电子元器件规格书
RELAY SPECIFICATION

器件名称 Name:	继电器 RELAY
型号规格 Product Name:	MPI-S-112-C-3F (0.4W 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
方旭 Xu Fang	林罗豪 Luohao Lin	洪泽钊 Zezhao Hong

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 9 页;
   Specification come into force after signed by both parties. Total 9 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.
4. 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

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、认证类型及认证号 APPROVALS TYPE AND APPROVALS NUMBER

1.1	CQC	CQC15002122984
1.2	UL	E358149
1.3	TUV	R50302776

二、线圈参数 COIL SPECIFICATION

2.1	额定电压 Rated Voltage	12VDC
2.2	线圈电阻 Coil Resistance	360Ω±10%
2.3	线圈功率 Coil Power	0.4W
2.4	最大允许电压 Max. Allowable Voltage	15.6VDC

三、触点参数 CONTACT SPECIFICATION

3.1	触点额定参数 Contact Rating	NO:16A 250VAC　NC:8A 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
3.5	触点材质 Contact material	AgSnO2

四　操作性能 OPERATE PERFORMANCES

4.1	接触电阻 Contact Resistance	≤100mΩ（@1A 6VDC）（初始 Initial）
4.2	吸合电压 Operate Voltage	≤9VDC
4.3	释放电压 Release Voltage	≥0.6VDC
4.4	动作时间 Operate Time	≤15ms
4.5	释放时间 Release Time	≤8ms

五　寿命要求 LIFE REQUIREMENTS

5.1	电气寿命 Electrical Life	100,000 次，常温条件，阻性额定负载，动作频率：6 次/分钟，10%占空比，1 秒通 9 秒断（常开、常闭分别单独实验） 100,000 cycles, Normal temperature condition，resistive rated load，Action frequency: 6 times / min, 10% duty cycle, 1 second on 9 seconds off. (normally open, normally closed, respectively, separate experiments，)
5.2	机械寿命 Mechanical Life	1,000,000 次（无负载, 0.1 秒通 0.1 秒断） 1,000,000 cycles, No load, ON:OFF=0.1s:0.1s

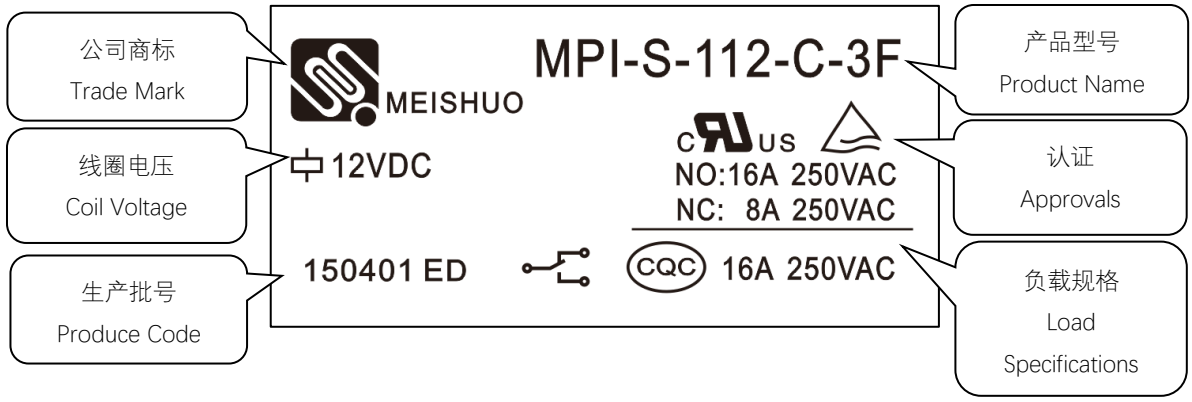
六　安全及环境性能要求 SAFETY AND ENVIRONMENTAL PERFORMANCE REQUIREMENTS

6.1	存储条件 Storage Condition	温度：-40 ~ +105℃，湿度：20% ~ 85%RH Temperature：-40 ~ +105℃,Humidity:20% ~ 85%RH
6.2	使用条件 Use Condition	温度：-40 ~ +105℃，湿度：20% ~ 85%RH Temperature：-40 ~ +105℃,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：≥1000MΩ Min (@500VDC) Between open contacts/contacts and coil: ≥1000MΩ Min (@500VDC)
6.5	介质耐压 Dielectric Strength	断开触点间：1000 VAC（1mA）(50/60Hz)1 分钟 Between open contacts：1000VAC（1mA）(50/60Hz) 1min 触点与线圈间：5000VAC（1mA）(50/60Hz)1 分钟 Between contacts and coil: 5000VAC（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 15N 的拉力 6s，继电器应无异常。 Apply a pull force of 6s of 15N perpendicular to the lead pin and the relay shall be normal.
6.7	耐振动性 Vibration Resistance	（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 ~ 10Hz/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。 （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。 (1) Durable vibration in the state of vibration with double amplitude of 1.5mm and no excitation, the vibration frequency of 10 ~ 55 ~ 10Hz/ min is carried out on all sides of XYZ for 2 hours, and there should be no abnormality in appearance, construction and performance. (2) When the vibration is in the state of excitation with double amplitude of 1.5mm, and the vibration frequency of 10 ~ 55 ~ 10Hz/ min is carried out in the direction of each side of XYZ for 5 minutes, there should be no false action in the experiment. After the experiment, there should be no abnormality in appearance, construction and performance.

6.8	耐冲击性 Impact Resistance	（1）耐久冲击　在无励磁的状态下，以加速度为 1000m/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。 （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，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。 （1）Durable impact in the state of no excitation, with the acceleration of 1000m/ S2 in each direction of XYZ five times, the appearance, construction, performance should be no abnormal. （2）Malfunctioning In the state of excitation, the impact with the acceleration of 200m/ S2 is carried out twice in each direction of XYZ. There should be no false action in the experiment. After the experiment, there should be no abnormality in appearance, construction and performance.
6.9	耐低温性 Low Temperature Resistance	（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） （2）贮存时耐低温性　将继电器放入温度为-20±2℃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。 （1）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℃. (No ice at 0℃) （2）Low temperature resistance when stored　The relay placed in the temperature of -20 ± 2 ℃ 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	（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 105±2℃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。 （2）贮存时耐高温性　将继电器放入温度为 40±2℃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。 （1）Use high temperature resistance　In the relay control circuit plus rated voltage, the main circuit through the rated current state, put it into the 105 ± 2 ℃ 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. （2）High temperature resistance when stored　The relay placed in the temperature of 40±2℃ 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.

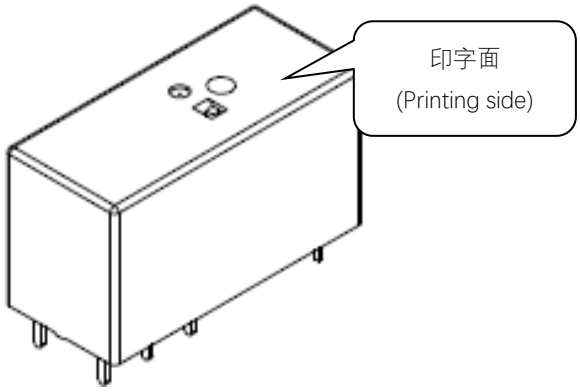
6.11	耐湿性 Moisture Resistance	将继电器放入温度为 40±2℃、相对湿度为 90～95%的环境里连续保持 48 小时后，移到常温常湿的地方放置 1 小时以上、2 小时以内后检查其构造、动作、绝缘电阻、介电性能，应没有异常。 The relay placed in the temperature of 40 ± 2 ℃, relative humidity of 90 ~ 95% of the environment for 48 hours in a row, moved to room temperature and humidity place for 1 hour or more, 2 hours after the check its structure, action, insulation Resistance, dielectric properties, should be no exception.
6.12	可焊性 Solderability	（1）235±5℃，3±1s（有铅焊接）；260±5℃，3±1s（无铅焊接）；280±5℃，10±1s（波峰焊），90%以上引脚面积覆锡。 （1）235±5℃，3±1s, Leaded soldering, 260±5℃，3±1s,No Leaded soldering, 280±5℃，10±1s（Wave soldering），More than 90% of the lead area of tin.)
6.13	阻燃性 Flame retardancy	按照 IEC60695-2-11 灼热丝测试要求中的 750℃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 ℃ 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 厂家型号含义、丝印各部位含义说明 MANUFACTURER P/N, MEANING OF P/N, PRINTING AND REMARKS



注：此印字图中批次号带"E"表示继电器可通过灼热丝测试

Note: the batch number "E" in this print indicates that the relay can pass the hot wire test



	MPI	-S	-1	12	-C	-1	N	F	-01
产品型号 Model:	MPI								
产品结构 Structure:	S: 塑封型 Sealed 无 Ni: 防焊剂型 Flux proofed								
触点组数 Contact Group:	1: 1 组 1 Group 2: 2 组 2 Groups								
线圈电压 Coil Voltage:	5、6、9、12、18、24、48、60、72、110VDC								
触点形式 Contact arrangement	A: 常开 NO B: 常闭 NC C: 转换 NO/NC								
结构形式 Contact Form:	1:1 组，3.5mm 12A 1 Group 12A 2:1 组，5.0mm 12A 1 Group 12A 3:1 组，5.0mm 16A 1 Group 16A 4:2 组，5.0mm 8A 2 Group 8A								
线圈功耗 Coil power	无 Nil: 0.4W N: 0.53W								
绝缘等级 Insulation Class	无: 标准型，B 级 F: F 级 Ni: Standard Type, Class B F: Class F								
其他 other	无 Nil: 标准型数字或字母：特殊要求 Standard numbers or letters: Special requirements								

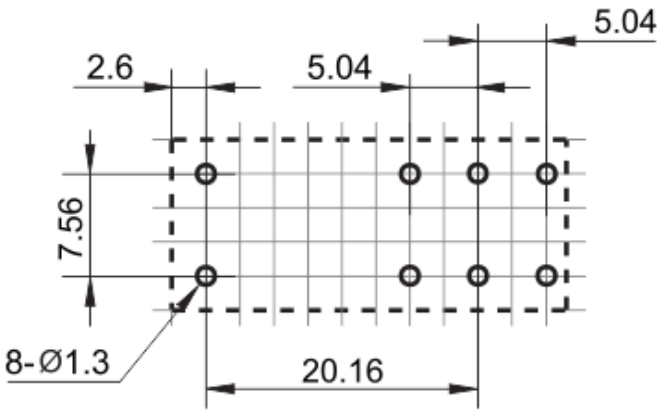
八 生产批号标识 PRODUCE CODE

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,A1.C5……）

九 接线及装配尺寸图（孔距公差±0.2，孔径公差±0.1）WIRING DIAGRAM AND PIN POSITION DRAWING （PIN DISTANCE±0.2, APERT ±0.1）

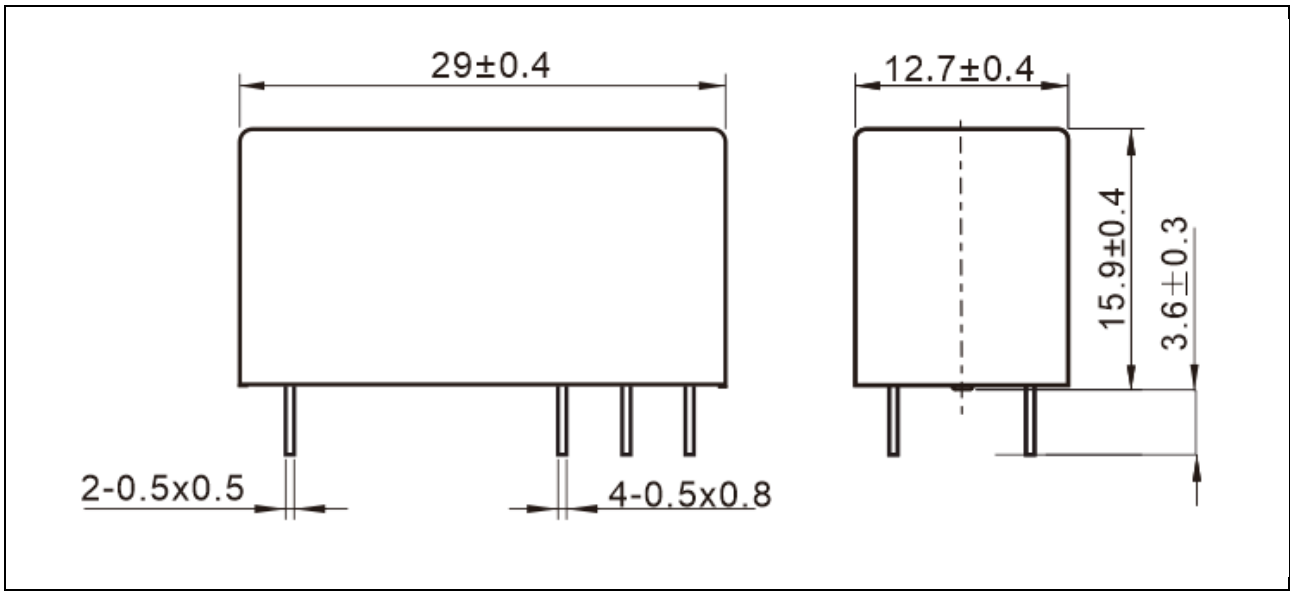
安装孔尺寸图
Pin position drawing



接线图（底视）
Wiring diagram



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≤1mm，公差为±0.2mm；当尺寸在 1～5mm，公差为±0.3mm；当尺寸＞5mm，公差为±0.4mm。
Note: The tolerance dimension of the product parts in outline drawing is ≤ 1 mm, tolerance is ±0.2 mm; When the dimension is 1~5 mm, the tolerance is ±0.3 mm; When size > 5 mm, tolerance is±0.4 mm.

十一 来料包装形式 FORM OF PACKING WITH SUPPLIED MATERIALS

11.1	来料包装形式 Form of packing with supplied materials	内包装用塑盒包装，外包装用牢固的纸箱包装。 The inner packing is in plastic box, and the outer packing is in strong carton.
11.2	运输规定 Transport regulation	产品运输过程中应注意防止重压、跌落、防潮和防热。 Product transportation process should pay attention to prevent pressure, fall, moisture and heat.

十二 其他 Others

12.1 请确保在继电器周围不存在硅系物质(如硅橡胶、硅油、硅系涂料剂、硅填充剂等)，因为它们会产生含硅挥发气体,可能导致硅附着于继电器触点上,引起触点接触不良。

Please ensure that no silicone-based substances (such as silicone rubber, silicone oil, silicone-based coatings, or silicone fillers) are present around the relay, as they may release volatile silicon-containing gases. These gases can deposit silicon on the relay contacts, potentially causing poor contact.

12.2 为了保持继电器的性能，请注意不要使继电器掉落或受到强冲击。掉落后的继电器请做报废处理。

To maintain the relay's performance, please ensure that it is not dropped or subjected to strong impacts. Relays that have been dropped should be discarded.

12.3 避免在强磁场条件下使用继电器，外界强磁场会造成继电器动作和释放等参数发生变化。

Avoid using the relay in strong magnetic fields, as external magnetic interference may alter its operating parameters (such as actuation and release characteristics).

12.4 该产品在焊接完成后，如需整体进行清洗，请与美硕技术中心联系。

For post-soldering cleaning of the complete product, please contact MEISHUO Technical Center.

12.5 规格书内的各项性能参数是基于标准测试条件下测得的初始值，环境温度 23±5℃、湿度 25-75%RH。

The performance parameters listed in this specification document represent initial values measured under standard test conditions. Ambient temperature 23+5°C,humidity 25-75%RH.

12.6 对于部分产品，为获得更好的电耐久性能，需打开外壳的透气孔。产品的电耐久性能详细情况见认证证书。继电器的电耐久性次数可能会因使用环境条件的不同而有差异。本产品规格书中电耐久性所列的试验条件、触点负载可能未包含在认证证书中，当使用环境条件与认证条件不同时，电耐久性能需要由具体试验确认。

For certain products, opening the vent holes on the housing may be required to achieve optimal electrical endurance performance. Refer to the certification documents for detailed electrical endurance specifications.

Note that the relay's electrical endurance cycle count may vary depending on operating environment conditions. The test conditions and contact loads for electrical endurance listed in this specification may not be included in the certification documents. If the actual operating environment differs from certified conditions, specific testing must be conducted to verify electrical endurance performance.

12.7 本产品规格书中标称的使用环境温度范围指的是产品在特定负载条件下的最大耐受温度范围。对于防爆规格产品的使用环境温度按相应防爆认证证书的规定。

The rated ambient temperature range specified in this product datasheet refers to the maximum tolerable temperature range under specific load conditions. For explosion-proof models, the operating ambient temperature must comply with the corresponding explosion-proof certification requirements.

12.8 环保措施 Environmental Protection

美硕产品均符合 RoHS/REACH 要求

MEISHUO products are all RoHS/REACH compliant.