



厦门华联电子股份有限公司

Xiamen Hualian Electronics Corp., Ltd.

# 产品规格书

## SPECIFICATION

产品名称: 光 MOS 固态继电器

**DESCRIPTION: Photo MOSFET Solid State Relay**

产品型号: HSSR-DA0 $\times$ - $\times$

**PART NO.: HSSR-DA0 $\times$ - $\times$**

拟制 Prepared	审核 Verified	批准 Approved

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## 1 概述 General

系列产品 HSSR-DA0×-×由砷化铝镓红外发光二极管作为输入级耦合到高电压输出光探测电路。光探测电路由高速光电二极管阵列和驱动电路构成，用以开启/关断两个独立的高压金属氧化物半导体场效应管(MOSFET)。一个最小 5mA 的电流流经输入级红外发光二极管可确保继电器打开。当加在输入级红外发光二极管的正向压降为 0.8V 或更小值时，继电器可确保关闭。产品（DIP 封装）见图 1。

The HSSR-DA0×-× consist of a AlGaAs infrared emitting diode input stage optically coupled to a high-voltage output detector circuit. The detector consists of a high-speed photovoltaic diode array and driver circuitry to switch on/off two discrete high voltage MOSFETs. The relay turns on with a minimum input current of 5mA through the input LED. The relay turns off with an input voltage of 0.8V or less. Products (DIP) shown in Figure 1.

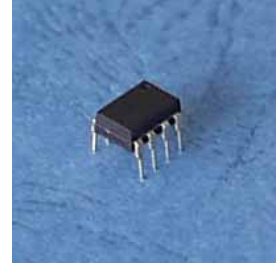


图 1 产品 Figure 1-Product

## 2 特点 Features

- 双通道常开型单刀单掷继电器。Dual Channel Normally-off Single-Pole-Single-Throw (SPST) Relay.
- 60V~600V 输出耐压系列产品。60V~600V Output Withstand Voltage.
- 0.1A~2A 额定电流系列产品。0.1A~2A Current Rating.
- 低输入电流，CMOS 兼容。Low Input Current: CMOS Compatibility.
- 0.5 Ω~40 Ω 低通态电阻。0.5 Ω~40 Ω Low On-Resistance.
- 非常高的断开阻抗：典型值 10 兆欧。  
Very High Output Off -state Impedance: 10 Teraohms Typical.
- 非常快的开关速度：典型值 0.3ms (Ton), 0.1ms (Toff)。  
High Speed Switching: 0.3ms (Ton), 0.1ms (Toff) Typical
- 高输入输出绝缘耐压：3750 Vrms for 1 min。  
High Input-to-Output Insulation Voltage: 3750 Vrms for 1 min.

## 3 应用 Applications

- 电信切换。Telecommunication Switching.
- 数据通讯。Data Communications.
- 电池管理。Battery management.
- 工业控制。Industrial Controls.
- 医疗设备。Medical equipment.
- EMR/机械继电器替代。EMR / Reed Relay Replacement.

## 4 电原理图 Schematic Diagram

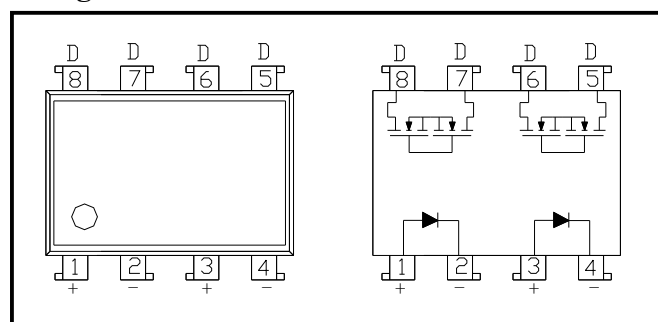


图 2 电原理图 Figure 2-Schematic

## 5 极限参数 Absolute Maximum Ratings

表 1 极限参数

Table 1-Absolute Maximum Ratings

参数名称 Characteristic		符号 Symbol	额定值 Rating	单位 Unit
输入端 Input	正向电流 Forward Current	$I_F$	50	mA
	反向电压 Reverse Voltage	$V_R$	5	V
	耗散功率 (单个通道) Power Dissipation (Single channel)	$P_M$	75	mW
输出端 output	开关电压 Switching Voltage	见表 2。 Shown in the table 2.		V
	连续通态电流 Continuous load current	见表 2。 Shown in the table 2.		A
	耗散功率 (单个通道) Power dissipation (Single channel)	$P_C$	360	mW
工作温度 Operating temp.		$T_{aop}$	-40 ~ +85	°C
贮存温度 Storage temp.		$T_{stg}$	-55 ~ +125	°C
焊接温度 Soldering Temperature	手工焊 Hand Soldering (5 Sec.)	$T_{sld}$	350	°C
	回流焊 Reflow Soldering (120 Sec.)		245	
	波峰焊 Wave Soldering (10 Sec.)		270	
绝缘电压 Isolation voltage (RH≤60%, 交流 1 分钟) (RH≤60%, AC 1min.)		$V_{ISO}$	3750	$V_{rms}$

表 2 极限参数

Tabel 2 Absolute Maximum Ratings

$T_a=25^{\circ}C$

产品型号 Part NO.	开关电压 $V_{O(MAX)}$ (V) Switching Voltage $V_{O(MAX)}$ (V)	连续通态电流 $I_{O(MAX)}$ (mA) Continuous load current $I_{O(MAX)}$ (mA)
HSSR-DA01-×	400	130
HSSR-DA02-×	reserved	Model reserved
HSSR-DA03-×	400	1000
HSSR-DA04-×	600	100
HSSR-DA05-×	60	500
HSSR-DA06-×	60	2000
HSSR-DA07-×	reserved	Model reserved
HSSR-DA08-×	500	400
HSSR-DA09-×	200	300

## 6 光电参数 Opto-Electrical Characteristics

表 3 光电参数

Table 3-Opto-Electrical Characteristics

$T_a=25^{\circ}C$

参数名称 Characteristic	符号 Symbol	测试条件 Test conditions	最小值 Min.	典型值 Typ.	最大值 Max.	单位 Unit
正向电压 Forward voltage	$V_F$	$I_F=10mA$	-	1.2	1.3	V

输入端 Input	反向电流 Reverse current	$I_R$	$V_R=5V$	-	-	10	uA	
	开启电流 Turn on Current	$I_{F(ON)}^a$	$I_O=I_{O(MAX)}^b$		2.5	5	mA	
	关断电流 Turn off Current	$I_{F(OFF)}$	$I_O=I_{O(MAX)}$		0.5		mA	
输入端 Output	断态漏电流 OFF-State Leakage Current	$I_{OFF}$	$V_O=V_{O(MAX)}^c$			100	nA	
	导通电阻 ON Resistance	$R_{ON}$	$I_F=5mA,$ $I_O=I_{O(MAX)}$	HSSR-DA01-×			30	Ω
				HSSR-DA02-×	reserved			
				HSSR-DA03-×			5	
				HSSR-DA04-×			40	
				HSSR-DA05-×			1	
				HSSR-DA06-×			0.5	
				HSSR-DA07-×	reserved			
				HSSR-DA08-×			10	
	HSSR-DA09-×			4				
输出电容 Output Capacitance	$C_O$	$I_F=0mA, V_O=25V,$ $f_O=1MHz$			16		pF	
传输 Xfer	开启时间 Turn-ON Time	$T_{ON}$	$I_F=5mA, I_O=I_{O(MAX)}$			1.0	ms	
	关断时间 Turn-OFF Time	$T_{OFF}$	$I_F=5mA, I_O=I_{O(MAX)}$			0.5	ms	
	耦合电容 Coupled Capacitance	$C_{I/O}$			0.35		pF	
隔离 Isolation	绝缘电压 Isolation voltage	$V_{ISO}$	$I_{off} \leq 0.3mA,$ AC, 60s	5000			V	
<p><sup>a</sup> 保证所有器件在 <math>I_F</math> 值小于或等于最大的 <math>I_{F(ON)}</math> 时开启。 It is guaranteed that all devices turn on when <math>I_F</math> value is less than or equal to the maximum value of <math>I_{F(ON)}</math>.</p> <p><sup>b</sup> <math>I_{O(MAX)}</math>指最大连续通态电流，可从表 2 极限参数中查询。 <math>I_{O(MAX)}</math> refers to the maximum continuous current, it could be checked from the max ratings in table 2.</p> <p><sup>c</sup> <math>V_{O(MAX)}</math>指最大开关电压，可从表 2 极限参数中查询。 <math>V_{O(MAX)}</math> refers to the maximum Switching Voltage, it could be checked from the max ratings in table 2.</p>								

7 外形尺寸及电原理图 Dimensions and Circuit Diagram

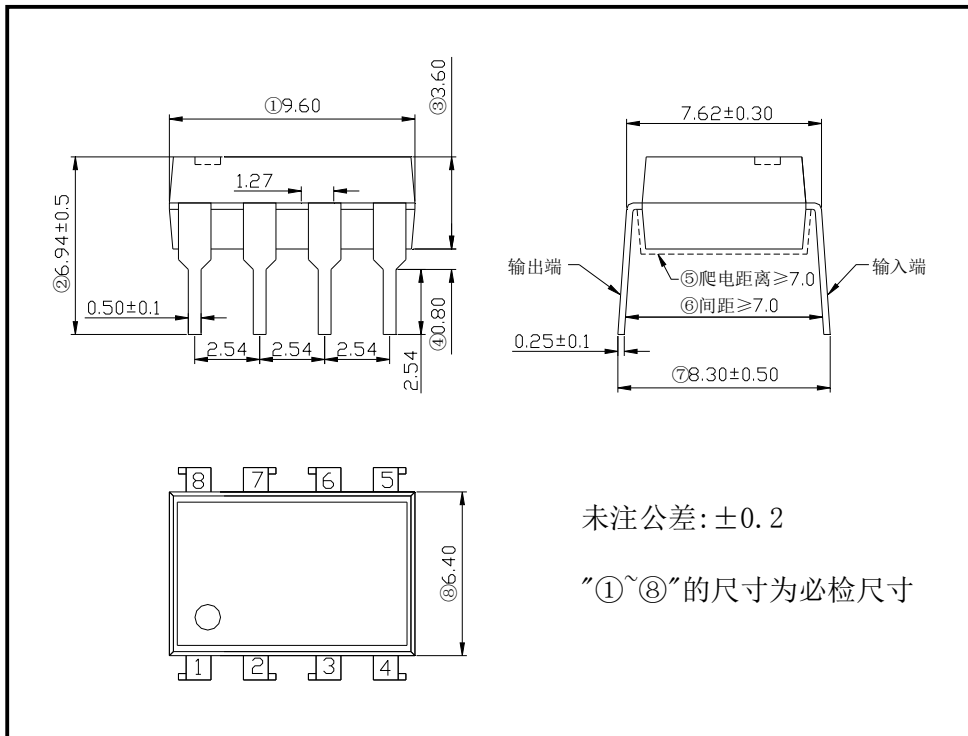


图 3 HSSR-DA0× 外形尺寸  
Figure 3- The dimensions of HSSR-DA0×

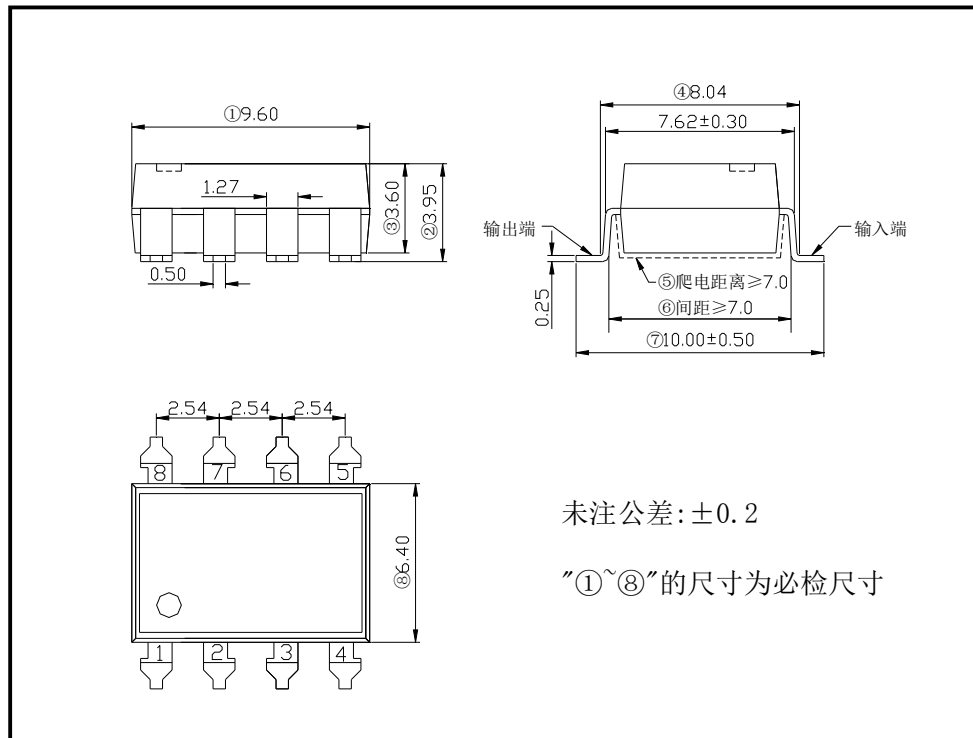


图 4 HSSR-DA0×-2 外形尺寸  
Figure 4- The dimensions of HSSR-DA0×-2

## 8 标志 Mark

产品上应有型号、公司商标、生产日期代码、引出端识别标记。例如：HSSR-DA01 产品印章如图 5。

Print type characters ,trade mark and Lot.No.on the Photo Coupler.For example the marking of product HSSR-DA01 is shown as figure 5.

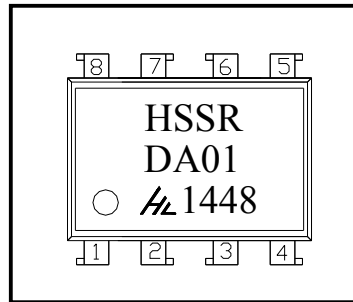


图 5 产品印章

Figure 5- Marking

## 9 包装方式 Packing

### 9.1 条管包装 (Tube): 适用于 For HSSR-DA0×。

9.1.1 每箱数量 (Qty/ctn): 20000 只 (pcs)。

#### 9.1.2 内包装 (Inner packing):

每条管 50 只，采用防静电条管，条管上有商标、防静电标志。

50pcs/tube, antistatic tube, indication of trade mark and antistatic.

每纸匣 1000 只，贴合格证 (型号、生产日期代号、检验员代号)。

1000pcs/bundle, certificate on one end (model, code of product date, Inspector's code) .

#### 9.1.3 外包装(Outer packing):

公司名称、地址、商标、产品型号、数量等标志。

Indication of company name, address, trade mark, model and quantity.

#### 9.1.4 示意图 (Schematic):

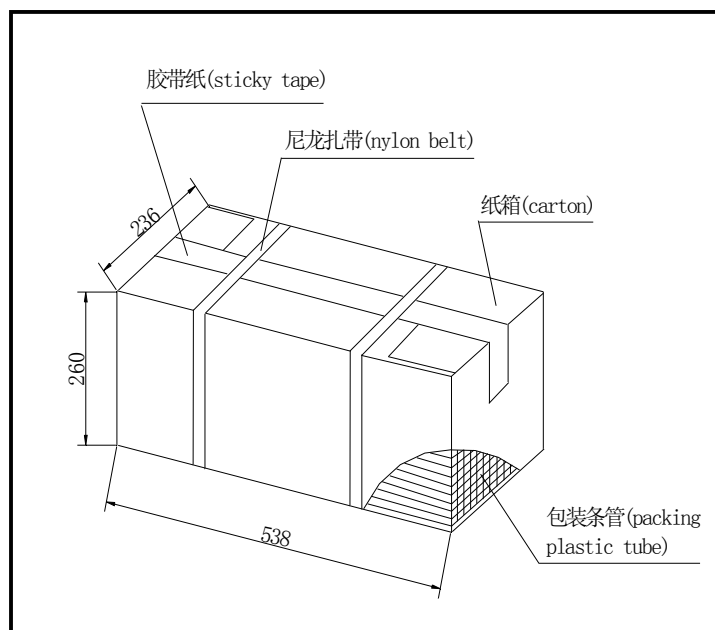


图 6 条管外包装

Figure 6- Outer packing for Tube

9.2 编带包装 (Tape and reel): 适用于 For HSSR-DA0×-2。

9.2.1 每卷数量 (Qty/reel): 900 只 (pcs)。每箱数量 (Qty/ctn): 9000 只 (pcs)。

9.2.2 内包装 (Inner packing):

每卷盘 900 只, 贴合格证 (型号、生产日期代号、检验员代号)。

900pcs/reel, certificate on reel (model, code of product date, Inspector's code)

9.2.3 外包装(Outer packing):

公司名称、地址、商标、产品型号、数量等标志。

Indication of company name, address, trade mark, model and quantity.

9.2.4 示意图 (Schematic):

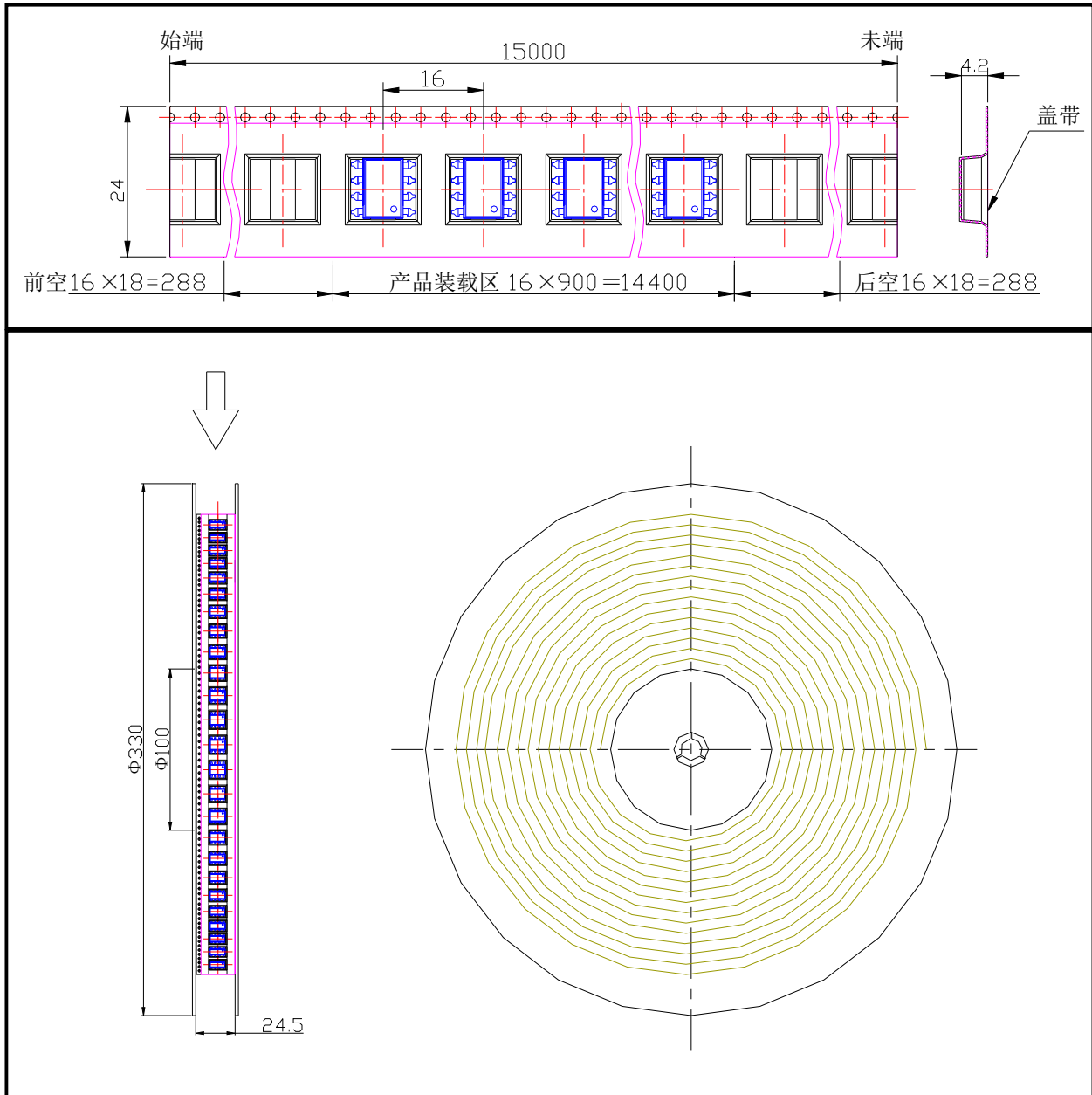


图 7 编带包装示意图

Figure 7- Taping Packing Schematic

### 9.3 标识 Label



图 8 标识 Figure 8-Label

### 9.4 注意事项 Note

9.4.1 推荐贮存温度 Recommend storage Temp.: 0~40°C;

推荐贮存湿度 Recommend storage humidity: <70%;

贮存有效期半年 Storage life: Half of a year.

9.4.2 湿气敏感度等级 3 级。MSL level: MSL 3.

9.5 引脚镀锡厚度: 大于等于 5 $\mu$ m, 平均 8 $\mu$ m~10 $\mu$ m。

Thickness of Sn which plated on lead frame:  $\geq 5 \mu\text{m}$ , average 8 $\mu\text{m}$ ~10  $\mu\text{m}$ .





单击下面可查看定价，库存，交付和生命周期等信息

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