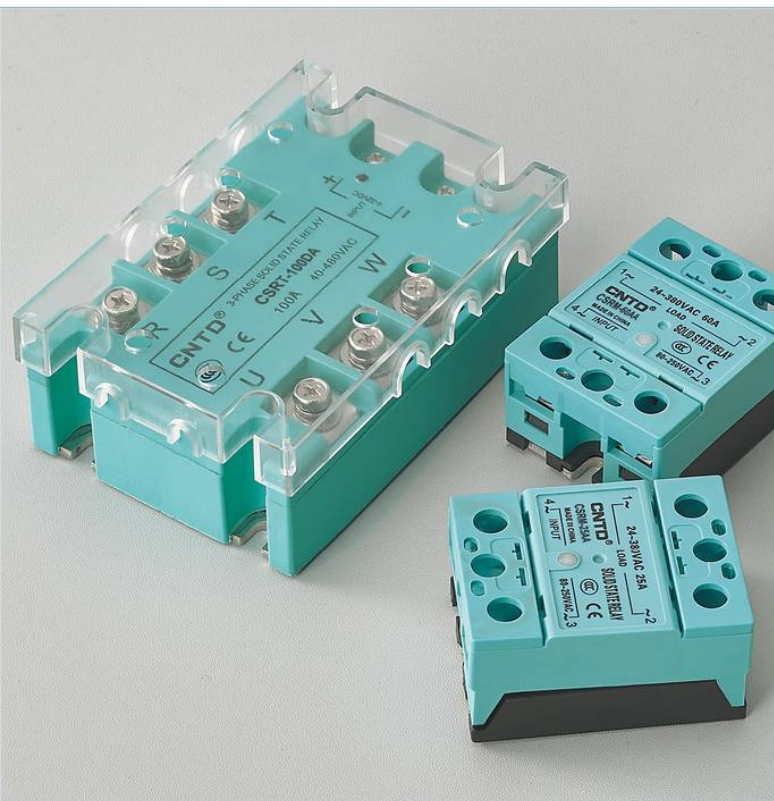




## 特点 Features

固态继电器是以电力半导体器件为主功率器件的工业控制电器,它与传统的电磁接触式工业控制器相比较,更符合电力电气设备朝着高性能,智能化,数字化,系统化及绿色化发展的要求。

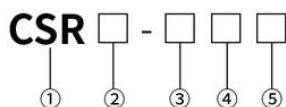
固态继电器按照开关方式分为过零导通型和随机导通型。当输入控制信号后,随机型能立即导通,过零型要等到负载电压过零区域才能导通。撤销控制信号后,都在小于维持电流时关断。过零型有可能造成最大半个周期的延时,却减小了对负载的冲击和射频干扰,是理想的开关器件。随机性特点是反应快,适合应用于调光调温等阻性负载和部分感性负载场合。

当CSR由导通到关断时,由于电流电压的相位不一致,将产生一个很大的电压上升率(dv/dt)在双向可控硅上,如上升率超过双向可控硅的换向dv/dt指标(标准为300V/us),将导致延时关断甚至失败。由2只单向可控硅反并联构成的增强型CSR比普通由1只双向可控硅构成的CSR的换向dv/dt有很大的提高(dv/dt值为500V/us)。因此在感性负载或容性负载领域建议选用增强型CSR。我司的固态继电器均为增强型。

固态调压器由可控硅开关电路、阻容移相电路。滞后电路和过压吸收电路等以模块的外形组成。使用时只需外接一个电位器,就可以用来实现交流功率调节。在许多场合可以取代笨重的接触式调压器,广泛应用于包装机械、纺织机械、舞台照明电源、电压、温度、亮度、速度等模拟调节。



## 选型说明 Model Designation



| 序号 No | 项目 Item                                 | 代号 Code | 说明 Description                                             |
|-------|-----------------------------------------|---------|------------------------------------------------------------|
| ①     | 系列号<br>Serial number                    | CSR     | 单相固态继电器<br>CSR=Single Phase Solid State Relay              |
|       |                                         | CTR     | 三相固态继电器<br>CTR=Three Phase Solid State Relay               |
| ②     | 产品类型<br>Product type                    | 无None   | 标准型 Standard type<br>(浅绿色壳体 Light green shell)             |
|       |                                         | E       | 经济型 Economic Type(灰色壳体 Gray shell)                         |
| ③     | 额定电流<br>Rated operation current         | 40      | 10=10A, 25=25A, 40=40A, 60=60A, 80=80A, 100=100A, 120=120A |
| ④     | 控制和负载电压<br>类型<br>Installation dimension | DA      | DA=DC(4-32V)AC(24-380V)                                    |
|       |                                         | AA      | AA=AC(80-250V)AC(24-380V)                                  |
|       |                                         | DD      | DD=DC(4-32V)DC(12-240V)                                    |
|       |                                         | VA      | 调压器 Voltage regulator(24 380VAC)                           |
| ⑤     | 特殊规格<br>Special specifications          | 无 None  | 常规过零触发型 Zero cross trigger                                 |
|       |                                         | R       | 随机触发型 Radom switch                                         |

## 应用 Applications

- 交流直流开关和温度控制
- 自动化控制
- 数控机床
- 包装机械
- 纺织机械
- 玻璃机械
- 塑料机械
- AC DC switch & Temp control
- Automate Control
- CNC machinery
- Packaging machinery
- Textile machinery
- Glass machinery
- Plastic machinery

Solid State Relay(CSR) is industrial control appliances which use power semiconductor devices for main control part, compare with traditional magnetic contact industrial controllers, it is more high-powered, intelligent, digital, systematic and green development. according switch mode CSR have zero-cross and random type. When the input control signal, random type conduction immediately, zero cross type need load voltage turn to zero region just can conduction. Revocation of the control signal,all can cut off when less than maintenance current. zero cross type may cause the maximum half-cycle delay, but reduces the impact of the load and radiofrequency interference, is the ideal switching devices.Random type fast response,suitable for dimmer,thermostats resistive loads and some inductive load applications.

When the CSR turn off, if in the phase current and voltage have different, will have a large rise rate (dv/dt) on the triac, such as dv/dt higher than Triac standatrd (300V/us), will result in delay shutdown even failure. use anti-parallel thyristor's CSR(powerful type) will been greatly improved at dv/dt(dv / dt is 500V/us). Therefore, in the field of capacitive load or inductive load, suggest the use powerful type CSR. YLCN's CSR are all powerful type.

Solid-state voltage regulator consists of thyristor switching circuit, resistance-capacitance phase shifting circuit,lag circuit and over-voltage absorption circuit.The use of only one external potentiometer can be used to achieve AC power regulation.In many occasions can replace the heavy contact voltage lighting power supply,voltage,temperature,brightness, speed and other analog adjustment.

技术参数 Technical parameter

| 项目 Item                                   | 说明 Description          |
|-------------------------------------------|-------------------------|
| 电流 Current                                | 0.5A~400A               |
| 电压 Voltage                                | 12V~680V                |
| 标准 Standard                               | IEC标准 IEC standard      |
| 输入输出类型可选择 Input & output type could chose | DC / AC AC / AC DC / DC |

国际认证规格 International Certification Specifications

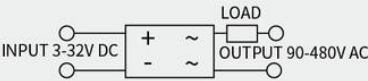
| 认证规格 Certification specifications | 规格 Specifications | 文件No. Document                                |
|-----------------------------------|-------------------|-----------------------------------------------|
| CCC                               | GB/T 14048.5      | Please consult the YLCN Representative Office |
| CE                                | EN 60947-5-1      |                                               |

安全规格认证额定值 Safety Specification Certification Rating

CCC(GB/T 14048.5)、CE(EN 60947-5-1)

| 类型与额定值 Type and Rating                                                      |
|-----------------------------------------------------------------------------|
| AC-12, DC-12: AC24V~660V; 10A、25A、40A、60A、80A、100A、120A 阻性负载 Resistive load |

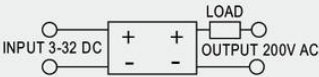
1、CSR-DA(DC TO AC) Application Circuit  
DA应用电路



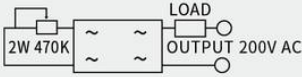
2、CSR-AA(AC TO AC) Application Circuit  
AA应用电路



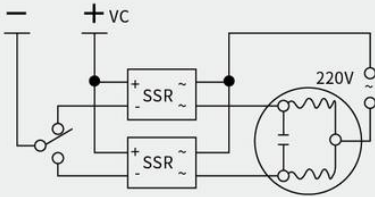
3、CSR-DD(DC to DC) Application Circuit  
DD应用电路



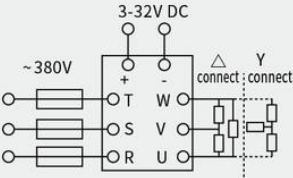
4、CSR-VA(voltage regulator) Application Circuit  
VA应用电路



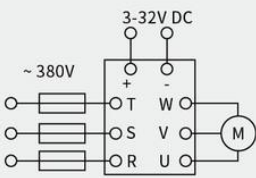
5、Motor positive and reverse Application Circuit  
电机正反转应用电路



6、3phase HSR Load control Connect  
三相负载控制连接

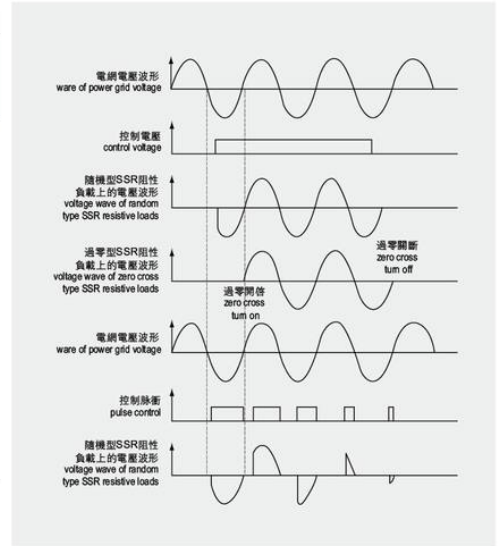


7、3phase Motor positive and reverse  
三相电机正反转电路



| 应用参数<br>Specification                  |                | 输入Input parameter               |                         |                       |                       | 输出Output parameter        |                           |                          |                                              | 安全负载Safe Load          |                        |
|----------------------------------------|----------------|---------------------------------|-------------------------|-----------------------|-----------------------|---------------------------|---------------------------|--------------------------|----------------------------------------------|------------------------|------------------------|
|                                        |                | 控制电压<br>Control Voltage         | 控制电流<br>Control Current | 启动电流<br>Start Current | 关闭电压<br>Close Voltage | 工作电流<br>Operating Current | 工作电压<br>Operating Voltage | 绝缘电压<br>Insulate voltage | 保护Protection<br>Over Voltage<br>Over Current | 阻性负载<br>Resistive Load | 感性负载<br>Inductive Load |
| CSR                                    | DC/AC          | 4-32 VDC                        | <20mA                   | ≥5mA                  | ≤1.5V DC              | 10-100A                   | 24-480 VAC                | ≥2500 VAC                | RC MOV<br>Fast Fuse                          | 60%                    | 40%                    |
|                                        | AC/AC          | 80-250 VAC                      | <30mA                   | ≥5mA                  | ≤10V AC               | 10-100A                   | 24-480 VAC                |                          |                                              |                        |                        |
|                                        | Industry class | 4-32 VDC                        | <20mA                   | ≥5mA                  | ≤1.5V DC              | 100-800A                  | 24-480 VAC                |                          |                                              |                        |                        |
|                                        | DC/DC          | 3-32 VDC                        | <25mA                   | ≥5mA                  | ≤1.5V DC              | 10-40A                    | 12-250 VDC                |                          |                                              |                        |                        |
| CTR                                    |                | 4-32 VDC                        | <30mA                   | ≥9mA                  | ≤2.5V DC              | 10-120A                   | 24-480 VAC                | 二极保护<br>Diode            | RC MOV<br>Fast Fuse                          | 60%                    | 40%                    |
| 固态调压器<br>Solid State Voltage Regulator |                | 电位器 Potentiometer<br>500KΩ/1/4W |                         |                       |                       | 10-40A                    | 10-250V AC                |                          |                                              |                        |                        |

内置阻容吸收保护回路 RC: Built-in resistance capacity absorption circuit.  
外部并联压敏电阻 MOV: External shunt metal oxide varistor.



### 使用注意事项 Notes

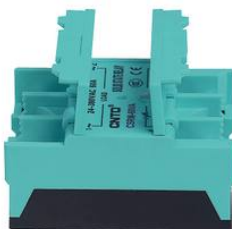
1. 严禁短路负载，可以使用快速熔断器。Strictly prohibit for load short circuit. Can use fast fuse.
2. 长期工作不能超过额定值的70%。Long time working current can't over 70% of the nominal value.
3. 散热器温度不能超过与75℃。Heatsink temperature can't over 75℃.
4. 用于感性负载，加压敏电阻保护更好。Use at inductive load area, adding varistor for protect is better.

### 各种负载推荐值(常温) Recommended value of load type (Room temperature)

| 负载类型<br>Load type    | 纯电阻<br>Pure Resistance | 电热丝<br>Electric hot wire | 白炽灯泡<br>Incandescent lamp | 变压器/电磁铁<br>Transformer/<br>Electromagnet | 单相交流电机<br>1 phase AC motor | 三相交流电机<br>3 phase AC motor |
|----------------------|------------------------|--------------------------|---------------------------|------------------------------------------|----------------------------|----------------------------|
| 负载值<br>value of load | 100%                   | 50-70%                   | 35-50%                    | 25-40%                                   | 12-24%                     | 18-33%                     |

### 规格 Specifications

| 高端型<br>Improve Design Type | CSR-DA         |                | CSR-AA         |                | CSR-VA         | CSR-DD         | CTR-DA         |                      |
|----------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------------|
| 负载电流<br>Operation Current  | 10A, 25A, 40A  | 60A, 80A, 100A | 10A, 25A, 40A  | 60A, 80A, 100A | 10A, 25A, 40A  | 10A, 25A, 40A  | 10A, 25A, 40A  | 60A, 80A, 100A, 120A |
| 负载电压<br>Operation Voltage  | 24-480V AC     |                | 24-480V AC     |                | 10-250V AC     | 12-250V DC     | 24-480V AC     |                      |
| 控制电压<br>Control Voltage    | 4-32V DC       |                | 80-250V AC     |                | 500KΩ/1/4W     | 3-32V DC       | 4-32V DC       |                      |
| 控制电流<br>Control Current    | DC 3-25mA      |                | AC ≤12mA       |                | /              | DC 3-25mA      | DC 3-25mA      |                      |
| 通态压降V <sub>TM</sub>        | ≤1.5V          | ≤1.5V          | ≤1.5V          | ≤1.5V          | ≤1.5V          | ≤2.3V          | ≤1.5V          | ≤1.5V                |
| 漏电流I <sub>RRM</sub>        | ≤10mA          | ≤20mA          | ≤10mA          | ≤20mA          | ≤5mA           | ≤5mA           | ≤15mA          | ≤15mA                |
| 关断时间T <sub>Q</sub>         | ≤10mS          |                | ≤10mS          |                | ≤10mS          | ≤10mS          | ≤10mS          |                      |
| 绝缘电压V <sub>iso</sub>       | 2500V AC       |                | 2500V AC       |                | 2500V AC       | 2500V AC       | 2500V AC       |                      |
| 绝缘电阻R <sub>iso</sub>       | 1000mΩ 500V DC |                | 1000mΩ 500V DC |                | 1000mΩ 500V DC | 1000mΩ 500V DC | 1000mΩ 500V DC |                      |
| 工作温度T <sub>j</sub>         | -30~+80℃       |                | -30~+80℃       |                | -30~+80℃       | -30~+80℃       | -30~+80℃       |                      |
| 重量Weight                   | 90g            | 140g           | 90g            | 140g           | 90g            | 90g            | 350g           | 450g                 |



专利设计，采用一体式翻盖保护造型，操作方便，防护罩不易丢失。  
Patent design, using the cover protection model, easy to operate

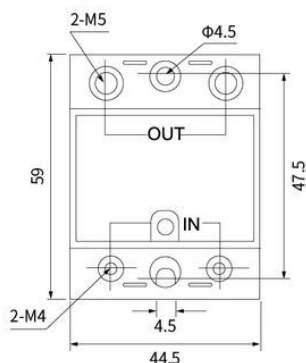


CSR-B01  
导轨卡件 Rail clamp

外观和尺寸 Appearance and Dimension

**CSRE-DA**

单相固态继电器  
Single Phase Solid State Relay

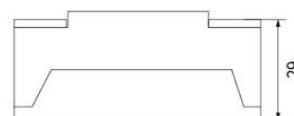
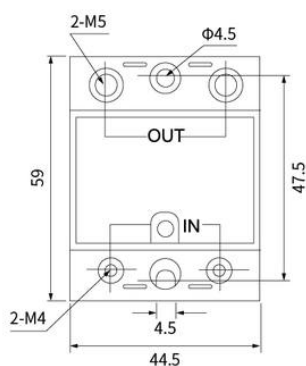


产品型号 Model

CSRE-10DA  
CSRE-25DA  
CSRE-40DA  
CSRE-60DA  
CSRE-80DA  
CSRE-100DA

**CSRE-AA**

单相固态继电器  
Single Phase Solid State Relay

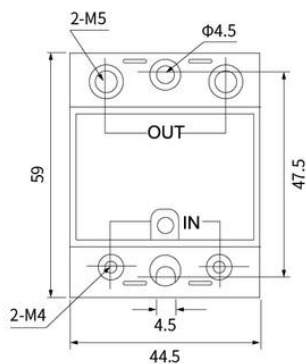


产品型号 Model

CSRE-10AA  
CSRE-25AA  
CSRE-40AA  
CSRE-60AA  
CSRE-80AA  
CSRE-100AA

**CSRE-VA**

单相固态继电器  
Single Phase Solid State Relay



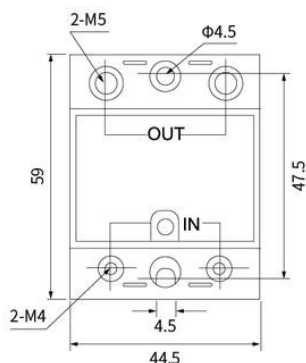
产品型号 Model

CSRE-10VA  
CSRE-25VA  
CSRE-40VA

外观和尺寸 Appearance and Dimension

**CSRE-DD**

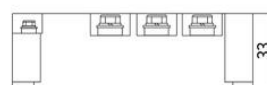
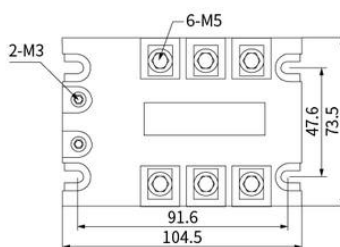
单相固态继电器  
Single Phase Solid State Relay



| 产品型号 Model |
|------------|
| CSRE-10DD  |
| CSRE-25DD  |
| CSRE-40DD  |

**CTRE-DA**

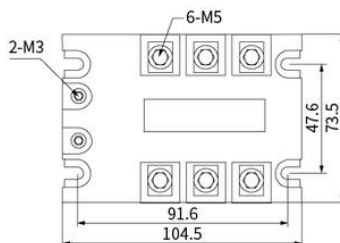
三相固态继电器  
Three Phase Solid State Relay



| 产品型号 Model |
|------------|
| CTRE-10DA  |
| CTRE-25DA  |
| CTRE-40DA  |
| CTRE-60DA  |
| CTRE-80DA  |
| CTRE-100DA |
| CTRE-120DA |

**CTRE-AA**

三相固态继电器  
Three Phase Solid State Relay

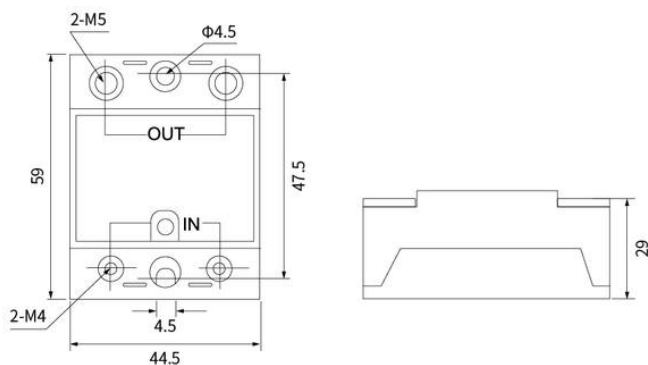


| 产品型号 Model |
|------------|
| CTRE-10AA  |
| CTRE-25AA  |
| CTRE-40AA  |
| CTRE-60AA  |
| CTRE-80AA  |
| CTRE-100AA |
| CTRE-120AA |

## 外观和尺寸 Appearance and Dimension

### CSR-DA

单相固态继电器  
Single Phase Solid State Relay

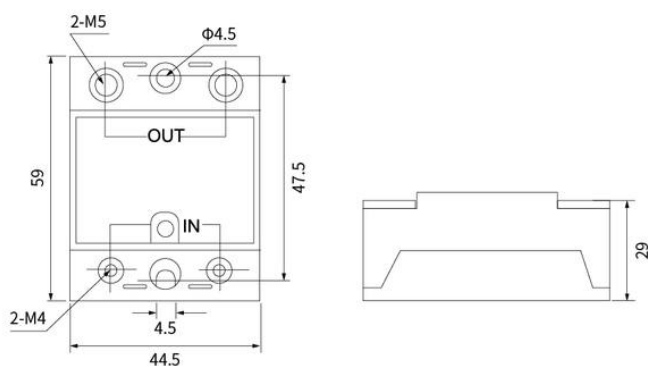


#### 产品型号 Model

CSR-10DA  
CSR-25DA  
CSR-40DA  
CSR-60DA  
CSR-80DA  
CSR-100DA

### CSR-AA

单相固态继电器  
Single Phase Solid State Relay

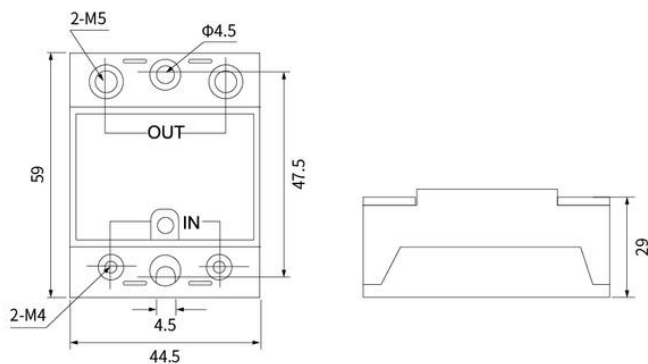


#### 产品型号 Model

CSR-10AA  
CSR-25AA  
CSR-40AA  
CSR-60AA  
CSR-80AA  
CSR-100AA

### CSR-VA

单相固态继电器  
Single Phase Solid State Relay



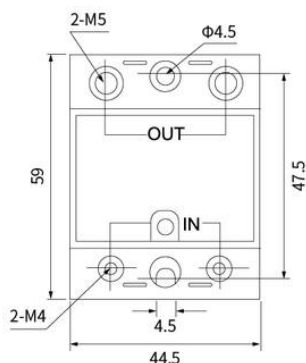
#### 产品型号 Model

CSR-10VA  
CSR-25VA  
CSR-40VA

外观和尺寸 Appearance and Dimension

**CSR-DD**

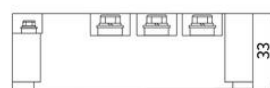
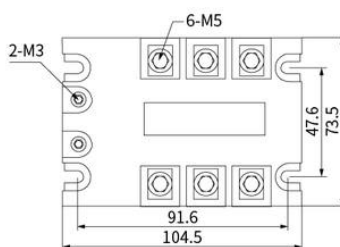
单相固态继电器  
Single Phase Solid State Relay



| 产品型号 Model |
|------------|
| CSR-10DD   |
| CSR-25DD   |
| CSR-40DD   |

**CTR-DA**

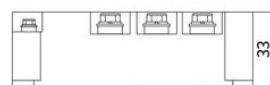
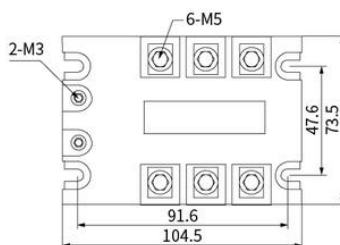
三相固态继电器  
Three Phase Solid State Relay



| 产品型号 Model |
|------------|
| CTR-10DA   |
| CTR-25DA   |
| CTR-40DA   |
| CTR-60DA   |
| CTR-80DA   |
| CTR-100DA  |
| CTR-120DA  |

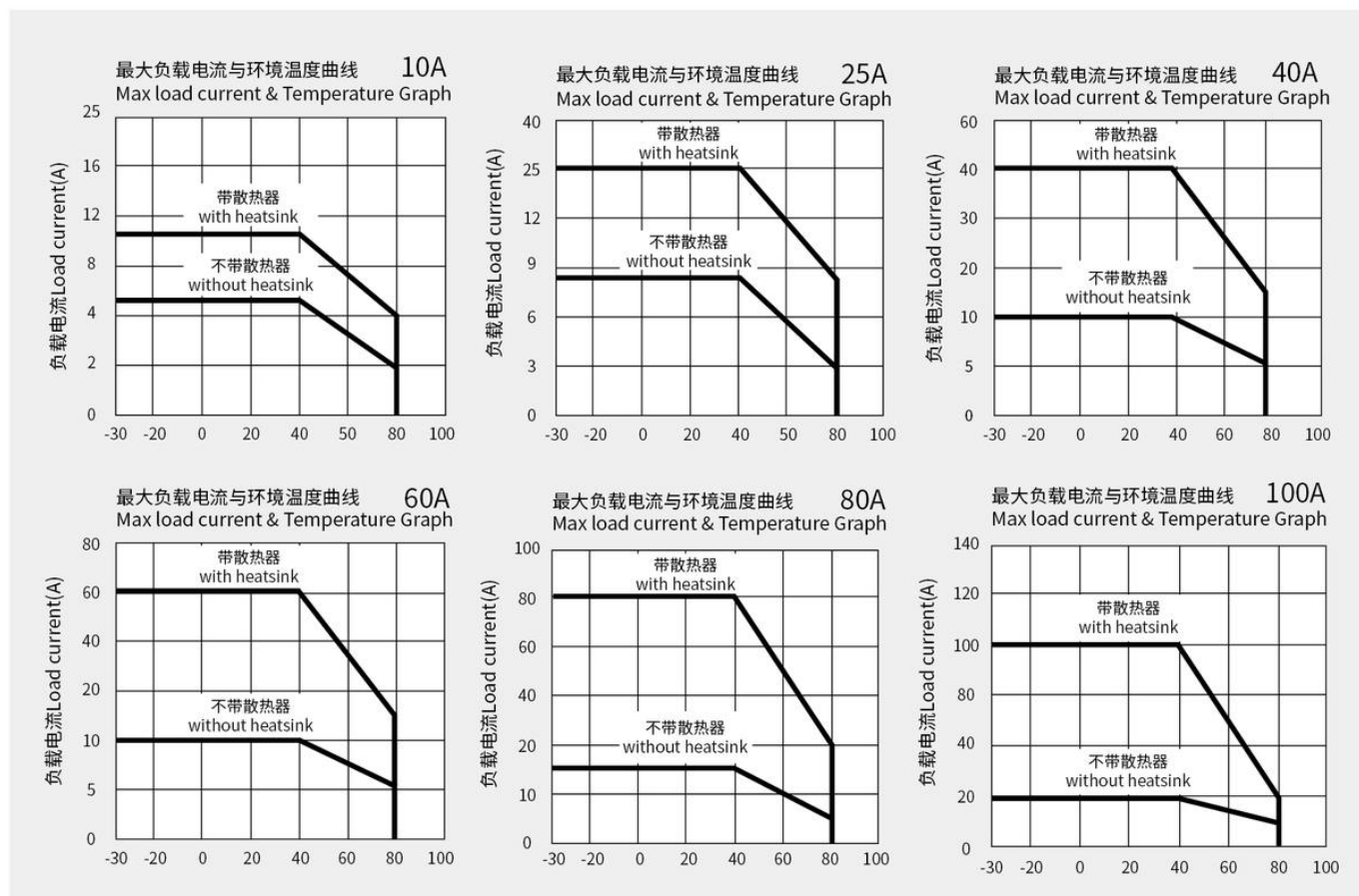
**CTR-AA**

三相固态继电器  
Three Phase Solid State Relay



| 产品型号 Model |
|------------|
| CTR-10AA   |
| CTR-25AA   |
| CTR-40AA   |
| CTR-60AA   |
| CTR-80AA   |
| CTR-100AA  |
| CTR-120AA  |

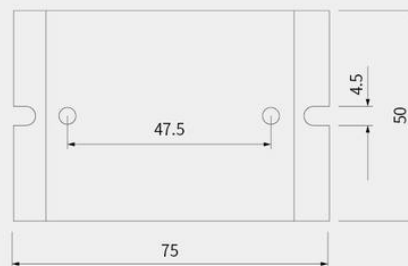
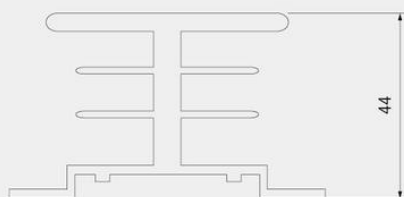
固态继电器耗散功率曲线图 Dissipative Power Curve of CSR



固态继电器用散热器 State Relay Heatsink

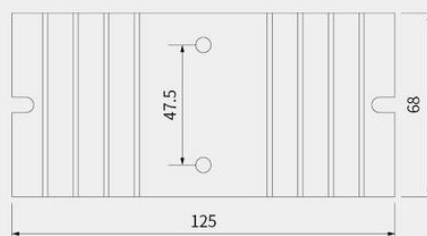
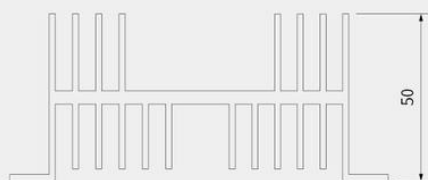
CSR-A01

(For CSR10A-40A)



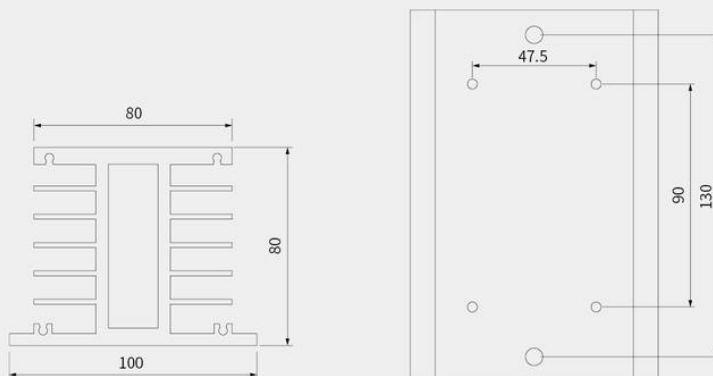
CSR-A02

(For CSR60A-100A)



## 固态继电器用散热器 State Relay Heatsink

CTR-A03  
(For CTR10A-120A)



## 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.