ISO9001: 2015

ISO14001: 2015

APPROVAL SPECIFICATIONS

Title. PUSH SWITCH

Product Model. PB22M12101

Customer's Part NO.

Customer's Model:

Customer's Approval Requested.

Please return this copy as a certification of your approval.

Checked by: Date:

Approved by: Date:

Swiclick

Address:Rm. D1/25F,No 2070,Electronical Technology Building-C,Shennan Mid-road,Futian Dist.,Shenzhen,China.

Website:https://www.swiclick.com

变更履历表：

版本	变更记录	变更人	变 更 日 期

1、 概述

GENERAL

1.1 适用范围

APPLICATION

此规格书适用于机械式轻触开关的相关要求

This specification is applied to the requirements for tactile switch (mechanical contact)

1.2 工作温度范围

Operating Temperature Range

-40℃～85℃(在标准大气压、标准湿度条件下)

-40℃～85℃(Normal humidity, normal air pressure)

1.3 贮藏温度范围

Storage Temperature Range

-40℃～90℃(在标准大气压、标准湿度条件下)

-40℃～90℃(Normal humidity, normal air pressure)

1.4 测试条件

Test Conditions

在没有其它特定的条件下，应该在以下的条件下进行测试和测量：

Unless otherwise specified, tests and measurement shall be made in the following standard conditions:

常温……5℃～35℃

Normal temperature……5℃～35℃

标准湿度……相对湿度 25%～85%

Normal humidity……relative humidity 25%～85%

标准大气压……86Kpa～106Kpa

Normal air pressure……86Kpa～106Kpa

在制造过程中，测试和测量应该在以下的条件下进行：

If any doubt arise from the judgment, tests shall be conducted at the following conditions:

温度……20℃±2 ℃

Temperature……20℃±2 ℃

相对湿度……65%±5%

Relative humidity……65%±5%

环境气压……86Kpa～106Kpa

Air pressure……86Kpa～106Kpa

1.5 存储方法

Storage method

1. 使用前确保包装完整无破损，无浸湿.
   Ensure that the product without package breaking for wetting before use.
2. 存储条件 Storage conditions:
   储存温度 Storage temperature：-5~ 35℃；
   储存湿度 Storage humidity：25%~80%；
   未开封状态：6 个月内使用完毕（从发货日开始计算）；超过 6 个月后再使用的，使用前请先验证：端脚无氧化、无发黑、塑料件无吸湿起泡，确保焊接的适宜性；
   Unopened status: Use up the product as soon as possible before 6 months.(calculated from shipment date).Over 6 months, please make sure below before use it: terminal without oxidation for blackening, plastic parts without moisture absorption for bubble, ensure solderability.
   已开封状态：1 个月内使用完毕；
   Opened status: use up within 1 month;
   储存注意事项：避开高湿高温和有腐蚀性气体的环境及阳光直射；
   Storage precautions: Please avoid the following environment: with high humidity, high temperature ,corrosive gases and direct sunlight.
3. 请勿超重叠放.
   Do not stack too many switches.

2、 详细说明

Detailed specificationf

2.1 f外观：应无影响、降低产品性能的缺陷；f

Appearance:fThere should be no defects that affect the serviceability of product.f

2.2 f结构尺寸和安装尺寸：应符合装配图要求；f

Style and dimension: shall conform to the assemble drawings.f

2.3 接触形式：2P2Tf

f f f fFUNCTION : 2P2Tf

2.4 时间特性f:fNON-SHORTINGf

f f f fTIMING :f fNON-SHORTINGf

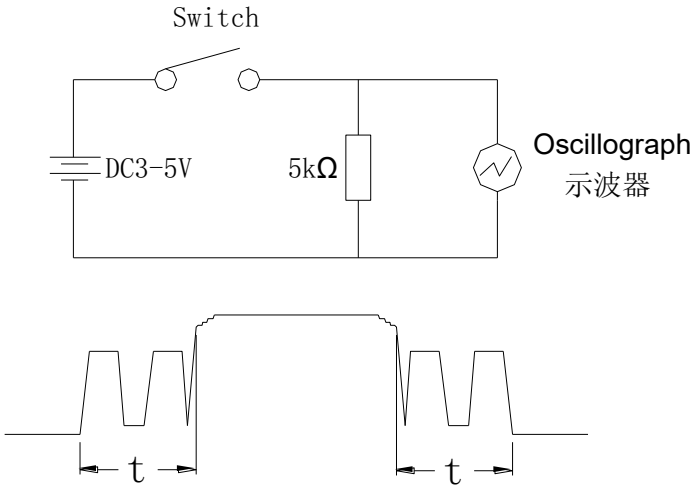
2.5 开关工作额定值：DC 14Vf f0.3A（最大值）f fDCf3Vf f50μA（最小值）f

Ratings: DC 14Vf f0.3A（Max）f f f fDCf3Vf f50μA （Min）f

3．电气性能：

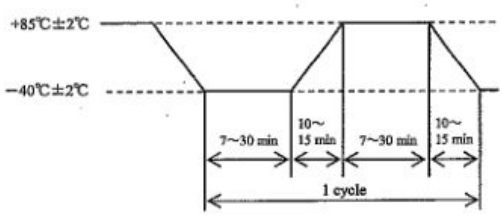
ELECTRICAL SPECIFICATIONf

项f f目f ITEMf		试f验f条f件f TEST CONDITIONSf	要求f REQUIREMENTSf
3.1f	电压降f Voltage dropf	负荷状态下开关操作 4~5 次f After several switching operations 4 to 5 times with Ratingf	端子间电压降为f 0.1Vf fMaxf
3.2f	绝缘电阻f Insulation Resistancef	输入f500VfDCf电压f1 分钟，按以下接触方法测试：f Apply a voltage of 500V DC shall be applied for 1fmin.f After which measurement be made:f （1）不接触的插脚之间f Between conductors not to be contactf （2）插脚与外壳之间f Between individual terminals and framef	≥100MΩf
3.3f	介质耐压f Dielectric voltage proof f	输入fAC 500V (50-60HZ)电压,1f分钟,f Apply a voltage of 500VfAC（50-60HZ）f shall be applied forf 1 min.f f按以下接触方法测试：f After which measurement be made:f （1）不接触的插脚之间f Between conductors not to be contactf （2）插脚与外壳之间f Between individual terminals and framef	无击穿、无飞弧f There should be no breakdown and flashoverf

项目f ITEMf		试f验f条f件f TEST CONDITIONSf	要求f REQUIREMENTSf
3.4f	触点抖动 Bouncef	按照正常使用时的力度轻按手柄中心（每秒 3～4 次），f 在导通和断开过程中测试开关抖动f Lightlyfstriking the centerfoffthe stemfatfa ratefencountered in normalf usef(3 to 4 timesfperfsecond), and bounce shallfbe testedfatf“ON” andf “OFF”f  t 为触点抖动时间	ON-10msfmaxf OFF-10msfmaxf
4．机械性能：MECHANICAL SPECIFICATIONf			
4.1f	按力 Operatingf Forcef	垂直于操作方向放置，在开关驱动件顶端中心逐渐施力，推动开关驱动件下移，直至完成一个锁定动作，读取过程中最大力度。f Af static load shallf be applied to the tip off actuatorf in operatingf direction, push the actuatorfdown untilfa locking action is completed, measure the max force in the process.f	3±1Nf
4.2f	总行程f FullfTravelf	开关垂直于操作方向放置，以一个等于 2 倍按力的静负荷施加在开关驱动件顶端中心，测量顶端移动的最大距离。f Placing the switch suchf thatf the direction off switchf operation is verticalfand then applying static load off2timesfoperating forcefto thef centerfoffthe stem;fthe travelfdistance forfthe switch to come to a stop shall be measured.f	2.3±0.5mmf

项目f ITEMf		试f验f条f件f TEST CONDITIONSf	要求f REQUIREMENTSf
4.3f	锁定行程f LOCKfTravelf	开关处于锁定状态时与开关初始（断开状态）状态时的高度差，即为开关的锁定行程。f Placing the switch such that the direction of switch operation is vertical and then applying static load of 2times operating force to the center of the stem; the travel distance for the switch to come to a stop shall be measured.f	1.5±0.3mmf
4.4f	操作部位强度 Operating partf strengthf	在操作部位施加以下负载，时间 15 s。f Apply following load on the tip of of operating part 15 s.f □ 操作方向 Operation direction ... 80N □ 引伸方向 Drawing direction f... 20N □ 操作方向的垂直方向 Rightfdirection againstfoperating direction ... 10N	开关无异常f No abnormal switchf
4.5f	操作柄摆动 Wobble inf Leverf	在操作柄的顶端施加最大 500 mN 操作力f When 500 mN force is applied to the tip of lever.f	1.5 mmf以下.f 1.5 mmfmax.f
4.6f	端子强度f Terminalf Strengthf	在插脚前端任意一个方向加f5Nf力度测试,时间为f10 秒f A static load of 500gf shallfbe applied to the Terminalf for 15 Sec.in any direction.f	端子没有裂开、松动（端子弯曲不在判定标准内）f Without damage or excessive looseness of terminals（Terminal bending is not inf the judgment standard）f
4.7f	锁紧强度 Lockingf Strengthf	在锁紧状态下对引伸方向施加 5N 的力 10 秒(本标准适用于开关锁紧机构）f Applyfforce 5Nfto drawingfdirection forf10s atflocking condition off switch.（This standard applies to switch lock mechanism.）f	开关锁定功能正常。 No abnormalities shall occurf in appearance and function.f
4.8f	耐落下冲击性 Drop fImpact f Strengthf	开关由 1 米的高度自由下落到测试板上（3cm 厚的橡木板），自由下落 10 次f After the switch is subjected do dropping 1 m height into a woodenf Testing board(3 cm thick oak) 10 times;f	电压下降 0.2V 以下f Voltage drop 0.2V maxf 绝缘电阻 250VfDC,≥10MΩf Insulation Resistancef 250VfDC,≥10MΩf 介质耐压f250VfAC,1 分钟无击穿、无飞弧f Dielectric voltage prooff 250VfAC,1min, there should be no breakdown andf f flashoverf 按力：初值的±30%ff Operating Force:f initialfvalue±30%f 功能上，无有害变形、裂纹、缺口等f No harmfulf deformation，cracking and chip etc.，on function.f
4.9f	振动 Vibrationf	根据以下给定条件进行测试：f Measurement shall be made following the test set forth below:f （1） 振动频率范围：10～55～10Hz Vibration frequency range: 10 to 55 to 10Hz （2） 振幅（峰一峰）：1.5mm Amplitude: 1.5mm （3） 振动方向：包括手柄行程方向在内的三个相互垂直的方向 Direction off vibration:Three mutuallyf perpendicular direction including the direction of stem travel （4） 测试时间：每次 2 小时 Duration: Each 2fhours.	

5、环境耐久性：
ENVIRONMENTAL SPECIFICATIONf

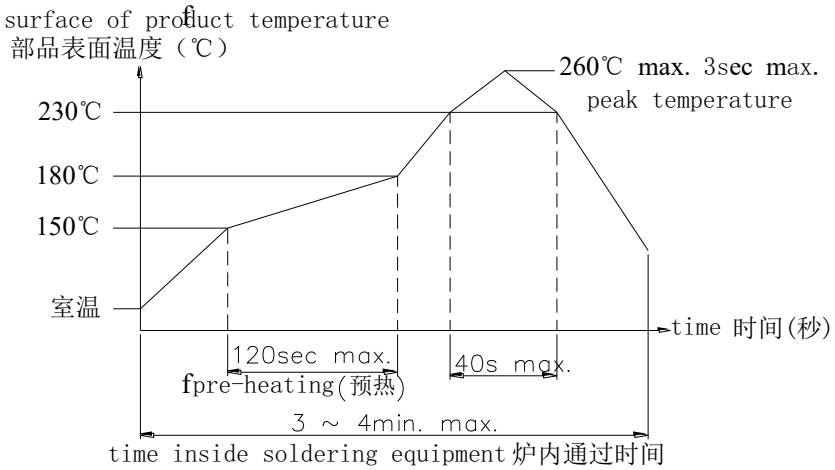
项目f ITEMf		试f验f条f件f TEST CONDITIONSf	要求f REQUIREMENTSf
5.1f	低温测试f Resistance to lowf temperaturef	样品应按照以下实验条件进行测试，实验后样品应放在常温及标准湿度的环境中 1 小时后做性能测试：f Following the testfsetfforth belowfthe sample shallfbe leftfin normalf temperature and humidityfconditions forf1fh before measurements are made:f （1） 温度：-40±2℃ Temperature :f-40±2℃ （2） 时间：96h Time: 96h	电压下降 0.2V 以下f Voltage dropf0.2V maxf 绝缘电阻 250VfDC,≥10MΩf Insulation Resistancef 250VfDC,≥10MΩf 介质耐压f250Vf AC,1 分钟无击穿、无飞弧f Dielectricfvoltage prooff 250V AC,1min, there shouldf be no breakdown andf f flashoverf 按力：初值的±30%f f Operating Force:f initialfvalue±30%f 功能上，无有害变形、裂纹、缺口等f No harmful deformation，cracking and chip etc. ，on function. f
5.2f	高温测试f Heat resistancef	样品应按照以下实验条件进行测试，实验后样品应放在常温及标准湿度的环境中 1 小时后做性能测试：f Following the testfsetfforth belowfthe sample shallfbe leftfin normalf temperature and humidityfconditions forf1fh before measurements are made:f （1） 温度：85±2℃ temperature:85±2 ℃ （2） 时间：96h time: 96h	
5.3f	温度周期性测试f Change off temperaturef	根据下面的测试要求进行 5 次循环的温度周期性测试，f实验后样品应放在常温及标准湿度的环境中 1 小时后做性能测试。测试期间样品应保持干燥.f Afterf5 cyclesofffollowing conditions, the sample shallfbe allowedf to stand underfnormalftemperature and humidityfconditions forf1 h. and measurements shallfbe made. During the testfwaterfdrops shallf be removed.f  	
5.4f	湿温测试f Moisture resistancef	样品应按照以下实验条件进行测试，实验后样品应放在常温及标准湿度的环境中 1 小时后做性能测试：f Following the testfsetfforth belowfthe sample shallfbe leftfin normalf temperature and humidityfconditions forf1fh before measurements are made:f （1） 温度：40±2℃ temperature:f40±2℃ （2） 相对湿度：90%～95% relative humidity:90% to 95% （3） 时间：96h time:f96h	

项目f ITEMf		试f验f条f件f TEST CONDITIONSf	要求f REQUIREMENTSf
5.5f	硫化试验 Sulfuration resistancef	样品应按照以下实验条件进行测试，实验后样品应放在常温及标准湿度的环境中 1 小时后做性能测试：f Following the testfsetfforth belowfthe sample shallfbefleftfin normalf temperature and humidityfconditions forf1 hfbeforefmeasurementsf are made:f （1） H2S 气体浓度：3ppm±1ppm H_2S gas concentration:ff3ppm±1ppmf （2） 时间：96h Time:f96h （3） 温度：40±2℃（90～95%RH） temperature: 40±2℃（90～95%RH）	电压下降 0.2V 以下f Voltage dropf0.2V maxf 绝缘电阻 250VfDC,≥10MΩf Insulation Resistancef 250VfDC,≥10MΩf 介质耐压f250VfAC,1 分钟无击穿、无飞弧f Dielectric voltage proof f 250VfAC,1min, therefshouldf be no breakdown andf f flashoverf 按力：初值的±30%ff Operating Force:f initialfvalue±30%f 功能上，无有害变形、裂纹、缺口等f No harmfulf deformation，cracking and chipfetc．，onf function．ff
5.6f	盐雾试验f Salt Mistf	在以下设定条件下进行测量:f The switch fshall be checked after following test:f （1）温度：35℃±2 ℃f temperature:f35℃±2 ℃f （2）盐溶液浓度：5±1%（质量百分比）f salt solution : 5±1%(solids byfmass)f （3）时间：8±1hff Time:ff8±1h ff 实验后的盐沉积物后水冲掉ff After test, salt deposit shall be removed by running water.f	金属件上没有腐蚀斑点f No remarkable corrosionf shallfbe recognized infmetalf part.f
5.7	可焊性 Solderabilityf	在以下设定条件下进行测量:ff Measurements shall be made following the test set forth below:f (1) 焊接温度:255±5℃ Solder temperature : 255±5℃ (2) 浸入时间:3s±0.5s Immersion time:f3s±0.5	除边缘外涂层应均匀覆盖 90%以上f Exceptf forf the edge, thef coating should coverf af minimum 90%

项目f ITEMf		试f验f条f件f TEST CONDITIONSf	要求f REQUIREMENTSf
5.8f	动作寿命f Operation lifef	(1) No loaded testf无负荷试验 After 15,000 cycles operating with no load. (15~20 operations per minute.) 无负载下循环运行操作 15 000 次（频率 15~20 次/分）。f	电压下降 0.2V 以下f Voltage dropf0.5V maxf 绝缘电阻 250VfDC,≥10MΩf Insulation Resistancef 250VfDC,≥10MΩf 介质耐压f250Vf AC,1 分钟 无击穿、无飞弧f Dielectric voltage proof f 250VfAC,1min, therefshouldf be no breakdown andf f flashoverf 按力：初值的±30%ff Operating Force:f initial value±30%f 功能上无有害变形、裂纹等f No harmfulf f deformation，cracking and chip etc， onffunction． f
		(2) Loaded testf有负荷试验 After 15,000 cycles operating with rated load DC5V,0.5A . (15~20 operations per minute.) 负载下循环运行操作 15 000 次（频率 15~20 次/分）。f	电压下降 0.5V 以下f Voltage dropf0.5V maxf 绝缘电阻 250VfDC,≥10MΩf Insulation Resistancef 250VfDC,≥10MΩf 介质耐压f250Vf AC,1 分钟 无击穿、无飞弧f Dielectric voltage proof f 250VfAC,1min, therefshouldf be no breakdown andf f flashoverf 按力：初值的±30%ff Operating Force:f initialfvalue±30%f 功能上无有害变形、裂纹等f No harmfulf f deformation，cracking and chip etc， onffunction． f

6．焊接条件：
SOLDERING CONDITIONS:f

6.1f	手工焊接f Hand solderingf	请按以下条件进行焊接：f (1) 焊锡温度：≤350℃ (2) 连续焊接时间：≤3 s Please practice according to below conditions: (1) Soldering temperature:f f≤350℃ (2) Continuous soldering time:f f≤3 s

项目f ITEMf		推f荐f条f件f Recommended conditionsf
6.2f	回流焊时f Conditions forf reflowf f	对于 SMT 产品，请按以下条件进行焊接：f For SMT products, Pls soldering by follow conditions:f  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℃f Attention:the condition above is the temperature offthe PWBfsurface on thefparts,andfPWBfwillfgetf differentf temperature becausef off the differencesf off materials,sizes,thickness and so on.Should control it belowf260℃f

注意事项(Notes)：

a、印刷基板的焊盘尺寸参见产品图。f

f f The pad size of the printed substrate is shown in the product diagram.f

b、在使用烙铁的情况下，焊锡温度应在 350℃以下、3 秒以内。f

In the case of using soldering iron, soldering conditions shall be 350℃fmax and 3 sec.max.f

c、防止助焊剂从开关的顶端渗入f

f f fPrevent flux penetration from the top of the switchf

d、开关浸焊后，注意不要用溶剂或类似品清洗开关。f

f f fAfter switches were soldered,please be careful not to clean switches with solventfor other similar products.f

e、浸焊后，注意不要在顶部施加负荷。f

f f fRight after switches were soldered;please be careful not to load to on the knobs offswitches.f

f f f f ff、注意不要施加超负荷的压力或晃动开关。f

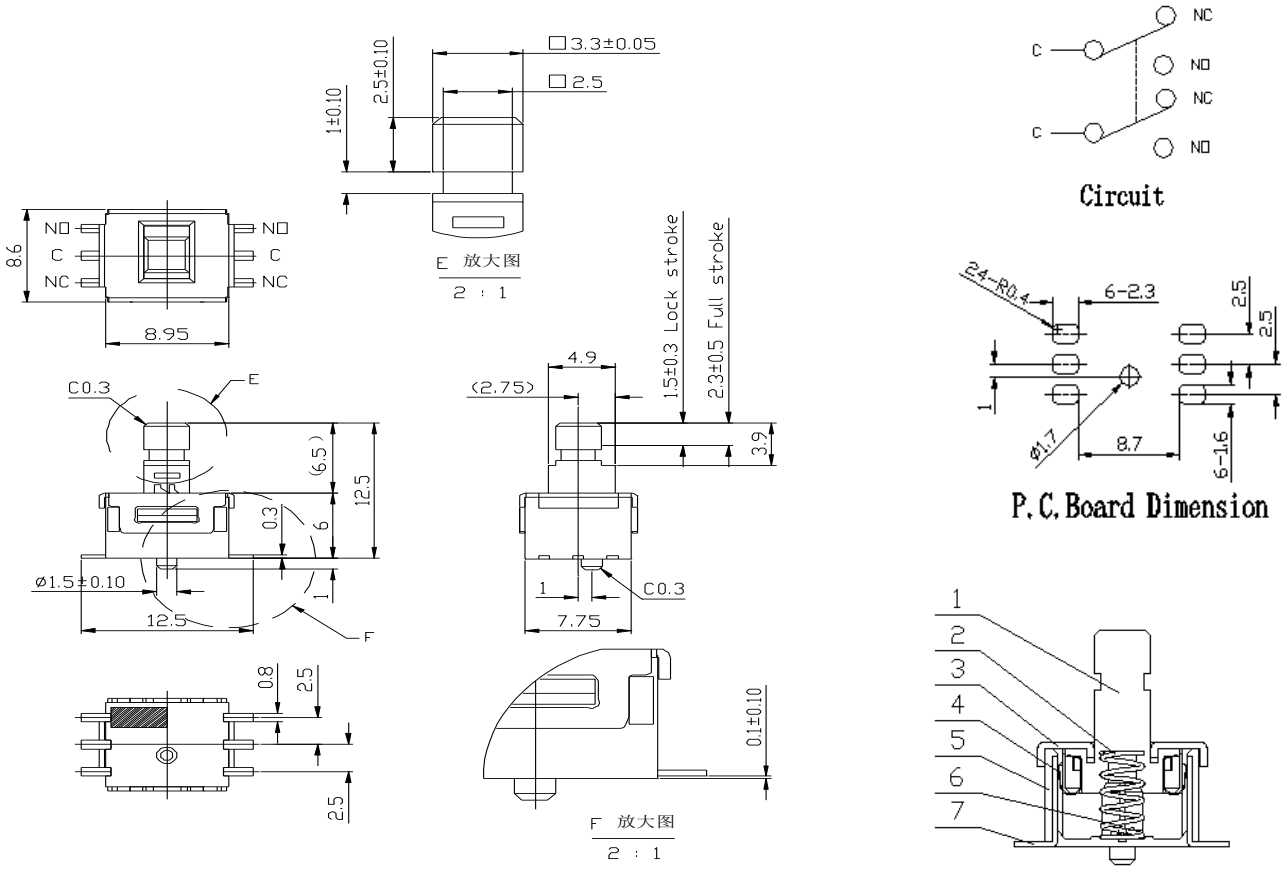
Please be cautions not to give excessive static load or shock tofswitches.f

f f f f fg、开关浸焊后，印刷基板注意不要叠放。f

Please be careful not to pile up P.W.B.after switches were solderedf

APPROVALfSPECIFICATIONS

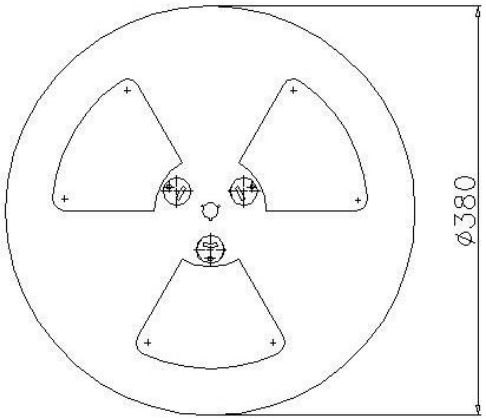
Product namef	P/Nf	Versionf	Document No.f	Pagef
Push fswitchf	PB22M12101f	A/02f		11/12f

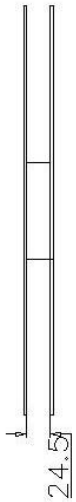


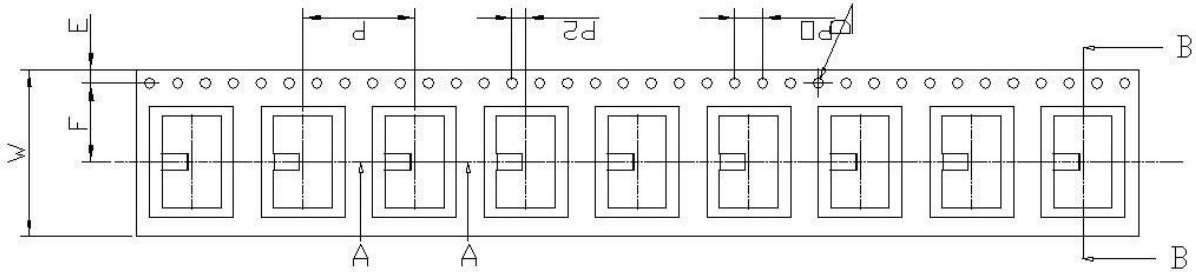
General tolerance：±0.2mmf

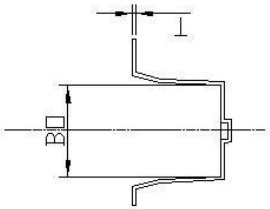
NO.f	NAMEf	MATERIALf	QTY.f	FINISHINGf
1f	KNOBf	PAf	1f	Blackf
2f	SPRINGf	SUSf	1f	Naturalf
3f	COVERf	SPTEf	1f	Naturalf
4f	CONTACTf	PBSf	2f	Ag Platedf
5f	CASEf	PAf	1f	Blackf
6f	Stoperf	SUSf	1f	Naturalf
7f	TERMINALf	BRASSf	6f	Ag Platedf

ITRM	W	A□	B□	K□	P	F	E	D	P□	P2	T	13″
DIM	24	8.4	13.1	12.8	16	11.3	1.95	1.5	4	2	0.5	包装数
TOLE	±0.3	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	$1.5^{+0.1}_{0}$	±0.1	±0.1	±0.05	400PCS

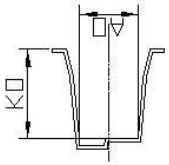








SECTION B-B



SECTION A-A

1. 成品包装数量每盘400只.
2. 载带编好后前空300mm左右,后空(包装后盘内固定端面)
   200-300mm左右.
3. 载带颜色为黑色.

标记	处数	更改文件号	签 字	日 期	PB22M12载带				Swiclick
设 计			会 审		材料	PS	HRC		PB22M12-08*编带
绘 图					图样标记			重量 比例	
批 准									
日 期					共 1 页		第 1 页		