



尼普顿电器  
Neptune Electric

# HVDC Relay NVR6V-40



Ceramic  
Series

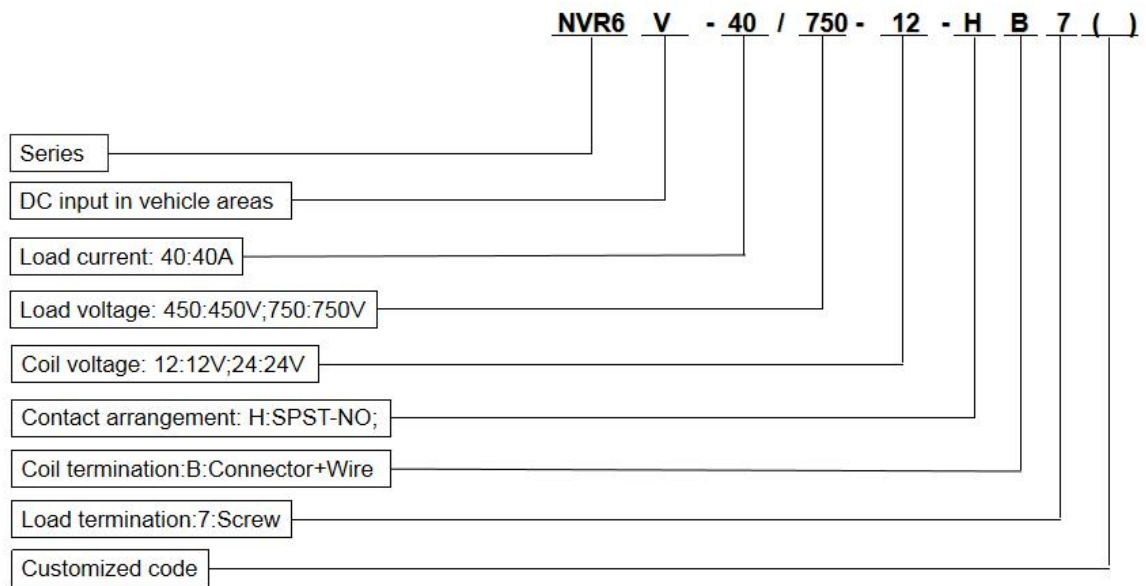
## Features

- RoHS compliant;
- Contacts sealed in ceramic capsules and inert gas;
- Contacts protected against contamination. e.g oxidation and corrosion;
- Magnet arc blowout;
- Up to 900VDC Cutoff;
- Compact and lightweight;
- No polarity on terminals and connectors;

## Applications

- ◆ Main contactors for larger hybrid electric vehicles (HEV), plug-in hybrids (PHEV) and full electric vehicles (BEV);
- ◆ Battery charging systems;
- ◆ Power charging devices;
- ◆ Solar power systems;
- ◆ Could server and uninterrupted power supply (UPS)

## Product Code Structure



## Coil Data

Rated voltage VDC	Operate voltage VDC	Release voltage VDC	Rated operating power W
12	≤8.4	≥1	3
24	≤16.8	≥2	3

- 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		$\leq 5\text{m}\Omega$ (6V DC/20A)
Rated current		40A
Limiting short-time current		80A:10min
		160A:10s
Max. switching current		400A (320V DC)
Overload break		100 times (80A/450V DC)
Dielectric strength	Between contact and coil	3000V AC
	Between contacts	
Insulation resistance	Between contact and coil	Min: 1000M $\Omega$ (1kV DC)
	Between contacts	
Operate time		$\leq 30\text{ms}$
Bounce time		$< 5\text{ms}$
Release time		$\leq 10\text{ms}$

## Other Data

Endurance	Mechanical		$2 \times 10^5$ times
	Electrical (Resistive load)	450V DC	Switch-off: $3 \times 10^4$ times
			Switch-on: $1 \times 10^5$ times
		750V DC	Switch-off: $3 \times 10^3$ times
Switch-on: $7.5 \times 10^4$ times			
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°C ~ +85°C
	Relative humidity		5% ~ 85% R. H.
Weight			Approx. 160g



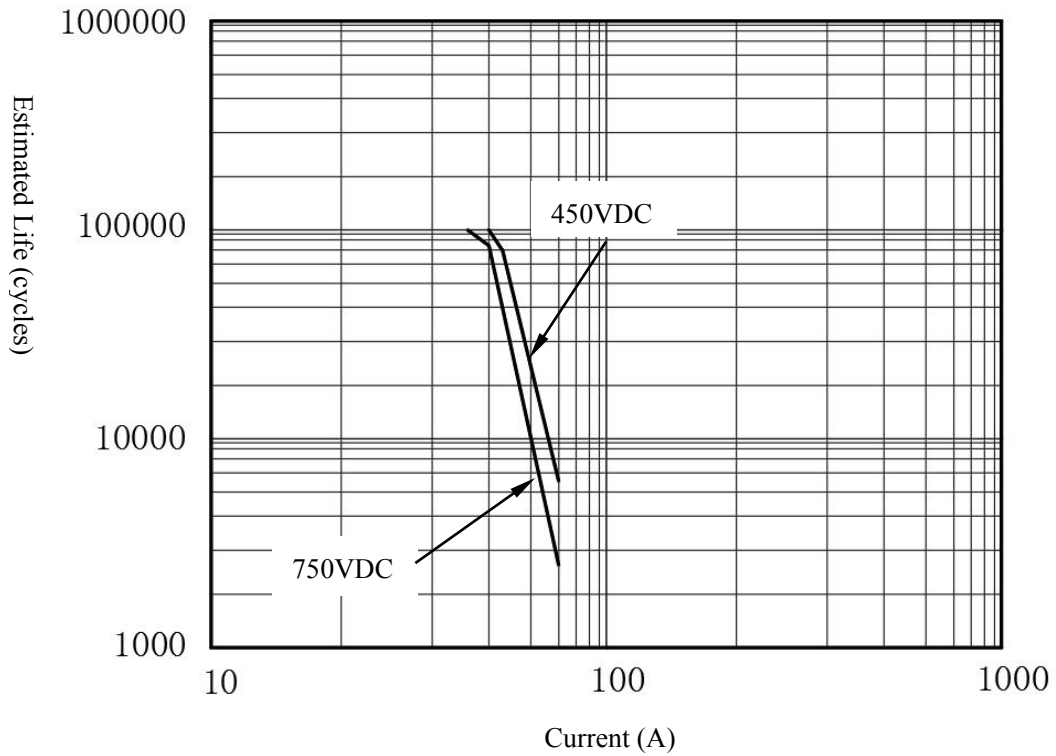
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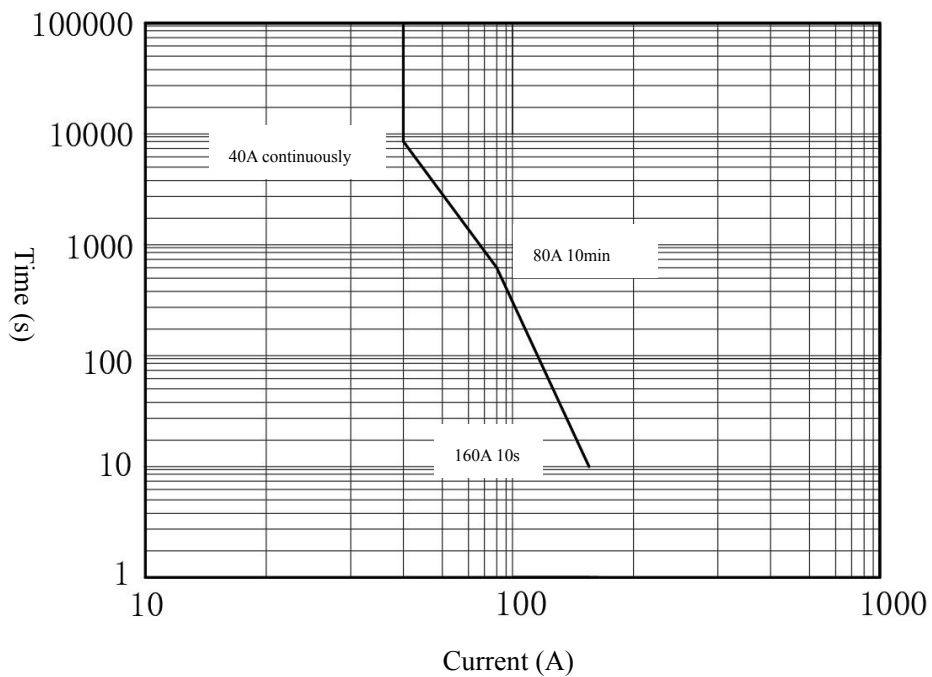


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## Estimated Life Diagram



## Contacts Current Capacity Diagram





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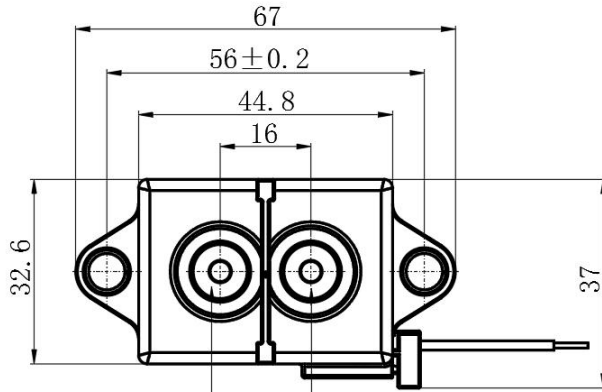
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**Ceramic Series**

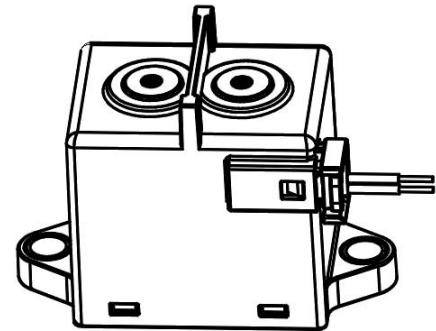
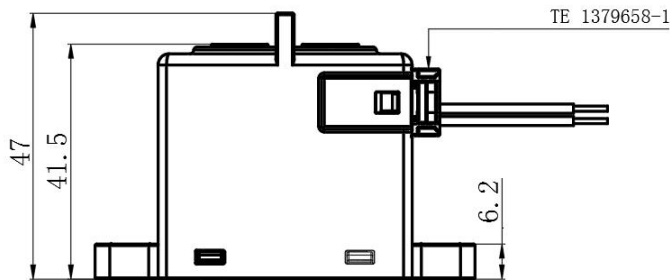
## Dimensions (mm)

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

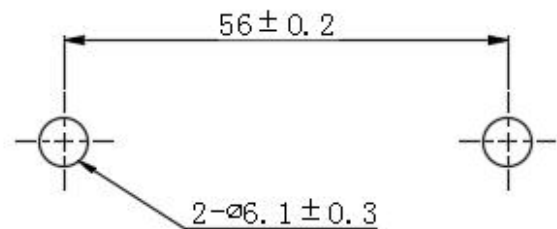
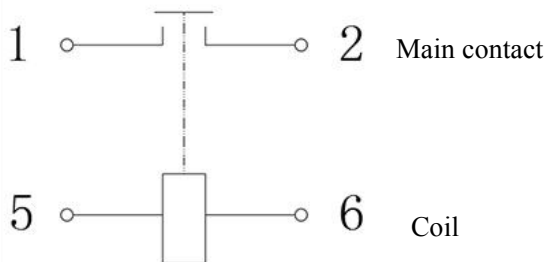


Load terminal (No polarity)

Load terminal (No polarity)



## Circuit and Layout Dimensions (mm)





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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.
- Contact resistance may increase if a relay is operating without a load.
- Please connect the terminals correctly. Any wrong connection may cause circuit damage such as malfunction, overheat, and fire.
- Screwing-tightening condition: A) M4 Screw:  $1.8\text{Nm} \sim 2.7\text{Nm}$  (Tightening torque for fixing relay body) B) M5 Screw:  $3\text{Nm} \sim 4\text{Nm}$  (Tightening torque for contact terminal)
- Use the suitable wires or busbars according to the current. Carrying current: 40Amps; diameter of  $10\text{mm}^2$  (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.)