



»» Features 特点

- High voltage DC load control.
高电压DC负载控制。
- High performance DC relay for photovoltaic power generation systems, energy storage system and xEV charging device, etc.
高性能DC继电器，适用于太阳能发电系统、储能系统、xEV充电设备等。
- RoHS Compliant.
符合RoHS。

»» 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)		HD014P-1AH-F-C

»» Ordering Information 型号命名

HD014 P - 1A H - F - C
1 2 3 4 5 6 7

1. HD014 -- Basic series designation 基本型号	5. F -- Class F F级绝缘
2. P -- PCB terminal PCB用引出端	6. C -- Flux tight 防助焊剂型
3. 1A -- Form A, single-pole, double-make (SPDM) 常开触点, 一组动合(SPD)	7. <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)
4. H -- Contact material Ag alloy 银合金触点	

»» Contact Rating 触点额定负载

◆ Each 1 form A contact 单一常开触点

Rated load (Resistive) 阻性负载	30A 450VDC, On 1s/ Off 19s, 5000 ops. 40A 450VDC, On 1s/ Off 19s, 1000 ops.
Breaking voltage 断开电压	Max. 450VDC
Continuous carrying current 连续通电电流	Max. 40A

◆ Each 1 form A contact connected in series 串联常开触点

Rated load (Resistive) 阻性负载	20A 1000VDC, On 1s/ Off 19s, 5 ops. 25A 800VDC, On 1s/ Off 19s, 50 ops. 30A 660VDC, On 1s/ Off 19s, 300 ops. 30A 500VDC, On 1s/ Off 19s, 500 ops.
Breaking voltage 断开电压	Max. 1000VDC
Continuous carrying current 连续通电电流	Max. 40A

Notes : (1) Reference circuit for above series connection, please refer to figure 1.

上述串联请参见图1参考回路图。

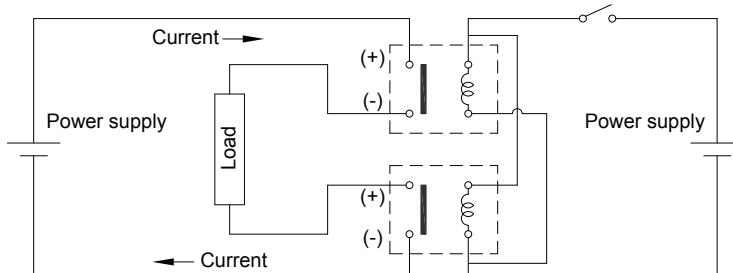
(2) With above 2 cm mounting distance between two relays.

两个继电器安装距离间隔2公分以上。

(3) Coil terminal with polarity sensitivity, please follow the layout instruction.

线圈端子带极性，请参见接线图。

◆ Figure 1 图1



»» 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	266.6	45	75 % of rated voltage 额定电压的80%	5 % of rated voltage 额定电压的5%	35~40 % of rated voltage 额定电压的45~55%	approx. 约 3.2W / 0.39W ⁽²⁾

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 35~40% 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35~40%。

»» Specification 技术参数

Contact material 触点材料	Ag alloy 银合金	
Contact gap 触点间距	≥ 4.0mm	
Voltage drop ⁽¹⁾ 接触压降 ⁽¹⁾	Typ. 40mV at 10A	
Operate time ⁽¹⁾ 吸合时间 ⁽¹⁾	30ms Max.	
Release time ⁽¹⁾ 释放时间 ⁽¹⁾	15ms Max.	
Vibration resistance 振动	Operating extremes 稳定工作	10~500Hz, 5.0G
	Damage limits 损坏极限	10~500Hz, 5.0G
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. (frequency 动作频率 9,000 ops./hr)
Operating ambient temperature 工作环境温度	-40~+105°C (no freezing 不结冰)	
Weight 重量	Approx. 约65 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) Coil and contact sides with polarities (+) and (-).

线圈和触点负载端带有正(+)负(-)极性。

(3) Unless otherwise specified, all tests are under room temperature and humidity.

所有测试皆在常温常湿下执行。

(4) 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。

(5) 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。

(6) 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。

(7) 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。

(8) To avoid mounting the relay in strong magnetic fields (near a transformer or magnet) or close to an object that radiates heat.

请避免将继电器安装在具有强烈磁场环境(例如变压器或磁铁附近),或是靠近发热源。

(9) Please pay attention to the phenomenon of freezing in the low temperature environment below 0°C. Please evaluate the actual use of the environment.

请注意0°C以下的低温环境中之结冰现象,并请评估环境的实际使用情况是否可能发生结冰。

(10) 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 : AC 2000V, 50/60Hz 1 min. 开路触点间	
	Between contact and coil : AC 2500V, 50/60Hz 1 min. 触点线圈间	
Insulation of IEC 61810-1 / IEC 61810-1 绝缘		
	Between coil to contact : Basic 基本, 触点线圈间 $\geq 5.5\text{mm} / \geq 4.5\text{mm}$ (for 450VDC) $\geq 5.5\text{mm} / \geq 6.0\text{mm}$ (for 600VDC) $\geq 5.5\text{mm} / \geq 10.0\text{mm}$ (for 1000VDC)	
	Between open contact : Functional 功能性 开路触点间	
Rated insulation voltage 额定绝缘电压	450, 600, 1000V	
Rated impulse withstand voltage 额定脉冲耐电压	6000V	
Pollution degree 污染等级	2	
Rated voltage 额定电压	230/400/690/1000V	
Overvoltage category 过电压类别	II	

Notes : (1) Initial value.

初始值。

» Safety Approval 安规认证

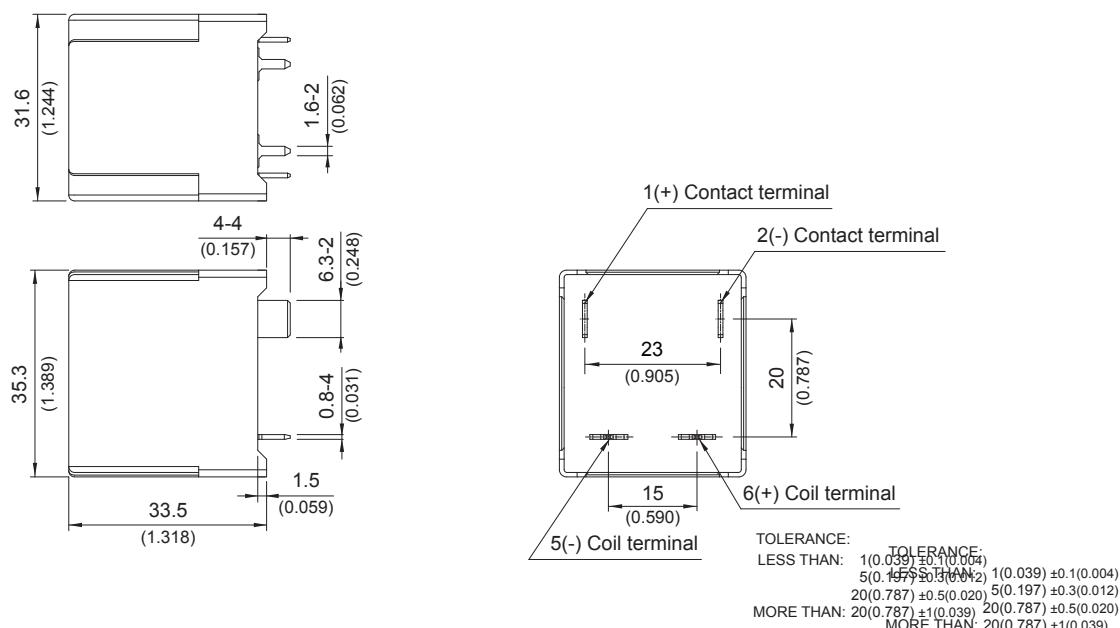
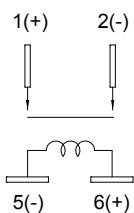
Certified	UL / CUL	TUV
File No.	E88991	R50387771

»» Safety Approval Rating 安规认证负载

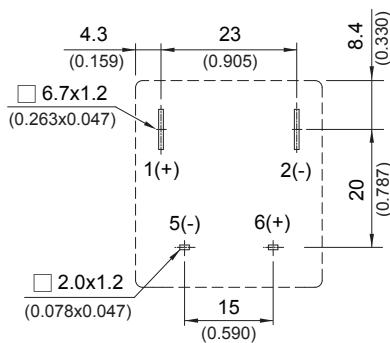
UL / CUL	TUV
12A 600VDC, Carrying current 40A 40A 600VDC ⁽¹⁾ 20A 1000VDC, Carrying current 40A ⁽¹⁾	Making 12A, Carrying 40A, Breaking 12A /600VDC T105 40A 600VDC ; T105 ⁽¹⁾ 20A 1000VDC ; T105 ⁽¹⁾
Notes : (1) Operating in a series connection. 于串联工作环境下。	

»» Outline Dimensions 外形尺寸

◆ HD015P (-C cover type) (-C外盖型式)

»» Wiring Diagram 接线图
(Bottom view 底视)

Load sides and coil terminals are with polarities (+) and (-).
线圈和触点负载端带有正(+)负(-)极性。

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

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。