



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:	ML101-S-112-A-L4(0.4W 10A)
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 11 pages)

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

一 浙江美硕继电器认证类型及认证号 Approvals type and approvals number

1.1	CQC certificate	CQC22002332077
1.2	UL certificate	-
1.3	TUV certificate	-

二 线圈参数 Coil Specification

2.1	额定电压 Rated voltage	12VDC
2.2	动作线圈电阻 Set Coil resistance	360Ω±10% (at 23±1℃)
	复位线圈电阻 Reset Coil resistance	360Ω±10% (at 23±1℃)
2.3	额定功率 Rated power	0.4W
2.4	最大允许电压 Max.allowable voltage	15.6V
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	10A 277VAC
3.2	最大切换电流 Max.Switching current	10A
3.3	最大触点容量 Max. contact capacity	2770VA
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	≤100mΩ (1A 6VDC)
4.2	吸合电压 Operate voltage	≤9.6VDC
4.3	释放电压 Release voltage	≤9.6VDC
4.4	吸合时间 Operate time	≤8ms
4.5	释放时间 Release time	≤5ms

五 寿命要求 Life Requirements

5.1	电气寿命 Electrical Life	30000 次(10A,277VAC 动作频率: 6 次/分钟, 10% 占比, 1 秒通 9 秒断) 30,000 cycles, 10A 277VAC ,Action frequency: 6 times / min, 10% duty cycle, 1 second on 9 second off
5.2	机械寿命 Mechanical Life	1,000,000 次, (无负载, 300 次/分钟) 1,000,000 cycles ,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℃, 湿度: 20%~85%RH Temperature: -20~+40℃, Humidity: 20%~85%RH
6.2	使用条件 Use Condition	温度: -40~+85℃, 湿度: 20%~85%RH Temperature: -40~+85℃, Humidity: 20%~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: 100MΩ Min (500VDC) Open contacts 、Contacts and coil: 100MΩ Min (500VDC)
6.5	介质耐压 Dielectric Strength	断开触点间: 750VAC (1mA) (50/60Hz) 1 分钟 Open contacts: 750VAC (1mA) (50/60Hz) 1 min 触点和线圈间: 2000VAC (1mA) (50/60Hz) 1 分钟 Contacts and coil: 2000VAC (1mA) (50/60Hz) 1 min
6.6	引出脚强度 Lead-out foot strength	在垂直于引出脚方向上施加 10N 的拉力 6s, 继电器应无异常。 The relay shall not be abnormal if a 10N pull force of 6S is applied perpendicular to the direction of the lead pin.
6.7	耐振动性 Vibration resistance	6.7.1 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 10~55~10 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 to 10 Hz / minute is performed for 2 hours in each direction of the XYZ, and there is no abnormality in appearance, configuration, and performance. 6.7.2 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 10~55~10Hz/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。

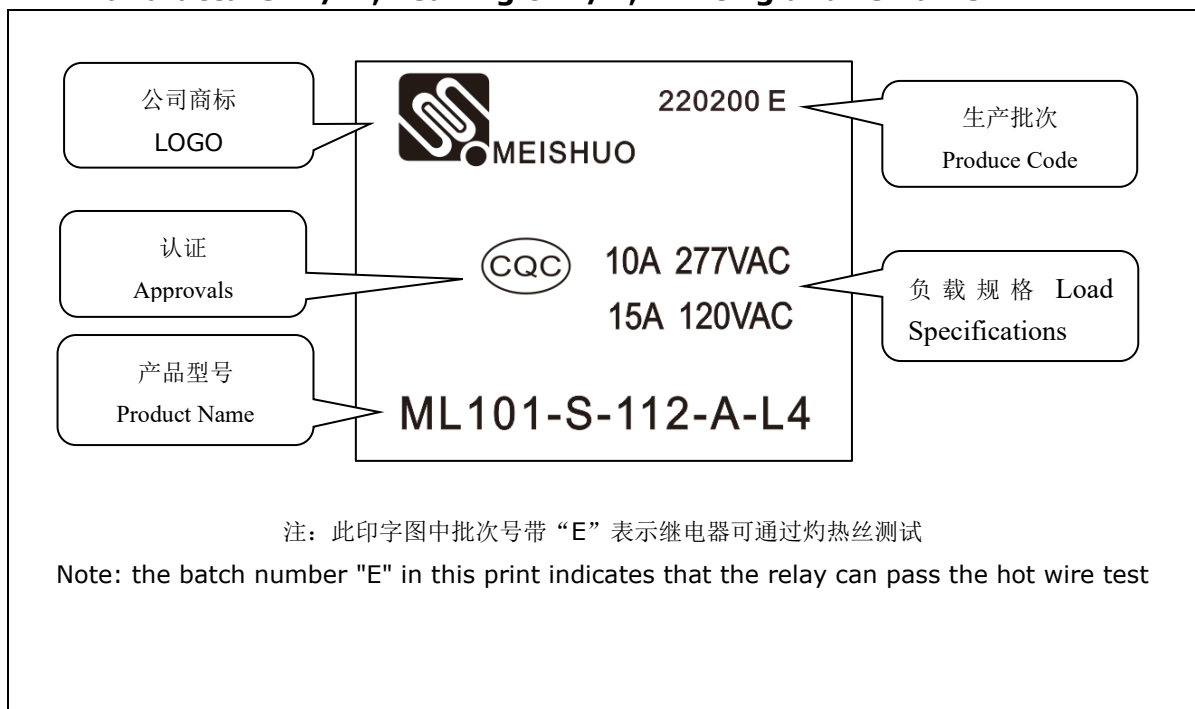
		Malfunctioning vibration When the vibration is a double amplitude of 1.5 mm and the excitation state is performed, the oscillation at a vibration frequency of 10 to 55 to 10 Hz / minute is performed for 5 minutes in each direction of the XYZ, and there is no malfunction in the experiment. After the experiment in appearance, structure, performance should be no exception.
6.8	耐冲击性 Impact resistance	6.8.1 耐久冲击: 在无励磁的状态下, 以加速度为 1, 000m/s² 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。 Durable impact In the absence of excitation, the acceleration of 1,000m / s² in the XYZ in the direction of the five times, in the appearance, structure, performance should be no exception. 6.8.2 误动作冲击: 在励磁的状态时、以加速度为 200m/s² 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。 Malfunctioning In the state of excitation, when the acceleration of 200m / s² 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.
6.9	耐低温性 Low temperature resistance	6.9.1 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-40±2℃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 0℃时不结冰状态) 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 -40 ± 2 °C.

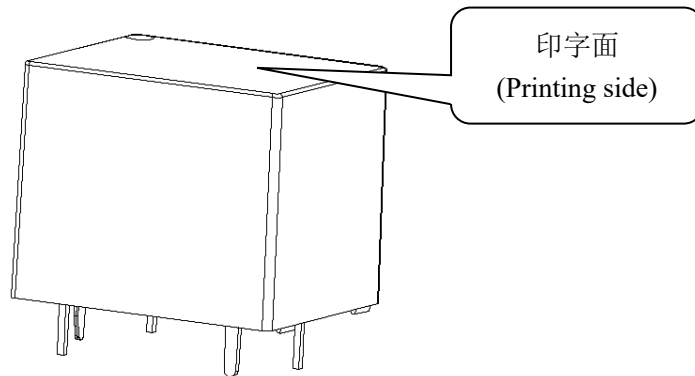
		(No ice at 0℃) 6.9.2 贮存时耐低温性：将继电器放入温度为$-20\pm 2^{\circ}\text{C}$的恒温槽内连续保持 72 小时后，移放入常温常湿的地方，擦去水滴，放置 1~2 小时，随后检查其构造、动作、绝缘电阻、介电性能，应没有异常。 Low temperature resistance when stored The relay placed in the temperature of $-20 \pm 2^{\circ}\text{C}$ constant temperature tank for 72 hours, then moved to the room 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.
6.10	耐高温性 High temperature resistance	6.10.1 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。 Use high temperature resistance In the relay control circuit plus rated voltage, the main circuit through the rated current state, put it into the $85\pm 2^{\circ}\text{C}$ 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. 6.10.2 贮存时耐高温性 将继电器放入温度为 $40\pm 2^{\circ}\text{C}$ 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。 High temperature resistance when stored The relay placed in the temperature of $40 \pm 2^{\circ}\text{C}$ 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.
6.11		6.11.1 将继电器放入温度为 $40\pm 2^{\circ}\text{C}$、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

	耐湿性 Moisture resistance	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。 The relay placed in the temperature of $40 \pm 2^{\circ}\text{C}$, 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.
6.12	可焊性 Solderability	6.12.1 $235 \pm 5^{\circ}\text{C}$, $3 \pm 1\text{s}$ (有铅焊接); $260 \pm 5^{\circ}\text{C}$, $3 \pm 1\text{s}$ (无铅焊接), 90%以上引脚面积覆锡。 ($235 \pm 5^{\circ}\text{C}$, $3 \pm 1\text{s}$, Lead soldering, $260 \pm 5^{\circ}\text{C}$, $3 \pm 1\text{s}$, No Lead soldering, More than 90% of the lead area of tin.)
6.13	阻燃性 Flame retardancy	6.13.1 按照 IEC60695-2-11 灼热丝测试要求中的 750°C 灼热丝可燃性试验方法，外壳和基座在灼热丝接触测试面的过程中火焰持续时间不超过 2 秒。 According to IEC 60695-2-11 burning wire test requirements in the 750°C glow wire flammability test method, the case and the base in the glow wire contact test surface in the process of flame duration of not more than 2 seconds.

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





ML101	-S:塑封型	-1:1 组	12:12VDC	-A: 常开	-L4: 双线圈磁保持 0.4W
ML101	-S:Sealed	-1:1 group	12:12VDC	-A: Form A (NO)	-L4: Double Coil magnetic hold 0.4W
A: 产品型号	B: 产品结构	C: 触点组数	D: 线圈电压	E: 触点形式	F: 线圈类型
A: Model	B: Structure	C: Contact Group	D: Coil voltage	E: Contact Form	F: Contact Form

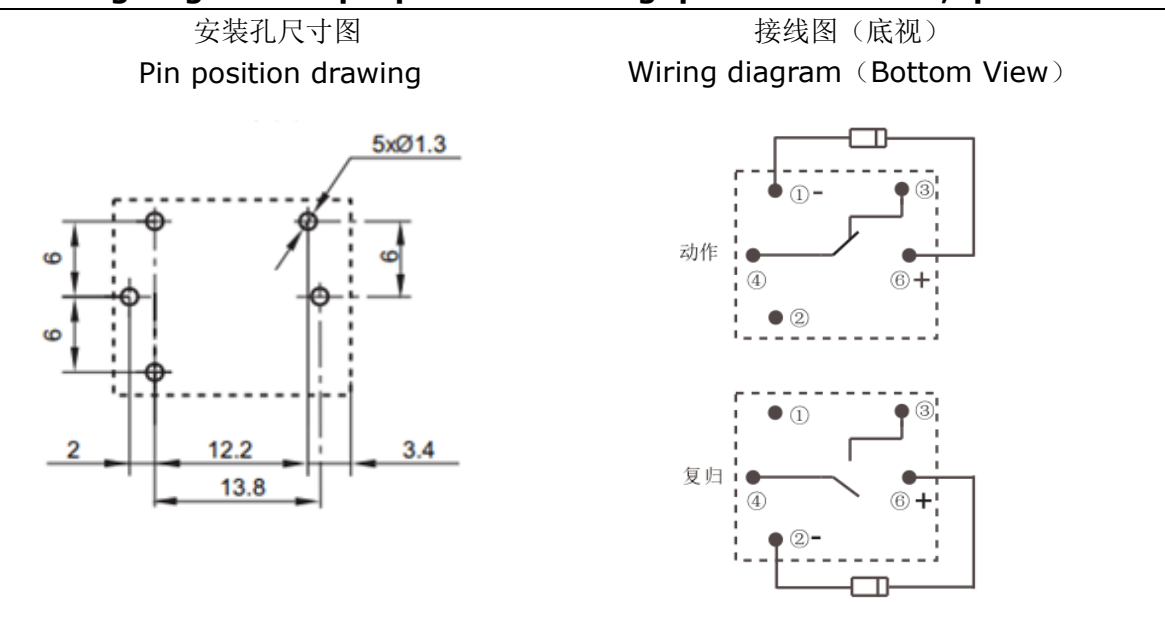
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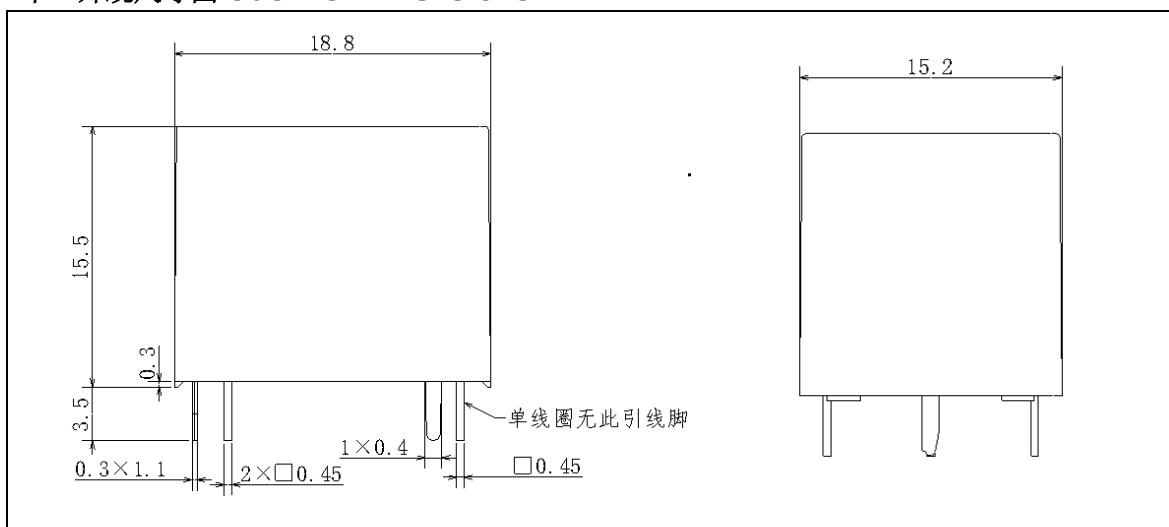
- 1、年份批号(Year) (10-2010, ……)
- 2、月份编号(Month) (01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12)
- 3、流水批号(Serial number) (01, ……)

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 ± 0.2 , Apert ± 0.1)



十 外观尺寸图 Outline Dimensions



备注：外形图中产品部分未注公差尺寸，当尺寸 $\leq 1\text{mm}$ ，公差为 $\pm 0.2\text{mm}$ ；

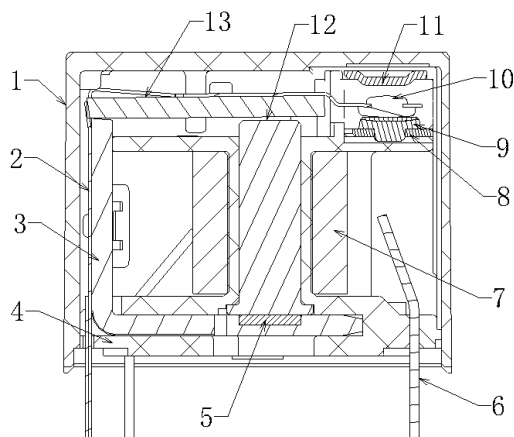
当尺寸在 1~5mm, 公差为 $\pm 0.3\text{mm}$; 当尺寸 $> 5\text{mm}$, 公差为 $\pm 0.4\text{mm}$ 。

Note:

The tolerance dimension of the product parts in outline drawing is $\leq 1 \text{ mm}$, tolerance is $\pm 0.2 \text{ mm}$;

When the dimension is $1 \sim 5$ mm, the tolerance is ± 0.3 mm; When size > 5 mm, tolerance is ± 0.4 mm.

十一 内部结构图 Important Part And Components



序号 NO.	零部件名称	Part name	序号 NO.	零部件名称	Part name
1	外壳	Case	8	常开静簧脚	NO Stationary Terminal
2	动簧片	Moving spring	9	静点	Stationary Contact
3	轭铁	Yoke	10	动点	Moveable Contact

4	线圈架	Bobbin	11	定位件	Spacer
5	磁钢	magnet steel	12	铁芯	Core
6	引线脚	Coil-Terminal	13	衔铁	Armature
7	漆包线	Insulation wire			

十二 零部件成分、供应商等

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	动簧片 Moving spring	铜合金 Copper alloy	鑫科/三菱/兴业/博威 (Xinke / Mitsubishi / Industrial / Bowei)
3	轭铁 Yoke	电工纯铁 Electrician pure iron	太钢/宝钢/鞍钢 (TISCO/ANSTEEL/BAOSTEEL)
4	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)
5	磁钢 magnet steel	永磁体 Permanent Magnet	东磁/南极磁电 (East magnet/ Antarctic magnetoelectricity)
6	引线脚 Coil-Terminal	铜包钢 Copper plated steel	跃兴/宏福 (Hongfu/Yuexing)
7	漆包线 Insulation wire	3UEW	蓉胜/一致/益利素勒/大连富士 Ronsen/Yichi/ Elektrisola/FUJI
8	常开静簧脚 NO Stationary Terminal	铜合金 Copper alloy	鑫科/三菱/兴业/博威 (Xinke / Mitsubishi / Industrial / Bowei)
9	静点 Stationary Contact	银氧化锡 AgSnO2	福达/聚星/格林/宁波电工 (Foodar/Green/Juxing/ Gold Point)
10	动点 Moveable Contact	银氧化锡 AgSnO2	福达/聚星/格林/宁波电工 (Foodar/ Green/Juxing/ Gold Point)

11	定位件 Spacer	铜合金 Copper alloy	鑫科/三菱/兴业/博威 (Xinke / Mitsubishi / Industrial / Bowei)
12	铁芯 Core	电工纯铁 Electrician pure iron	太钢/宝钢/鞍钢 (TISCO/ANSTEEL/BAOSTEEL)
13	衔铁 Armature	电工纯铁 Electrician pure iron	太钢/宝钢/鞍钢 (TISCO/ANSTEEL/BAOSTEEL)

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