Features 特点

- ☐ 12A/14A/16A miniature PCB Power Relay.
  12A/14A/16A小型PCB功率继电器。
- ☐ Contact gap can be greater than 1.85 & 2.1 mm.
  触点间距1.85mm、2.1mm。
- ☐ Conforms to European photovoltaic standard IEC 62109-1.
  符合欧洲光伏标准IEC 62109-1。
- ☐ Coil holding voltage can be reduced to 45~60%(for 210), 45~55%(for 210H) V of the nominal coil voltage for saving energy.
  线圈保持电压可降至线圈额定电压的45~60%(210)，45~55%(210H) V，以达节能功效。
- ☐ High performance PCB power relay for photovoltaic power generation systems (solar inverter).
  高性能功率继电器，可用于光伏系统(太阳能逆变器)。
- ☐ Complies with RoHS-Directive 2011/65/EU.
  符合RoHS 2011/65/EU指令。

Type List 型号列表

◆ Standard type 标准型

Terminal style 引出端形状	Contact form 触点形状	Insulation system UL 绝缘等级	Designation (provided with) 分类名称
			Flux tight 防助焊剂型
PCB terminal PCB 用引出端	2A (DPNO)	F	210-2AH-F-C
			210-2AH1-F-C

◆ High power type 高容量型

PCB terminal PCB 用引出端	2A (DPNO)	F	210H-2AH-F-C
			210H-2AH1-F-C

Ordering Information 型号命名

210	☐	-	2A	H	☐	-	F	-	C		☐
1	2		3	4	5		6		7		8

1. 210 -- Basic series designation 基本型号
2. Blank -- Standard type 空白 标准型
   H -- High power type 高容量型
3. 2A -- Double pole normally open 两组常开触点
4. H -- Contact material Ag alloy 銀合金触点
5. Blank -- Contact gap ≥1.85mm 空白 触点间距 ≥1.85mm
   1 -- Contact gap ≥2.1mm 触点间距 ≥2.1mm
6. F -- Class F F级绝缘
7. C -- Flux tight 防助焊剂型
8. ☐ -- Coil voltage (please refer to the coil rating data for the availability) 线圈电压(请参考线圈参数)

Contact Rating 触点额定负载

◆ Standard type 标准型

Resistive load **阻性负载**	12A 250VAC, On 1s /Off 9s, at 85°C, 30K ops.

◆ High power type 高容量型

Resistive load **阻性负载**	14A 250VAC, On 1s /Off 9s, at 85°C, 30K ops.
	16A 250VAC, On 1s /Off 9s, at 75°C, 30K ops.

Coil Rating 线圈参数 (DC)

◆ For contact gap ≥1.85 mm 触点间距 ≥1.85 mm

Rated voltage 额定电压 (V)	Rated current 额定电流 ±10 % at 23°C (mA)	Coil resistance 线圈电阻 ±10 % at 23°C (Ω)	Pick up voltage (Max.) 吸合电压 (最大值) at 23°C (1)	Drop out voltage (Min.) 释放电压 (最小值) at 23°C	Continuous voltage 持续电压 at 85°C (2) (3)	Power consumption at rated / holding voltage 额定/保持电压功耗
12	118	102	75 % of rated voltage 额定电压的75%	5 % of rated voltage 额定电压的5%	(210) 45~60%, (210H) 45~55% of rated voltage 额定电压的45~60%(210), 45~55%(210H)	approx. 约 1.4W / 0.29W (2)
24	58	411				

Notes : (1) To energize relay properly apply 100%~120% nominal coil voltage for 200ms.
继电器施加全额线圈电压的100%~120%维持200毫秒。
(2) Coil holding voltage is 45~60%(for 210), 45~55 %(for 210H) of nominal voltage after applying nominal voltage for 200ms.
线圈保持电压是全额线圈电压维持200毫秒后，降至全额线圈电压的45~60%(210)、45~55 %(210H)。
(3) At 85°C for contact rating 12A, 14A; at 75°C for contact rating 16A.
触点额定负载12A, 14A时85°C，触点额定负载16A时75°C。

◆ For contact gap ≥2.1 mm 触点间距 ≥2.1 mm

Rated voltage 额定电压 (V)	Rated current 额定电流 ±10 % at 23°C (mA)	Coil resistance 线圈电阻 ±10 % at 23°C (Ω)	Pick up voltage (Max.) 吸合电压 (最大值) at 23°C (1)	Drop out voltage (Min.) 释放电压 (最小值) at 23°C	Continuous voltage 持续电压 at 85°C (2) (3)	Power consumption at rated / holding voltage 额定/保持电压功耗
12	118	102	80 % of rated voltage 额定电压的80%	5 % of rated voltage 额定电压的5%	(210) 45~60%, (210H) 45~55% of rated voltage 额定电压的45~60%(210), 45~55%(210H)	approx. 约 1.4W / 0.29W (2)
24	58	411				

Notes : (1) To energize relay properly apply 100%~120% nominal coil voltage for 200ms.
继电器施加全额线圈电压的100%~120%维持200毫秒。
(2) Coil holding voltage is 45~60%(for 210), 45~55 %(for 210H) of nominal voltage after applying nominal voltage for 200ms.
线圈保持电压是全额线圈电压维持200毫秒后，降至全额线圈电压的45~60%(210)、45~55 %(210H)。
(3) At 85°C for contact rating 12A, 14A; at 75°C for contact rating 16A.
触点额定负载12A, 14A时85°C，触点额定负载16A时75°C。

Specification 技术参数

Contact material 触点材料	Ag alloy 银合金	
Contact resistance (1) 接触电阻 (1)	100mΩ Max. (at 1A/6VDC by 4-wire resistance measurement 四端法) 6 mΩ Max. (By voltage drop 10A) (以10A压降法)	
Operate time (1) 吸合时间 (1)	20ms Max.	
Release time (1) 释放时间 (1)	15ms Max.	
Vibration resistance 振动	Operating extremes 稳定工作	10~55Hz , amplitude 振幅 1.5 mm
	Damage limits 损坏极限	10~55Hz , amplitude 振幅 1.5 mm

Shock resistance 冲击	Operating extremes 稳定工作	10G
	Damage limits 损坏极限	100G
Life expectancy 预期寿命	Mechanical 机械	100,000 ops. (frequency 动作频率 9,000 ops./hr)
Operating ambient temperature 工作环境温度	-40~+85°C (no freezing 不结冰) for contact rating 触点负载 12A,14A -40~+75°C (no freezing 不结冰) for contact rating 触点负载 16A	
Weight 重量	Approx. 约17 g	

Notes : (1) Initial value. Operate and release time excluding contact bounce.
初始值。吸合/释放时间不包含触点弹跳时间。
(2) All tests are conducted under room temperature and room humidity.
所有测试皆在常温常湿下执行。
(3) Consider the heat of PCB is necessary, please check the actual condition of PCB.
必须考虑PC板温度，请检查实际PC板条件状态。
(4) Applying no diode to this relay. The life expectancy will be lower when a diode is used. To use a varistor (ZNR) could absorb the coil surge of relay that is recommended.
禁用二极管。若使用二极管会缩短预期寿命。建议使用突波吸收器(ZNR)来吸收继电器的线圈脉冲。
(5) Do not use the relay exceeding the coil rating, contact rating and life expectancy, or this may cause the risk of overheating.
使用继电器请勿超过线圈规格负载、触点额定负载和预期寿命，否则可能会造成过热的风险。
(6) To assure optimum performance, avoid the relay from dropping, hitting, or other unnecessary shocks.
为保障继电器的理想性能，请避免继电器遭受摔落、碰撞，以及不必要的冲击。
(7) Do not switch the contacts without any load as the contact resistance may become increased rapidly.
请勿在无通负载下开闭触点，以免接触阻抗快速增加。
(8) Please contact Song Chuan for the detailed information.
详细内容请与松川公司联系。

Insulation Data 绝缘参数

Insulation resistance (1) 绝缘电阻 (1)	1000MΩ Min. (DC 500V)	
Dielectric strength (1) 介质耐压 (1)	Between open contact 开路触点间	: AC 1500V, 50/60Hz 1 min.
	Between contact and coil 触点线圈间	: AC 5000V, 50/60Hz 1 min.
	Between contact circuits 触点回路间	: AC 2500V, 50/60Hz 1 min.
Insulation of IEC 61810-1 / IEC 61810-1绝缘		
Clearance / creepage distances 空间/延面距离	Between coil to contact 触点线圈间	: Double 双倍, Reinforce 加强 ≥3 mm / ≥5 mm
	Between open contact 开路触点间	: Basic 基本, ≥1.5mm / ≥2.5mm
	Between contact circuits 触点回路间	: Double 双倍, Reinforce 加强 ≥3 mm / ≥5 mm
Rated insulation voltage 额定绝缘电压	250V	
Rated impulse withstand voltage 额定脉冲耐电压	2500V	
Pollution degree 污染等级	2	
Rated voltage 额定电压	230 / 400V	
Overvoltage category 过电压类别	II	

Compliant with European photovoltaic standard / 符合欧洲光伏标准	
Contact gap 触点间距	1.85mm Min. (IEC 62109-1 and VDE 0126)
	2.1mm Min. (IEC 62109-1 and VDE 0126)

Notes : (1) Initial value.
初始值。

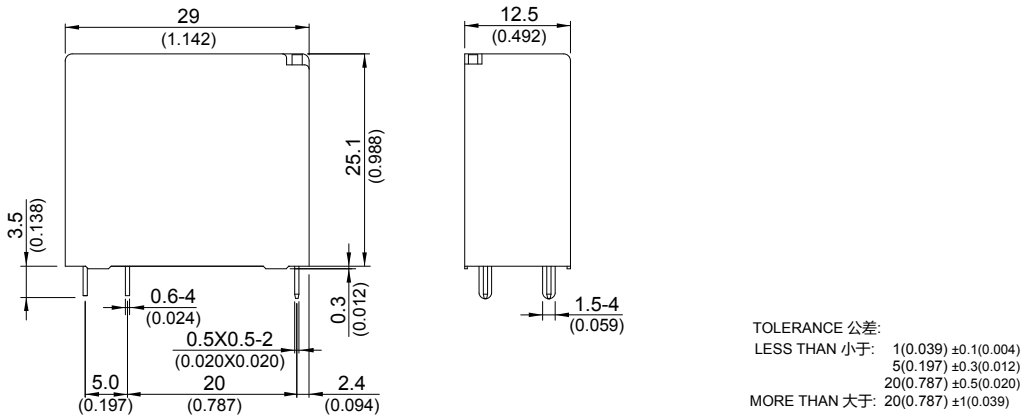
Safety Approval 安规认证

Certified 认证	UL / CUL	VDE
File No. 认证编号	E88991	40007827

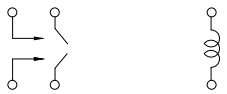
Safety Approval Rating 安规认证负载

UL / CUL		VDE	
210	210H	210	210H
NO : 12A 277VAC	NO : 16A 277VAC NO : 14A 277VAC	NO : 12A 250VAC T85	NO : 16A 250VAC T75 NO : 14A 250VAC T85

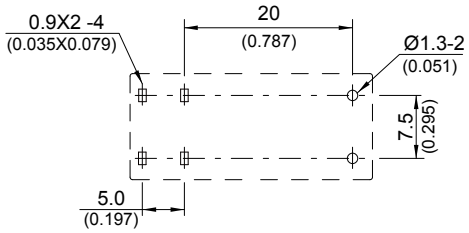
Outline Dimensions 外形尺寸



Wiring Diagram 接线图
(Bottom view 底视)

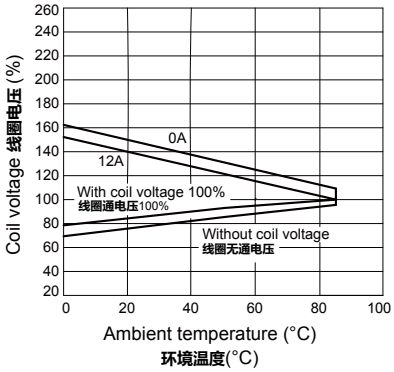


PC Board Layout PC板开孔图
(Bottom view 底视)

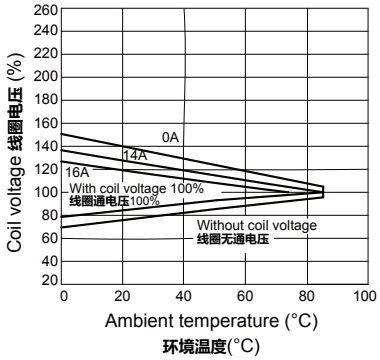


Engineering Data 性能曲线

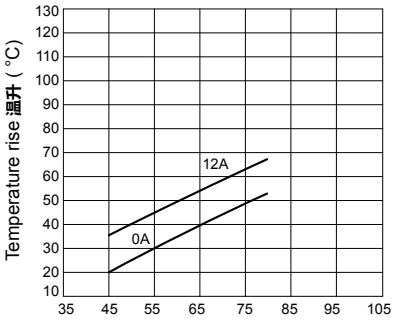
Coil operating range (210)
线圈操作容许范围(210)



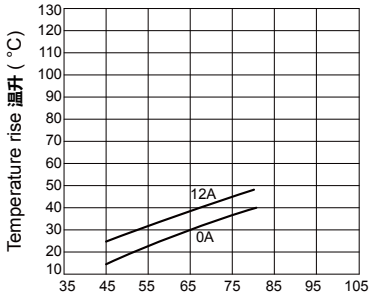
Coil operating range (210H)
线圈操作容许范围(210H)



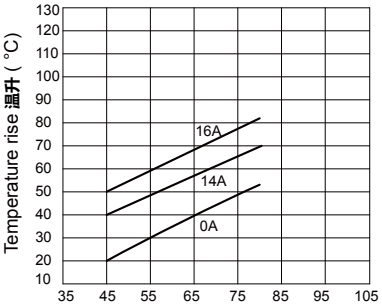
Coil temperature rise (210)
线圈温升(210)



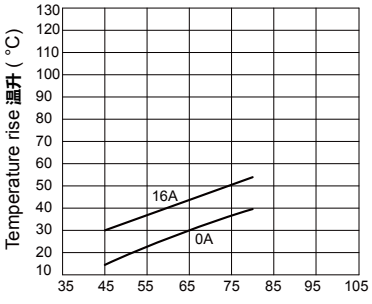
Coil temperature rise (210)
线圈温升(210)



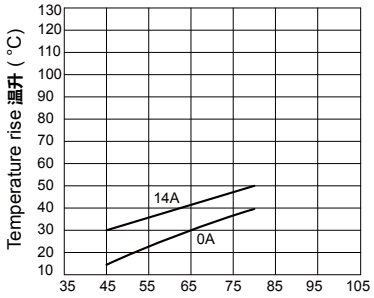
Coil temperature rise (210H)
线圈温升(210H)



Coil temperature rise (210H)
线圈温升(210H)



Coil temperature rise (210H)
线圈温升(210H)



All specifications subject to change without notice. This specification is for reference only; and further, the user should be in a right position to choose the suitable product for their own application. Please contact Song Chuan for the technical service.
规格变更不另行通知。 本产品规格书仅提供客户参考，具体选型应依客户使用条件选择与其相匹配的产品，请联系松川以便获取更多技术支持。