



»» Features 特点

- ☐ High duty sugar cube relay with 26A 277VAC, 32A 277VAC.
26A 277VAC、32A 277VAC大功率方糖形继电器。
- ☐ Contact gap can be greater than 1.5 & 2.1 mm.
触点间距1.5mm、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 36%, 55%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36%、55%V，以达节能功效。
- ☐ High performance PCB power relay for photovoltaic power generation systems (solar inverter), motor control, compressor control, home appliances.
高性能功率继电器，可用于光伏系统(太阳能逆变器)、电机控制、压缩机控制和家电应用。
- ☐ 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	Contact gap 触点间距	Designation (provided with) 分类名称
				Flux tight 防助焊剂型
PCB terminal PCB 用引出端	1A (SPNO)	F	1.5mm	110A-1AH-F-C
				110BA-1AH-F-C
			2.1mm	110A-1AH1-F-C
				110BA-1AH1-F-C

◆ High power type 高容量型

PCB terminal PCB 用引出端	1A (SPNO)	F	1.5mm	110HA-1AH-F-C
				110BHA-1AH-F-C
			2.1mm	110HA-1AH1-F-C
				110BHA-1AH1-F-C

◆ Extremely high capacity type 极高容量型

PCB terminal PCB 用引出端	1A (SPNO)	F	2.1mm	110E-1AH1-F-C
				110BE-1AH1-F-C

»» Ordering Information 型号命名

110 □ □ □ - 1A H □ - F - C □
 1 2 3 4 5 6 7 8 9 10

- | | | | |
|----------|-------------------------------------|----------|--|
| 1. 110 | -- Basic series designation
基本型号 | E | -- Extremely high capacity type
(Only for 2.1mm contact gap)
极高容量型(仅2.1mm触点间距) |
| 2. Blank | -- Standard type
空白 标准型 | H | -- High power type
高容量型 |
| B | -- With insulation barrier
带绝缘片型 | | |
| 3. Blank | -- Standard type
空白 标准型 | 4. Blank | -- Standard type
空白 标准型 |
| | | A | -- Double pin type
(not available with 110E version)
双端子型(110E无此规格) |

- | | | | |
|----------|---|-------|---|
| 5. 1A | -- Single pole normally open
一组常开触点 | 8. F | -- Class F
F级绝缘 |
| 6. H | -- Contact material Ag alloy
银合金触点 | 9. C | -- Flux tight
防助焊剂型 |
| 7. Blank | -- Contact gap $\geq 1.5\text{mm}$
空白 触点间距 $\geq 1.5\text{mm}$ | S | -- Sealed type washable
密闭可清洗型 |
| 1 | -- Contact gap $\geq 2.1\text{mm}$
触点间距 $\geq 2.1\text{mm}$ | 10. □ | -- 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	26A 240VAC, On 1s /Off 9s, at 75°C, 30K ops.
	22A 240VAC, On 1s /Off 9s, at 85°C, 30K ops.
Inductive load 感性负载	26A 240VAC, AC-7a, $\cos\phi 0.8$, On 0.1s /Off 10s, at 85°C, 30K ops.

◆ High power type 高容量型

Resistive load 阻性负载	26A 240VAC, On 1s /Off 9s, at 85°C, 30K ops.
Inductive load 感性负载	26A 240VAC, AC-7a, $\cos\phi 0.8$, On 0.1s /Off 10s, at 85°C, 30K ops.

◆ Extremely high capacity type 极高容量型

Resistive load 阻性负载	32A 240VAC, On 1s /Off 9s, at 85°C, 10K ops.
	Making 16A, Carrying 32A, Breaking 16A / 240VAC, On 1s /Off 9s, at 85°C, 30K ops.

»» Coil Rating 线圈参数 (DC)

◆ For contact gap $\geq 1.5\text{mm}$ 触点间距 $\geq 1.5\text{mm}$

Rated voltage 额定电压 (V)	Rated current 额定电流 $\pm 10\%$ at 23°C (mA)	Coil resistance 线圈电阻 $\pm 10\%$ 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⁾	Power consumption at rated / holding voltage 额定/保持电压 功耗
12	140	86	75 % of rated voltage	5 % of rated voltage	50~55 % of rated voltage	approx. 约 1.67W / 0.5W ⁽²⁾
24	70	345	额定电压的75%	额定电压的5%	额定电压的50~55%	
48	35	1380				

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 50~55% 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50~55%。

◆ For contact gap $\geq 2.1\text{mm}$ 触点间距 $\geq 2.1\text{mm}$

Rated voltage 额定电压 (V)	Rated current 额定电流 $\pm 10\%$ at 23°C (mA)	Coil resistance 线圈电阻 $\pm 10\%$ 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⁾	Power consumption at rated / holding voltage 额定/保持电压 功耗
12	140	86	80 % of rated voltage	5 % of rated voltage	50~55 % of rated voltage	approx. 约 1.67W / 0.5W ⁽²⁾
24	70	345	额定电压的80%	额定电压的5%	额定电压的50~55%	
48	35	1380				

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 50~55% 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50~55%。

◆ Extremely high capacity type for contact gap ≥ 2.1 mm 极高容量型(触点间距 ≥ 2.1 mm)

Rated voltage 额定电压 (V)	Rated current 额定电流 $\pm 10\%$ at 23°C (mA)	Coil resistance 线圈电阻 $\pm 10\%$ 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⁾	Power consumption at rated / holding voltage 额定/保持电压 功耗
12	233	51	80 % of rated voltage	5 % of rated voltage	32~36 % of rated voltage	approx. 约 2.8W / 0.29W ⁽²⁾
24	117	206	额定电压的80%	额定电压的5%	额定电压的32~36%	

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 32~36% 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32~36%。

Specification 技术参数

Contact material 触点材料	Ag alloy 银合金	
Contact resistance ⁽¹⁾ 接触电阻 ⁽¹⁾	100m Ω Max. (at 1A/6VDC by 4-wire resistance measurement 四端法) 6 m Ω Max. (By voltage drop 10A) (以10A压降法)	
Operate time ⁽¹⁾ 吸合时间 ⁽¹⁾	15ms Max.	
Release time ⁽¹⁾ 释放时间 ⁽¹⁾	10ms Max.	
Vibration resistance 振动	Operating extremes 稳定工作	10~50Hz, amplitude 振幅 1.0 mm
	Damage limits 损坏极限	10~50Hz, amplitude 振幅 1.0 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	500,000 ops. 100,000 ops. (for 110E Type) (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)	
Weight 重量	Approx. 约15 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⁾	100MΩ Min. (DC 500V)	
Dielectric strength ⁽¹⁾ 介质耐压 ⁽¹⁾	Between open contact 开路触点间	: AC 1000V, 50/60Hz 1 min.
	Between contact and coil 触点线圈间	: AC 2500V, 50/60Hz 1 min. : AC 4000V, 50/60Hz 1 min. (for 110B series)
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	: Basic 基本, ≥1.5mm / ≥2.5mm : Double 双倍, Reinforce 加强 ≥3 mm / ≥5 mm (for 110B series)
	Between open contact 开路触点间	: Basic 基本, ≥1.5mm / ≥2.5mm
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	1.5mm (VDE 0126)	
	2.1mm (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	40025801

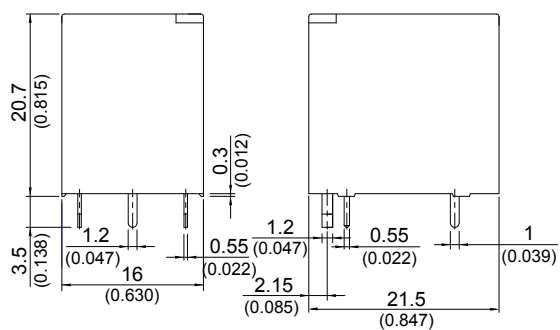
»» Safety Approval Rating 安规认证负载

UL / CUL			VDE		
110	110H	110E	110	110H	110E
22A 277VAC 26A 277VAC	26A 277VAC	32A 277 VAC	22A 250VAC T85 26A 250VAC T75	26A 250VAC T85	32A 250VAC T85

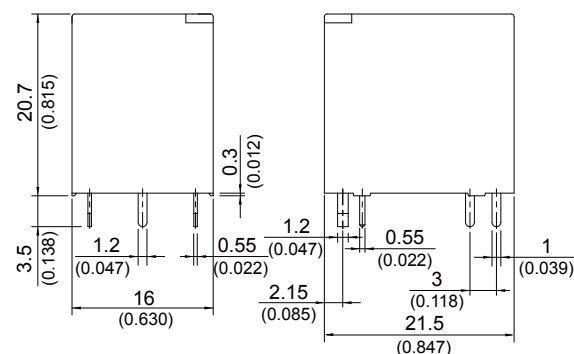
Notes : Flux tight version is recommended in high temperature. If production includes a cleaning process and sealed type is selected, the vent-nib should be removed after the process is completed.
使用于高温环境时，推荐选用防助焊剂型式。若因有清洗制程而选用密闭型时，请于清洗制程后，移除通气孔盖。

Outline Dimensions 外形尺寸

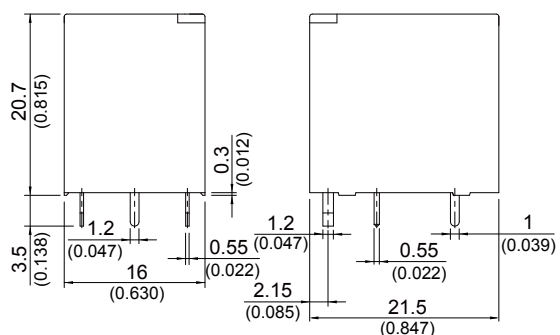
◆ 110, 110H



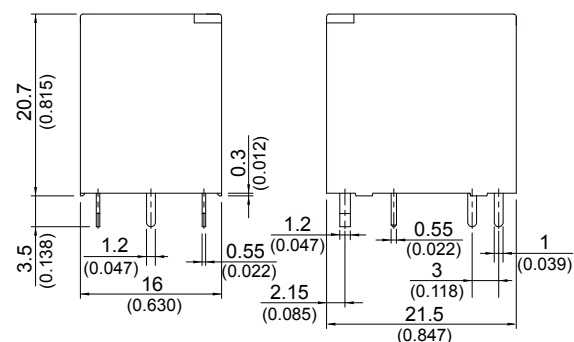
◆ 110A, 110HA



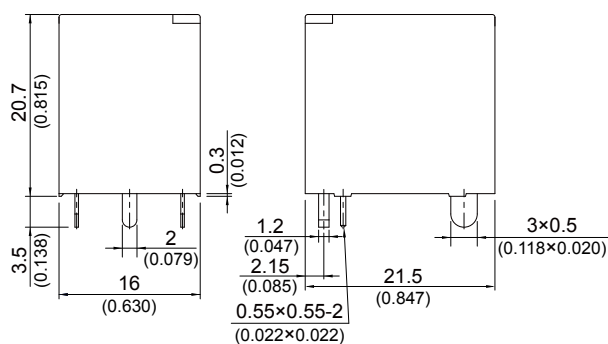
◆ 110B, 110BH



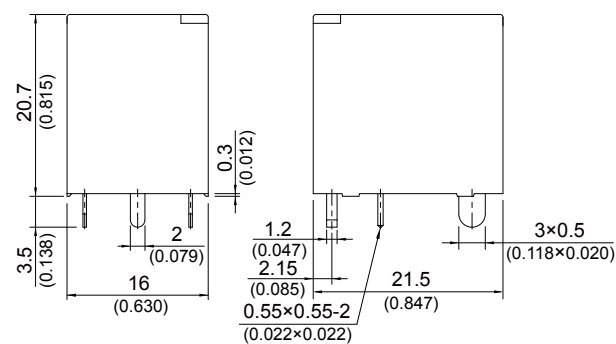
◆ 110BA, 110BHA



◆ 110E



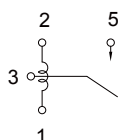
◆ 110BE



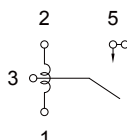
TOLERANCE 公差:
 LESS THAN 小于: 1(0.039) $\pm 0.1(0.004)$
 5(0.197) $\pm 0.3(0.012)$
 20(0.787) $\pm 0.5(0.020)$
 MORE THAN 大于: 20(0.787) $\pm 1(0.039)$

Wiring Diagram 接线图 (Bottom view 底视)

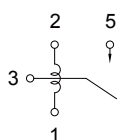
◆ 110, 110H, 110E



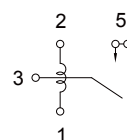
◆ 110A, 110HA



◆ 110B, 110BH, 110BE

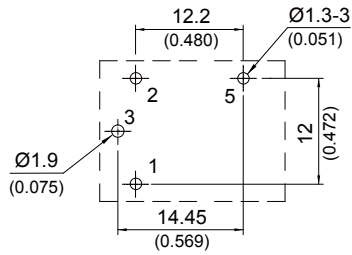


◆ 110BA, 110BHA

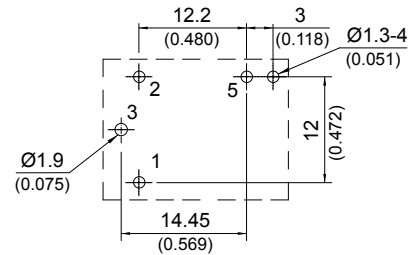


»» PC Board Layout PC板开孔图 (Bottom view 底视)

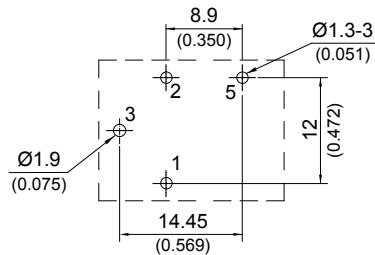
◆ 110,110H



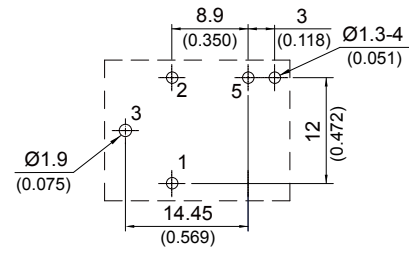
◆ 110A,110HA



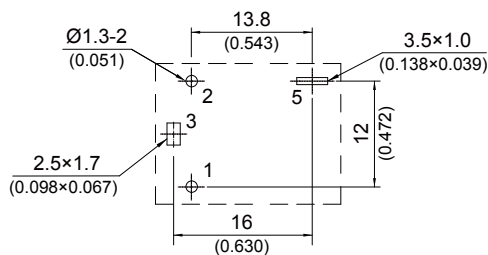
◆ 110B,110BH



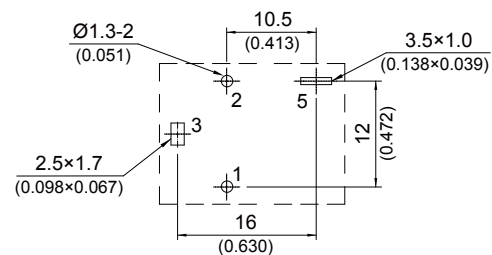
◆ 110BA,110BHA



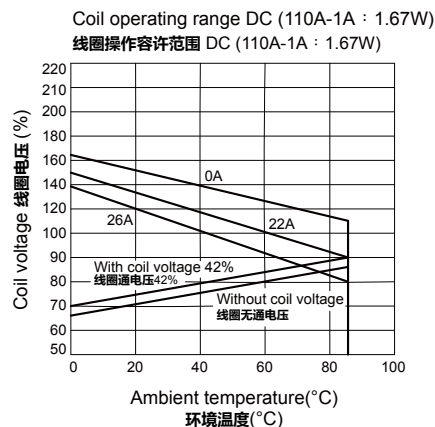
◆ 110E



◆ 110BE



»» Engineering Data 性能曲线



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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。