

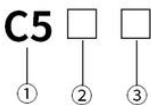


特点 Features

- 电流分10A及15A
- 切换方式有固定式及复位式(单投及双投皆可复归)
- 接线端子有螺丝端子及焊接端子(亦可用快速端子)
- 防水套可防水、防油,适用于全系列
- 固定孔径:φ12mm
- 10A type and 15A type for selection
- Fixed type and auto-return type (both single-throw and double-throw) for selection
- Screw terminal, solder terminal and tab terminal for selection
- Water-proof cap for water-proof and oil-proof
- Mounting hole: φ12mm



选型说明 Model Designation



序号 No	项目 Item	代号 Code	说明 Description
①	型式 Type	CO	10A 250VAC 自锁 Self-locking
		COR	10A 250VAC 自动复位 Spring return
		C5	15A 250VAC 自锁 Self-locking
		C5R	15A 250VAC 自动复位 Spring return
②	接点 Contact	11	单极单投 Single pole single throw ON-OFF
		12	单极双投 Single pole double throw ON-ON
		13	单极双投 (中间 OFF) Single pole double throw (central OFF)ON-OFF-ON
		131	单极双投 (中间 OFF 单边复位) Single pole double throw (central OFF single return)ON-OFF-ON
		21	双极单投 Double pole single throw ON-OFF
		22	双极双投 Double pole double throw ON-ON
		23	双极双投 (中间 OFF) Double pole double throw (central OFF)ON-OFF-ON
		231	双极双投 (中间 OFF 单边复位) Double pole double throw (central OFF single return)ON-OFF-ON
③	端子 Terminal	A	快速端子 Tab terminal(#250)
		B	螺丝端子 Screw terminal
		C	焊接端子 Solder terminal(#187)

特性 Characteristics

操作速度 Operation speed	5mm 至 0.5m/s 5mm-0.5m/s
动作频率 Operating frequency	电气:30次/分 Electrical: 30 operations/min
接触电阻 Contact resistance	25mΩ 以下 (初期) 25mΩmax. (initial value)
绝缘电阻 Insulation resistance	100MΩ 以上 (在 500VDC 以下) 100MΩ min. (at 500VDC)
最小使用负载 Minimum working load	DC24V 10mA 以上 Min DC24V 10mA
额定绝缘电压UI Rated insulation voltage	380V
额定冲击耐受电压Uimp Rated impulse withstand voltage	2.5kV
约定自由空气发热电流Ith Convention free air heating current	10A
电介强度 Dielectric strength	非连续端子间1000VAC, 50/60Hz持续1分钟 1000VAC, 50/60 Hz for 1 minute between terminals of the same polarity
	载电流与无载电流零件间1500VAC, 50/60Hz持续1分钟 1500VAC, 50/60 HZ for 1 minute between current-carrying and non-current-carrying metal parts
	端子和接地之间1500VAC, 50/60Hz持续1分钟 1500VAC, 50/60 HZ for 1 minute between each terminal and ground
振动 Vibration	10至55Hz, 1.5mm双振幅 10-55Hz, 1.5mm double amplitude
冲击 Shock	机械耐久 :1,000m/Sec ² (约 100G' S) 误动作耐久 :300m/Sec ² (约 30G' S)*1 Mechanical durable: 1,000m/Sec ² (about 100G' S) Malfunction: 300m/Sec ² (about 30G' S)*1
周围温度 Ambient temperature	使用时 :-20~+70°C (没有结冰) Using: -20~+70°C (With no icing)
湿度 Humidity	95%RH 以下 <95% RH
电气寿命 Electrical life	50万次以上(AC240V/3A阻性负载) More than 500,000 cycles (AC240V/3A resistive load) 30万次以上(AC240V/6A阻性负载) More than 300,000 cycles (AC240V/6A resistive load)
保护构造 Degree of protection	IP65

注1. 上述值为初始值。

注2. 有些型号中可能与上述内容不同, 请另外垂询。

*1. 盘簧型除外

*2. 该保护结构基于标准(EN69047-5-1)规定的测试方法, 请根据使用环境、使用条件来事先确认密封性。

*3. 寿命的条件为环境温度5~35°C、环境湿度40~70%RH时的数值。

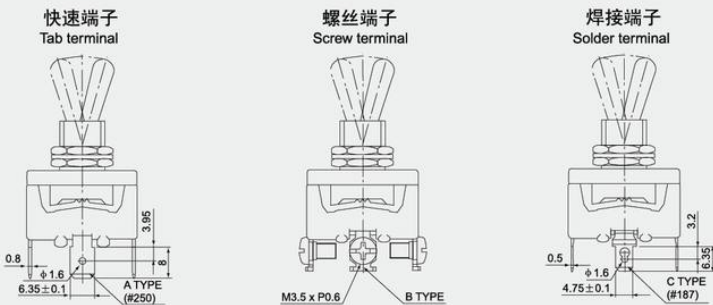
Note 1. The above values are initial values.

Note 2. Values of some models may be different from the above, please contact us for details.

*1: Except coil spring type

*2. The protection structure is tested based on method predetermined by standard (EN69047-5-1), please confirm the sealing in advance according to the operating environment and conditions.

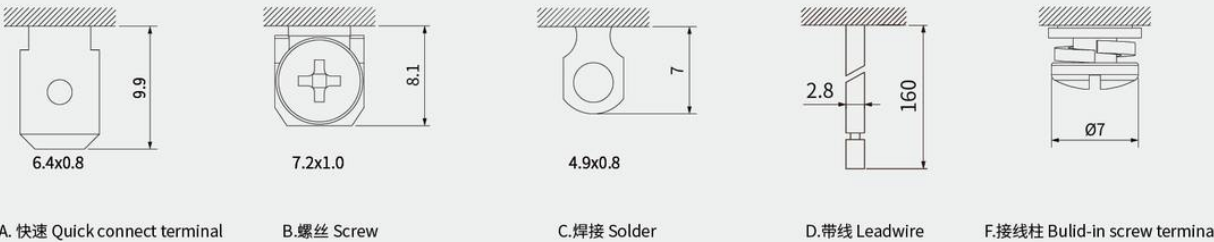
*3. The conditions of life are the values under the ambient temperature of 5~35°C and humidity of 40 to 70% RH. For other detailed conditions, please contact us.



COW 防水套 Rainproof cap (Tow)



接线端子 Terminal



国际认证规格 International Certification Specifications

认证规格 Certification specifications	规格 Specifications	文件No. Document
CCC	GB/T 14048.5	请咨询昌得代表处 Please consult the CNTD Representative Office
TUV	EN 60947-5-1	
CE		

安全标准认证额定规格 Safety Standard Certification Rated Specifications

TUV (EN 60947-5-1), CCC(GB/T 14048.5)

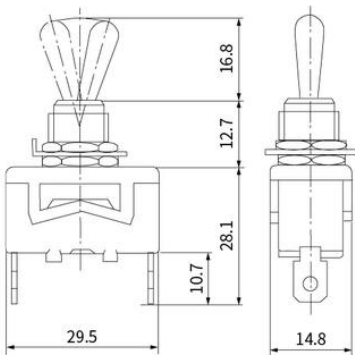
项目 Item	使用类型 Usage type	AC-15	DC-13
额定工作电流 Rated working current(Ie)		3A	0.3A
额定工作电压 Rated working voltage(Ue)		250V	220V

注：请使用符合IEC60269的gl或gG型10A保险丝作为短路保护装置。开关内未配保险丝。
Note: Please use gl or gG 10A fuses that comply with IEC60269 as short-circuit protection devices. The switch is not equipped with a fuse.

外观和尺寸 Appearance and Dimension

C511A/C5R11A

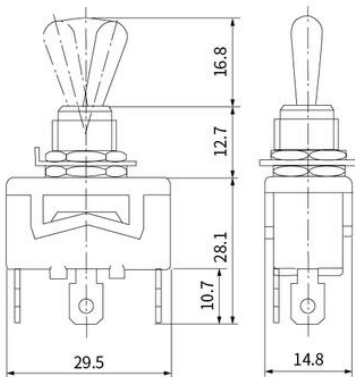
拨动开关
Toggle Switch



产品型号 Product reference	位置符号 Location symbol
C511A	ON OFF V
C5R11A	ON OFF V

C512A/C5R12A

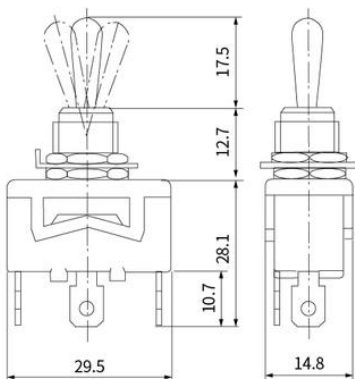
拨动开关
Toggle Switch



产品型号 Product reference	位置符号 Location symbol
C512A	ON ON V
C5R12A	ON ON V

C513A/C5R13A

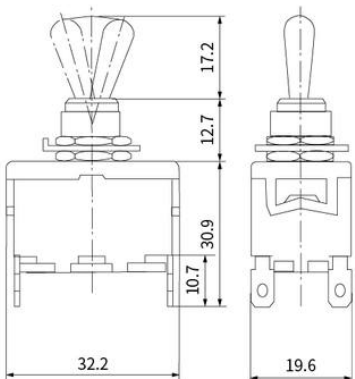
拨动开关
Toggle Switch



产品型号 Product reference	位置符号 Location symbol
C513A	ON OFF ON V
C5R13A	ON OFF ON V

C521A/C5R21A

拨动开关
Toggle Switch



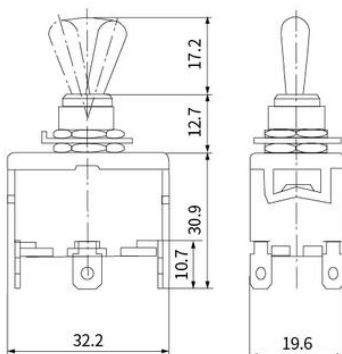
产品型号 Product reference	位置符号 Location symbol
C521A	ON OFF V
C5R21A	ON OFF V

注：1、标记说明：V 锁定 V 弹簧返回
Note: 1. Mark Description: V Lock V Spring return

外观和尺寸 Appearance and Dimension

C522A/C5R22A

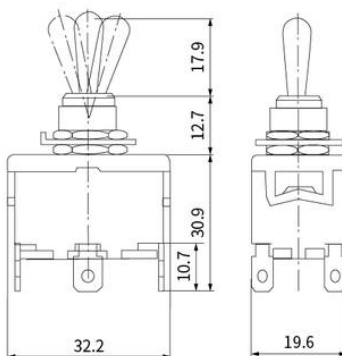
拨动开关
Toggle Switch



产品型号 Product reference	位置符号 Location symbol
C522A	ON ON V
C5R22A	ON ON V

C523A/C5R23A

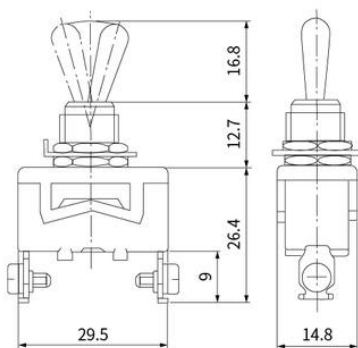
拨动开关
Toggle Switch



产品型号 Product reference	位置符号 Location symbol
C523A	ON OFF ON V
C5R23A	ON OFF ON V

C511B/C5R11B

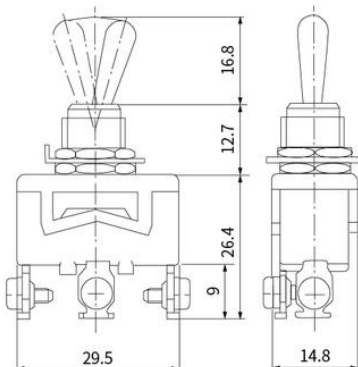
拨动开关
Toggle Switch



产品型号 Product reference	位置符号 Location symbol
C511B	ON OFF V
C5R11B	ON OFF V

C512B/C5R12B

拨动开关
Toggle Switch



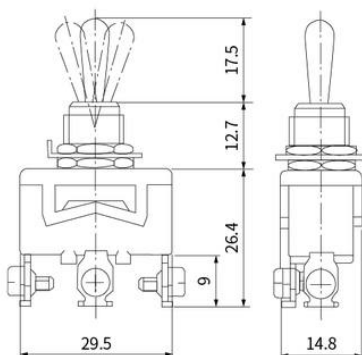
产品型号 Product reference	位置符号 Location symbol
C512B	ON ON V
C5R12B	ON ON V

注: 1、标记说明: V 锁定 V 弹簧返回
Note: 1. Mark Description: V Lock V Spring return

外观和尺寸 Appearance and Dimension

C513B/C5R13B

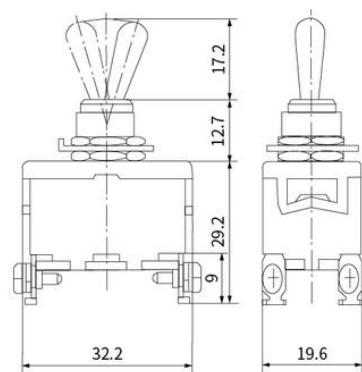
拨动开关
Toggle Switch



产品型号 Product reference	位置符号 Location symbol
C513B	ON OFF ON
C5R13B	ON OFF ON

C521B/C5R21B

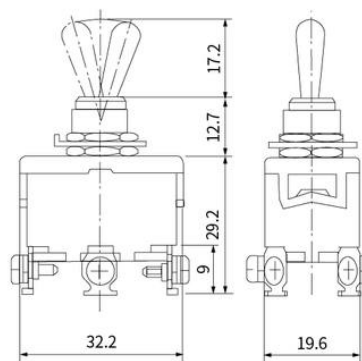
拨动开关
Toggle Switch



产品型号 Product reference	位置符号 Location symbol
C521B	ON OFF
C5R21B	ON OFF

C522B/C5R22B

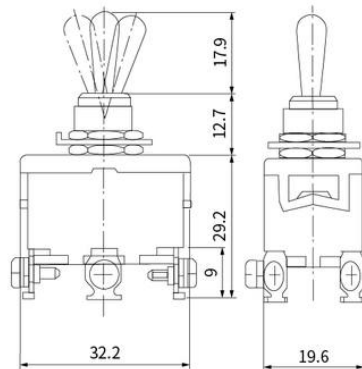
拨动开关
Toggle Switch



产品型号 Product reference	位置符号 Location symbol
C522B	ON ON
C5R22B	ON ON

C523B/C5R23B

拨动开关
Toggle Switch



产品型号 Product reference	位置符号 Location symbol
C523B	ON OFF ON
C5R23B	ON OFF ON

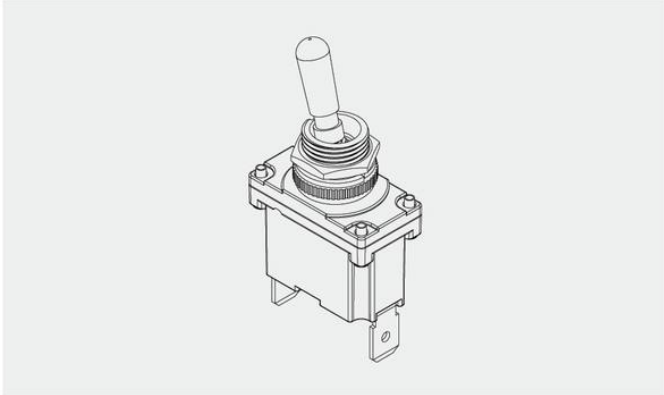
注：1、标记说明：
  锁定
  弹簧返回
 Note: 1. Mark Description:
  Lock
  Spring return

正确的固定扭矩 Correct Fixing Torque

松动的螺丝可能导致设备提前故障。请确保各部件的螺丝根据规定的扭矩紧固，以保障设备的稳定性和安全性。特别是在改变头部方向时，必须重新确认上述扭矩，并保证所有螺丝均匀紧固。同时，要注意防止异物进入内部。

Loose screws may lead to premature equipment failure. Ensure that screws on each component are tightened to the specified torque for stability and safety. It is crucial to reconfirm the specified torque and ensure that all screws are evenly tightened, especially after adjusting the orientation of the head. Additionally, take precautions to prevent the entry of foreign objects into the product.

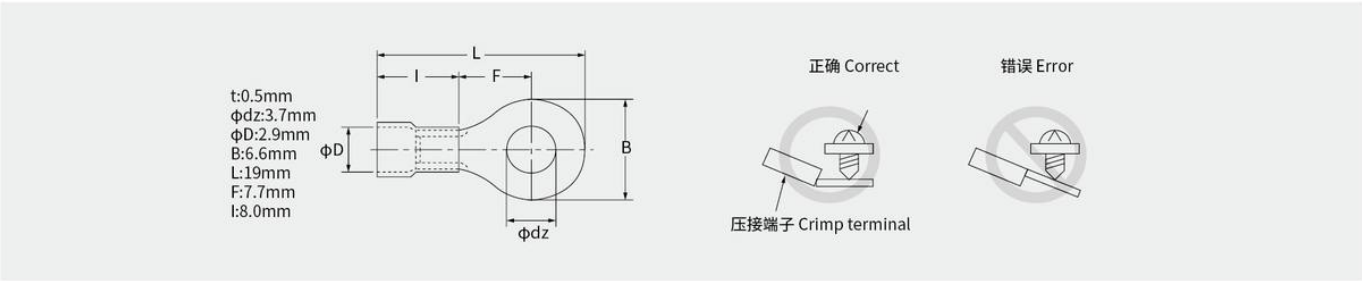
种类 Type	推荐扭矩 Recommended torque
B型端子螺丝M3.5x3 B-type terminal screw M3.5x3	0.4N.m
F型端子螺丝M3.5x3 F-type terminal screw M3.5x3	1.7N.m



接线注意事项 Wiring Precautions

请在断电状态下进行开关接线操作，通电状态下接线可能会造成触电危险。
接线时务必注意，不要让导线的细小碎片或其他微粒进入开关内部。
使用绝缘管和 M3.5 压接端子连接时，按照图示正确放置压接端子，避免压迫到外壳或外盖。适用的导线尺寸为 AWG20 至 AWG18 或 0.5 至 0.75mm²。
选用适当长度的导线以确保外盖平整关闭且牢固。切勿将压接端子塞进外壳缝隙，这可能导致外壳损坏或变形。
为防止端子与开关外壳内部接触，使用厚度不超过 0.5mm 的端子。

Always wire the switch with the power off to avoid the risk of electric shock.
Ensure no small wire fragments or particles enter the switch during wiring.
When connecting with an insulated tube and M3.5 crimp terminals, position the terminals as shown in the diagram to avoid pressing against the casing or cover. The suitable wire size is AWG20 to AWG18 or 0.5 to 0.75mm².
Use wires of appropriate length to ensure the cover closes smoothly and securely. Do not stuff the crimp terminals into gaps in the casing, as this may cause damage or deformation.
To prevent contact between the terminals and the interior of the switch housing, use terminals with a thickness of no more than 0.5mm.



开关接点可用于一般负载或微小负载。但是，已经连接过一般负载的接点，就不能用于连接更小容量的负载。否则，可能导致接触面的糙化，而且可能失去接触可靠性。

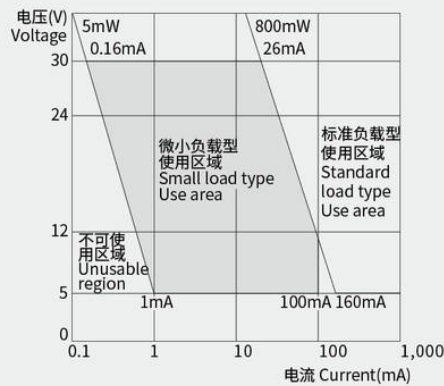
如果在开关微小负载电路时使用一般负载用开关，可能会引起接触不良。下图为开关负载区域范围定义。本目录册内产品适用于 DC24V 10mA 以上范围，当使用负载小于 DC24V 10mA 以下时，可能存在由于电流过小无法击破触点表面氧化膜或硫化膜的现象，从而导致开关接触不良。所以当使用负载小于 DC24V 10mA 以下时，请咨询昌得电气科技有限公司进行产品定制。

请设置 CR 电路等吸收电路，防止震荡和抖动所导致的噪声和脉冲缺失，对于开关时会产生冲击电流的负载，请插入接点保护电路，以免导致耐久性降低。

Switch contacts can be used for general loads or small loads. However, contacts that have already been connected to general loads cannot be used to connect smaller capacity loads. Otherwise, it may lead to roughness of the contact surface and loss of contact reliability.

If a general load switch is used when switching a small load circuit, poor contact may be caused. The following diagram shows the switching load area range definition. The products in this catalog are suitable for DC24V 10mA or above. When the load is less than DC24V 10mA or below, the oxidized film or vulcanized film on the contact surface may be unable to be broken due to too small current, resulting in poor switch contact. Therefore, when the load is less than DC24V 10mA, please consult CNTD Electrical Technology Co., Ltd. for product customization.

Please set the absorption circuit such as CR circuit to prevent noise and pulse loss caused by shock and jitter, for the load that will produce impulse current on the switch, please insert the contact protection circuit to avoid reducing durability.



使用注意事项 Using Precautions

本公司产品是作为工业产品而设计生产，严格遵守工业产品标准。我司明确声明，除非经过特殊设计并得到我司明确书面确认，我司产品不适用于以下应用场合：

- 要求极高可靠性的应用场合，包括核能、燃气、电力等要求长期稳定运行的系统。
- 要求极高安全性的应用场合，涉及人身安全与财产的情况。
- 苛刻条件、严酷环境的应用场合，包括室外、存在化学污染、电磁、振动或冲击影响的环境。
- 有火灾或爆炸风险的应用场合，包括存在易燃易爆性气体、强酸强碱化学品等物质的环境。
- 涉及军工用途、航天航空项目的应用场合。

The company's products are designed and produced as industrial products, in strict compliance with industrial product standards. We expressly declare that, unless specifically designed and expressly confirmed by us in writing, our products are not intended for the following applications:

- Applications that require high reliability, including nuclear, gas, electric and other systems that require long-term stable operation.
- Applications requiring very high security, situations involving personal safety and property.
- Applications in harsh conditions, harsh environments, including outdoor, chemical contamination, electromagnetic, vibration or shock effects.
- Applications where there is a risk of fire or explosion, including environments where flammable and explosive gases, strong acids and alkali chemicals are present.
- Applications involving military use and aerospace projects.