

Product Specification

Number: L-KLS7-RS31003

Name: Rotary Switch

Customer: D02

Date: 2022-07-18

Customer Signature:

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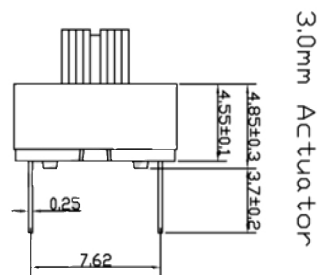
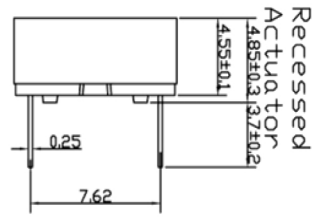
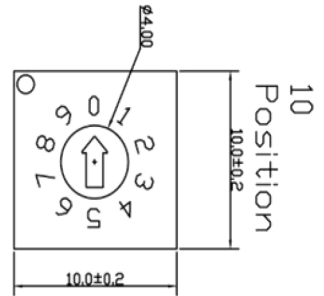
NINGBO KLS ELECTRONIC CO; LTD

Tel : 0086-574-86828566

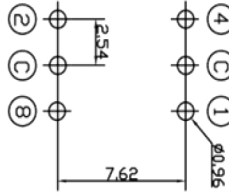
Fax : 0086-574-86824882

ADD : NO. 8-1, RONGXIA RD. XIAPU SHANQIAN
INDUSTRIAL ZONE BEILUN NINGBO ZHEJIANG.

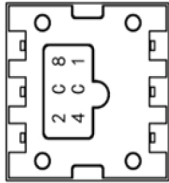
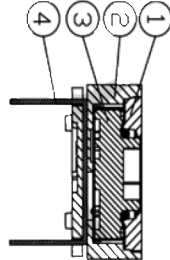
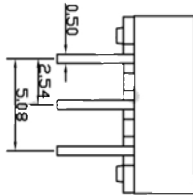
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|-------|--------|--------|---------|
| Compi | Check | Review | Approva |
| Jenny | Jack.C | | |



CIRCUIT DIAGRAM



CONSTRUCTION



| ITEM | DES | MATERIALS | TREATMENT |
|------|----------|----------------------|-----------|
| 1 | COVER | ENGINEERING PLASTICS | BLACK |
| 2 | BASE | ENGINEERING PLASTICS | BLACK |
| 3 | KEY | ENGINEERING PLASTICS | WHITE |
| 4 | TERMINAL | ALLOY COPPER | GOLD |

CODE:

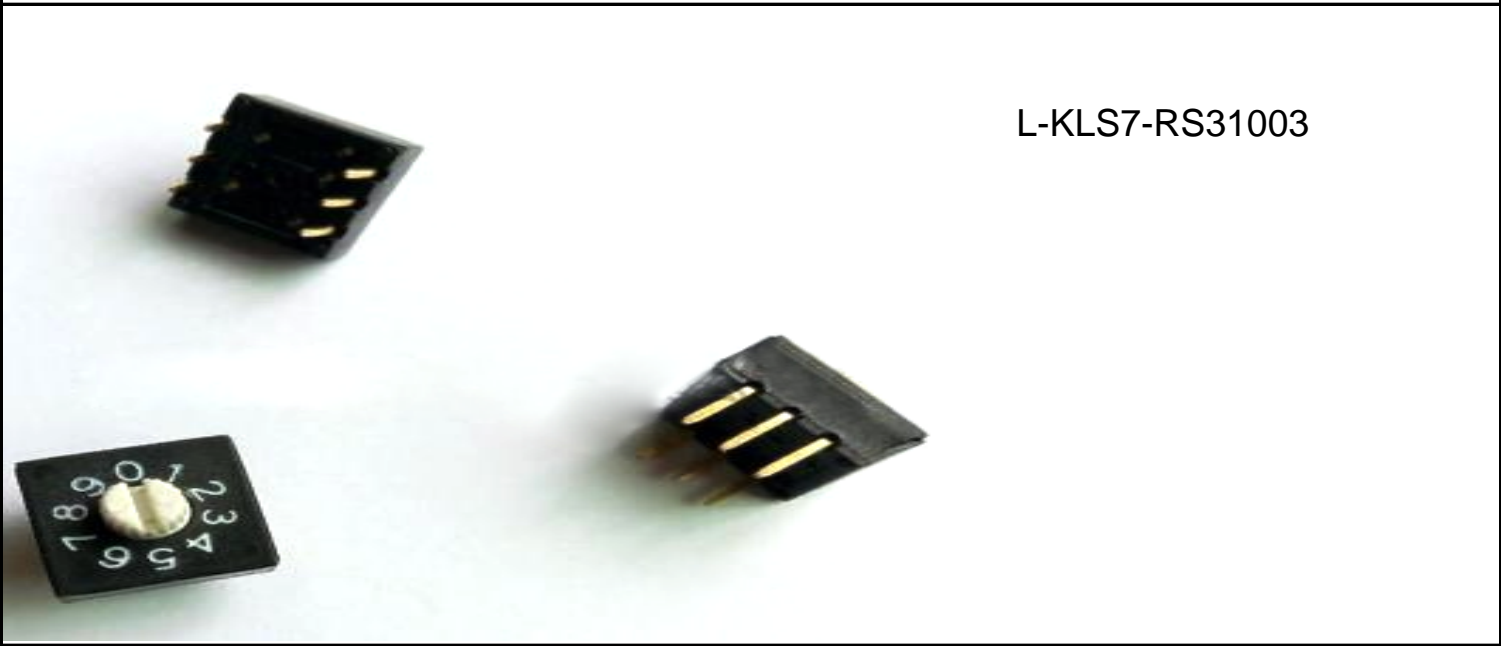
| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| C | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 1 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 2 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 4 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 8 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

| | | | | | |
|------|------------|---------|----------------------------|-----------|-----|
| DATE | 21/4/03/22 | TITLE | BY VVW3 SERIES PITCH 254mm | Tolerance | M |
| DATE | | PRAT NO | TYPE HOUSING | X | 403 |
| DATE | | FILE NO | | X | 405 |
| DATE | | REV. | 10 | XX | 402 |
| DATE | | REV. | 10 | XX | 402 |

| | | | | | |
|------|------------|---------|----------------------------|-------|--------|
| DATE | 21/4/03/22 | TITLE | BY VVW3 SERIES PITCH 254mm | Units | mm |
| DATE | | PRAT NO | TYPE HOUSING | Scale | free |
| DATE | | FILE NO | | Sheet | 1 of 1 |
| DATE | | REV. | 10 | M | |
| DATE | | REV. | 10 | M | |

| | | |
|--------------------------------------|--------|----------------|
| NINGBO KLS ELECTRONIC CO; LTD | 文件编号 | L-KLS7-RS31003 |
| | 发行日期 | 19-Sep-14 |
| SPECIFICATION 规格书 | 第 A1 版 | 第 3 页 共 6 页 |

1. 产品命名 PRODUCT NAMING:



2. 开关种类 jack action : VR系列旋转编码码开关 (Rotary Dip SWITCH VR SERIES)

3. 基本参数 General specification

| | |
|------------------|---|
| 3.1 材料 Materials | |
| 上盖: 工程塑料, 黑色或蓝色 | COVER:Engineering Plastics, Black or Blue |
| 底座: 工程塑料, 黑色或蓝色 | BASE: Engineering Plastics, Black or Blue |
| 转键: 工程塑料, 白色或橙色 | KEY: Engineering Plastics,White or Orange |
| 端子: 铜合金, 镀金或镀锡 | TMERMINAL:Alloy Coper,Plating Gold or Tin |

| | |
|--|------------|
| 3.2 额定值 RATING: 开关常切换 (Contact rating) | 25mA 24VDC |
| 开关不常切换 (Non-Contact rating) | 100mA |

| | |
|--|--------------|
| 3.3 使用温度试验范围 Operation temperature range : | - 20~ + 70°C |
| 保存温度范围 Preservative temperature range : | - 40~ + 85°C |

3.4 外形及尺寸 Appearance and dimensions : 见外形尺寸图 See outside drawing page

3.5 试验、测定状态, 在没有指定的情况下测试温度、湿度、气压如下:

Unless otherwise specifide.the standard range of atmospheric conditions for making measurements and tests are as follows

| | | |
|------|-----------------------|----------------------------|
| 温度 | Ambient temperature : | 5 ~ 35°C |
| 相对湿度 | Relative humidity : | 45 ~ 85% |
| 气压 | Air pressure : | 86 ~ 106kPa (860~1060mbar) |

但是在对判定产生疑义时, 按下述状态实施

However, if doubt arises on the decision based on the measured Values under the above-mentioned conditions, the following conditions shall be employed:

| | | |
|------|-----------------------|----------------------------|
| 温度 | Ambient temperature : | 20±2°C |
| 相对湿度 | Relative humidity : | 65±5% |
| 气压 | Air pressure : | 86 ~ 106kPa (860~1060mbar) |

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4. 电气特性 ELECTRICAL SPECIFICATIONS

| ITEM 项目 | TEST DESCRIPTION 测试描述 | TEST CONDITIONS 测试条件 | Standards 判定基准 |
|------------|---|---|-------------------------------------|
| 4.1 | Contact Resistance (initial) 接触电阻 | To be measure with AC 1KHz±200Hz (Max 20mv, Max 50mA) or 10mA, 5V DC 1千赫兹±200Hz (在最大电压200mv, 最大电 流50mA) 或10mA, 5v直流测试 | Max 50mΩ 最大100毫欧 |
| 4.2 | Insulation Resistance 绝缘电阻 | To be measure with an insulation measuring device of 100VDC between all the teminals and the frame for 1 minute ±5seconds. 在排脚相互之间或排脚与外壳之间输入 100V直流电压1分钟±5秒 | Min 1000MΩ 1000MΩ以上 |
| 4.3 | Dielectric strength 耐压强度 | AC500V (50-60HZ, 1mA current) being applied between all the adjacent terminals and between the terminal and frame for 1 minute 在接触端子或排脚之间输入250VAC (50-60 赫兹) 电压1分钟, 感应电流为1mA | NO breakdown insulation 没有绝缘破损异常 |

5. 机械特性 MECHANICAL

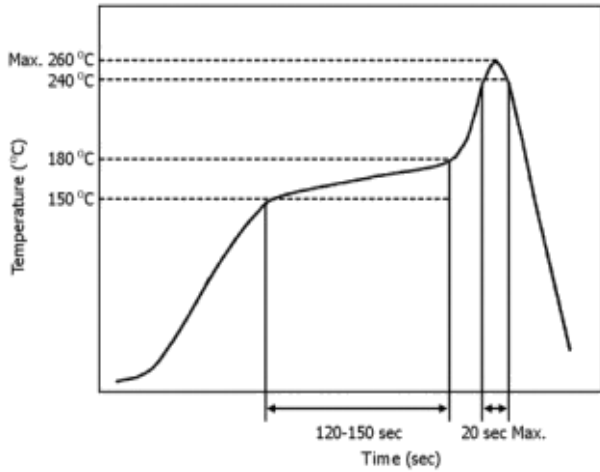
| ITEM 项目 | TEST DESCRIPTION 测试描述 | TEST CONDITIONS 测试条件 | Standards 判定基准 |
|------------|-----------------------------|---|--|
| 5.1 | Operation force 操作力 | Applied in the direction of operation 在同一方向 | Max 500gf-cm 最大为500gf-cm(可正常旋转) |
| 5.2 | Terminal strength 端子强度 | A static load of 500gf shall be applied To the terminal for 1 minute, in any direction 在排脚前端任意一个方向加 500gf 力度 测试, 时间为1分钟. | Electrical characteristics shall be satisfied without damage or excessive looseness of terminals. 在排脚中没有裂开. 松动等异 常, 满足于机械、电器性能. |
| 5.3 | Soldering heat test 耐焊接热 | Soldering temperature : 260 ± 5°C soldering time : 5 ± 1 sec. 焊接温度: 260 ± 5°C 焊接时间: 5 ± 1 秒 | WITHOUT DEFORMATION OF CASE OR EXCESSIVE LOOSENESS OF TERMINALS ELECTRICAL CHARACTERISTICS SHALL BE SATISFIED. 本体无变形, 能满足于机械、电器 性能 |

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| SPECIFICATION 规格书 | | 第 A1 版 | 第 5 页 共 6 页 |
| ITEM 项目 | TEST DESCRIPTION 测试描述 | TEST CONDITIONS 测试条件 | Standards 判定基准 |
| 5.4 | Operation life 运动寿命 | 2000 steps per position at a rate of 15~20 cycle/minute 15-20次/分钟 寿命最少为2000转 | Contact resistance Max 100mΩ Insulation resistance min 1000mΩ with DC 100V Dielectric breakdown voltage: 250V 1 minute no breakdown instulation Operating force±30%gf before test No.4.1 shall Be satisfied There shall be no defects in appearance or in the mechanical functions 接触电阻 Max 100mΩ 绝缘电阻 min 1000mΩ.min.at 100VDC 动作力的变化范围在初始值的± 30%以内, 满足 4.1项 无论是在外观上还是在机械功能 上, 都不得有任何缺陷 |
| 5.5 | Solderbility 可焊性 | After sprated flux temperature :230± 5°C soldering time :2±0.5 sec 涂上助焊剂后, 温度: 230± 5°C, 焊接时间: 2±0.5 秒 | 95% or more of surface area of the portion immersed in solder shall be covered by new solder 95% 或更多的浸焊面积能 被焊锡覆盖. |
| 5.6 | Soldering heat test 耐焊接热 | Soldering temperature : 260± 5°C soldering time : 5 ±1 sec. 焊接温度: 260± 5°C 焊接时间: 5 ±1 秒 | WITHOUT DEFORMATION OF CASE OR EXCESSIVE LOOSENESS OF TEMINALS ELECTRICAL CHARACTERISTICS SHALL BE SATISFIED. 本体无变形, 能满足于机械、电器 性能 |
| 5.7 | Vibration test 耐振性 | Amplitude: 1.5 mm Sweep rate: 10-50-10HZ for 1 minute Sweep method: Logarithmic frequency sweeprate Vibration direction : X, Y, Z(3 directions) Time : Each direction 2 hours (Total 6hours) 全振幅: 1.5 mm 时间: 每个方向2 个小时(共6 个小时) 扫描速度: 10-50-10HZ 1 分钟 扫描方式: 对数频率扫描速度 振动方向: X, Y, Z (3 方向) | No damage (electrical andmechanical) 无异常。(电气、机械特性) |

6. 焊接 SOLDERING

- 1. 波焊：(DIP)型推荐焊接焊锡温度为260°C (500°F), 最多5秒
- 2. 手焊：使用30W烙铁控制温度在350°C, 焊接时长约3秒
- 3. 回炉焊：(SMT)型回焊炉最高温度为260°C, 温度为260°C时，最长时间不超过10秒 (如图)

- 1. Wave soldering: recommened solder temperature at 260°C(500° F) max.5 seconds
- 2. Hand soldering:use a soldering iron of 30 watts controlled at 350°C approximately 5 seconds. while applying solder
- 3. Reflow soldering profile:(reference)



7. 包装资料 PACKING

所有旋转编码开关产品均以IC管形式包装。

All code switches are shipped in standard IC tube

| 系列 SERIES | 每管数量 PER TUBE | 每小箱数量 PER BOX | 外箱包装 PERCTN |
|--------------|------------------|------------------|-------------------------|
| VRM | 50 | 2800 | 2 BOXES 53X27.5X14CM |
| VRD | 50 | 2800 | |
| VRR | 50 | 2100 | |
| VRF | 50 | 2100 | |

贴片型可采用盘带包装，每卷为1000只
SMT type can be shipper in tape & reel packing,the quantity is 1000 pcs/reel