



# 电子元器件规格书 RELAY SPECIFICATION

器件名称 Name :	继电器 (RoHS) RELAY
型号规格 Product Name:	MALN-S-112-C-L4-R (0.6W, 16A)
客户名称 Customer:	
客户编码 Customer Number:	
版本 Version:	V1.0

## (客户批准) Customer Approval

(盖章处) STAMPING AREA

批准 Approved By	审核 Checked By	编制 Created By
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注意事项(Remarks):

1、本规格书双方签字后正式生效，本规格书连同封面共 11 页；

(Specification come into force after signed by both parties. Total 11pages)

2、本规格书一式两份，版本由使用方与供方共同维护；

Two copies of this specification, maintained by both parties.

3、任何对内容的改动必须经双方同意，并以书面文件的形式发布。

Any changes must agreed by both parties, and publish the form of a written document.

本规格书有中英文两种版本。如有冲突，以中文版本为准，英文版本则为参考。(This specification is made out in both Chinese and English versions. We hereby set Chinese version as standard and English version as a reference if any conflicts occur.)



**变更记录Update records**

序号	更改内容	更改原因	更改时间	责任人
No.	Change Contents	Change Reason	Date	person

**一 浙江美碩继电器认证类型及认证号 Approvals type and approvals number**

1.1	UL certificate	E358149
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**二 线圈参数 Coil Specification(23±1℃)**

2.1	额定电压 Rated voltage	12VDC
2.2	动作线圈电阻 Set Coil resistance	240Ω±10%
	复归线圈电阻 Reset Coil resistance	240Ω±10%
2.3	额定功率 Rated power	0.6W
2.4	最大允许电压 Max.allowable voltage	15.6VDC
2.5	脉冲宽度 The pulse width	50-100ms

**三 触点参数 Contact Specification**

3.1	触点额定参数 Contact rating	16A 250VAC
3.2	最大切换电流 Max.Switching current	16A
3.3	最大触点容量 Max. contact capacity	4000VA
3.4	最小适用负载 Min.Applicable Load	1A 6VDC

**四 操作性能 Operate Performances**

4.1	接触电阻 Contact resistance	≤20mΩ (1A 24VDC)
4.2	吸合电压 Operate voltage	≤8.4VDC
4.3	释放电压 Release voltage	≤8.4VDC
4.4	吸合时间 Operate time	≤15ms
4.5	释放时间 Release time	≤15ms

**五 寿命要求 Life Requirements**

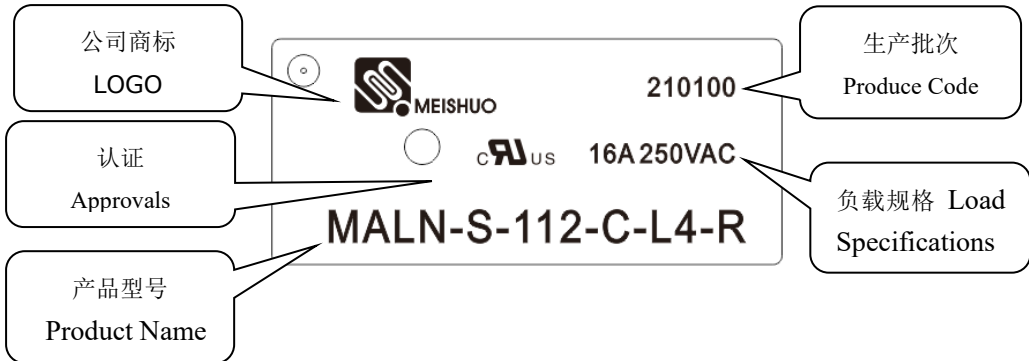
5.1	电气寿命 Electrical Life	100,000 次(常温条件, 阻性负载, 动作频率: 6 次/分钟, 10%占空比, 1 秒通 9 秒断) 100,000 cycles (Normal temperature condition, resistive load, 6 times / min, 10% duty cycle, 1 second NO 9 second NC)
5.2	机械寿命 Mechanical Life	1,000,000 次, (无负载, 150 次/分钟) 1,000,000 cycle, No load, 150 cycles/minute

**六 安全及环境性能要求**
**Safety and environmental performance requirements**

6.1	存储条件 Storage Condition	温度: -20~+40°C, 湿度: 20%~85%RH Temperature: -20~+40°C, Humidity: 20%~85%RH
6.2	使用条件 Use Condition	温度: -25~+85°C, 湿度: 5%~85%RH Temperature: -25~+85°C, Humidity: 5%~85%RH
6.3	安装方向 Installation direction	端子向下 Terminal down
6.4	绝缘电阻 Insulation resistance	断开触点间、触点和线圈间: 1000MΩ Min (500VDC) Open contacts、Contacts and coil: 1000MΩ Min (500VDC)
6.5	介质耐压 Dielectric Strength	断开触点间: 1000VAC(1mA) (50/60Hz) 1min Open contacts: 1000VAC(1mA) (50/60Hz) 1 min 触点和线圈间: 4000VAC(1mA) (50/60Hz) 1 min Contacts and coil: 4000VAC(1mA) (50/60Hz) 1 min
6.6	耐振动性 Vibration resistance	<p>6.6.1 耐久振动: 在振动为双振幅1.5mm、无励磁的状态时、以振动频率10~55 Hz/分的振荡在XYZ的各方向上进行2小时后, 在外观、构造、性能上应没有异常。 Durable vibration When the vibration is a double amplitude of 1.5 mm or less, the oscillation at a vibration frequency of 10 to 55 Hz / minute is performed for 2 hours in each direction of the XYZ, and there is no abnormality in appearance, configuration, and performance.</p> <p>6.6.2 误动作振动: 在振动为双振幅1.5mm、励磁的状态时、以振动频率为10~55 Hz/分的振荡在XYZ的各方向上进行5分钟时, 实验中应没有误动作。实验后在外观、构造、性能上应没有异常。 Malfunctioning vibration When the vibration is a double amplitude of 1.5 mm and the excitation state is performed, the oscillation at a vibration frequency of 10 to 55 Hz / minute is performed for</p>

		5 minutes in each direction of the XYZ, and there is no malfunction in the experiment. After the experiment in appearance, structure, performance should be no exception.
6.7	耐冲击性 Impact resistance	<p>6.7.1 耐久冲击: 在无励磁的状态下, 以加速度为 <math>1,000\text{m/s}^2</math> 的冲击在XYZ的各方向进行5次后, 在外观、构造、性能上应没有异常。</p> <p>Durable impact In the absence of excitation, the acceleration of <math>1,000\text{m} / \text{s}^2</math> in the XYZ in the direction of the five times, in the appearance, structure, performance should be no exception.</p> <p>6.7.2 误动作冲击: 在励磁的状态时、以加速度为 <math>200\text{m/s}^2</math> 的冲击在XYZ的各方向进行2次时, 实验中应没有误动作。实验后在外观、构造、性能上应没有异常。</p> <p>Malfunctioning In the state of excitation, when the acceleration of <math>200\text{m} / \text{s}^2</math> in the XYZ in the direction of the two times, the experiment should be no malfunction. After the experiment in appearance, structure, performance should be no exception.</p>
6.8	耐低温性 Low temperature resistance	<p>6.8.1 使用时耐低温: 将没有外加电压和电流的继电器放入温度为 <math>-40 \pm 2^\circ\text{C}</math> 的恒温槽内连续保持2小时后、在保持原状态的同时对实验回路外加额定电压进行实验时, 继电器能正常动作。(在 <math>0^\circ\text{C}</math> 时不结冰状态)</p> <p>Use low temperature when used The relay will be able to move normally when the rated voltage is applied to the experimental circuit while maintaining the original state for 2 hours in a constant temperature tank with no voltage and current applied to the temperature of <math>-40 \pm 2^\circ\text{C}</math>. (No ice at <math>0^\circ\text{C}</math>)</p> <p>6.8.2 贮存时耐低温性: 将继电器放入温度为 <math>-20 \pm 2^\circ\text{C}</math> 的恒温槽内连续保持 72 小时后, 移放入常温常湿的地方, 擦去水滴, 放置 1~2 小时, 随后检查其构造、动作、绝缘电阻、介电性能, 应没有异常。</p> <p>Low temperature resistance when stored The relay placed in the temperature of <math>-20 \pm 2^\circ\text{C}</math> constant temperature tank for 72 hours, then moved to the room temperature and humidity, wipe the water droplets, put 1 to 2 hours, then check its structure, action, insulation resistance, Dielectric properties should be no exception.</p>
6.9		6.9.1 使用时耐高温性 在继电器的控制回路上加额定电压、主回路通额定电流的状态下, 将其放入 $85 \pm 2^\circ\text{C}$ 的

	<p>耐高温性 High temperature resistance</p>	<p>恒温槽内连续 2 小时后，在保持原状态的同时对实验回路进行开关实验时，继电器应能正常动作。</p> <p>Use high temperature resistance In the relay control circuit plus rated voltage, the main circuit through the rated current state, put it into the <math>85 \pm 2 \text{ }^\circ\text{C}</math> constant temperature tank for 2 hours, while maintaining the original state of the experimental circuit for the switch test, The relay should be able to operate normally.</p> <p>6.9.2 贮存时耐高温性:将继电器放入温度为 <math>40 \pm 2^\circ\text{C}</math> 的恒温槽内连续保持 72 小时后，移放入常温常湿的地方，擦去水滴、放置 1~2 小时，随后检查其构造、动作、绝缘电阻、介电性能、应没有异常。</p> <p>High temperature resistance when stored The relay placed in the temperature of <math>40 \pm 2 \text{ }^\circ\text{C}</math> constant temperature tank for 72 hours, then transferred to the room temperature and humidity, wipe the water droplets, put 1 to 2 hours, then check its structure, action, insulation resistance, mediated Electrical performance should be no exception.)</p>
<p>6.10</p>	<p>耐湿性 Moisture resistance</p>	<p>6.10.1 将继电器放入温度为 <math>40 \pm 2^\circ\text{C}</math>、相对湿度为 90~95% 的环境里连续保持 48 小时后，移到常温常湿的地方放置 1 小时以上、2 小时以内后检查其构造、动作、绝缘电阻、介电性能，应没有异常。</p> <p>He relay placed in the temperature of <math>40 \pm 2 \text{ }^\circ\text{C}</math>, relative humidity of 90 ~ 95% of the environment for 48 hours in a row, moved to room temperature and humidity place for 1 hour or more, 2 hours after the check its structure, action, insulation Resistance, dielectric properties, should be no exception.</p>
<p>6.11</p>	<p>可焊性 Solderability</p>	<p>6.11.1 <math>235 \pm 5^\circ\text{C}</math>, <math>3 \pm 1\text{s}</math> (有铅焊接); <math>260 \pm 5^\circ\text{C}</math>, <math>3 \pm 1\text{s}</math> (无铅焊接), 90% 以上引脚面积覆锡。</p> <p>(<math>235 \pm 5^\circ\text{C}</math>, <math>3 \pm 1\text{s}</math>, Leaded soldering, <math>260 \pm 5^\circ\text{C}</math>, <math>3 \pm 1\text{s}</math>, No Leaded soldering, More than 90% of the lead area of tin.)</p>

**七 厂家型号及型号含义、印字图案及各部位含义说明（体现厂家、批号、认证等）**
**Manufacturer P/N ,Meaning of P/N, Printing and remarks**


公司商标 LOGO

认证 Approvals

产品型号 Product Name

生产批次 Produce Code

负载规格 Load Specifications

印字面(Printing side)

MALN	-S:塑封型	-1:1 组	12:12VDC	-C:Form C (转换)	-L4:双线圈 磁保持 0.6W	-R: 反极性
MALN	-S: Sealed	-1:1 group	12:12VDC	-C:Form C (NO/NC)	-L4:Double Coils Latching 0.6W	-R: Negative Polarity
A:型号	B:封装形式	C:触点组数	D:线圈电压	E:触点形式	F:线圈类型	G:极性特点
A: Type	B: Construction	C: Contact group	D: Coil voltage	E: Contact Form	F: Coil Type	G: Polarity

**八 生产批号标识 (Produce Code) XX XX XX (**
**1 2 3**

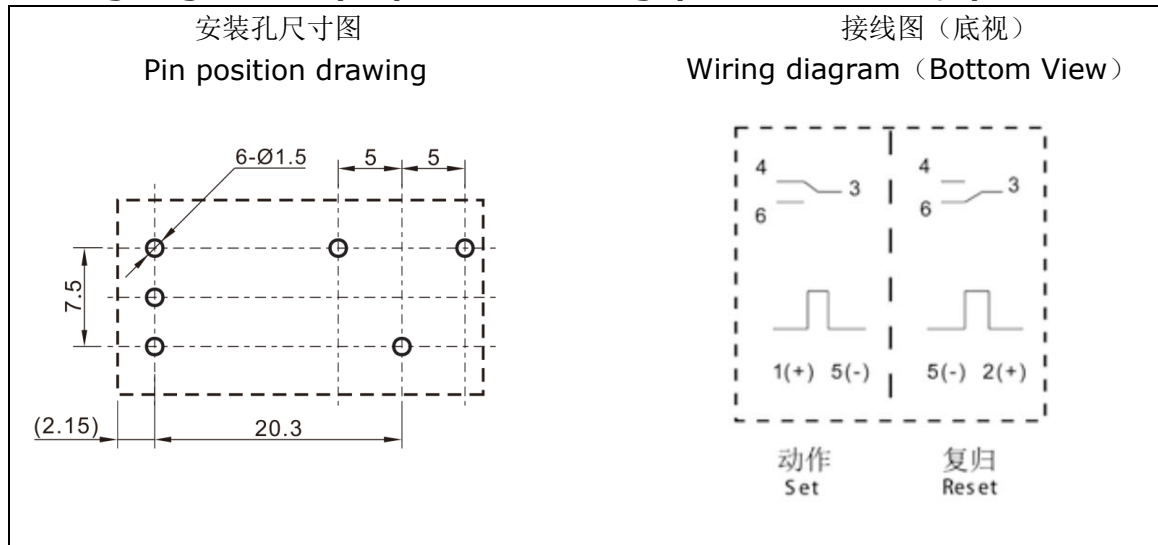
1、年份批号 (Year) (10-2010, ……)

2、月份编号 (Month) (01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12)

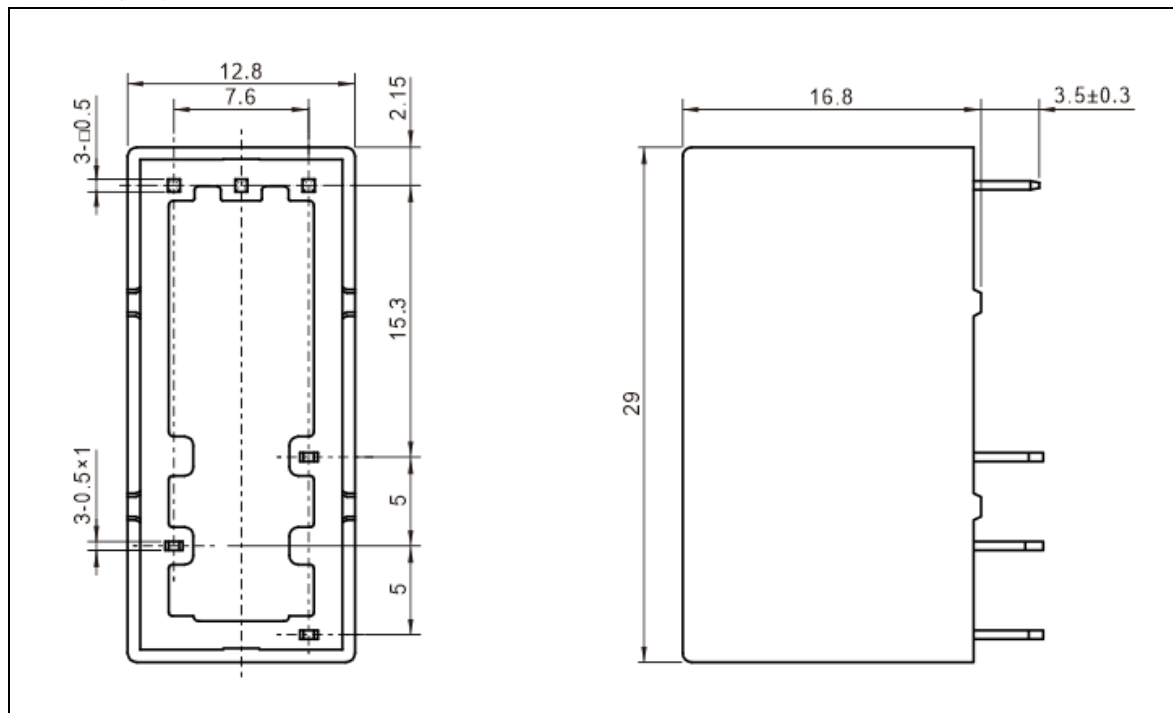
3、流水批号 (Serial number) (01, ……)

九 接线及装配尺寸图 (孔距公差 $\pm 0.2\text{mm}$ , 孔径公差 $\pm 0.1\text{mm}$ )

**Wiring diagram and pin position drawing (pin distance $\pm 0.2$ , Apert  $\pm 0.1$ )**



十 外观尺寸图 **Outline Dimensions**



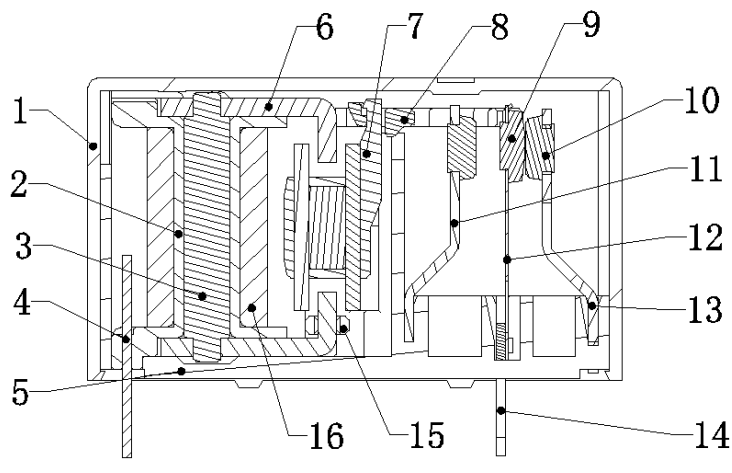
备注: (1) 产品部分外形尺寸未注尺寸公差, 当外形尺寸 $\leq 1\text{mm}$ , 公差为 $\pm 0.2\text{mm}$ ; 当外形尺寸在  $1\sim 5\text{mm}$  之间时, 公差为 $\pm 0.3\text{mm}$ ; 当外形尺寸  $> 5\text{mm}$  时, 公差为 $\pm 0.4\text{mm}$ ;

(2) 安装孔尺寸中未注尺寸公差的均为 $\pm 0.1\text{mm}$ 。

REMARK:

- 1) In case of no tolerance shown in outline dimension: outline dimension  $\leq 1\text{mm}$ , tolerance should be  $\pm 0.2\text{mm}$ ; outline dimension  $> 1\text{mm}$  and  $\leq 5\text{mm}$ , tolerance should be  $\pm 0.3\text{mm}$ ; outline dimension  $> 5\text{mm}$ , tolerance should be  $\pm 0.4\text{mm}$ ;
- 2) The tolerance without indicating for PCB layout is always  $\pm 0.1\text{mm}$ .



**十一 内部结构图 Internal structure map**


序号 NO.	零部件名称	Part name	序号 NO.	零部件名称	Part name
1	外壳	Case	9	动点	Moveable Contact
2	线圈架	Bobbin	10	静点	Stationary Contact
3	铁芯	Core	11	常开静簧脚	Normally open static spring foot
4	引线针	Coil-Terminal	12	动簧片	Stationary Terminal
5	基座	Base	13	常闭静簧脚	Normally closed static spring foot
6	轭铁	Yoke	14	动簧脚	Insulation wire
7	衔铁组件	Magnet With Armature	15	固定板	Fixed plate
8	推杆	Card	16	漆包线	Insulation wire

**十二 零部件品牌、参数、成份等**
**component brand, parameters, ingredients, etc**

序号 (No.)	零件名称 (Part Name)	材料 (Material)	供应商 (Supplier)
1	外壳 Case	工程塑料 Plastic	宝理/新光/杜邦/三菱/金发 (Polyplastics / Shin Kong / DuPont / Mitsubishi / KING FA)
2	线圈架 Bobbin	工程塑料 Plastic	宝理/新光/杜邦/三菱/金发 (Polyplastics / Shin Kong / DuPont / Mitsubishi / KING FA)
3	铁芯	电工纯铁	太钢/鞍钢/宝钢

	Core	Iron	(TISCO/ANSTEEL/BAOSTEEL)
4	引线脚 Coil-Terminal	铜合金 Copper alloy	鑫科/三菱/兴业 (Xinke / Mitsubishi / Industrial )
5	基座 Base	工程塑料 Plastic	宝理/新光/杜邦/三菱/金发 (Polyplastics / Shin Kong / DuPont / Mitsubishi / KING FA)
6	轭铁 Yoke	电工纯铁 Iron	太钢/鞍钢/宝钢 (TISCO/ANSTEEL/BAOSTEEL)
7	衔铁组件 Magnet With Armature	1. 电工纯铁 Iron 2. 工程塑料 Plastic 3. 永磁体 Permanent magnets	1. 太钢/鞍钢/宝钢 (TISCO/ANSTEEL/BAOSTEEL) 2. 宝理/新光/杜邦/三菱/金发 (Polyplastics / Shin Kong / DuPont / Mitsubishi / KING FA) 3. 东磁/南极磁电 (DMEGC/Nan Ji Ci Dian)
8	推杆 Card	工程塑料 Plastic	宝理/杜邦/飞利浦/住友 (Polyplastics / DuPont / Philips / Sumitomo)
9	动点 Moveable Contact	银合金 Silver alloy	福达/聚星/格林/宁波电工 (Foodar/Green/Juxing/ Gold Point)
10	静点 Stationary Contact	银合金 Silver alloy	福达/聚星/格林/宁波电工 (Foodar/Green/Juxing/ Gold Point)
11	常开静簧脚 Normally open static spring foot	铜合金 Copper alloy	鑫科/三菱/兴业/金田(Xinke / Mitsubishi / Industrial / Jintian )
12	动簧片 Moveable Spring	铜合金 Copper alloy	鑫科/三菱/兴业/金田(Xinke / Mitsubishi / Industrial / Jintian )
13	常闭静簧脚 Normally closed static spring foot	铜合金 Copper alloy	鑫科/三菱/兴业/金田(Xinke / Mitsubishi / Industrial / Jintian )
14	动簧脚 Moveable Spring Lead	铜合金 Copper alloy	鑫科/三菱/兴业/金田(Xinke / Mitsubishi / Industrial / Jintian )
15	固定板 Fixed plate	工程塑料 Plastic	宝理/新光/杜邦/三菱/金发 (Polyplastics / Shin Kong / DuPont / Mitsubishi / Blonde)
16	漆包线 Insulation	3UEW	蓉胜/一致/益利素勒/大连富士



	wire		(Ronsen/Yichi/ Elektrisola/FUJI)
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十三 来料包装形式 **packaging**

13.1	来料包装形式 Incoming packaging	内包装用塑盒（管）包装，外包装用牢固的纸箱包装。 The inner packaging is packed in plastic box or tube, wrapped in a solid carton
13.2	运输规定 Shipping regulations	产品运输过程中应注意防止重压、跌落、防潮和防热。 During product transportation, care should be taken to prevent heavy pressure, dropping, moisture and heat.

十四 厂家扫描版本附件 **Factory scan version of the annex**  
无 **NIL**