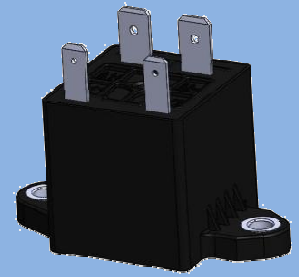




# GLKC20 直流接触器



## ◇ 产品概述 Product Introduction

型号 Type	GLKC20
触点形式 Contact Arrangement	一组常开 1 Form A
触点材料 Contact Material	银合金 Silver Alloy
触点表面处理形式 Contact Surface Treatment Form	无 None
密封类型 Seal Type	塑壳密封 Plastic sealing
外形尺寸 Outline(L×W×H)	55.8mm×30mm×41.3mm (-HGQ2) 44mm×30mm×41.5mm (-HGQ2T) 29.2mm×30mm×35.2mm (-HGPN)
重量 Unit Weight	50×(1±10%)g

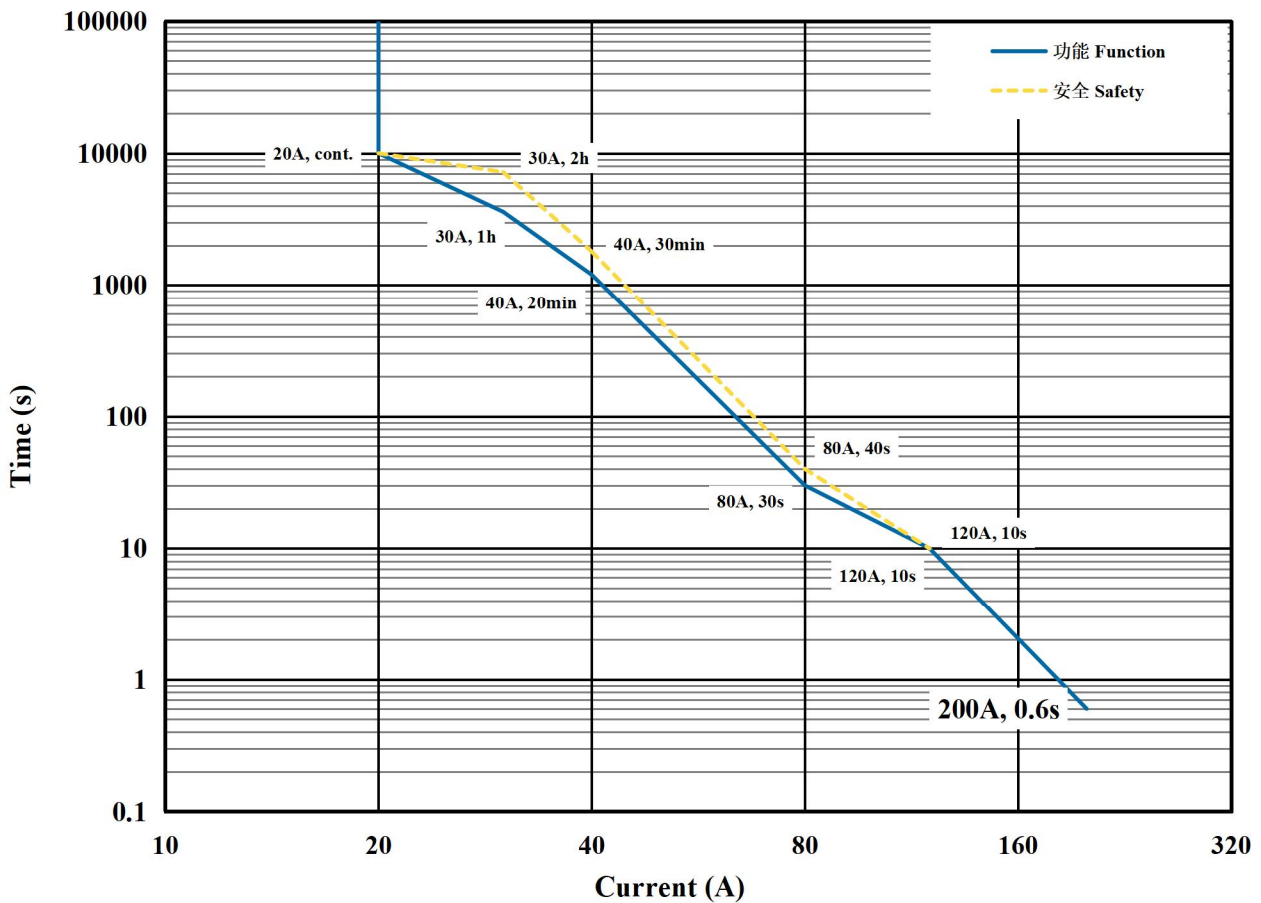
## ◇ 线圈额定参数 Coil Characteristics

额定电压 Rated Voltage V DC	工作电压范围 Working Voltage Range V DC	驱动方式 Driving Mode	动作电压 Pick-up Voltage V DC (@23°C)	释放电压 Drop-out Voltage V DC (@23°C)	线圈电阻 Coil Resistance Ω(@23°C)	线圈额定功耗 Coil Rated Power W (@23°C)
12	9~16	单线圈 Single Coil	≤9	≥1	48×(1±7%)	约 3 Approx.3
24	18~32		≤18	≥2	192×(1±7%)	



◇ 触点参数 Contact Characteristics

额定电压 Rated Voltage	450V DC
额定电流 Rated Current	20A(导体截面积 4mm <sup>2</sup> ) 20A(Wire 4mm <sup>2</sup> )
最小适用负载 Min. Applicable Load	1A 12V DC
接触电阻 Contact Resistance	≤10mΩ(@20A)
最大切断电流 Max. Breaking Current	30A 450V DC 5 次(ops)
电流耐受(导体截面积 4mm <sup>2</sup> , 23°C) Current Endurance(Wire 4mm <sup>2</sup> , 23°C)	见下图



电流耐受曲线  
Current Endurance

注 Notes

1. 环境温度为23°C, 导线截面积≥4mm<sup>2</sup>。

The ambient temperature is 23°C, and the cross-section of the wire is ≥4mm<sup>2</sup>.



2. 设定的功能曲线温度上限为130℃，表示长期循环使用的最大能力；安全曲线温度上限180℃，表示短时过载耐受的最大能力；温度超过180℃时，接触器可能发生功能失效；建议正常工况在功能曲线以下使用。

The upper limit of the function temperature is 130℃, which indicates the maximum capacity of long-term recycling; and the upper limit of the safety temperature is 180℃, which indicates the maximum capacity of short-term overload tolerance. If the temperature exceeds 180℃, the contactor may lose function. It is recommended to use the contactor under the function curve at the normal conditions.

### ◇ 耐久性 Endurance

电耐久性（阻性） Electrical Endurance(Resistive)	通断(Switching)
	20A 450V DC 3,000 次(ops)
	10A 450V DC 10,000 次(ops)
	接通(Making)
机械耐久性 Mechanical Endurance	20A 450V DC 75,000 次(ops)
	6A 750V DC 75,000 次(ops)
	200,000 次(ops)

#### 注 Notes

1. 以上数据仅供参考。

The data is for reference only.

2. 导线截面积:  $\geq 4\text{mm}^2$ 。

The cross-section of wire:  $\geq 4\text{mm}^2$ .

3. 以上电耐久性数据是在阻性负载(L/R $\leq 1\text{ms}$ )条件下测得，负载通断比: 0.6s:5.4s，环境温度: 23℃；以上数值会因负载类型、通断频率、环境条件等条件变化而发生改变，因此在使用时，推荐在实际负载下进行确认。

The data of electrical endurance is measured under the resistive load(L/R $\leq 1\text{ms}$ ), the ratio: 0.6s on:5.4s off, ambient temperature: 23℃;

The values may change according to the load type, ratio, and environmental conditions. Therefore, it is recommended to confirm the values under actual load.

### ◇ 性能参数 Performance

绝缘电阻(断开触点间) Insulation Resistance (Between open contacts)	试验前Before Test: $\geq 1000\text{M}\Omega$ (@500V DC) 试验后After Test: $\geq 50\text{M}\Omega$ (@500V DC)
绝缘电阻(触点与线圈间) Insulation Resistance (Between contacts and coil)	试验前Before Test: $\geq 1000\text{M}\Omega$ (@500V DC) 试验后After Test: $\geq 50\text{M}\Omega$ (@500V DC)
介质耐压(断开触点间，漏电流 $\leq 1\text{mA}$ ) Dielectric Strength (Between open contacts, leak current $\leq 1\text{mA}$ )	试验前Before Test: $\geq 2500\text{V AC}$ , (50/60Hz 1min) 试验后After Test: $\geq 1875\text{V AC}$ , (50/60Hz 1min)



介质耐压(触点与线圈间, 漏电流 $\leq 1\text{mA}$ )

Dielectric Strength

(Between contacts and coil, leak current  $\leq 1\text{mA}$ )

试验前 Before Test:  $\geq 3000\text{V AC}$ , (50/60Hz 1min)

试验后 After Test:  $\geq 2250\text{V AC}$ , (50/60Hz 1min)

动作时间(线圈额定电压下, 23°C)

Pick-up Time (At rated coil voltage, 23°C)

$\leq 30\text{ms}$

释放时间(线圈额定电压下, 23°C)

Drop-out Time (At rated coil voltage, 23°C)

$\leq 10\text{ms}$

回跳时间(线圈额定电压, 23°C)

Bounce Time (At rated coil voltage, 23°C)

$\leq 5\text{ms}$

正弦振动

Vibration

10Hz~500Hz, 49m/s<sup>2</sup>

耐冲击-误动作冲击

Shock - Functional

半正弦波, 11ms, 196m/s<sup>2</sup>

1/2 sine, 11ms, 196m/s<sup>2</sup>

耐冲击-强度冲击

Shock - Destructive

半正弦波, 6ms, 490m/s<sup>2</sup>

1/2 sine, 6ms, 490m/s<sup>2</sup>

### ◇ 标准测试条件 Standard Test Condition

温度 Temperature

23°C $\pm$ 5°C

湿度 Humidity

25%~75%RH

方向 Direction of Test

竖直 Vertical

### ◇ 使用条件 Operating Condition

触点允许的最高温度(长时)

Maximum allowable temperature of contacts(Long-time)

130°C

触点允许的最高温度(短时)

Maximum allowable temperature of contacts(Short-time)

180°C

温度 Temperature

-40°C~+85°C

湿度 Humidity

5%~85%RH

海拔 Altitude

$\leq 2000\text{m}$

安装方向 Mounting Direction

竖直 Vertical



### ◇ 贮存条件 Storage Condition

温度 Temperature	5°C~30°C
湿度 Humidity	35%~70%RH
存储时间 Storage Time	1 year

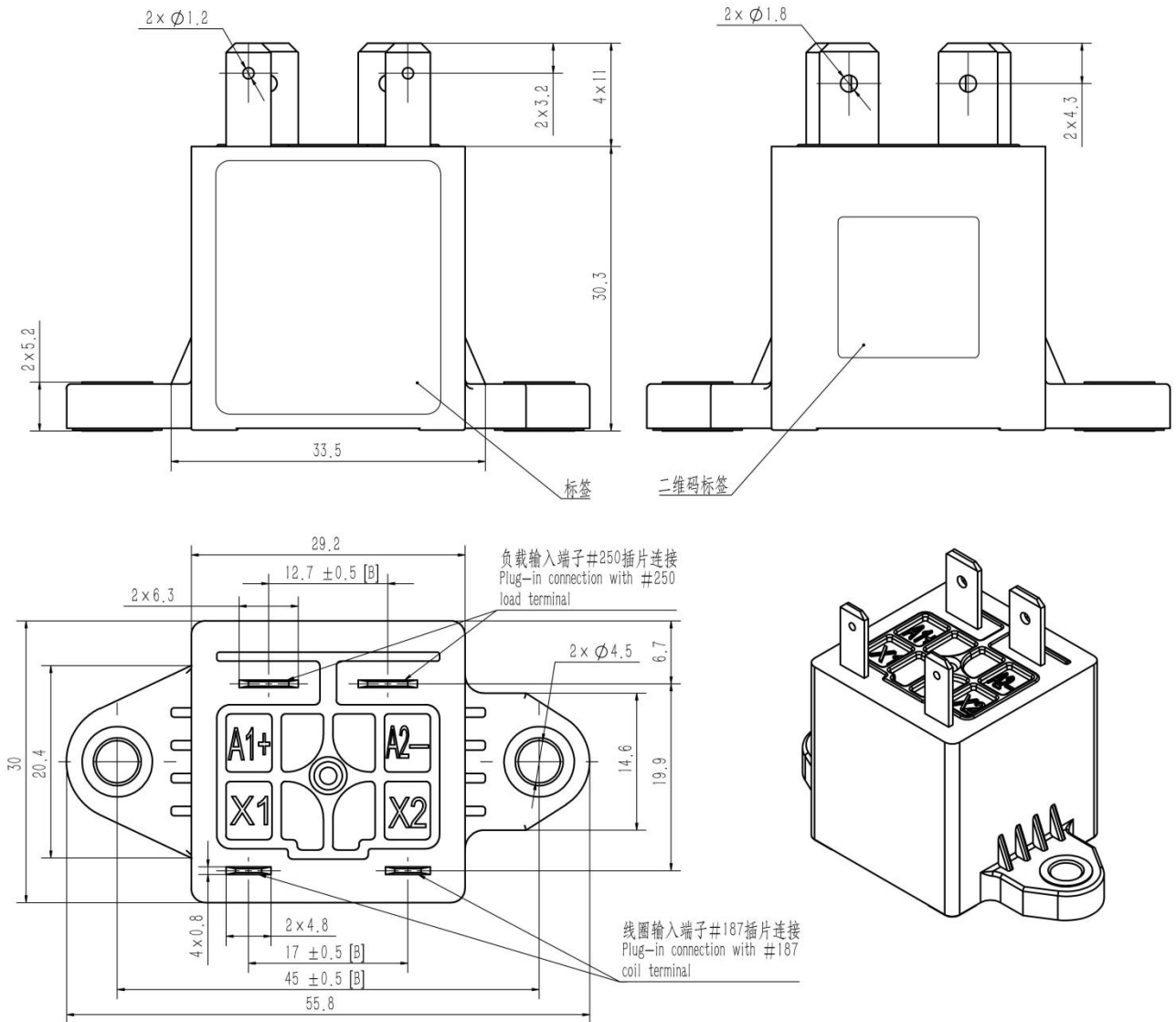
### ◇ 产品命名规则 Product Code Structure

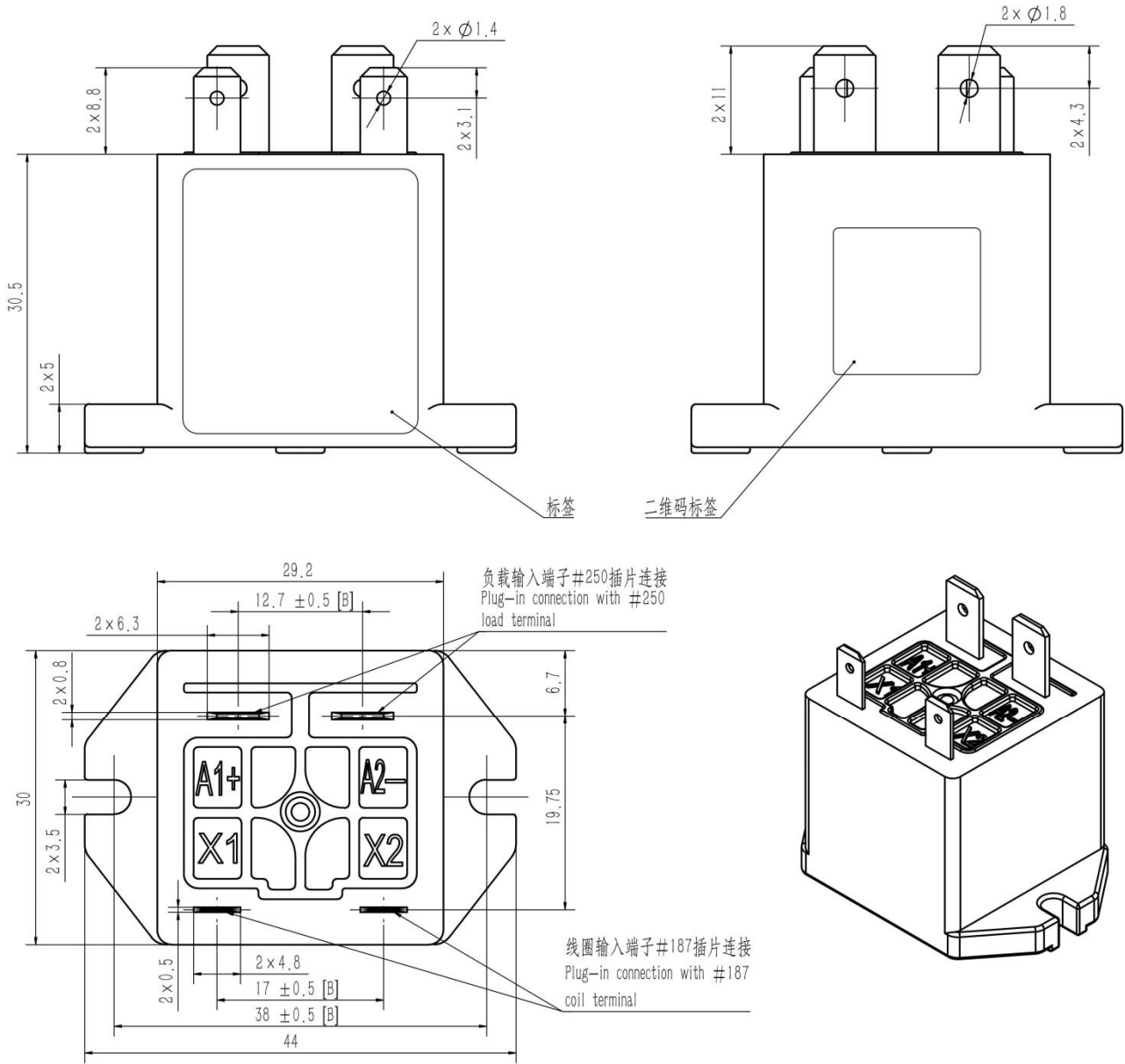
	<b>GLKC20</b>	<b>/450</b>	<b>-12</b>	<b>-H</b>	<b>G</b>	<b>Q</b>	<b>2</b>	<b>T</b>	<b>-XXX</b>
产品型号 Product Type									
负载电压 Contact Voltage	<b>450: 450V DC</b>								
线圈电压 Coil Voltage	<b>12: 12V DC</b> <b>24: 24V DC</b>								
触点形式 Contact Type	<b>H: 一组常开 1 Form A</b>								
触点材质 Contact Material	<b>G: 银合金 Silver Alloy</b>								
线圈引出形式 Coil Termination	<b>Q: QC 引出端 QC Termination</b> <b>P: PCB 引出端 PCB Termination</b>								
负载引出形式 Contact Termination	<b>2: QC 引出端 QC Termination</b> <b>无 None: PCB 引出端 PCB Termination</b>								
外壳结构 Mounting Boss	<b>无 None: 标准安装脚 Standard</b> <b>N: 无安装脚 No Mounting</b> <b>T: T 型安装脚 T-type</b> <b>K: 卡扣式安装 Snap Mounting</b>								
特殊特性号 Special Code	客户需求（当客户存在特殊需求时使用） Customer Demand(Only for special requirements)								



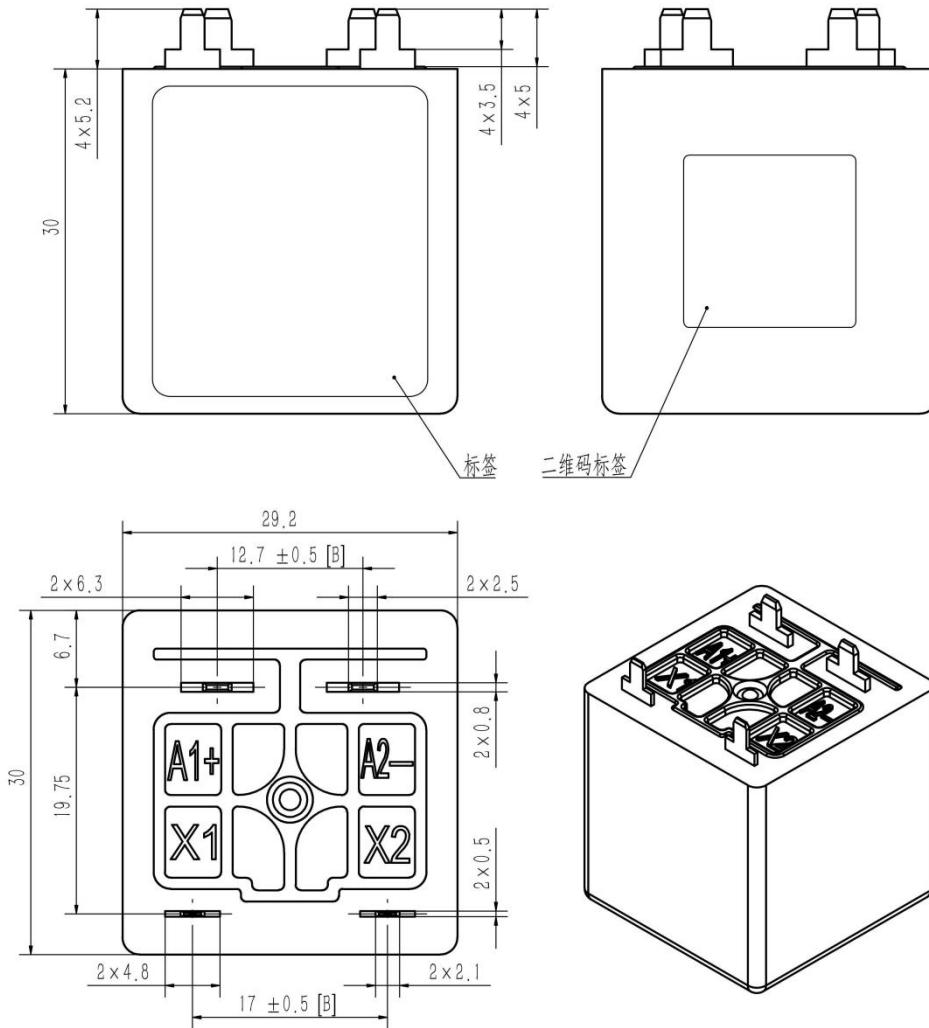
◇ 外形图 Outline Dimensions

产品型号 Product Type: GLKC20/450-\*\*-HGQ2

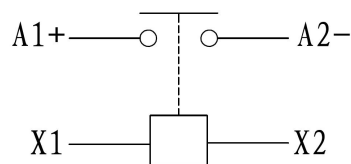








### ◇ 接线图 Circuit Diagram



负载有极性，线圈无极性

The load is polarity, the coil is non-polarity

#### 注 Notes

1. “[B]”标记为重要特性;

The sizes marked with “[B]” are significant characteristic;

2. 产品外形尺寸未注公差:

All unspecified tolerance according to the table as below:





尺寸 Dimension(mm)	<10	10~50	>50
公差 Tolerance(mm)	±0.3	±0.5	±0.8

### ◇ 应用信息 Application Notes

1. 出货信息：产品默认出货不含连接器线束、螺钉、垫片、弹垫等安装配件。

Shipping information: The delivery product is shipped without connector harness, screws, washers, spring washers and other installation accessories.

2. 为防止出现松动，继电器安装时请使用垫圈。继电器安装处GLKC20/450-\*\*-HGQ2T型脚位请使用M3螺钉，螺钉锁紧扭矩请控制在0.8Nm~1.1Nm；GLKC20/450-\*\*-HGQ2型脚位请使用M4螺钉，螺钉锁紧扭矩请控制在2Nm~3Nm；继电器引出脚允许的插拔力为：（1）负载引出端49N，（2）线圈引出端49N。在超过范围的情况下，可能会造成破损。

In order to prevent loosening, please use the washer when installing the relay. Please use the M3 screws to install relay with GLKC20/450-\*\*-HGQ2T type terminals, screw locking torque within 0.8Nm~1.1Nm; Please use the M4 screws to install relay with GLKC20/450-\*\*-HGQ2 type terminals, screw locking torque within 2Nm~3Nm; Allowable pulling or pushing force for the terminal: (1) load terminal 49N; (2) coil terminal 49N. Damage may occur when it is beyond the range.

3. PCB板焊接参数为：手工焊（380±20）℃，时间（3~5）s；波峰焊（270±5）℃，时间（7~9）s。安装时请避免附着异物、油脂类及腐蚀性液体，否则会导致接触器触点端发热异常。

PCB welding parameters: manual welding (380±20) °C, time (3~5) s; wave soldering (270±5) °C, time (7~9) s. Please avoid foreign bodies, grease or corrosive liquids during installation, otherwise it will lead to abnormal heating at contact terminals.

4. 请避免在强磁界(变压器、磁铁的周围)和发热物体的附近安装。

The contactor should not be installed near strong magnetic fields (transformers, magnets, etc.) and should not be installed near heat source.

5. 线圈在断电时，线圈两端会产生反向电动势，此反向电动势会对控制端的MOSFET等器件产生冲击，因此控制电路需在接触器线圈端并联抑制器件来抑制反向电动势。

A reverse voltage occurs when the coil power off, this reverse voltage will have negative impact on control circuit electrical device like MOSFET. A suppression device should be connected in parallel with the coil end of the contactor as a measure to suppress the reverse voltage.

注意事项 Notes:

- 5.1 推荐使用钳位电压为线圈额定电压 2 倍以上的双向 TVS 管、压敏电阻 Varistor(ZNR)、二极管+单向 TVS 管 等措施进行反向电动势的抑制。反向电动势抑制器件的钳位电压要低于被保护的 MOSFET 的 VDS 值。

It is recommended to use bi-direction TVS, Varistor (ZNR), Diode+ the unilateral diode etc. whose clamping voltage is more than 2 times the rated voltage of the coil to suppress the reverse overvoltage of the coil. And the clamping voltage of reverse voltage suppression device should lower than VDS of protected MOSFET.

- 5.2 TVS 管及压敏电阻的能量吸收能力至少在 1J 以上。

TVS and ZNR the max energy absorption capability: ≥1J.



5.3 禁止用续流二极管 Diode 进行反向电动势的抑制，这样会延长接触器负载端释放时间，导致产品切断性能下降。

Please do not use freewheel diode, it will make the release time of contactor increase, which will lead to contactor cutting-off performance reduced.

6. 接触器应用在容性负载回路时，请注意采取限流等措施，建议接触器闭合电流控制在允许值以内。如未采取措施，可能会造成触点粘连。

When the contactor is used in a capacitive load circuit, please pay attention to limiting current and other measures. It is recommended that the contactor closing current should be controlled within the allowable value. If no measures are taken, the contacts may stick.

7. 接触器应用在感性负载回路时，建议对感性负载并联加装浪涌吸收措施。如未采取措施，可能导致接触器切断能力有所下降。

When the contactor is used in the inductive load circuit, it is recommended to install surge absorption measures in parallel to the inductive load. If no measures are taken, the contactor's cutting capability may be reduced.

8. 严禁将继电器长时间置于超过产品温度使用范围(-40 °C~85 °C)环境中。

Please avoid using or storing contactor beyond the allowable temperature range -40 °C~85 °C for long time.

9. 请避免接触器在使用或运输过程中发生撞击或跌落。为保持接触器的性能，撞击或跌落后的接触器不建议继续使用。

Please avoid impact or drop of the contactor during application or transportation. In order to maintain the performance of the contactor, it is not recommended to continue to use the contactor after impact or fall.

10. 产品完全符合RoHS2.0要求，对环境更友好。

Products meet RoHS2.0 and environment friendly.

11. 如需获取更多信息与支持，请联系昆山国力源通新能源科技有限公司。

Please contact GuoLi YuanTong for more information or support.

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