



»» Features 特点

- Heavy duty 140A 400VAC(for 511E), 100A 400VAC (for 511H) power type.
大功率140A 400VAC(511E), 100A 400VAC(511H)功率继电器。
- SPDM contact configuration with large contact gap 3.0mm version.
常开触点,一组动合,加大触点间距3.0mm。
- 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 50~55% 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50~55% 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

Terminal style 引出端形状	Contact form 触点形状	Designation (provided with) 分类名称
		Flux tight 防助焊剂型
PCB terminal PCB 用引出端	1A (SPDM)	511EP-1AH-F-C
		511HP1-1AH-F-C

»» Ordering Information 型号命名

511	E	P	-	1A	H	-	F	-	C	<input type="checkbox"/>
1	2	3		4	5		6		7	8
1. 511	-- Basic series designation 基本型号						5. H	-- Contact material Ag alloy 银合金触点		
2. H	-- High power type 高容量型						6. F	-- Class F F级绝缘		
E	-- Extreme type 极高容量型						7. C	-- Flux tight 防助焊剂型		
3. P	-- PCB terminal (only for 511E) PCB用引出端(仅511E适用)						8. <input type="checkbox"/>	-- Coil voltage (please refer to the coil rating data for the availability) 线圈电压(请参考线圈参数)		
P1	-- PCB terminal (only for 511H) PCB用引出端(仅511H适用)									
4. 1A	-- Form A, single-pole, double-make (SPDM) 常开触点,一组动合(SPDM)									

»» Contact Rating 触点额定负载

◆ High power type 高容量型

Rated load (Resistive) 阻性负载	Making 40A, Carrying 100A, Breaking 40A / 240VAC, On 1s/Off 9s, at 85°C, 10K ops.
	Making 30A, Carrying 100A, Breaking 30A / 400VAC, On 1s/Off 9s, at 85°C, 10K ops.
Max. switching current 最大开关电流	100A
Max. switching voltage 最大开关电压	400VAC

◆ Extreme type 极高容量型

Rated load (Resistive) 阻性负载	Making 40A, Carrying 120A, Breaking 40A / 240VAC, On 1s/Off 9s, at 85°C, 10K ops
	Making 30A, Carrying 120A, Breaking 30A / 400VAC, On 1s/Off 9s, at 85°C, 10K ops.
Max. switching current 最大开关电流	140A
Max. switching voltage 最大开关电压	400VAC

»» Coil Rating 线圈参数 (DC)

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⁾	Power consumption at rated / holding voltage 额定/保持电压 功耗
12	266.7	45	75 % of rated voltage 额定电压 的75%	5 % of rated voltage 额定电压 的5%	50~55 % of rated voltage 额定电压的 50~55%	approx. 约 3.2W / 0.8W ⁽²⁾
24	133.3	180				

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%。

»» Specification 技术参数

Contact material 触点材料	Ag alloy 银合金	
Contact gap 触点间距	3.0 mm Min	
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⁾	30ms Max.	
Release time ⁽¹⁾ 释放时间 ⁽¹⁾	30ms Max.	
Vibration resistance 振动	Operating extremes 稳定工作	10~50Hz , amplitude 振幅 1.5 mm
	Damage limits 损坏极限	10~50Hz , 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	1,000,000 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)	
Weight 重量	Approx. 约170 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 2000V, 50/60Hz 1 min.
	Between contact and coil 触点线圈间	: AC 4000V, 50/60Hz 1 min.
Insulation of IEC 61810-1 / IEC 61810-1 绝缘		
Clearance / creepage distances 空间/爬面距离	Between coil to contact 触点线圈间	: Double 双倍/Reinforce 加强, ≥3.0mm / ≥5.0 mm (for 250VAC) ≥3.0mm / ≥8.0 mm (for 400VAC)
	Between open contact 开路触点间	: Basic 基本, ≥1.5 mm/ ≥2.5 mm (for 250VAC) ≥3.0 mm/ ≥4.0 mm (for 400VAC)
Rated insulation voltage 额定绝缘电压	250 / 400V	
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	3.0mm (IEC 62109-1 and VDE 0126)	

Notes : (1) Initial value.
初始值。

»» Safety Approval 安规认证

Certified 认证	UL / CUL	TUV
File No. 认证编号	E88991	R50267102

»» Safety Approval Rating 安规认证负载

◆ 511H type

UL / CUL	TUV
60A 277VAC, Resistive, Carrying current 100A 30A 400VAC, Resistive, Carrying current 100A	Making 60A, Carrying 100A, Breaking 60A /250VAC ⁽¹⁾ Making 30A, Carrying 100A, Breaking 30A /400VAC ⁽¹⁾

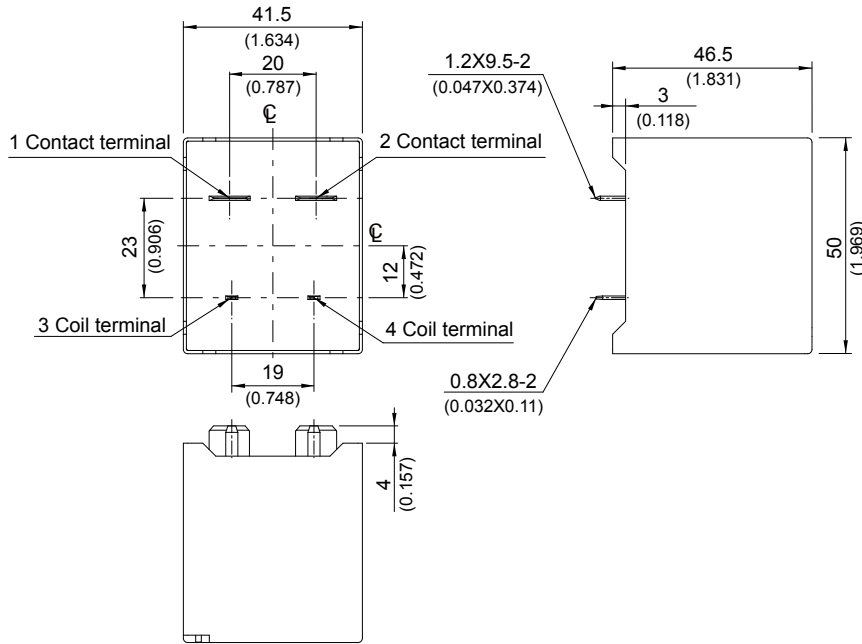
◆ 511E type

UL / CUL	TUV
60A 277VAC, Resistive, Carrying current 140A	Making 60A, Carrying 120A, Breaking 60A /250VAC ⁽¹⁾
60A 400VAC, Resistive, Carrying current 140A	Making 60A, Carrying 120A, Breaking 60A /400VAC ⁽¹⁾

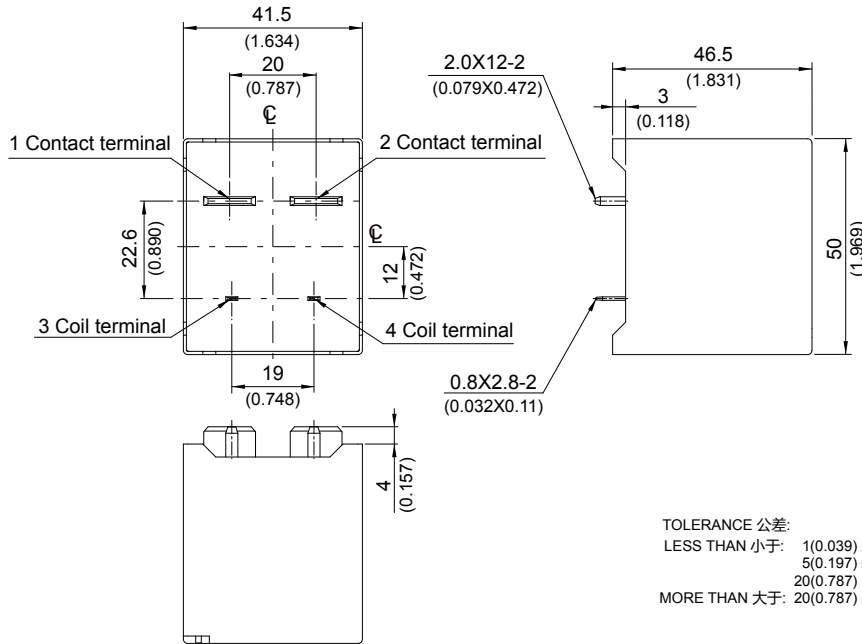
Notes : (1) With 50%~55% modulation of nominal coil voltage.
 调节至全额线圈电压的50%~55%。

»» Outline Dimensions 外形尺寸

◆ 511HP1

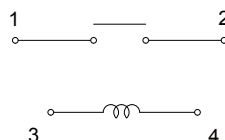


◆ 511EP



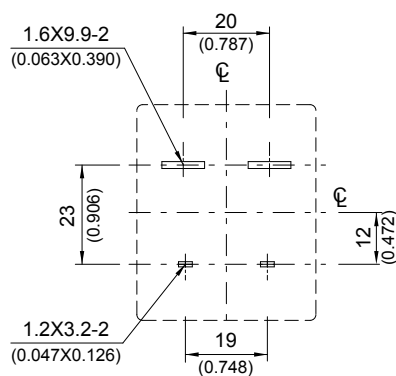
TOLERANCE 公差:
 LESS THAN 小于: 1(0.039) ±0.1(0.004)
 5(0.197) ±0.3(0.012)
 20(0.787) ±0.5(0.020)
 MORE THAN 大于: 20(0.787) ±1(0.039)

»» Wiring Diagram 接线图
 (Bottom view 底视)

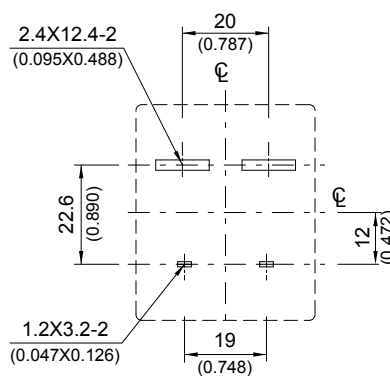


»» PC Board Layout PC板开孔图
(Bottom view 底视)

◆ 511HP1



◆ 511EP



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。