廣東辰奕智能科技股份有限公司

GUANGDONG SENEASY INTELLIGENT TECHNOLOGY CO., LTD.

零件承认书

SPECIFICATION FOR APPROVAL

版本	‡: <u>V1.0</u>		发	发行日期:2018.4.20				
品 名	: 贴片拔	动开关		页	数	: 12		
品 号	号: 330112003							
规 格	: SMT 7	PIN (N	/ISK-11	02)				
制造商	引 造 商: 供 应 商: <u>嘉铭泰</u>							
生产地	<u>:</u>							
备注	:编带包	装						
承认单位		承 认		审	核		核 准	
技术部								
签								
草								
X								
		品质部	供应商					
分发单位:								

表格编号: WI-RD002-F0

版本控制页

版本	修订内容	负责人	发行日期
V1.0	初版发布	熊超	2018.4.20

惠州嘉铭泰电子有限公司

Total page 10
Edition A

承 认 书 Specification for Approval

Approved by Supplier

Approved by	Checked by	Prepared by

	pecification For Approval		
确认者 Approval by	备注 Remark: 1. 该规格书为客户与嘉铭泰公司在产品单品技术方面的共识, 其它相关数据上与该规格书不一致的内容都是无效的。		
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惠州嘉铭泰电子有限公司	文件编号 FILE NO.		页码 PEGE	2/10
芯川加	发布日期 DATE OF ISSUE	2013 年	5月15日	
PRODUCT SPECIFICATION 产品承认书	文件版本 EDITION	第A版第	等0 次修订	
SLIDE SWITCH 滑动开关	产品编码 PART NO	MK-1:	2C02-G	

1. General Characteristics 一般特性:

适用范围:

1.1、This specification is applied to the requirements for SLIDE SWITCH (MECHANICAL CONTACT) 此规格书适用于机械式滑动开关的相关要求

1.2 Operating Temperature Range: -20°Cto70°C

使用温度范围: -20℃to 70℃

1.3 Operating Relative Humidity: ≤85%RH

相对湿度: ≤85%RH

1.4 Test Conditions: Unless otherwise specified, the atmospheric conditions for making measurements and tests are as follows:

实验条件: 若没有特别说明,则试验大气条件如下:

Ambient Temperature: 5~35°C, Relative Humidity: 45~85%

环境温度: 5~35℃,相对湿度: 45~85% Air Pressure: 86~106Kpa (860~1060mbar) 大气压力: 86~106Kpa (860~1060mbar)

- 2. Appearance, Structure and Dimensions 外观, 结构及尺寸:
- 2.1 Appearance: The switch shall have good finishing, and no rust, crack or plating defects.

外观:产品外观良好,无锈蚀、裂纹和镀层缺陷。

2.2 Structure & Dimensions: Refer to individual product drawing.

结构及尺寸:参见产品图纸

2.3 Markings: Refer to individual product drawing.

标识:参见产品图纸。

3. Ra	3. Ratings 额定负荷		DC 4V 50mA
4. Electrical Characteristics 电气特性			
No.	Item 项目	Criteria 标准	Test Method 实验方法
4.1	Initial Contact Resistance 初期接触电阻	100mΩ Max.	Shall be measured at 1KHz ± 200Hz(20mV Max, 50mA Max) or measured by low ohm meter 以 1KHz ± 200Hz (20mV Max, 50mA Max)或采用低电阻测试仪测量
4.2	Resistance Insulation 绝缘电阻	100MΩ Min.	A voltage of DC 250V shall be applied between open terminals, and between the terminal and the metal frame for 60±5 Sec 在相互绝缘的所有端子之间及各端子与金属外壳之间加载 DC 250V,持续时间 60±5 秒
4.3	Dielectric Voltage 抗电强度	No dielectric breakdown shall occur. 无击穿现象发 生。	A voltage of AC 250V(50-60HZ),10mA trip current shall be applied between open terminals ,and between the frame and the terminal for 60±5 Sec 在相互绝缘的所有端子之间及各端子与金属外壳之间加载 AC 250V (50-60Hz),泄漏电流 10mA,持续时间 60±5 秒

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PRODUCT SPECIFICATION 产品承认书	文件版本 EDITION	第 A 版第 0 次	次修订	
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			PART NO	
5. M	echanical Charact	eristics 机械特性		
No.	Item 项目	Criteria 标准		Test Method 实验方法
5.1	Operating Force 操作力	200±70gf	Apply a static load on the midpoint of the actuator (or the shaft) to supply a pressure vertically from its position to operating position. 在操作元件末端沿操作方向均匀施加静载荷,使操作转换到动作位置。	
5.2	Operation Position 操作行程	1.5±0.30mm	开关垂直于操作方向放置,以一个等于 2 倍按力的静荷施加在开关驱动件顶端中心,测量顶端移动的距离 Placing the switch such that the direction of swit operation is vertical and then applying static load 2times operating force to the center of the stem; the travel distance for the switch to come to a stop shall measured.	
5.3	Terminal Strength 端子强度	Shall be free from terminallooseness,damageandins ulator breakage.Nofunctional defective occur 端子无松动,损坏及绝缘层的破裂。无功能性不良	in a desired direction for 10 ± 1s. The test shall be once per terminal. 以 0.5N 作用力沿轴向逐渐施加于接线端末端 10±1	
5.4	Vibration Proof 振动		mounting device after following t (1) Vibration fre (2) Total amplitu (3) Sweep ratio: (4) Method of cl logarithmic or li (5) Direction of including actuat (6) Duration: 2 H开关采用常规的在下述参数条件(1) 振频 10-551(2) 振幅 1.5mm振动变似方法: (5) 振动方向: 促动元件运动的	quency range 10~55 Hz ude 1.5mm 10~55~10Hz Approx. 1 min nanging the sweep vibration frequency: near vibration: Three perpendicular directions ing direction. nours (6 hours in total) 约安装方法牢固地安装在试验设备上,并 井下进行试验: Hz (3) 10-55-10Hz 大约 1 分钟 对数或线性型式 三个相互垂直的方向,其中一个方向应是

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PRODUCT SPECIFICATION 产品承认书	文件版本 EDITION	第A版第0	次修订	
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No.	Item 项目	Criteria 标准	Test Method 实验方法
5.5	Mechanic al Shock 冲击	After test, Contactresistance:100mΩMax. No functional defective occur Shall be free from mechanical abnormalities. 实验后: 接触电阻: 100 mΩMax. 无功能性不良。 表面无变形且操作无异常。	Switch shall be measured after following test: (1) Mounting Method: Normal (2) Acceleration: 490m/s2 (50G) (3) Duration: 11ms (4) Test Direction: 6 directions (5) Number of shocks: 3 times per direction (18 times in total) 试件在下述参数条件下进行试验: (1) 安装方法: 常规方法 (2) 加速度: 490m/s2 (50G) (3) 时间: 11ms (4) 实验方向: 图示 6 方向 (5) 冲击次数: 每个方向 3 次 (总共 18 次)
5.6	Solder Ability 可焊性	More than 80% of immersed part shall be covered with solder. 超过 80% 的浸锡面积被焊料所覆盖。	Switch shall be tested according to the following request: 1(1) Equipment: Auto-Dip Chamber 2(1) Solder: Normal 3(1) Flux: Rosin Flux having a nominal composition of 25% solids by mass of water white rosin in methyl alcohol solution. 4(1) Soldering Temperature: 250 ± 5°C 5(1) Immersing Time: 3 ±1s 开关在下述参数条件下进行试验: (1) 设备: 自动焊接机 (2) 焊料: 常规 (3) 焊剂: 焊剂, 质量百分比为 25% 松香, 75% 甲醇的无色透明溶液。 (4) 焊接温度: 250±5°C (5) 浸渍时间: 3±1s

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PRODUCT SPECIFICATION 产品承认书	文件版本 EDITION	第A版第0	次修订	
SLIDE SWITCH 滑动开关	产品编码 PART NO	MK-12C0)2-G	

SLIDE SWITCH 滑动开关			PART NO MK-12C02-G			
No.	Item 项目	Criteria 标准		Test Method 实验方法		
5.7	Solder Heat Resistance 耐焊接热	No abnormalities shall be observed in appearance an operation. No functional defective occu无外观及功能损坏。无功能性不良。	预热:被焊接 面的温度可; Preheat: To Should read into the sold 焊接温度:被 最高可达 26 Soldering I surface sho within 40 s soldering I	emperature on the copper foil surface the 180°C, 2±0.3 minutes after the P.W.B ent dering equipment 医焊接部品进入焊接区的 40 秒内, 铜片表面温度 0°C neat: Temperature on the copper foil build reach the peak temperature of 260°C seconds after the P.W.B enter into neat zone		
No.	Item 项目	Criteria 标准		Test Method 实验方法		
6.1	Mechanical Life 机械寿命	After test, Contactresistance:500mΩ Max Insulation resistance: 100MΩ Min. Tolerance of operating force Disintegration shall be withir 30% of specified value No functional defective occur The switch shall be free from abnormalities in appearance construction. 实验后: 接触电阻: 500m Ω Max. 绝缘电阻: 100MΩ Min. 操作力衰变应在±30%以内。 无功能性不良。 开关外观及结构应无损坏。	continuously without load. 在不带负荷!	s of operation shall be performed at a rate of 15~20 cycles per minute 的条件下,速度为 15~20 次/分,在寿命连续转换 10,000 次。		

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 東州青ీ海東中子左阳八司			文件编号 FILE NO.		页码 PEGE	6/10	
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PRODUCT SPECIFICATION 产品承认书				文件版本 EDITION	第 A 版第 0 次修订		
SLIDE SWITCH 滑动开关				产品编码 PART NO	MK-12C02-G		
7.Weather Proof Characteristics 耐候性能:							
No.	Item 项目	Criteria 标准		Test Method 实验方法			
				After testing at $-20 \pm 2^{\circ}$ C for 96 hours, the switch shall be allowed to stand under normal temperature and			

7.Weather Proof Characteristics 耐候性能:							
No.	Item 项目	Criteria 标准	Test Method 实验方法				
7.1	Cold Proof 低温		After testing at $-20 \pm 2^{\circ}$ C for 96 hours, the switch shall be allowed to stand under normal temperature and humidity conditions for 1 hour, and measurement shall be made within 1 hour after that. Water drops shall be eliminated. 试件在- $20\pm 2^{\circ}$ C的温控箱内保持 96 小时,然后在正常温度和湿度下恢复 1 小时,并在此后 1 小时内对试品进行测量,水滴应消失。				
7.2	Hot Proof 高温	After test, Contactresistance:200mΩ Max. Insulation resistance:	Contactresistance:200mΩ Max.				
7.3	恒定湿热 实验后: 接触电阻: 200mΩ Max. 绝缘电阻: 100MΩ Min.	After testing at 40± 2°C ,90~95% RH for 96 hours, the switch shall be allowed to stand under normal temperature and humidity conditions for 1 hour, and measurement shall be made within 1 hour after that. Water drops shall be eliminated. 试件在 40±2℃, 90-95%RH 的温控箱内保持 96 小时,然后在正常温度和湿度下恢复 1 小时,并在此后 1 小时内对试品进行测量,水滴应消失。					
7.4	Temperature Cycling 温度转换	无功能性不良。 开关外观及结构应无损坏。	After 5 cycles of following conditions, the switch shall be allowed to stand under normal temperature and humidity conditions for 1 hour, and measurement shall be made within 1 hour after that. Water drops shall be eliminated. 这件按下述实验条件试验 5 次,然后在正常温度和湿度下恢复 1 小时,并在此后 1 小时内对试品进行测量,水滴应消失				

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PRODUCT SPECIFICATION 产品承认书	文件版本 EDITION	第 A 版第 0 次修订		
SLIDE SWITCH 滑动开关	产品编码 PART NO	MK-12C02-G		

注意事项 Precautions for use:

1. 一般事项 General:

本产品主要用于自动化装置,视像装置,家用电器,信息装置及通讯装置等常用电子设备中;如果该产品要用于其它具有更高安全性及可靠性的耐久性设备中(如生命维持装置,宇宙航空装置,防灾及安全性装置)时,请确认是否合用,或者同我方了解详细情况

The product is used mainly in electronic devices such as automotive devices, visual devices, home electrical appliances, information devices and communication settings. If the products is intended to be used for other endurance equipments requiring higher safety and reliability such as life support system, space and aviation devices, disaster and safety system, it's necessary to make verification of conformity or contact us for the details before using

- 2. 焊接安装 Soldering and assembly:
 - (1) 如果焊锡时, 有施力在端子部位的话, 则端子可能会变形且易出现电气性能不良

If there is force applied on the terminal during soldering, the terminal may deform and the electrical characteristics may not be satisfied

(2) 焊锡条件应按照实际的对应条件予以确认

The soldering conditions should be confirmed according to the actual production environment

(3) 焊锡工序完成后, 不要尝试用溶剂或类似物品清洗开关

Don't try to clean the switch with a solvent or similar substance after the soldering process

(4) 开关焊锡后, 还有热量时, 请不要操作开关

Don't operate the switch if it still has heat after soldering

(5) 如使用水溶性助焊剂, 可能会导致开关破损, 因此应确保不要用这种助焊剂

The switch might be damaged if using the water-soluble flux, so make sure not to use such kind of flux

- 3. 安装构造, 机械设计 Assembly structure and Mechanical design:
 - (1)线路板上安装孔及安装图示的尺寸都须参照工程图中所建议的尺寸

The dimensions for the holes and the pattern on PCB should refer to the recommended dimensions on the engineering drawing

(2)如果施超出规定值的较大重力于开关上,会导致开关破损,所以应特别小心防止开关承受超出规定值的较大重力

The switch might be broken if there is stress stronger than the specified is given on it. Take special care not to stress the switch beyond its specification

(3) 把本公司的产品和其它产品配合使用时,请客户确认必须适合的规格、法规或规定。另请客户自身确认本公司产品装到客户使用的系统、机械、装置上的适用性.如果想变更开关使用条件,请预先与本公司进行协商

If the switch is being used together other products, please confirm the compatibility of the specification, laws and regulations. Please also confirm the compatibility of switch to be installed in the systems, machines and devices used by customer. If you want to change the operating conditions of the switch, please consult with us in advance

4. 使用环境 Operating Environment

(1) 如果该产品常用于产生硫化气体的硫性热源周围或有汽车废气存在的地方, 应特别留意, 因为开关性能可能会受到影响;

If the product is always used near sulfurate hot spring where sulfide gas is generated or in a place where exhaust

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PRODUCT SPECIFICATION 产品承认书	文件版本 EDITION	第 A 版第 0 次修订			
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gas from automobiles exists, it's necessary to pay more attention because the switch performance may be affected.

(2) 如果在安装开关的模组内有以下所描述的部件材料,需遵循以下要求:

If the below parts or materials are used in the module where the switch is installed, directions below should be followed:

① 部品、橡胶材料、粘合剂、包装材料及用于装置内机械部件上的润滑油剂等,不要使用那些可能会产生硫化气体或氧化气体的材料

For parts, rubber materials, adhesive agents, packing material and grease used for the mechanical part of the device, don't use any material that may generate gas of sulfurization or oxidization.

② 当有用到磷橡胶、润滑油、粘合剂及油脂时,应使用不会产生低分子磷氧烷气体的材料,因为低分子磷氧烷气体会在开关接触 部位形成二氧化磷层从而引起接触不良,如有用到(如涂料剂等化学溶剂),请预先告知我方

If silicon rubber, grease, adhesive agents and oil are used, choose the material that will not generate low molecular siloxane gas, because the low molecular siloxane gas may form silicon dioxide coat on the switch contact part, resulting of failing contact.

(3) 不要将开关用于高湿或有沾湿可能性的环境中, 因这样的环境可能会引起端子间电流泄漏

Don't use the switch in the environment with high humidity or other bedewing possibility, as it may cause leaking among the terminals

(4)外部浸入物的影响 The effect caused by outer immersed dust:

由于该开关无密封机构,因此可能会由于外部环境中浸入的尘埃而引起接触失效,在使用该开关时,应采取防尘措施,以下是尘埃浸入的范例,使用时请注意防止:

Because the switch was designed without dust-proof structure, it may have failing contact due to the immersed dust from the outer environment. When using the switch, it's necessary to take dust-proof actions. Examples of immersed dust, which should be prevented during the operation:

- ① 加工过程中切口处及 PCB 孔处产生碎屑,或 PCB 防护材料,(如报纸、发泡、聚苯乙烯材料等)产生的废弃物等浸入开关内 The scraps being generated during PCB processing, or other waste from the protective material for PCB such as newspaper, foam, polystyrene materials, may immerse inside the switch.
- ② 在堆叠 PCB 时产生的助焊剂或粉末状焊剂浸入开关内

The flux or solder powder being generated when stacking the PCB may immerse inside the switch.

5. 保存方法 Storage Method:

(1) 为防止本产品的性能劣化和耐焊性等性能受到影响, 建议保管在以下的条件和环境下

In order to protect the switch performance and the soldering conditions, advice it should keep the switch under the following conditions

① 避免保存在含有腐蚀性气体等的空气中

Avoid storing in the environment containing corrosive gas

② 产品购入后,不可超过6个月以上长期保管

After purchasing, the storage period should not exceed 6 months

③ 避免保存在日光能直射的场所

Avoid keeping it in the location with direct sunlight

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芯川茄和茶电丁月KK公内	发布日期 DATE OF ISSUE	2013 年 5 月 15 日		
PRODUCT SPECIFICATION 产品承认书	文件版本 EDITION	第 A 版第 0 次修订		
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(2) 在不施加负重外力的包装状态下进行保管, 自锁开关应是解锁状态下保存

Store using the standard packing without exerting force, self-lock switch should be kept as released function (3)打开包装后,请尽早使用,有剩余品时,应将剩余部分以胶袋包装好以同外界隔离,请进行合适的防湿,防腐蚀气体等处理后进行保管 After opening the package, preferably to be used as soon as possible, you should put the remaining switches in a plastic bag to prevent from damp and corrosive gas

6. 其它 Others

请特别注意严格遵守以下的禁止事项及注意事项:

Please take good care to comply with the following guidelines:

- (1)关于火灾,冒烟的禁止事项 The prohibited practices where there is fire and fume:
 - ① 超过额定负荷使用时,有发生火灾的可能性,故请切勿超负荷使用
 It might catch fire if the rating exceeds the specifications. Never use the switch beyond the rating.
 - ② 如果有误使用、异常使用等有可能超过额定电流的话,请采取对策.如:通过设置保护电路等切断电流 If the rating may exceed due to some abuse or abnormal usage, please take protective measures such as protective circuit to shut down the circuit
 - ③ 本产品使用的非金属材料, 其抗燃等级是根据 UL94 的判定基准, 若有使用 94HB 等级的材料, 则禁止使用在有可能产生漫延燃烧的地方, 或采取延烧防止对策

The fire-resistance grade of the resin used in the switch meets UL94HB rating, according to the UL94 Standard for burning test of plastics. Do not use the switch where there may be danger of getting fire, or take protective measures to prevent from catching fire

- (2)对于追求安全性产品的注意事项 Precautions to the products requiring special safety:
 - ① 对于产品品质我司以期万全,但有可能发生寿命等故障形式,如性能劣化、短路、常开等。因此,在设计追求安全性产品的时候:"对于零件单一故障,产品会出现什么故障"。请进行事前检讨

Though we are confident in switch quality, we can't deny the possibility that there could be failure due to inferior performance, short or open circuit. Therefore, when designing the product requiring special safety, please verify in advance what effects would show on your product in case the switch alone may fail

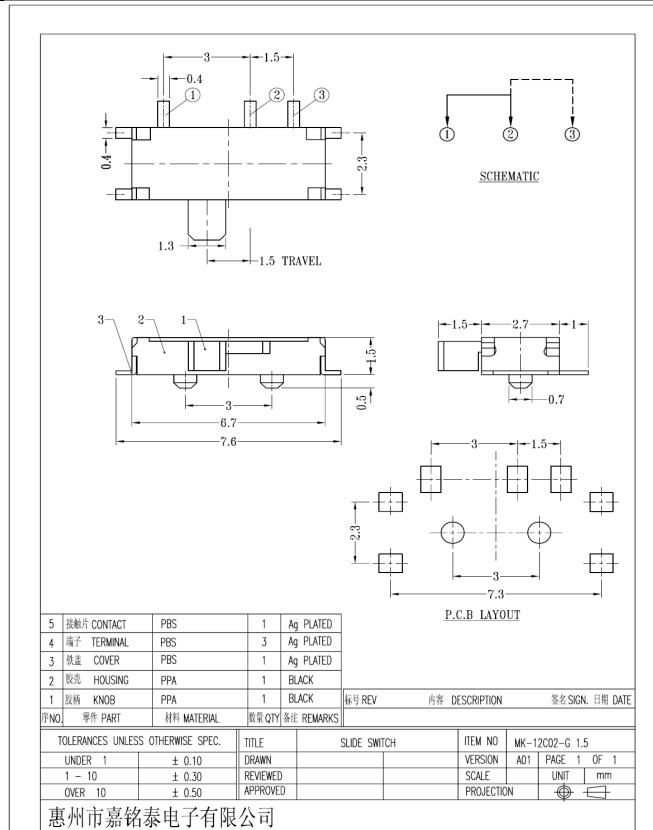
② 准备保护电路、保护装置的系统以谋求安全

Prepare the system with protective circuit and protective devices for safety purposes

③ 准备安全备用电路, 使单一的故障不会导致整体系统的失效, 以确保安全性

Prepare safety standby circuit to preclude the whole system failure that may result from specific failure

惠州嘉铭泰电子有限公司	文件编号 FILE NO.		页码 PEGE	10/10
芯川加山水屯」日限公司	发布日期 DATE OF ISSUE	2013 年 5 月 15 日		
PRODUCT SPECIFICATION 产品承认书	文件版本 EDITION	第 A 版第 0 次修订		
SLIDE SWITCH 滑动开关	产品编码 PART NO	MK-12C02-G		



RD01 版本:A01