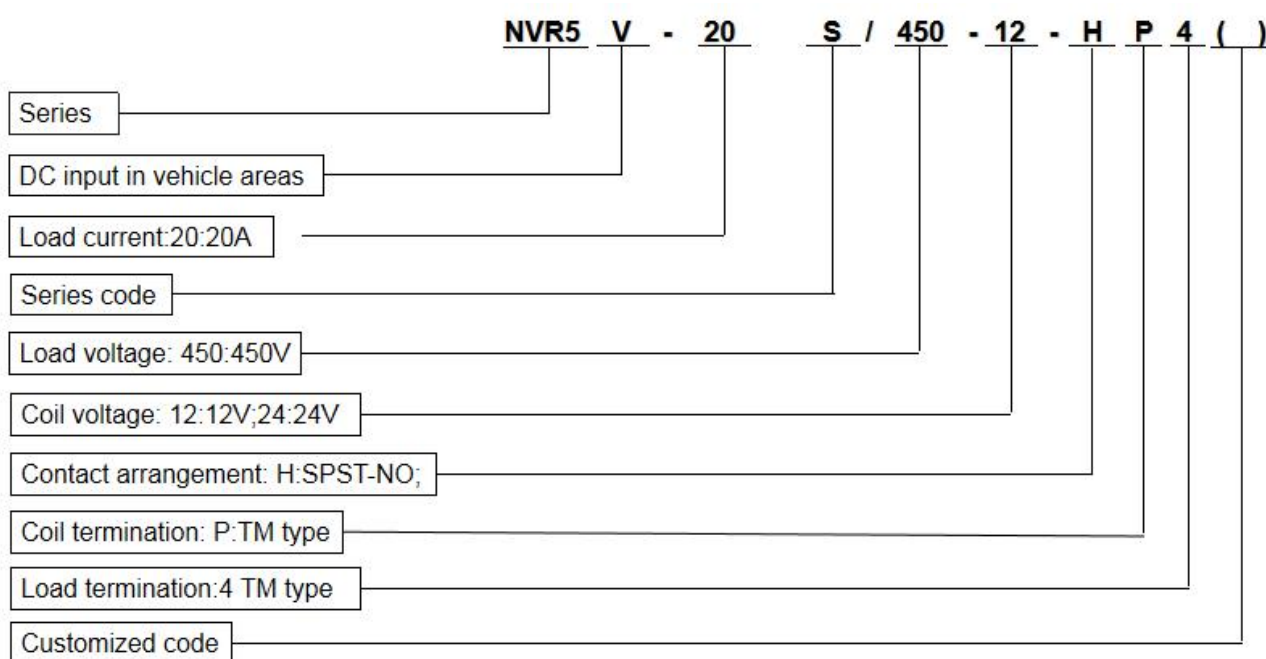
Features

- RoHS compliant;
- Magnet arc blowout;
- Up to 450VDC Cutoff;
- Compact and lightweight;
- Polarity free coil circuit

Applications

- ◆ Main contactors for HEV, PHEV and BEV;
- ◆ Battery charging systems;
- ◆ Power charging devices;
- ◆ Solar power systems;

Product Code Structure



Coil Data

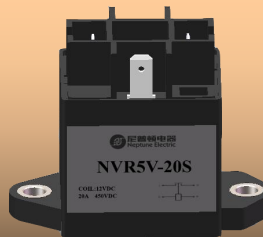
| Rated voltage VDC | Operate voltage VDC | Release voltage VDC | Rated operating power W |
|----------------------|------------------------|------------------------|----------------------------|
| 12 | ≤ 9 | ≥ 1 | 3 |
| 24 | ≤ 18 | ≥ 2 | |

- 1) Operate voltage and release voltage may vary with environmental temperature.
- 2) The ripple factor should be under 5%.



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Main Contact Data

| | | |
|-----------------------------|--------------------------|-------------------------------|
| Contact arrangement | | 1H |
| Initial contact resistance | | $\leq 10\text{m}\Omega$ (20A) |
| Rated current | | 20A |
| Max. Switch voltage | | 450V |
| Max. Switch current | | 35A |
| Max. Switch power | | 9kW |
| Limiting short-time current | | 40A:20min |
| | | 80A:30s |
| | | 120A:10s |
| Dielectric strength | Between contact and coil | 3000V AC/1min |
| | Between contacts | 2000V AC/1min |
| Insulation resistance | Between contact and coil | Min: 1000M Ω (1kV DC) |
| | Between contacts | |
| Operate time | | $\leq 30\text{ms}$ |
| Release time | | $\leq 10\text{ms}$ |
| Bounce time | | $\leq 5\text{ms}$ |

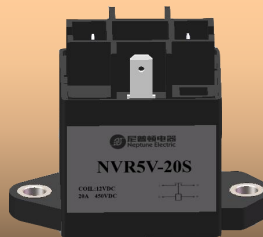
Other Data

| | | |
|------------------------|------------------------------------|--|
| Endurance | Mechanical | 2×10^5 times |
| | Electrical (Resistive load) | Switch-off: 3×10^3 times@20A |
| | | Switch-off: 3×10^4 times@10A |
| | | Switch-on: 7.5×10^4 times@20A |
| Mechanical performance | Shock resistance (Functional) | 20G |
| | Shock resistance (Destructive) | 50G |
| | Vibration resistance (Functional) | 4G (10~500Hz) |
| | Vibration resistance (Destructive) | 4G (10~500Hz) |
| Operational condition | Ambient temperature | -40℃~+85℃ |
| | Relative humidity | 5%~85% R. H. |
| Weight | | Approx. 55g |



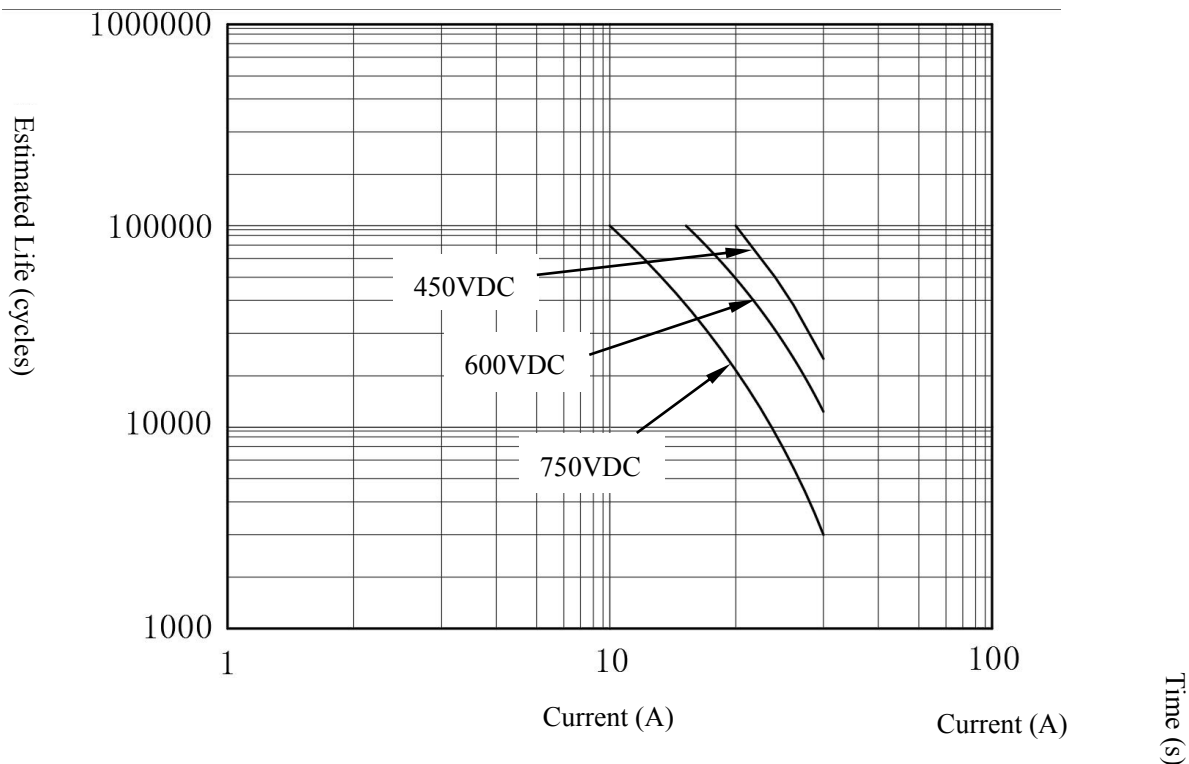
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HVDC Relay NVR5V-20S

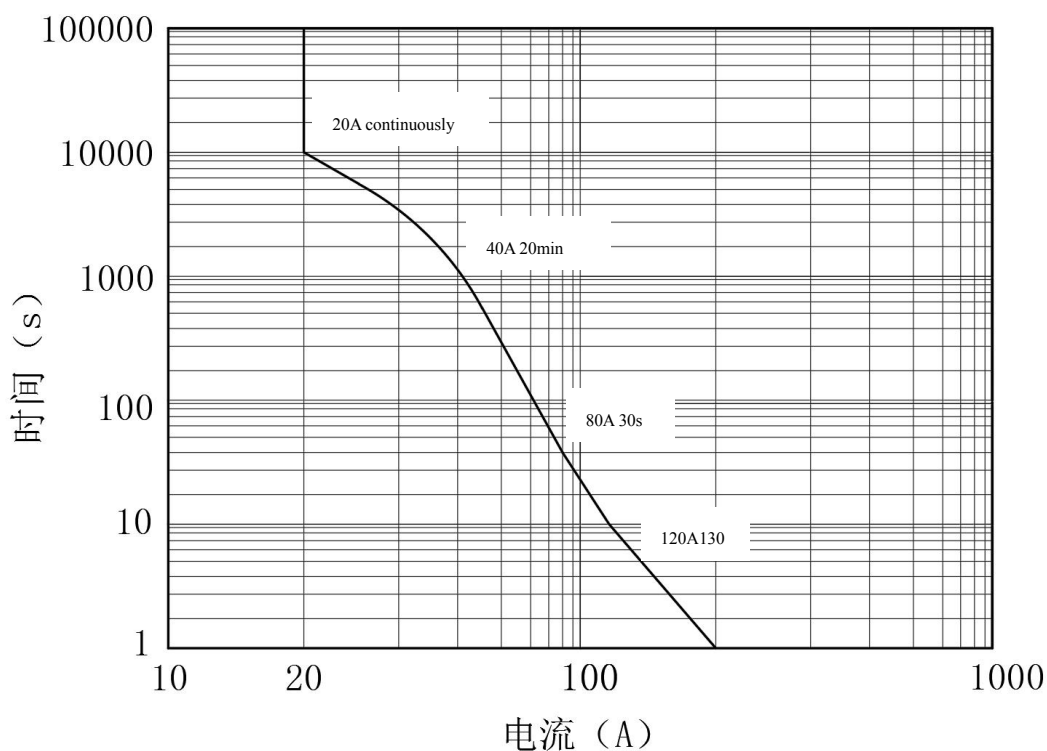


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Estimated Life Diagram



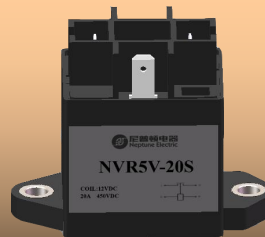
Contacts Current Capacity Diagram





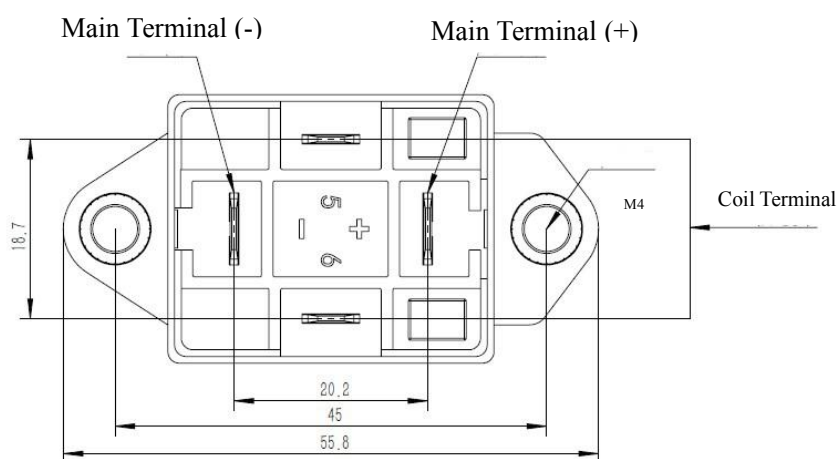
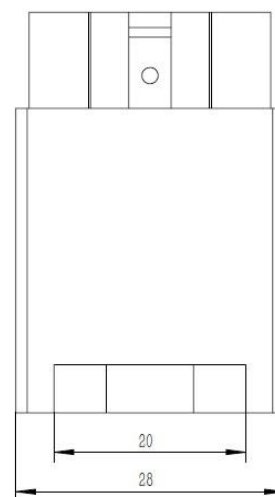
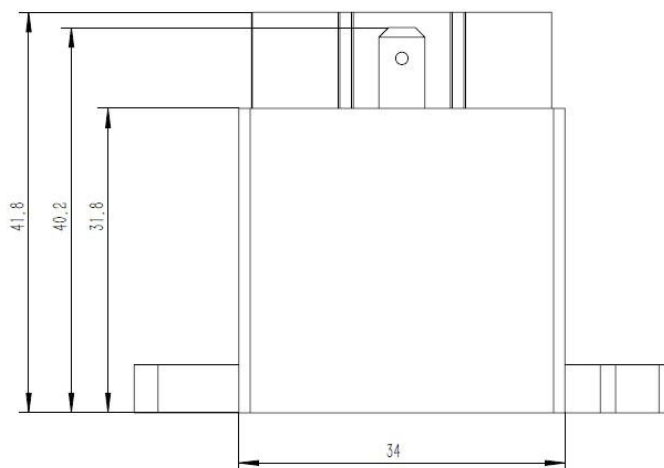
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HVDC Relay NVR5V-20S



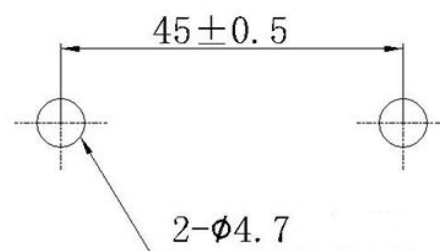
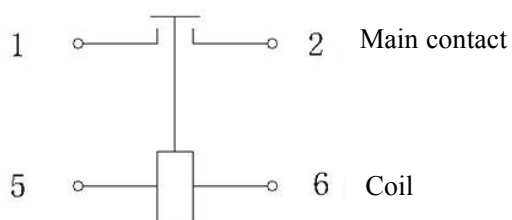
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Dimensions (mm)



| Permissible deviations for basic size range | Tolerance |
|--|-----------|
| Up to 10 | ± 0.3 |
| Over 10 up to 50 | ± 0.6 |
| Over 50 | ± 1.0 |

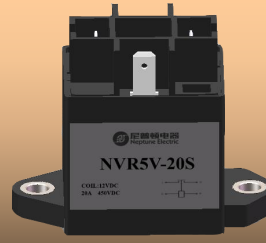
Circuit and Layout Dimensions (mm)





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HVDC Relay NVR5V-20S



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Cautions

- Please use relays in the conditions described in the specification. Otherwise product performance will not be guaranteed.
- Please add surge protection in parallel if an inductive load ($L/R > 1\text{ms}$) is applied.
- If the relay operates on no load condition, the contact resistance may increase.
- Please connect the terminals correctly. Any wrong connection may cause circuit damage such as malfunction, overheat, and fire.
- Screwing-tightening condition: M3 Screw: $0.8\text{Nm} \sim 1.3\text{Nm}$ (Tightening torque for fixing relay body).
- Use the suitable wires or busbars according to the current. Carrying current: 20Amps: diameter of 4mm^2 (min.).
- Standard operation condition: temperature $-40^\circ\text{C} \sim 85^\circ\text{C}$, humidity $5\% \sim 85\%\text{R.H.}$.
- If the relay is dropped, it should not be used again.

(Please do not determine specifications based on this document. Contact our sales staff for more information and supports.)