

客户 (Customer): _____

发行编号: 2021031801

发行日期: 2021.03.18

发行区分: 新规 改定

规格承认书

SPECIFICATION FOR APPROVAL

产品名称: 6x6.5 检测开关

贵司型号: _____

敝司型号: CL-HM01R-11

接受印

兹证明此份材料已经收到。

ACKNOWLEDGEMENT

WE ACKNOWLEDGE RECEIVING THIS DOCUMENT.

MONTH / DAY / YEAR

DATE: / /

G. MGR	LEADER	CHECKED	SIGNED



浙江键富电子有限公司
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拟制	核对	审核	批准
研发部 2021.03.18 张 鹏	研发部 2021.03.18 万 旭 燃	品管部 2021.03.18 柴 利 美	总经办 2021.03.18 赵 高 杰

规格承认书				规格书编号 2021031801
品名	6x6.5 Horizontal Flat	型号	CL-HM01R-11	1/10

1. General Specification 基本说明:

1.1 Scope 范围 This specification covers the requirements for single key switches which have no key top(TACT SWITCHES:MECHANICAL CONTACT).此规范含盖单推柄和无推柄的轻触开关要求

1.2 Operating Temperature Range 使用温度范围
-10 to + 60°C(normal humidity, normal press.) 正常湿度, 标准压力

1.3 Storage Temperature Range 保存温度范围
-20 to + 70°C(normal humidity, normal press.)

1.4 Test Conditions 测试条件

Tests and measurements shall be made in the following standard conditions unless otherwise specified: 测试和计量按下列标准条件除非特殊说明

Normal temperature (temperature 5 to 35°C) 标准温度

Normal humidity (relative humidity 45 to 85%) 正常湿气

Normal pressure (pressure 860 to 1060 mbars) 标准压力

In case any question arises from the judgment made, tests shall be conducted in the following conditions:

Temperature (20±2°C) 温度

Relative humidity (65±5%) 相对湿度

Pressure (860 to 1060 mbars) 压力

2. Type Of Actuation 动作类型

Tactile feedback 轻触返回

3. Contact Arrangement 1 poles 1 throws 接触形式 1 接点 1 回路

(Details of contact arrangement are given in the assembly drawings.)
详细接触点形式见产品图

4. Maximum Ratings DC 20 V 50 mA 额定值

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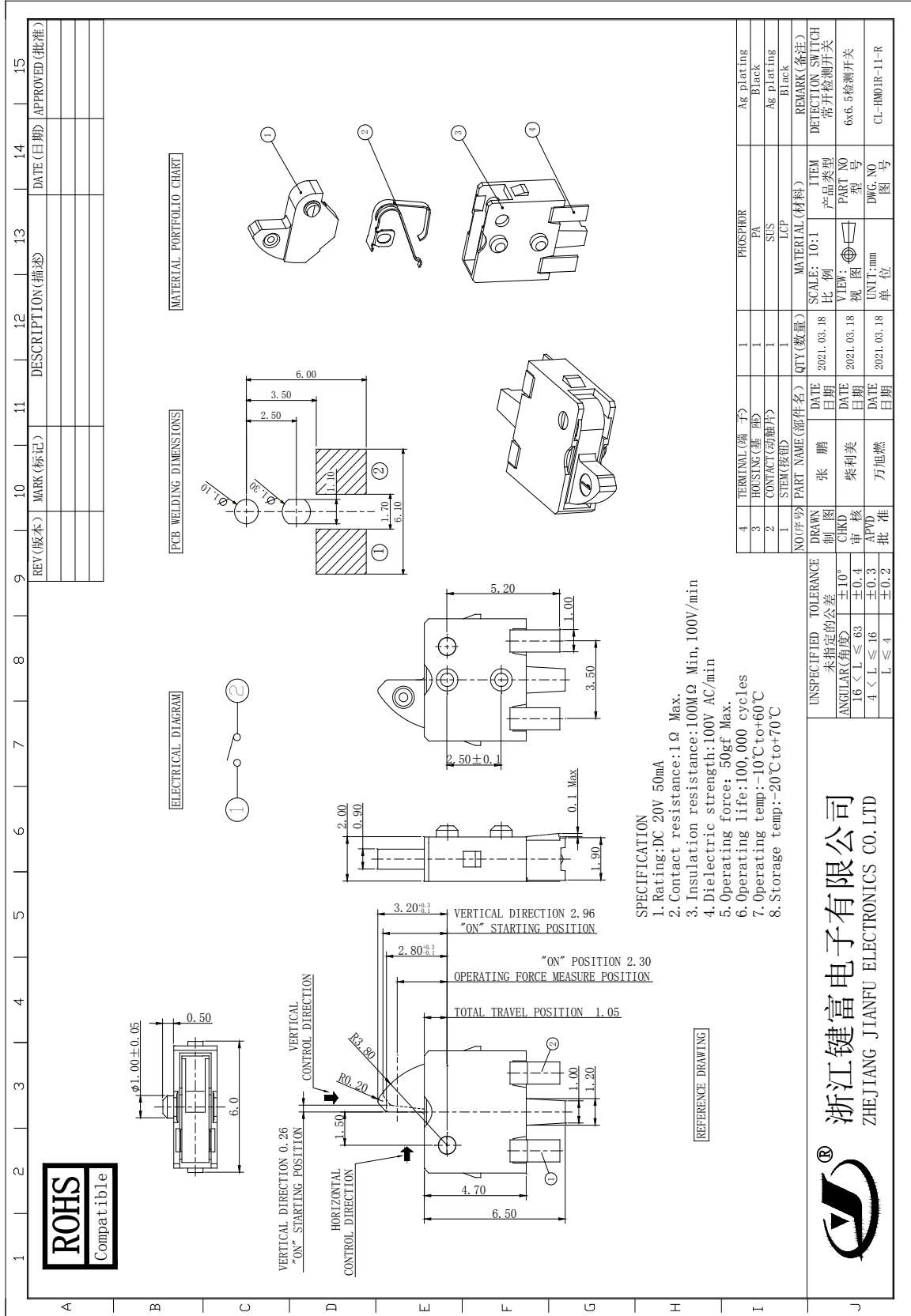
型号

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5. 外形、结构:

5.1 外形图



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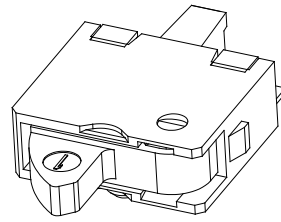
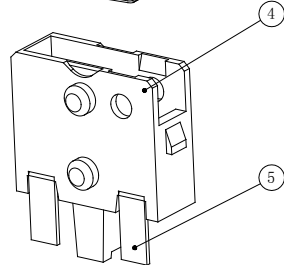
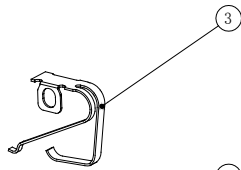
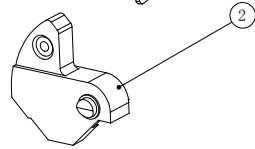
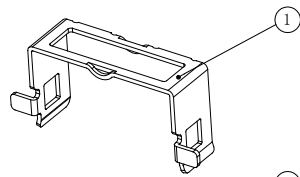
型号

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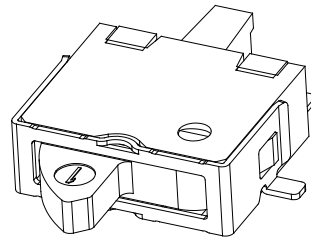
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5.2 构造:

序号	零部件名称	数量	材料名称	表面处理	备注
1	COVER	1	SUS	Ag plating	
2	STEM	1	LCP	Black	
3	CONTACT	1	SUS	Ag plating	
4	HOUSING	1	PA	Black	
5	TERMINAL	1	PHOSPHOR	Ag plating	



WITHOUT GROUND TERMINAL



WITH GROUND TERMINAL

CL - H M □ □ - 11 - □

R=TAPE&REEL

1 POLES 1 THROW

L=LEFT

R=RIGHT

01=WITHOUT GROUND TERMINAL

02=WITH GROUND TERMINAL

M=S. M. T TYPE

H=HORIZONTAL

DETECTOR SWITCH L TYPE

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6. General Specification 性能

6.1 电气的性能

Item 项目		Test Condition 测试条件	Requirements 要求
6.1.1	Contact Resistance 接触电阻	Shall be measured at 1kHz,small current contact resistance meter. 应当以 1 kHz 规格的微电阻测试仪,测量接触阻抗值。	Less than $1\ \Omega$ $1\ \Omega$ 以下
6.1.2	Insulation Resistance 绝缘电阻	Measurements shall be made following application of DC100V potential between terminals and terminals for one minute. 在端子与端子之间施加 DC100V 一分钟。	More than $100\ M\ \Omega$ $100\ M\ \Omega$ 以上
6.1.3	Dielectric withstanding voltage 电气耐压	AC $100\ V$ (50Hz or60Hz) shall be applied between terminals and terminals for one minute. 在端子与端子之间施加AC100V(50HZ-60HZ)	There shall be no breakdown. 无击穿、闪烁现象

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6.2 机械的性能

Item 项目		Test Condition 测试条件	Requirements 要求
6.2.1	Operating Force 动作力	Place the switch such that the direction of switch operation is vertical and then gradually increase the load applied to the center of the stem, the maximum load required for the stem to come to a stop shall be measured. 开关的动作方向为垂直放置开关向推柄中心逐渐增加负荷直到推柄停止时所测量的最大负荷。	50 gf Max (0.49 N Max)
6.2.2	ON start position ON 开始位置	Place the switch such that the direction of switch operation is vertical and then gradually increase the load applied to the center of the stem, the travel distance for the stem to Switch on state. 开关的动作方向为垂直放置开关, 逐渐地增加负荷作用推柄中心,测量推柄从开始到开关功能导通状态的行程距离。	See specifications figure 见规格图所示
6.2.3	Static Strength 静止强度	Placing the switch such that the direction of switch operation is vertical, a static load of <u>2</u> kgf shall be applied in the direction of stem operation for a period of <u>60</u> seconds. 开关的动作方向为垂直放置开关,在推柄动作方向施加 2KG 的静负荷,60 秒时间	Item 6.1 Item 6.2.1~6.2.2

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6.3 使用耐久性能

Item 项目	Test Condition 测试条件	Requirements 要求
6.3.1 Operating Life 动作寿命	Measurements shall be made following the test set forth below: 按下列条件进行寿命试验 (1) DC 20V 5mA resistive load. DC 20V 5mA 电阻性负载。 (2) Rate of operation: 20~25 operations per minute 动作频率: 20~25 次/分钟。 (3) Pression: 50 gf 施加力: 50 gf。 (4) Cycles of operation: 10×10^4 cycles 动作次数: 10×10^4 次。	Contact resistance: <u>10</u> Ω Max. 接触电阻 Insulation resistance: <u>10</u> M Ω Min. 绝缘电阻 Operating force: 动作力 +30 % or -30% of initial force. $\pm 30\%$ 初始动作力 Item 6.1.3
6.3.2 Moisture Resistance 耐潮湿	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for one hour before measurements are made: 样品按下列条件进行耐潮湿试验,试验后在正常温度和湿度条件下放置 1 小时后测定 (1) Temperature: $40 \pm 2^\circ\text{C}$ 温度 (2) Relative humidity: 90 to 95% 相对湿度 (3) Time: 96 hours 时间 Water drops shall be removed. 擦除水珠	Contact resistance : <u>5</u> Ω Max. 接触电阻 Insulation resistance : <u>10</u> M Ω Min. 绝缘电阻 Item 6.1.3 Item 6. 2
6.3.3 Low Temperature Resistance 耐低温	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for one hour before measurements are made: 样品按下列条件进行耐低温试验,试验后在正常温度和湿度条件下放置 1 小时后测定 (1)Temperature: $-40 \pm 2^\circ\text{C}$ 温度 (2) Time: 96 hours 时间 Water drops shall be removed. 擦除水珠	Contact resistance : <u>5</u> Ω Max. 接触电阻 Insulation resistance : <u>10</u> M Ω Min. 绝缘电阻 Item 6.1.3 Item 6. 2
6.3.4 Heat Resistance 耐热	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for one hour before measurements are made: 样品按下列条件进行耐热试验,试验后在正常温度和湿度条件下放置 1 小时后测定 (1)Temperature: $85 \pm 2^\circ\text{C}$ 温度 (2) Time: 96 hours 时间	Contact resistance : <u>5</u> Ω Max. 接触电阻 Insulation resistance : <u>10</u> M Ω Min. 绝缘电阻 Item 6.1.3 Item 6. 2

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Item 项目	Test Condition 测试条件	Requirements 要求
6.3.5 Change of Temperature 温度循环	<p>Following 5 cycles of high temperature test .The Sample shall be Placed in Normal temperature and humidity Conditions for one hour before measurements are made. During this test, water drops shall be removed. 样品按下列条件进行高低温循环试验,试验后在正常温度和湿度条件下放置 1 小时后测定</p> <div style="display: flex; align-items: center;"> <div style="flex: 1;"> </div> <div style="flex: 1;"> <p>A: +70±2°C B: -20±2°C C: 2 小时 D: 1 小时 E: 2 小时 F: 1 小时</p> </div> </div> <p style="text-align: center;">Cycling: Five cycles 周期: 5 次</p>	<p>Contact resistance : <u>5</u>Ω Max. 接触电阻 Insulation resistance : <u>10</u> MΩ Min. 绝缘电阻 Item 6.1.3 Item 6. 2</p>
6.3.6 Salt Spray Test 盐雾试验	<p>The salt spray test shall be conducted at the following conditions : 样品按下列条件进行盐雾试验</p> <p>(1)Density(浓度): 溶液(5±1)% Nacl (质量百分比) (2)Temperature: 35±2°C 温度 (3) Time: 48 hours 时间</p>	<p>金属件无发黄、生锈</p>
6.3.7 Vibration Resistance 耐振动	<p>Measurements shall be made following the test set forth below: 按下列条件进行抗振动试验</p> <p>(1) Frequency:10-55-10Hz 1 minute/cycle. 频率: 10-55-10Hz 的频率循环测试, 周期 1 分钟。 (2) Direction: 3 vertical directions including the Direction of operation. 振动方向:3 个垂直方向, 包含按钮操作方向。 (3)Test Time: 2 hours each direction. 每个方向 2 小时。 (4) Swing distance:1.5mm 振幅: 1.5mm</p>	<p>Contact resistance : <u>10</u>Ω Max. 接触电阻 Insulation resistance : <u>10</u> MΩ Min. 绝缘电阻 Item 6.1.3 Item 6. 2</p>

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Item 项目	Test Condition 测试条件	Requirements 要求
6.3.8 Impact Shock Resistance 抗冲击	Measurements shall be made following the test set forth below: 按下列条件进行冲击试验 (1)Acceleration: 50G 加速度:50G (2)Action Time:11±1 m sec. 测试时间: 11±1 毫秒 (3)Testing Direction: 6 sides. 测试方向: 产品 6 个方向测试 (4)Test Cycle: 3 cycles in each dirction. 测试次数: 每个方向 3 次。	Contact resistance : <u>10</u> Ω Max. 接触电阻 Insulation resistance : <u>10</u> M Ω Min. 绝缘电阻 Item 6.1.3 Item 6. 2

7. 焊接条件:

Item 项目	Recommended conditions 推荐条件	
7.1 Hand soldering 手工焊接	Please practice according to bellow conditions: (1)Soldering temperature : ≤350℃ (2)Continuous soldering time: ≤3S (3)Capacity of soldering iron: ≤20 W 请按以下条件进行焊接: (1)焊锡温度: ≤350℃ (2)连续焊接时间: ≤3S (3)电烙铁的功率: ≤20 W	
7.2 Automatic flow soldering 自动焊接	For the product of SMT ,type solder according to the following conditions 对于 SMT 产品, 请按以下条件进行焊接 <p style="text-align: center;">time inside soldering equipment 炉内通过时间</p> Caution: the condition mentioned above is a temperature on the PWB surface on which parts are mounted. There are cases where PWB temperature greatly differs from switch's surface temperature depending on PWB material, size, thickness, etc. The switch's surface temperature shall not allowed to exceed 260℃ 注意: 以上提及的条件是零部件上 PWB 表面的温度, 由于 PWB 的材料、尺寸、厚度等不同, PWB 从开关表面获得的温度也会有很大产不同, 因此, 千万小心不要让开关表面温度超过 260℃ Once soldering would be reflow the temperature goes down to a normal temperature 一次回流焊接温度降到正常温度	
7.3 Solderability 可焊性	Measurements shall be made following the test set forth below: 按下列条件进行试验 (1)Soldering Temperature:245±3℃ 焊接温度:245±3℃ (2)Flux:5-10 sec 助焊剂: 沾覆 5±1 秒 (3)Duration of solder mmersion:5±1sec 浸焊时间: 5±1sec	Soldering area is greater than 75% of the total area. 焊锡面积大于总面积的 75%

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8. Other Precautions 其他注意事项:

- (1) Following the soldering process, do not try to clean the switch with a solvent or the like.
进行焊接过程中，不可以用溶剂或类似品清洗开关
- (2) Safeguard the switch assembly against flux penetration from its topside.
防止助焊剂从开关的顶端渗入
- (3) Please have the products keep in close status and the storage time is 90 days guaranty after delivering the goods at most.
交货后保证开关处于封密状态并库存时间 90 天以下

9. Reel Packaging 盘装

9.1 Scope 范围

This specification covers the requirements of the reel packaging for SMT standard type of tact switches. 该规范包含 SMT 标准型贴片开关的绕带封装的要求

9.2 Packaging Materials 封装材料

Item	项目	Description	说明
Package	包装	Cartons	卡通箱
Reel	转轴	Delete Cartons	可降解箱
Carrier Tape	载带	Polypropylene	聚丙烯

9.3 Packaging Quantity 封装数量

9.3.1 The number of the reels. 转轴数量

Twenty (20) reels at maximum. Which contain 60K pcs switches
Shall be packed in a package. 一箱装 20 盘,有 60K 只产品

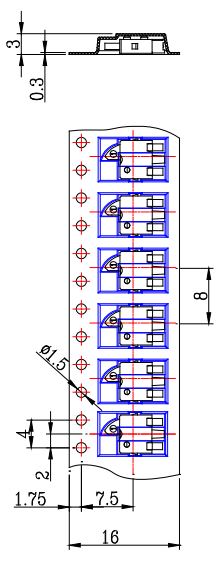
9.3.2 The number of the switches. 产品数量

3K pcs switches shall be packed in a reel. 一个转轴包 3K 只产品

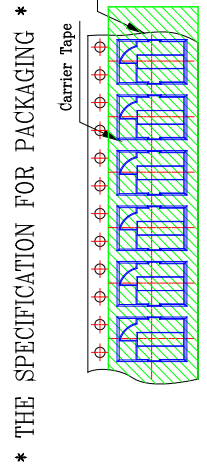
9.3.3 It should be noted that we regard two cartons 对出口包装需注意用两个箱子包装 mentioned above as on package for export.

RevNo	Revision note	6	7	8
Date	Signature			

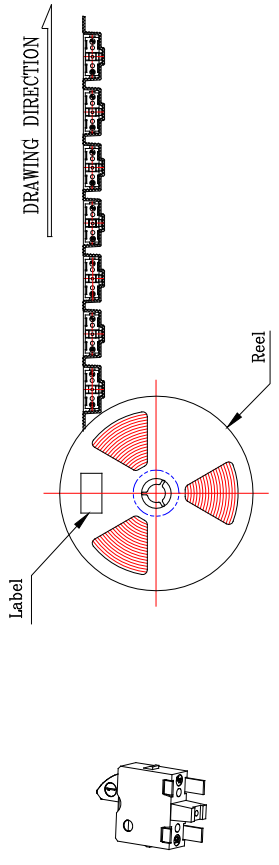
*** THE DIMENSION OF CARRIER TAPE, COVER TAPE AND REEL ***



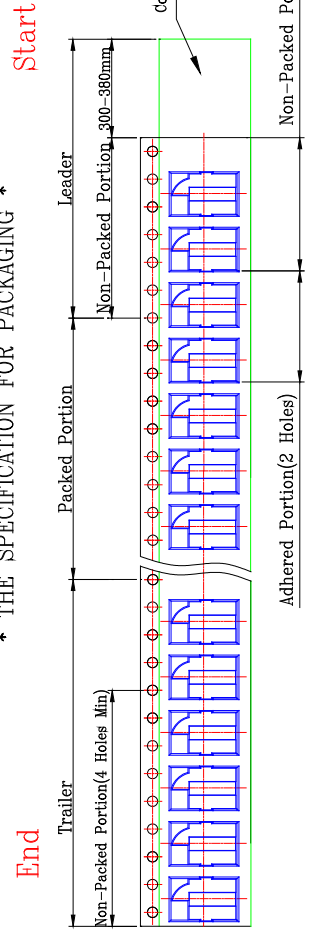
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CL-HM01R-11-R	602000111010-1



*** THE SPECIFICATION FOR PACKAGING ***



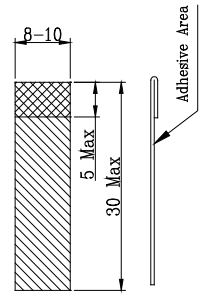
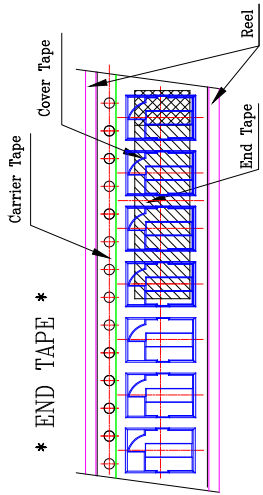
*** THE SPECIFICATION FOR PACKAGING ***



End

Start

*** END TAPE ***



- NOTE**
- 3K pcs SWITCHES PER 1 REEL
 - GENERAL TOLERANCE : 0.3mm

REFERENCE DRAWING

Designed by	浙江健富电子有限公司	Scale	N/S	Date	2021.03.18
Checked by	ZHEJIANG JIANFU ELECTRONICS CO.,LTD	Unit	mm	Sheet	1/1
Approved by		Tool	A-Cod	Rev.	1
Item	DETECTION SWITCH	Drawing name ASSEMBLY			
Model	3.4X5.8 Horizontal Flat				