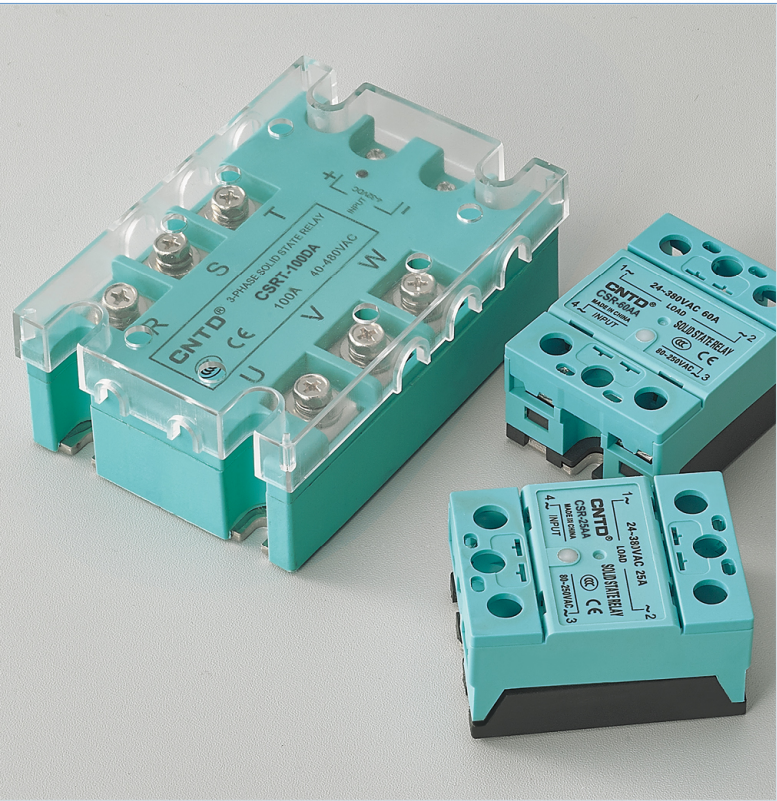




特点 Features

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。

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.

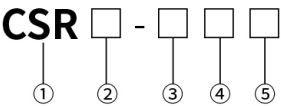
according switch mode CSR have zero-cross and random type. When the input control signal, random type conduction immediately, zero cross type need load voltage turn to zero region just can conduction. Revocation of the control signal,all can cut off when less than maintenance current. zero cross type 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. CNTD'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.



选型说明 Model Designation



序号 No	项目 Item	代号 Code	说明 Description
①	系列号 Serial number	CSR	单相固态继电器 CSR=Single Phase Solid State Relay
		CTR	三相固态继电器 CTR=Three Phase Solid State Relay
②	产品类型 Product type	无None	标准型 Standard type (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 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 类型 Installation dimension	DA	DC4-32V / AC24-480V (3-phase40-480V)
		AA	AC80-250V input; CSRE90-250V; AC load
		DD	DC3-32V / DC12-250V
		VA	500kOhm0.25W / AC10-250V
⑤	特殊规格 Special specifications	无 None	Zero-cross turn-on (AC switching)
		R	Random turn-on (AC switching)

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

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

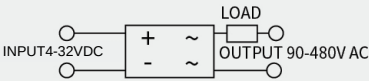
认证规格 Certification specifications	规格 Specifications	文件No. Document
CCC	GB/T 14048.5	请咨询昌得代表处 Please consult the CNTD Representative Office
CE	EN 60947-5-1	

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

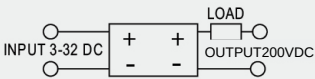
1、CSR-DA(DC TO AC) Application Circuit
DA应用电路



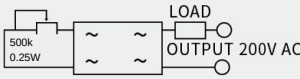
2、CSR-AA(AC TO AC) Application Circuit
AA应用电路



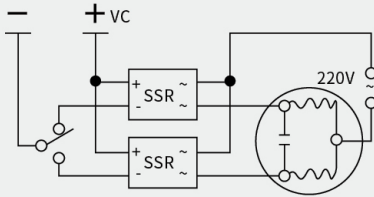
3、CSR-DD(DC to DC) Application Circuit
DD应用电路



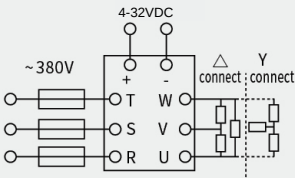
4、CSR-VA(voltage regulator) Application Circuit
VA应用电路



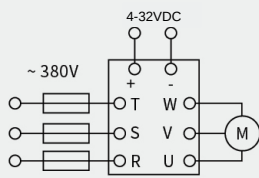
5、Motor positive and reverse Application Circuit
电机正反转应用电路



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

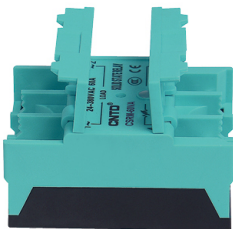
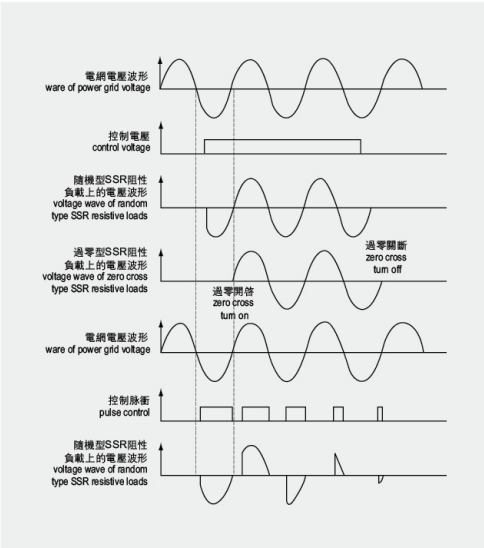
- 1. 严禁短路负载，可以使用快速熔断器。Strictly prohibit for load short circuit.Can use fast fuse.
- 2. 长期工作不能超过额定值的70%。Ling time working current can't over 70% of the nominal value.
- 3. 散热器温度不能超过与75℃。Heatsink temperature can't over 75℃.
- 4. 用于感性负载，加压敏电阻保护更好。Use at inductive load area, adding varistor for protect is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

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

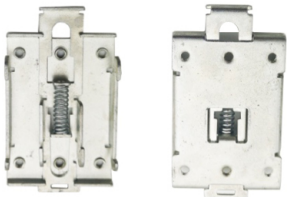
负载类型 Load type	纯电阻 Pure Resistance	电热丝 Electric hot wire	白炽灯泡 Incandescent lamp	变压器 / 电磁铁 Transformer/ Electromagnet	单相交流电机 1 phase AC motor	三相交流电机 3 phase AC motor
负载值 value of load	100%	50-70%	35-50%	25-40%	12-24%	18-33%

规格 Specifications

高端型 Improve Design Type	CSR-DA		CSR-AA		CSR-VA	CSR-DD	CTR-DA	
负载电流 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 Operation Voltage	24-480V AC		24-480V AC		10-250V AC	12-250V DC	40-480VAC	
控制电压 Control Voltage	4-32V DC		80-250V AC		500KΩ/1/4W	3-32V DC	4-32V DC	
控制电流 Control Current	DC 3-25mA		AC ≤ 12mA		/	DC 3-25mA	DC 3-25mA	
通态压降 V _{TM}	≤ 1.5V	≤ 1.5V	≤ 1.5V	≤ 1.5V	≤ 1.5V	≤ 2.3V	≤ 1.5V	≤ 1.5V
漏电流 I _{RRM}	≤ 10mA	≤ 20mA	≤ 10mA	≤ 20mA	≤ 5mA	≤ 5mA	≤ 15mA	≤ 15mA
关断时间 T _Q	≤ 10mS		≤ 10mS		≤ 10mS	≤ 10mS	≤ 10mS	
绝缘电压 V _{iso}	2500V AC		2500V AC		2500V AC	2500V AC	2500V AC	
绝缘电阻 R _{iso}	1000MΩ 500VDC		1000MΩ 500VDC		1000MΩ 500VDC	1000MΩ 500VDC	1000MΩ 500VDC	
工作温度 T _j	-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 coverprotection model, easy to operate

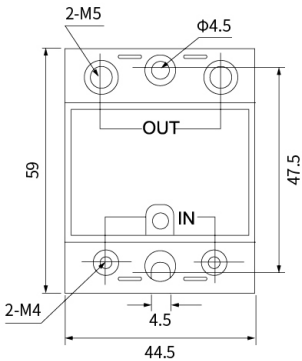


CSR-B01
导轨卡件 Rail clamp

外观和尺寸 Appearance and Dimension

CSRE-DA

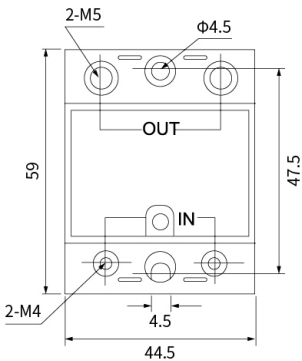
单相固态继电器
 Single Phase Solid State Relay



产品型号 Model
CSRE-10DA
CSRE-25DA
CSRE-40DA
CSRE-60DA
CSRE-80DA
CSRE-100DA

CSRE-AA

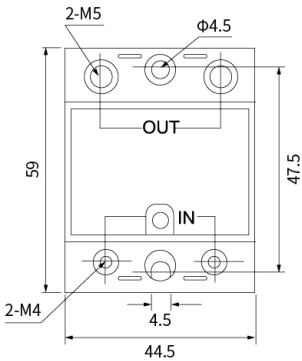
单相固态继电器
 Single Phase Solid State Relay



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

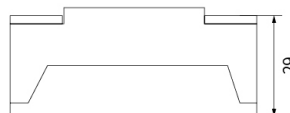
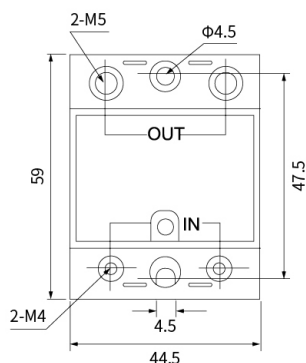


产品型号 Model
CSRE-10VA
CSRE-25VA
CSRE-40VA

外观和尺寸 Appearance and Dimension

CSRE-DD

单相固态继电器
Single Phase Solid State Relay

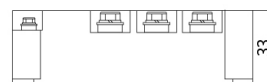
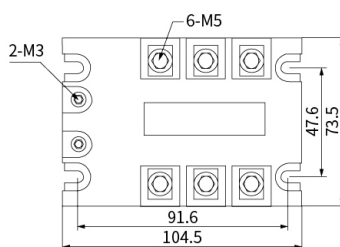


产品型号 Model

CSRE-10DD
CSRE-25DD
CSRE-40DD

CTRE-DA

三相固态继电器
Three Phase Solid State Relay

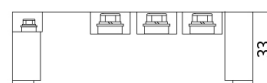
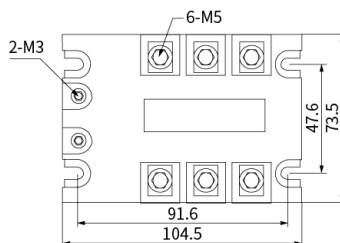


产品型号 Model

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



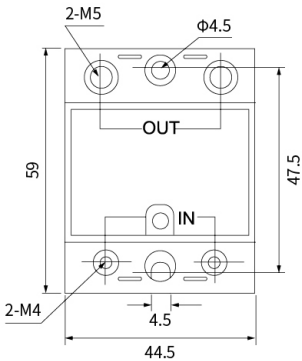
产品型号 Model

CTRE-10AA
CTRE-25AA
CTRE-40AA
CTRE-60AA
CTRE-80AA
CTRE-100AA
CTRE-120AA

外观和尺寸 Appearance and Dimension

CSR-DA

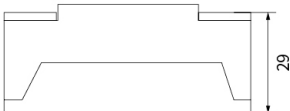
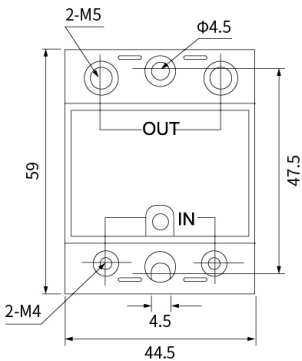
单相固态继电器
Single Phase Solid State Relay



产品型号 Model
CSR-10DA
CSR-25DA
CSR-40DA
CSR-60DA
CSR-80DA
CSR-100DA

CSR-AA

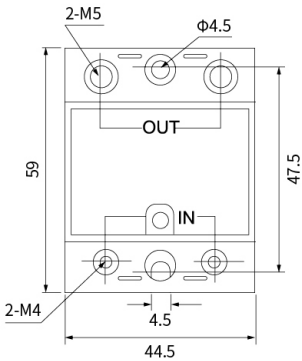
单相固态继电器
Single Phase Solid State Relay



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

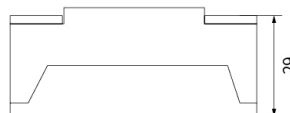
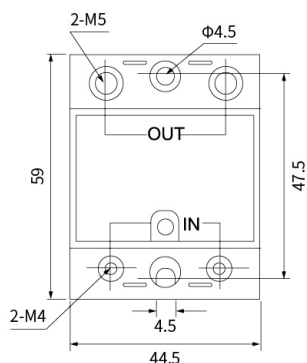


产品型号 Model
CSR-10VA
CSR-25VA
CSR-40VA

外观和尺寸 Appearance and Dimension

CSR-DD

单相固态继电器
Single Phase Solid State Relay

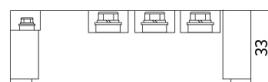
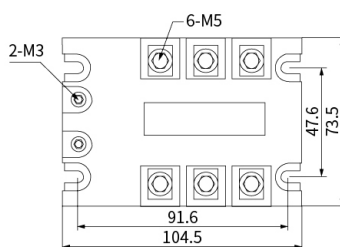


产品型号 Model

CSR-10DD
CSR-25DD
CSR-40DD

CTR-DA

三相固态继电器
Three Phase Solid State Relay

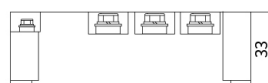
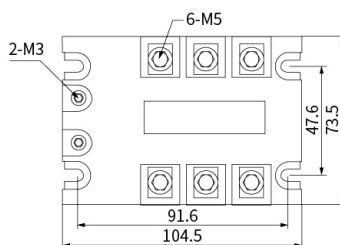
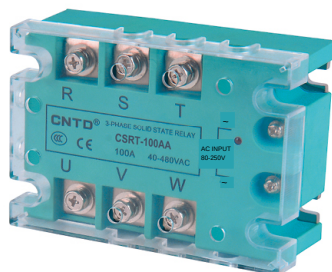


产品型号 Model

CTR-10DA
CTR-25DA
CTR-40DA
CTR-60DA
CTR-80DA
CTR-100DA
CTR-120DA

CTR-AA

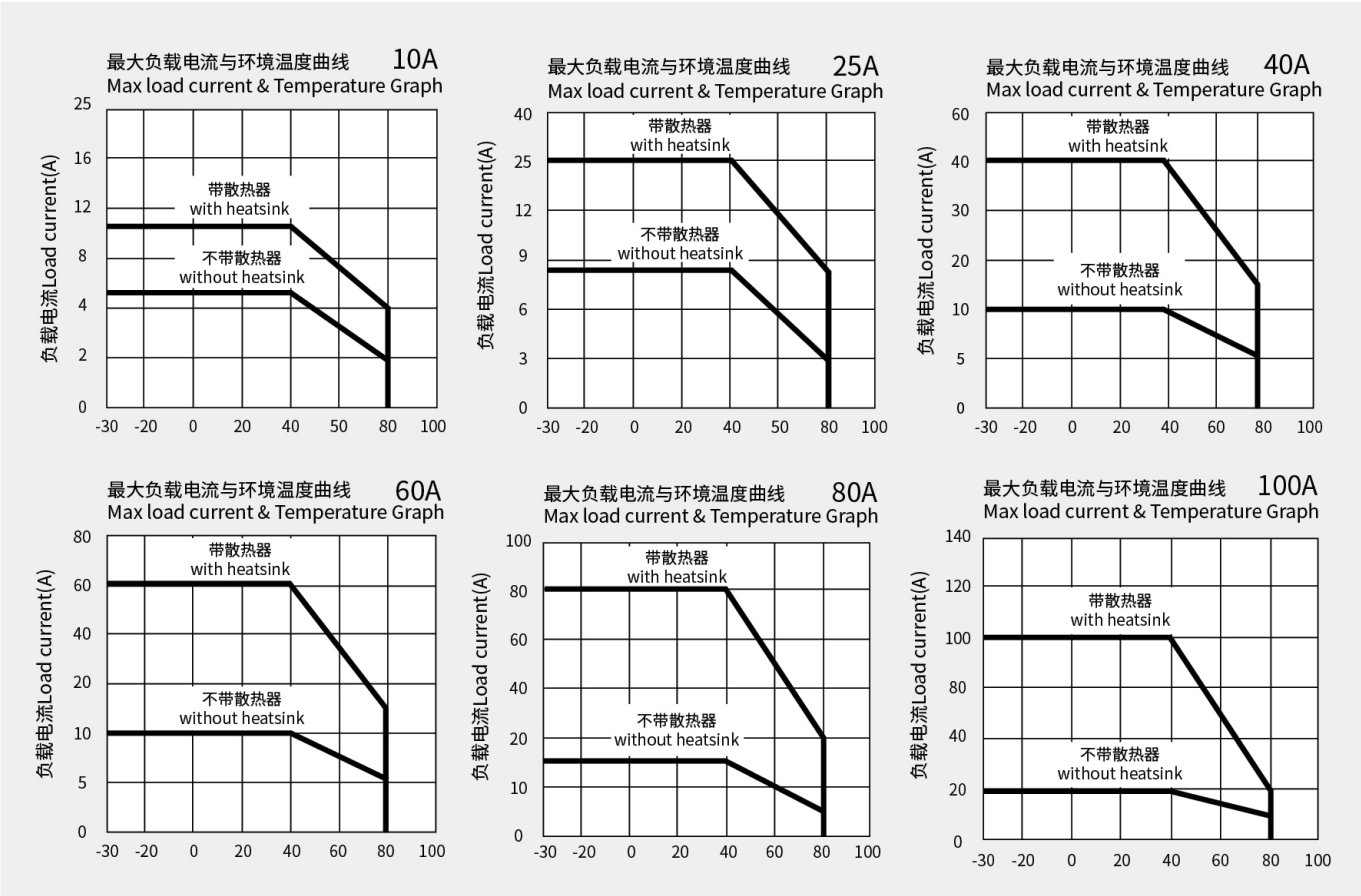
三相固态继电器
Three Phase Solid State Relay



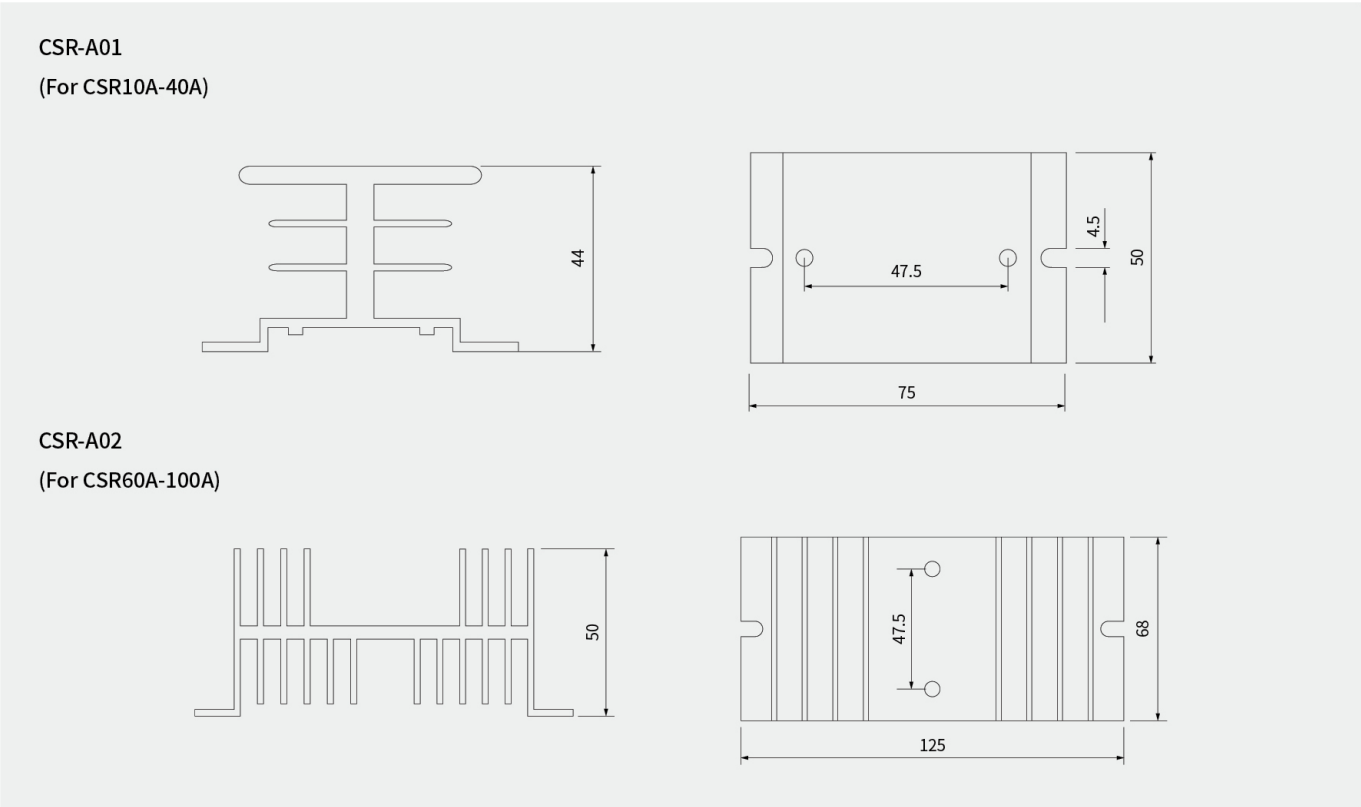
产品型号 Model

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

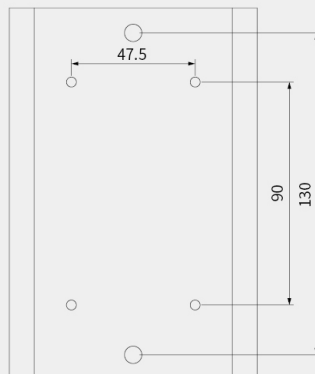
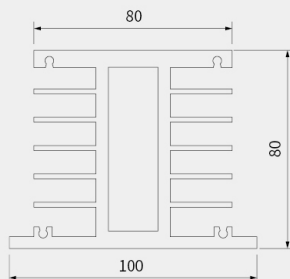


固态继电器用散热器 State Relay Heatsink



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.

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