



香港恆鴻電子五金有限公司

HK Heng Hong Electronics Hardware Limited

東莞市德藝隆電子有限公司

DG De Yi Long Electronics Hardware Limited

產品規格承認書

SPECIFICATION FOR APPROVAL SHEET

客 戶：

CUSTOM：_____矽遞_____

品 名：

DESC.：_____拨动开关_____

型 號：

PARTNO：_____MK-22D18 G3 ROHS_____

客戶型號：

CUST. NO：_____311030004_____

承認單位 DEPT.	採購部 PURCHING	品管部 QC	研發工程部 R&Q	零件承認單 APPROVALSLGNET
審核 CHECK				
確認 APPOVAL				

審核結果：

INSPEC.RESULT

☐

合格

ACCEPT

☐

不合格

REJECT

日期:2014-09-10

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<http://www.moralityele.com>

产品规格书(Product Specification)

产品型号(Item.#)	MSK-22D18	说明(Description)	拨动开关 (Slide switch)		
页 码 (Page)	第1页(1 of 6)	日 期(Date)	2010. 04. 17	版本(Ver)	A01

1. 一般特性(General Characteristics):

1.1 适用范围(Application):	该规格书指拨动开关的一般使用范围(This specification is applied to the slide switch for general applications.)
1.2 使用温度范围(Operating temperature Range):	<u>-20° C 到 +80° C</u> (<u>-20° C to +80° C</u>)
1.3 相对湿度(Operating Relative Humidity)	<u>≤ 96%RH, +40° C(≤ 96% at +40° C)</u>
1.4 实验条件(Test Conditions):	若没有特殊说明, 则试验在大气条件如下 (Unless otherwise specified, . the atmospheric conditions for making measurements and tests are as follows;) 环境温度(Ambient Temperature): <u>5-35° C</u> 大气压力(Air pressure): <u>86-106Kpa (860-1060mbar)</u> 相对湿度(Relative Humidity): <u>45-85%RH</u>

2. 外观, 结构及尺寸(Appearance, Structure & Dimension):

2.1 外观(Appearance):	产品外观良好, 无锈蚀, 裂纹和镀层缺陷. (The switch shall have good finishing, and no rust, crack or plating defects.)
2.2 结构及尺寸(Structure & Dimensions)	参见产品图纸. (Refer to individual product drawing.)
2.3 标识(Markings):	参见产品图纸. (Refer to individual product drawing.)

3. 额定值(Rating): DC 30V 0.3A

4. 电气性能(Electrical Characteristics):

<div>✕</div>	项目(Item)	标准(Criteria)	实验方法(Test Method)
4.1	接触电阻 (Contact Resistance)	80毫欧以下 <u>80mΩ Max</u>	以 <u>1A, 5V DC</u> 或在 <u>1KHz±200Hz (20mV Max, 50mA Max)</u> 采用电压降法测量. (Shall be measured at <u>1KHz±200Hz (20mV Max, 50mA Max)</u> or <u>1A, 5V DC</u> by voltage drop method.)
4.2	绝缘电阻(Insulation Resistance)	100兆欧以上 <u>100MΩ Min</u>	在相互绝缘的所有端子之间及个接线端子与外露的非载流金属零件之间加载500V直流电, 持续时间 <u>60±5秒</u> . (500V DC voltage is applied between each pair of terminals and between the terminal and metal frame for <u>60±5Sec.</u>)
4.3	抗电强度 (Dielectric Voltage)	无击穿现象发生. (No dielectric breakdown shall occur.)	在相互绝缘的所有接线端子之间加载500V (50-60Hz, 泄漏电流10mA) 交流电, 各接线端子与外壳或非载流金属零件之间加载500V (50-60Hz, 泄漏电流10mA) 交流电, 持续时间 <u>60±5秒</u> . <u>500V (50-60Hz, 10mA)</u> alternate current load is applied between open terminals connected with wires; or <u>500V (50-60Hz, 10mA)</u> alternate current load is applied between frame & terminal or between metal parts, for <u>60±5Sec.</u>

产品规格书(Product Specification)

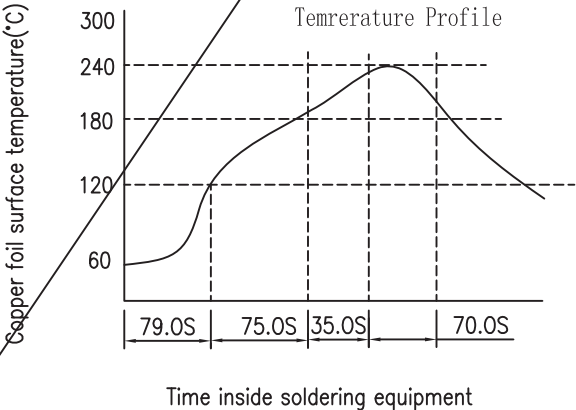
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5. 机械性能 (Mechanical Characteristics)

	项目 (Item)	标准 (Criteria)	实验方法 (Test method)
5. 1	操作力 (Operating Force)	200±100gf	在操作元件末端沿操作方向均匀施加静载荷, 使操作元件转换到动作位置. (A static load shall be applied to the tip of actuator in operating direction to change the component to operating position)
5. 2	接线端强度 (Terminal strength)	-端子无松动, 损坏及绝缘层的破裂. -电气性能应符合第4部分的要求. (-Shall be free from terminal looseness damage and insulator breakage.) (The electrical performance requirements specified in section 4 shall be satisfied)	以300gf作用力沿轴向施加于接线端末端, 作用力方向离开关向外指向, 保持15秒, 每个接线端子测量一次. (A static load of 300gf shall be applied to the tip of terminal in a desired direction for 15Sec. The test shall be done once per terminal.)
5. 3	可焊性 (Solder Ability)	超过90%的焊锡面积被焊料所覆盖. (More than 90% of immersed part shall be covered with solder.)	试件在下述参数条件下进行试验. (Switch shall be checked after fallowing test): (1) 焊料 (Solder): H63A (JIS Z 3282) (2) 焊剂: 焊剂 (JIS K 5902), 质量百分比为25%松香. 75%甲醇的无色透明溶液. Flux: Rosin Flux (JIS K 5902) having a nominal composition of 25% solids by mass of water white rosin in methyl alcohol (JIS K 1501) solution. (3) 焊接温度: <u>245±5° C</u> 焊接时间: <u>3±0. 5秒</u> (Soldering Temperature : <u>245±5° C</u> Immersing Time : <u>3±0. 5Sec</u>)

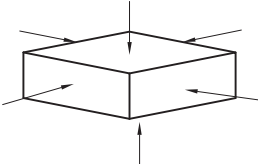
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5.4	耐焊接热 (Solder Heat Resietance)	<p>无外观及功能损坏, 电气性能应符合第4部份的要求</p> <p>(-No abnormalities shall be abserved in appearance and operation.</p> <p>-The electrical performance requirements specified in item 4 shall be satisfied)</p>	<p>一、回流焊方法 Re-fiow soldering method:</p> <p>回流焊接条件:(Reflow soldering conditions</p> <p>预热:被焊接部位进入焊接设备之后的2 ± 0.3分钟,铜片表面的温度可达到180°C. (Preheat:Temperature on the copper foil surface should reach 180°C, 2 ± 0.3 minutes after the P.W.B entered into the soldering equipment.)</p> <p>焊接温度:被焊接部位进入焊接区的20秒内,铜片表面的温度最高达260°C. (Soldering heat: Temperature on the copper foil surface should reach the peak temperature of 260°C within 20 seconds after the P.W.B enter into soldering heat zone.</p> <div></div>	<p>二、自动焊接方法 Solder bath method</p> <p>焊接温度:$260\pm5^{\circ}\text{C}$ 时间:3 ± 0.5秒</p> <p>Temperature :$260\pm5^{\circ}\text{C}$</p> <p>Sinking time: $3\pm0.5\text{S}$</p> <p>PCB 厚度:1.6mm</p> <p>Thickness of PCB :1.6mm</p> <p>Immersion depth: Up to the surface of the board</p>	<p>三、手工焊接方法 Solder iron method</p> <p>焊接温度:$350\pm10^{\circ}\text{C}$ 时间:3 ± 1.0 秒</p> <p>Bit temperature :$350\pm10^{\circ}\text{C}$</p> <p>Application time: $3\pm1.0\text{S}$</p>
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产品规格书(Product Specification)

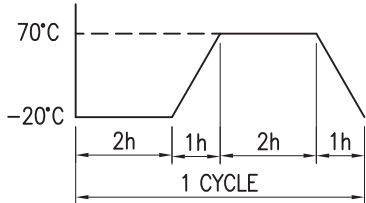
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5.5	振动测试 Vibration test	<p>无外观及功能损坏, 电气性能应符合第4部份的要求和机械性能的5.1的要求</p> <p>(-No abnormalities shall be observed in appearance and operation.</p> <p>-The electrical performance requirements specified in item 4 shall be satisfied, The mechanical characteristics requirements specified in item 5.1 shall be satisfied.)</p>	<p>(1) 振幅(Amplitude):1.5mm</p> <p>(2) 振动频率(Sweep rate):1分钟 10-55-10Hz(10-55-10Hz for 1 minute.)</p> <p>(3) 振动方法(Sweep method):Logarithmic frequency sweep rate.</p> <p>(4) 振动方向(Vibration direction):X, Y, Z(3 direction)</p> <p>(5) 时间(Time):每个方向2个小时(Each direction 2 hours)</p>
5.6	冲击 Impact Shock	<p>实验后:</p> <p>接触电阻:0.5 Ω Max.</p> <p>绝缘电阻:100MΩ Min.</p> <p>电气性能应符合第4.3条的要求. 表面无变形且操作无异常.</p> <p>After test,</p> <p>Contact resistance:0.5Ω Max</p> <p>Insulation resistance: 100MΩ Min</p> <p>The Electrical performance requirements specified in item 4.3 shall be satisfied. Shall be free from mechanical abnormalities.</p>	<p>试件在下述参数条件下进行试验:</p> <p>(1) 安装方法:常规方法</p> <p>(2) 加速度:490m/s</p> <p>(3) 时间:11ms</p> <p>(4) 实验方向:图示6方向</p> <p>(5) 冲击次数:每个方向3次(总共18次)</p> <p>Switch shall be measured after following test</p> <p>(1) Mounting Method:Normal</p> <p>(2) Acceleration : 490m/s (50G)</p> <p>(3) Duration: 11ms</p> <p>(4) Test Direction:6 directions</p> <div data-bbox="940 1832 1198 1995"></div> <p>(5) Number of shocks:3 times per direction (18 times in total)</p>

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6. 耐候性能(Weather Proof Characteriscs):

	项目(Item)	标准(Criteria)	实验方法(Test Method)
6.1	低温 Cold Proof	实验后(After test): -接触电阻(Contact resistance): 200m Ω Max. -绝缘电阻(Insulation resistance): 100M Ω Min -抗电强度应符合第4.3格的要求. (Electrical performance requirements specified in item 4.3 shall be satisfied)	试件在-40 \pm 2 $^{\circ}$ C的温控箱内保持96个小时,然后在正常的温度和湿度下恢复1小时,并在此后1小时内对试品进行测量,水滴应消失. (After testing at -40 \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.)
6.2	高温 Hot Proof	-操作力变化在 \pm 10%以内 (Operating force shall be within \pm 10% of specified value .) -开关外观及结构应无损坏. (The switch shall be free from abnormalities in appearance & construction.)	试件在85 \pm 2 $^{\circ}$ C的温控箱内保持96个小时,然后在正常的温度和湿度下恢复1小时,并在此后1小时内对试品进行测量. (After testing at 85 \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 .)
6.3	恒定湿热 Moisture Resistance		试件在60 \pm 2 $^{\circ}$ C, 90-95%RH的温控箱内保持96个小时,然后在正常的温度和湿度下恢复1小时,并在此后1小时内对试品进行测量,水滴应消失. (After testing at 60 \pm 2 $^{\circ}$ 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.)
6.4	温度转换 Temperature Cycling		试件按下述实验条件试验5个循环,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. (After 5 cycles of following conditions, the swtich shall be allowed to stand normal temperature and humidity conditions for 1 hour ,and measurement shall be made within 1 hour after that .Water drops shall be eliminated.) 

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6.5	盐雾实验 Salt Mist	实验后 (After test): -接触电阻 (Contact resistance): 200m Ω Max. -绝缘电阻 (Insulation resistance): 100M Ω Min -抗电强度应符合第4.3格的要求. (Electrical performance requirements specified in item 4.3 shall be satisfied)	5%的Nacl溶液、喷雾铜料、不锈钢24小时, 铁料8小时, 用水清洗并在室温下30分钟. At 5% Nacl liquor for Brass and sus 24 hours/Spcc 8 hours, after washing, keep in normal condition for 30 min,
6.6	耐硫化测试 Resistance to sulfuration	-操作力变化在 $\pm 10\%$ 以内 (Operating force shall be within $\pm 10\%$ of specified value.) -开关外观及结构应无损坏. (The switch shall be free from abnormalities in appearance & construction.)	After following testing, the swifch shall be allowed to stand under Dormal roomtemperature and bumidity conditions for I h, and measurement shall be madeafter that. 按下列条件实验后, 在常温常湿环境中放置1小时再测定. Temperature 温度: $40\pm 2^{\circ}\text{C}$ Humidity 湿度: $75\pm 5\% \text{RH}$ Density 浓度: H_2S gas $1\pm 0.2 \text{ ppm}$ Duration 测试时间: 240 h

7. 寿命试验 (Durability Characteristics)

	项目 (Item)	标准 (Criteria)	实验方法 (Test Method)
7.1	机械寿命 (Operating life without Load)	实验后 (After test): -接触电阻 (Contact resistance): $200\text{m}\Omega$ Max -绝缘电阻 (Insulation resistance): $100\text{M}\Omega$ Min -抗电强度应符合第4.3格的要求. (Electrical performance requirements specified in item 4.3 shall be satisfied) -操作力变化在 $\pm 30\%$ 以内. (Operating force shall be within $\pm 30\%$ of specified value.) -开关外观及结构无损坏. (The switch shall be free from abnormalities in appearance & construction.)	在无负荷的条件下, 在寿命试验设备连续转换 <u>10,000</u> 次. (<u>25-30</u> 次/分) <u>10,000</u> cycles of operation shall be performed continuously at a rate of <u>25-30</u> cycles per minute without load.

备注: 注意事项 (Notes):
开关最佳保存温度 $5-35^{\circ}\text{C}$, 保存湿度 $45-85\% \text{RH}$, 开关保存期超过6个月, 建议复检后再投入使用.
(The Switch should be kept in the best storage temperature of $5-35^{\circ}\text{C}$, $45-85\% \text{RH}$, If the stock time is over 6 months, rechecking the switch is recommended before using).

