HOLDER COMPANY

Issue No.	:	20210028
Date of issue	:	Jan 20,2021
Classification	:	■ New ☐ Change

PRODUCT SPECIFICATION FOR APPROVAL

Product Description : LIGHT TOUCH SWITCH

Product Part Number : (Panasonic Part Number : EVP6AWD40T01)

Country of Origin : Japan,China (It is indicated in the packing label with English)

Applications : It depends on 1.2[Application Limits]

*If you approve this specification, please fill in and sign the below and return 1 copy to us.

Approval No. :
Approval Date :
Executed by :

(Signature)

Title :
Dept. :

Prepared by : Engineering Department
TEL: 86-532-58887598

Panasonic Industrial Devices (Qingdao) Co., Ltd.
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Manufacturing section :
Panasonic Industrial Devices (Qingdao) Co., Ltd.

Contact Person
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Title

Authorized by
Signature : M. Masuda
Name (Print) M. MASUDA
Title Team leader of Engineering

Panasonic

Classification	SPECIFICATION	Issue No. 20210028
Part Name 3.0mm x 2.0mm SMD Light Touch Switch	Part No. EVP6AWD40T01	1 / 16

1. Notification Items

1.1 Law and the regulation which are applied

① Ozone depleting substances specified by Montreal Protocol have not been used in the manufacturing process of the material used in this product.

② This product complies with RoHS Directive (on the restriction of the use of certain hazardous substances in electrical and electronic equipment) [2011/65/EU as amended by (EU)2015/863].

③ The materials used in this product contain only the substances listed in the List of Existing Chemical Substances specified in 'Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc'.

④ If this product is subject to the "Foreign Exchange and Foreign Trade Law" permission must be obtained from the Japanese government in order to export the product or take it out of Japan.

1.2 Application Limits

The following shall be described for safety precaution:

[Limitation of Application]

(a) This product has been designed and manufactured for general electronic devices, such as home electronics, office equipment, information devices and communication devices.

(1) This product is not intended for use in more sophisticated applications which require a higher safety standard and more reliability, including if a failure or malfunction may cause bodily injury or property damage.

(2) If the product is intended for more sophisticated applications prior approval must be obtained. Such applications shall include, but are not limited to, the following: aircraft equipment, aerospace equipment, disaster prevention equipment, crime prevention equipment, medical equipment, transportation equipment (such as vehicles, trains, ships, etc.), and information processing equipment that are highly publicized, and other equivalent equipment.

(b) Regardless of its applications, in an event that this product is used for equipment with high safety standards, protective circuits or back up circuits must be used and safety tests must be performed.

1.3 Handling of approval specification

- Writings in this specification form are subject to change through precautions.
- In order to avoid nullification or voiding any warranty or guarantee, if the product will be used for application that is not stated in the specifications then Panasonic should be contacted in writing regarding the special application.
- Please return one copy of this specification form with your approval stamp or signature to us. Otherwise, it might be happened that the item can not be supplied.

1.4 Manufacturing Sites

The country of manufacture : China	Panasonic Industrial Devices (Qingdao) Co., Ltd.
The country of manufacture : Japan	Input Devices Business Department, Interface Devices Business Unit Electromechanical Control Business Division, Panasonic Corporation

2. Summary

2.1 This specifications applies to the following types of switch.
Push-ON type S.P.S.T

2.2 This specifications is a constituent document of contract for business concluded between your company and Panasonic Corporation.

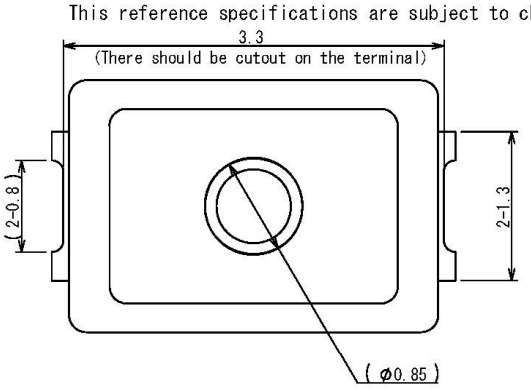
2.3 Items not particularly specified in this specifications shall be in conformance with JIS Standards.

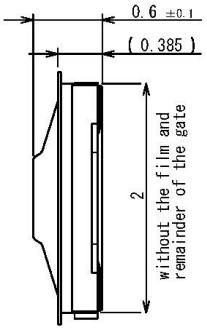
3. Dimension・Marking・Circuit diagram

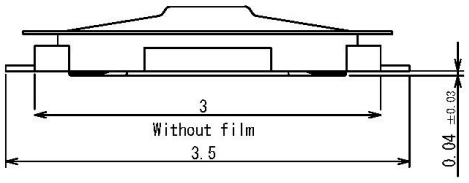
Date code are indicated in the product.

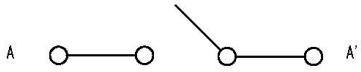
General dimension tolerance : ±0.05
( )dimensions are reference dimensions.

This reference specifications are subject to change.



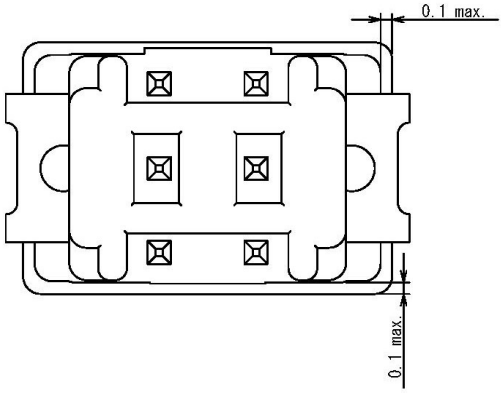


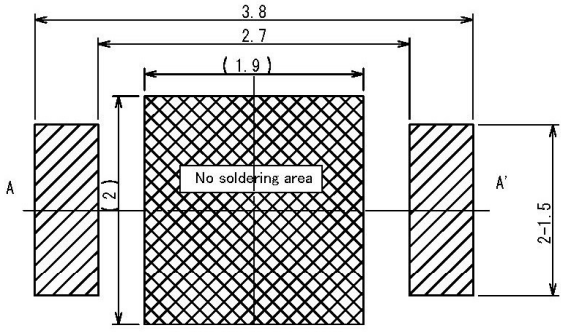




Circuit diagram

The thickness of the solder stencil shall be 0.1mm, and the opening ratio of the solder stencil to a land pattern shall be 60～100% (recommend 80%).





Land pattern plan

*Soldering failure may occur depending on applied solder amount,so, please consider to use our recommended stencil and land pattern desing

:Recommended land pattern area

:No soldering area

- Any land pattern or via holes shall not be provided at area.
- If it's necessary to design land pattern or via holes at area, please apply resist to them to protect their metal part completely.
- If their metal parts are not protected completely, short circuit failure may occur.
- Besides, there should be convexoconcave by designing additional pattern, it may cause swith tilt, influence on solder-ability or flux intrusion after reflow soldering.
- Therefore, please study any influence of additioan land pattern or via holes at area in advance

4. General specification

4.1 Switch rating DC 15 V 20 mA(max.) DC 2 V 10 μA(min.)

4.2 Operation temperature range -40 ～ + 85 ℃

4.3 Preservative temperature range Single condition : - 40 ～ + 85 ℃
Taping conditior : - 20 ～ + 60 ℃

4.4 Standard conditions

Unless otherwise specified, the test and measurements shall be carried out as follows.

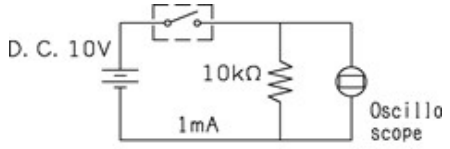
Ambient temperature : 5 ～ 35 ℃
Relative humidity : 45 ～ 85 %
Atmospheric pressure : 86 ～ 106 kPa

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

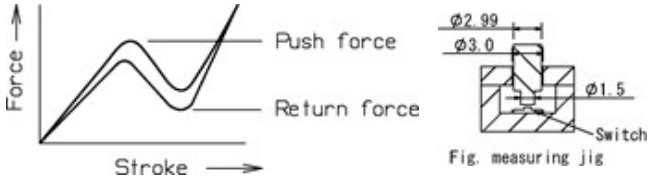
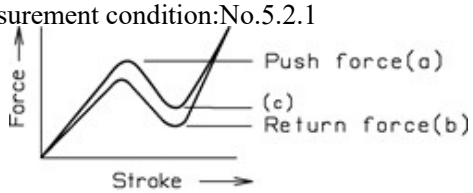
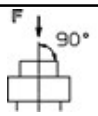
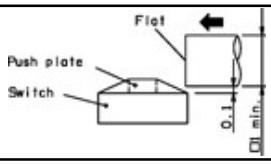
Ambient temperature : 20 ± 2 ℃
Relative humidity : 65 ± 5 %
Atmospheric pressure : 86 ～ 106 kPa

5. Performance

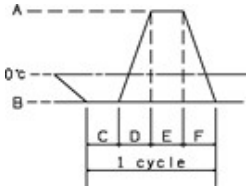
5.1 Electrical characteristics

No.	ITEM	TEST CONDITION	PERFORMANCE
5.1.1	Contact resistance	Push force : {Operation force} × 2 Measurement tool : Contact resistance meter (Capable of 10 μA ～ 10 mA)	500 mΩ max.
5.1.2	Insulation resistance	DC 100 V (Between terminals)	50 MΩ min.
5.1.3	Withstand voltage	AC 250 V for 1 minute. (Between terminals)	No insulation destruction
5.1.4	Bouncing	Operation speed : 3～4 times/s  Switch Bouncing Test Circuit	ON 10 ms max. OFF 10 ms max.

5.2 Mechanical characteristics

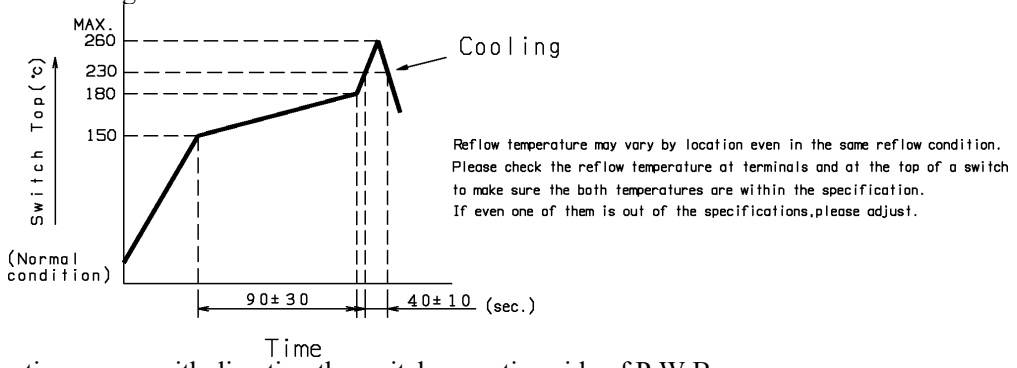
No.	ITEM	TEST CONDITION	PERFORMANCE
5.2.1	Operation force	Operation feeling shall be measured after 3 times pre-operations. Pre-operation condition : 3 times, 1mm/s by 6 N Measurement speed : 0.5 mm/s 	Push force 3.0 $^{+0.9}_{-0.9}$ N Return force 0.2 N min
5.2.2	Travel to closure		0.15 $^{+0.05}_{-0.05}$ mm
5.2.3	Click ratio	Measurement condition:No.5.2.1  Click ratio = (a-c)/a×100%	Click ratio 40 % min.
5.2.4	Push strength	50 N for 15 sec. 	No damage (Electrical and mechanical)
5.2.5	Side push strength	3 N, 15 sec. Initial product with 2 times reflow. (Reflow condition: see 6.1) 	No damage (Electrical and mechanical)
5.2.6	Vibration test	1) Amplitude : 1.5 mm 2) Sweep rate : 10-55-10Hz for 1 minute 3) Sweep method : Logarithmic frequency sweep rate 4) Vibration direction : X,Y,Z(3 directions) 5) Time : Each direction 2 hours (Total 6 hours)	No.5.1 and 5.2.1 to 5.2.2 shall be satisfied.
5.2.7	Soldering heat test	Mount the switch on P.W.B by solder paste. 1) Reflow process 2 times. (Refer to section 6.1) 2) Standard conditions after test : 1 hours	Contact resistance 500 mΩ max. Click ratio 35% min. No.5.1.2 to 5.1.4 and No.5.2.1 to 5.2.2
5.2.8	Solderbility	After spreading flux, the terminal is immersed in solder with following condition. Solder bar : M705/Sn-3.0Ag-0.5Cu (Senju Metal Industry Co.,Ltd.) Flux : CF-110VH-2A (tamura kaken) Soldering temperture : 260±5 ℃ Soldering time : 2±0.5 sec.	95% or more of surface area(Excluding ruptured surface)where is immersed in solder shall be covered by new solder.

5.3 Climatic characteristics

No.	ITEM	TEST CONDITION	PERFORMANCE
5.3.1	Cold test	1) Temperature : -40±2 ℃ 2) Duration of test : 500h 3) Take off a drop water. 4) Standard conditions after test : 1 h	Contact resistance 1000 mΩ max. No.5.1.2 to 5.1.4 and No.5.2.1 to 5.2.2 shall be satisfied.
5.3.2	Heat test	1) Temperature : 85±2 ℃ 2) Duration of test : 500h 3) Standard conditions after test : 1 h	Contact resistance 1000 mΩ max. No.5.1.2 to 5.1.4 and No.5.2.1 to 5.2.2 shall be satisfied.
5.3.3	Heat shock test	1) Test cycles : 20 cycles 2) Standard conditions after test : 1 h  A:+85±2 ℃ B:-40±2 ℃ C:1 hour D:5 minutes max. E:1 hour F:5 minutes max.	Contact resistance 1000 mΩ max. No.5.1.2 to 5.1.4 and No.5.2.1 to 5.2.2 shall be satisfied.
5.3.4	Humidity test	1) Temperature : 60±2 ℃ 2) Relative humidity : 90～95 % 3) Duration of test : 500 h 4) Take off a drop water. 5) Standard conditions after test : 1 h	Contact resistance 1000 mΩ max. No.5.1.2 to 5.1.4 and No.5.2.1 to 5.2.2 shall be satisfied.
5.3.5	Endurance (by spring method)	1) DC 15 V 20 mA Resistance load 2) Operation speed : 2～3 times/s 3) Push force : Maximum value of operation force 4) Operation number : 300,000 times	Contact resistance 20 Ω max. Bouncing : 30 ms max. Variation rate of operation force shall be within ±30 % to the value before testing No.5.1.2 and 5.2.2 shall be satisfied.
5.3.6	Withstand H_2S	1) Density : 3±1ppm 2) Temperature : 40±2 ℃ 3) Relative humidity : 80～85 % 4) Duration of test : 24 h 5) Standard conditions after test : 1 h	Contact resistance 1000 mΩ max. No.5.1.2 to 5.1.4 and No.5.2.1 to 5.2.2 shall be satisfied.
5.3.7	Water resistance (adhere to IPx8)	1) liquid : Fresh water 2) Temperature : 20±15 ℃ (Ambient temperature) 3) Immersion depth : 1.5m 4) Duration of test : 30min. Water around the switch shall be removed by the moisture absorbing material, then expose the switch in the ambient temperature and humidity for 1 h before checking. ＊ Temperature difference between switch and liquid shall be 5 deg C max.	Water ingress shall be limited enough to prevent deleterious effect to the switch function.
5.3.8	Dust resistance (adhere to IP6x)	1) Dust : Talc (Type 4) 2) Density : 2kg/㎥ 3) Temperature : 20±15 ℃ (Ambient temperature) 4) Relative humidity : 45～85 % 5) Duration of test : 8 h	No dust ingress to the inside of switch.

6. Prohibitions and precaution for handling

6.1 Reflow soldering condition



1) Two times max. with directing the switch mounting side of P.W.B up.
2) Re-soldering by soldering iron shall be allowed under 350 ℃ max. 3 sec. max. 1 time only and the tip of iron must not touch to terminals.
   Soldering iron for re-soldering have to be 60 W max.

6.2 Design instructions

1) Please refer to the land pattern plan Panasonic recommends on the 2nd page.
2) Design key top as fig-1.(Recommended operation condition)
   As the design of key top may affect operation feeling,please follow the directions stated below.
   - We recommend to use harder material such as resin for key top, and we do not recommend softer material such as rubber may affect operation feeling.
     However in case if you still would like to use softer material, please consult with us beforehand.

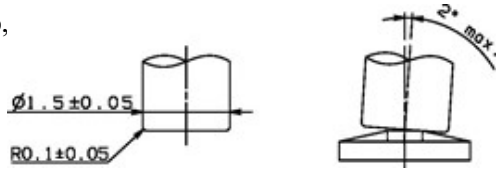


fig-1

   - Considering decentering between switch and key top, the key top shall be always positioned to be able to push the entire top surface of actuator.
     The switch and the decentering shall be 0.3 mm max..
     If you cannot apply our recommended plunger design,please make plungers size bigger than product outline.
   - Please design housing and key top not to produce friction to each other to avoid inhibition of operation feeling.
3) Please design your knob not to hit the switch film or case even when the switch is fully pushed.
4) Please pay attention not to add side force (static or impact) to the push plate of the switch, especially when the switch is being built into the products.(fig-2)

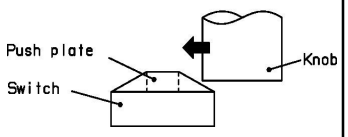


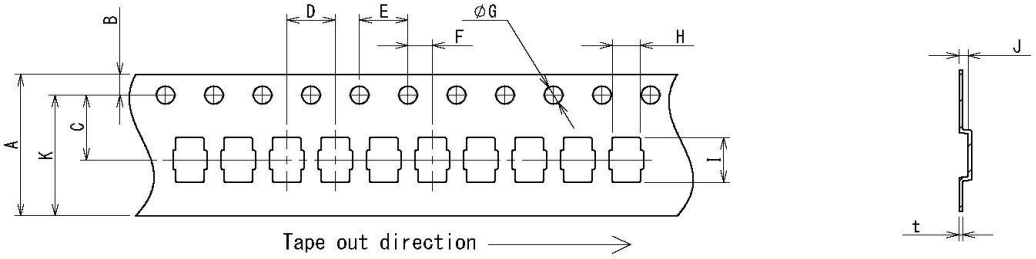
fig-2

6.3 Note

1) Please be cautions not to give excessive static load or shock to switches.
2) Please be careful not to pile up P.W.B. after switches were soldered.
3) Preservation under high temperature and high humidity or corrosive gas should be avoided especially.
   When you need to preserve for a long period, do not open the carton.
4) Avoid pressing the film portion of the product with sharp-edged object.
5) Cleaning
   - If flux or solder is scattered on the surface of P.W.B when soldering, characteristics of this product may be damaged.
   - Cleaning after soldering is not allowed.When cleaning is required this switch should be soldered after the cleaning.
6) Avoid the use of the switch under pushed ON condition is continued for a long time.
7) There is a possibility the flux from solder paste infiltrates into the body if plenty of solder paste was applied by switch on the P.W.B.
   So we recommend to use our proposed land design in order to prevent above problem.
   Also please avoid putting additional land by the switch on the P.W.B.
8) Please don't apply any coating material to the switch after reflow soldering.
9) Please be careful not to apply the load sideways to avoid film bending when the switches are soldered.

7. Packing specification

Carrier tape



Unit : mm

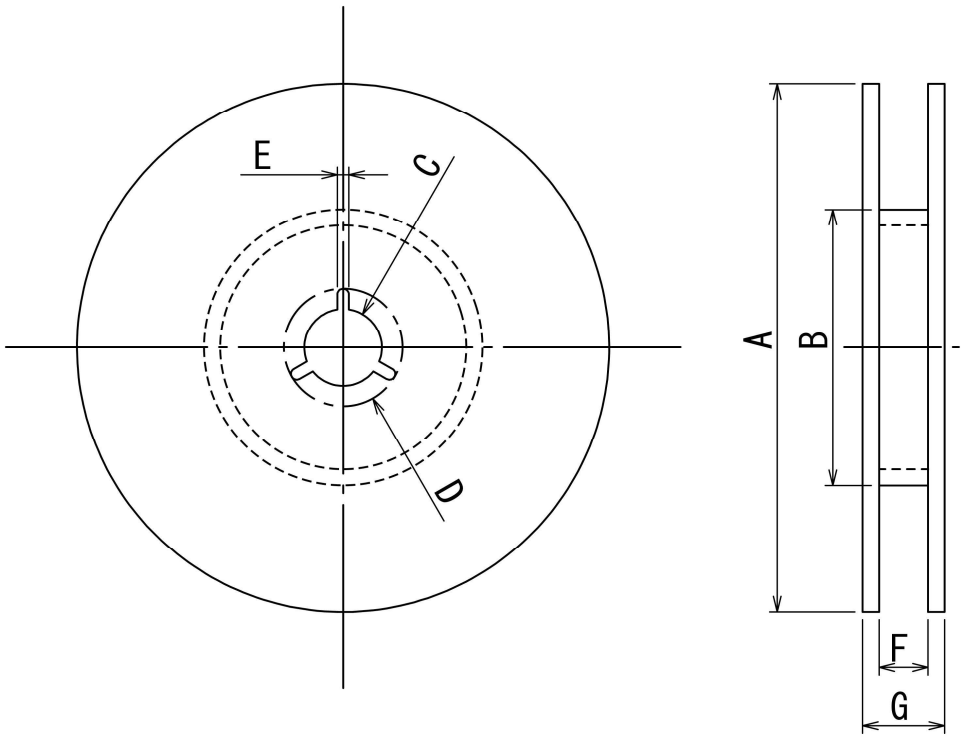
A	B	C	D	E	F	G	H	I	J	K	t
±0.3 12	±0.1 1.75	±0.1 5.5	±0.1 4	±0.1 4	±0.1 2	±0.3 1.5	±0.2 2.3	±0.2 3.8	±0.2 0.75	(10.25)	+0.15 -0.1 0.3

＊ Taping condition : Lack of products in the middle of taping should be one MAX.
but total quantity specified in the specifications should be secured.

＊ Peeling off strength of top tape It should be within 0.2N to 1.0N at 165 degree in peeling off angle.

＊ Joint of carrier tape : One joint per one reel may exist.

Reel(20000 pcs./reel)



A	B	C	D	E	F	G
±2 Φ380	±1 Φ80	±0.2 Φ13	±0.8 Φ21	±0.5 2	±1 13.4	±1 17.4

Unit:mm

<Prohibitions and precaution for handling>

【Prohibited items on fire and smoking】

- Absolutely avoid use of a product beyond its rated range because doing so may cause a fire. If misuse or abnormal use may result under conditions in which the product is used out of its rated range, take proper measures such as current interruption using a protective circuit.
- Please do not use the product in any location or circumstances where spreading fire may occur, or take necessary measures against spreading fire if used in such location or circumstances.

【For use in equipment for which safety is requested】

- Although care is taken to ensure product quality, inferior characteristics, short circuits, and open circuits are some problems that might be generated. To design an equipment which places maximum emphasis on safety, review the effect of any single fault of a product in advance and perform virtually fail-safe design to ensure maximum safety by:
  - Preparing a protective circuit or a protective device to improve system safety, and equipment.
  - Preparing a redundant circuit to improve system safety so that the single fault of a product does not cause a dangerous situation.

【Attentions required for storage condition】

- When this product is to be stored in the following circumstances and conditions, it may affect on the performance deteriorations and solderability etc., avoid storing in the following conditions.
  (1) A place where the temperature is -10℃ max., +40℃ min. and the humidity is 85% min.
  (2) In the corrosive gas atmosphere.
  (3) Long-term storage for 6 months min.
  (4) A place where the product is exposed to direct sunlight.
- Store in packed condition so that the load stress is not applied.
- Please use this product as soon as possible, our recommendation is within 3 months and the limitation is 6 months.
- If any remainder left after packing is opened, store it with proper moistureproofing and gasproofing, etc.,

1. 通知事项

1.1 适用的法律及规则

① 本产品，在使用部材的制造工序中，不使用蒙特利尔议定书中限制破坏臭氧层的物质。

② 本产品，符合RoHS（电气电子机器中含有特定物质限制使用）[2011/65/EU as amended by (EU)2015/863]指令。

③ 本产品的使用材料，根据「化学物质的审查、制造等规制的相关法律」，是作为即存物质记载的材料。

④ 本产品输出时，依据外国贸易法等的输出关联法规办理输出手续。

1.2 用途限定

・本产品，设计、制造用于家电、事务机器、情报・通信机器等一般电子机器上，由于本产品的故障和误动作有可能对人命或财产产生危害等现象，对于研讨高信赖性・安全性要求高的用途时，根据用途，需要另行协议交货规范。

・宇宙・航空机器，防灾・防范仪器，医疗机器，运输机器（汽车・火车・船舶等），公共性高的信息处理机器，其它于上述同等的机器

・不论用途，应用在高安全性要求的机器时，请设置保护电路或冗余电路来实现机器安全性。同时，拜托实施安全测试。

1.3 本纳入式样书的使用

・ 本式样书中记载的内容如有变更，请在与我司事前协议的基础上实施。

・ 本式样书，只保证本产品单体状态时的品质。在使用前，务必确认・评价安装在贵社机器上的状态。请给我们返回一份带有您承认签字或盖章后的交货规范的复印件，否则会发生不能给您供货的情况。

1.4 生产工厂

生 产 国：中国　　生产工厂：中国青岛松下电子部品有限公司

生 产 国：日本　　生产工厂：松下电器产业株式会社
机构控制部品事业部 IFD BU INPUT事业总括部

2. 概要

2.1 本式样书，适用于以下类型的开关。「按压导通式 单极单投 1回路1接点」

2.2 本式样书，为贵社与松下电器产业（株）之间缔结的交易相关的契约构成文件。

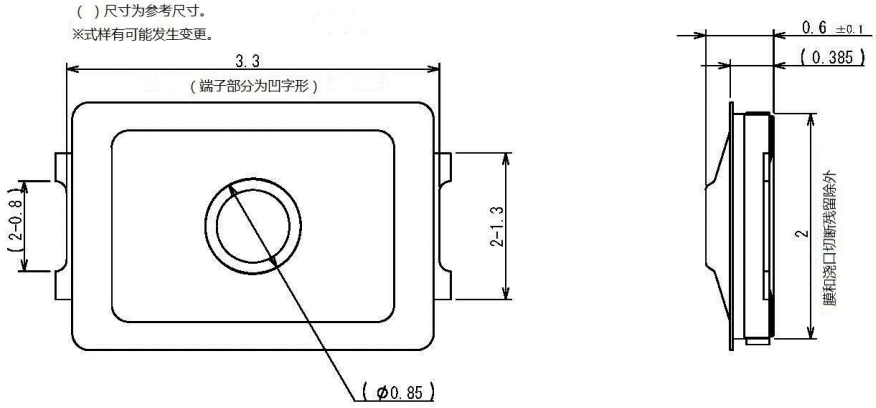
2.3 本式样书中未注明事项，依据JIS规格进行操作。

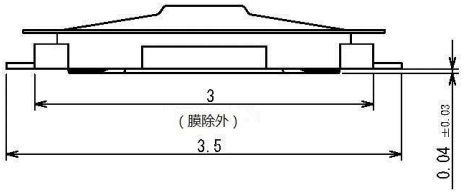
式样书名	交 货 规 范	式样书编号 20210028
品 名 3.0mm×2.0mmSMD 轻触开关	型 号 EVP6AWD40T01	10 / 16

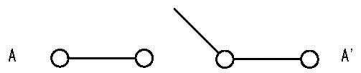
3. 外形尺寸・回路图・表示

在产品上表示出制造年月。

外形尺寸图（普通尺寸公差：±0.05）
（ ）尺寸为参考尺寸。
※式样有可能发生变更。

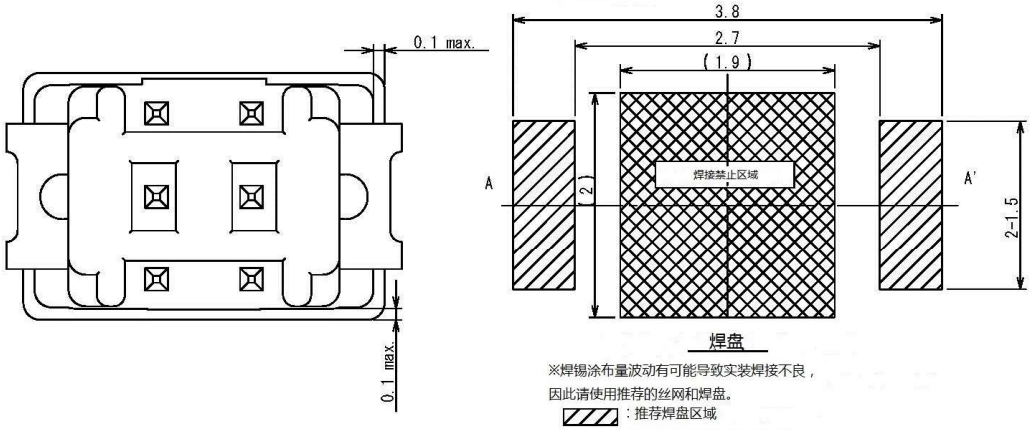






电路图

丝网厚度为0.1mm，
相对于焊盘，开口率为60~100%。
（推荐80%）



焊盘

※焊锡涂布量波动有可能导致实装焊接不良，
因此请使用推荐的丝网和焊盘。

：推荐焊盘区域
：焊接禁止区域
部分请不要设置焊盘或导线。

如设置焊盘或导线时，为避免金属部分露出，请进行绝缘涂层等处理。
金属部分露出的话，通过焊锡球有可能和开关背面的端子发生短路。
并且，由于铜箔的厚度、焊盘的布局等不同，产生凹凸的段差，有可能会对开关倾斜、与焊锡的接合状态、助焊剂侵入等问题产生影响。
因此，使用前请进行事前验证。

4. 基本事项

4.1 额定电压・电流 最大 DC 15 V 20 mA 最小 DC 2 V 10 μA

4.2 使用温度范围 -40 ～ + 85 ℃

4.3 保存温度范围 单 品 状 态 - 40 ～ + 85 ℃
编 带 状 态 - 20 ～ + 60 ℃

4.4 试验・测定状态

以下各性能的实验以及测定，只要没有特殊规定，按标准状态进行。

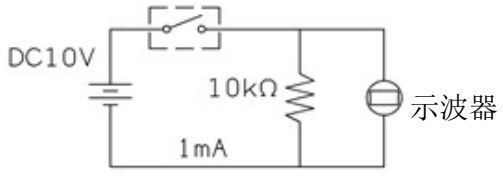
温 度：5 ～ 35 ℃
相对湿度：45 ～ 85 %
气 压：86 ～ 106 kPa

但是，判定产生疑义时，按照以下基准状态进行。

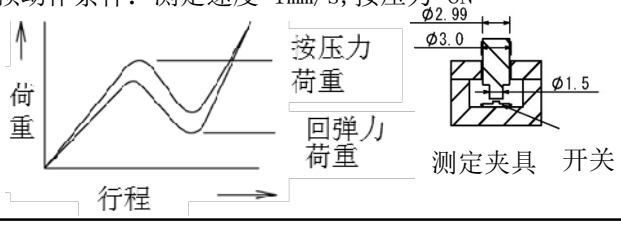
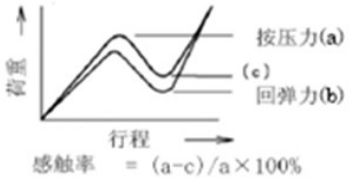
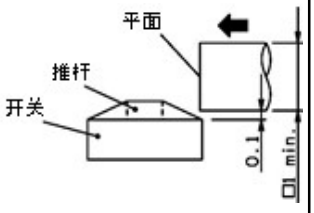
温 度：20 ± 2 ℃
相对湿度：65 ± 5 %
气 压：86 ～ 106 kPa

5. 性能

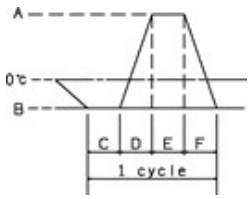
5.1 电气的性能

	项 目	试 验 条 件	规 格
5.1.1	接触电阻	测定时的负荷：操作方向动作力规格之中心值的2倍。负荷。 测 定 器：微小电流接触电阻测量计（测定电流 10 μA～10 mA）	500 mΩ以下
5.1.2	绝缘电阻	DC 100 V （端子间）	50 MΩ以上
5.1.3	耐电压	AC 250 V 1分钟 （端子间）	无绝缘破坏。
5.1.4	触点抖动	操作速率 3～4次/秒  触点抖动测定回路	ON时 10 ms以下 OFF时 10 ms以下

5.2 机械特性

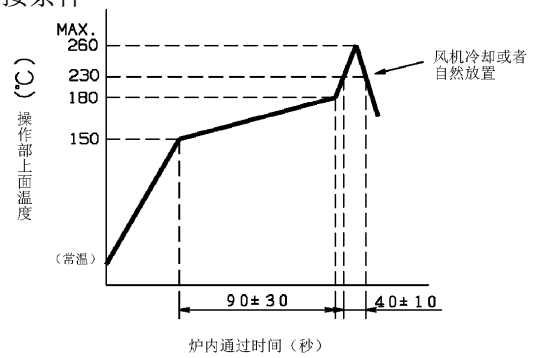
	项 目	试 验 条 件	规 格	
5.2.1	动作力	垂直设置开关的操作方向。 如下图，测定按压时的按压力（最大值）。 测定速度：0.5mm/s 动作力测定前实施3次预动作。 预动作条件：测定速度 1mm/s,按压力 6N 	按压力	3.0 $^{+0.9}_{-0.9}$ N
			回弹力	0.2 N以上
5.2.2	动作行程	垂直设置开关的操作方向。 测定开关到ON状态为止的操作部移动距离。		0.15 $^{+0.05}_{-0.05}$ mm
5.2.3	感触率	测定方法参照 5.2.1  感触率 = (a-c)/a×100%	感触率 40 %以上	
5.2.4	操作部按压强度	将开关实装在P.W.B基板上，向开关操作方向 施加下记静荷重。 50 N, 15 秒	电气、机械特性无异常。	
5.2.5	侧面按压强度	将开关实装在P.W.B基板上， 进行2次回流焊 （参照6.1项的回流焊条件） 按右图方向施加下记荷重。  3 N, 15 秒	电气、机械特性无异常。	
5.2.6	耐振性	振动数范围：10 ～ 55 Hz 全 振 幅：1.5 mm 扫 描 速 度：10－55－10Hz 约1分钟 振 动 方 向：X,Y,Z（3方向） 振 动 时 间：X,Y,Z 各2小时	必须满足 5.1项、5.2.1～5.2.2项要求。	
5.2.7	耐焊接热	将开关实装在P.W.B基板上， 进行2次回流焊（参照6.1项的回流焊条件） 常温常湿放置1小时以上,在外观无附着物状态下测定。	接触电阻 500 mΩ以下 感触率 35%以上 必须满足 5.1.2～5.1.4项、5.2.1～5.2.2项要求。	
5.2.8	可焊性	涂布助焊剂，按下记条件浸渍焊锡。 焊 锡：M705/Sn-3.0Ag-0.5Cu（千住金属） 助 焊 剂：CF-110VH-2A（Tamura化研） 焊锡温度：260 ± 5 ℃ 浸渍时间：2 ± 0.5 秒	95%以上的浸渍面积能被新焊锡覆盖。 （但是破断面除外）	

5.3 环境特性

	項 目	試 験 条 件	規 格
5.3.1	耐寒性	试验后，常温、常湿条件下放置1小时测定。 周围温度 --- -40±2 ℃ 放置时间 --- 500 小时	接触电阻 1000 mΩ以下 必须满足5.1.2～5.1.4项、 5.2.1～5.2.2项要求。
5.3.2	耐热性	试验后，常温、常湿条件下放置1小时测定。 周围温度 --- 85±2 ℃ 放置时间 --- 500 小时	接触电阻 1000 mΩ以下 必须满足5.1.2～5.1.4项、 5.2.1～5.2.2项要求。
5.3.3	热冲击性	下记条件下进行20循环试验。 试验后，常温、常湿条件下放置1小时测定。  A:+85±2℃ B:-40±2℃ C:1小时 D:5分以内 E:1小时 F:5分以内	接触电阻 1000 mΩ以下 必须满足5.1.2～5.1.4项、 5.2.1～5.2.2项要求。
5.3.4	耐湿性 （稳定状态）	试验后，常温、常湿条件下放置1小时测定。 周围温度 --- 60±2 ℃ 相对湿度 --- 90～95 % 放置时间 --- 500 小时	接触电阻 1000 mΩ以下 必须满足 5.1.2～5.1.4项、 5.2.1～5.2.2项要求。
5.3.5	动作寿命 （弹簧）	DC 15 V 20 mA 电阻负荷 动作速度 --- 2～3 次/秒 按压力 --- 按压力规格上限 按压次数 --- 300,000 次	接触电阻 20 Ω以下 触点抖动 30 ms以下 (ON,OFF时) 按压力 初期值±30% 必须满足5.1.2项、5.2.2项 要求。
5.3.6	耐H_2S	试验后，常温、常湿条件下放置1小时测定。 气体浓度 --- 3±1 ppm 周围温度 --- 40±2 ℃ 相对湿度 --- 80～85% 放置时间 --- 24 小时	接触电阻 1000 mΩ以下 必须满足5.1.2～5.1.4项、 5.2.1～5.2.2项要求。
5.3.7	防水性 （相当IPx8）	下记试验后，用吸水性好的材料将开关周围的水除去常温常湿下放置1小时后测定。 试验液体 --- 淡水 液体温度 --- 20±15℃（常温） 浸渍深度 --- 1.5m 浸渍时间 --- 30分 ※液体和开关的温度差保证在5℃以内。	开关内部应防止有害于开关特性的水浸入。
5.3.8	防尘性 （相当IP6x）	试验粉末 --- 滑石粉4种 扩散浓度 --- 2kg/㎥ 试验温度 --- 20±15℃（常温） 相对湿度 --- 45～85% 放置时间 --- 8小时	开关内部无粉尘侵入。

6. 使用注意事项

6.1 焊接条件



1） 回流焊次数限定同一基板侧最多2次。
2） 利用烙铁进行修正时，烙铁前端在不直接接触端子的状态下使用60W以下的烙铁，温度350 ℃以下、3秒以内的条件下限定进行1次。

6.2 整机设计上的注意事项

1） 关于开关的取付孔请使用外形尺寸图中记载的尺寸。
2） 整机按键操作部请如图-1设计。
由于按键的设计能够影响操作感触，
请参考如下设计指导。
・按键顶部推荐使用树脂等硬质材料，由于橡胶等柔软材料有可能会影响操作感触，因此不建议使用。
如需使用时，请事先与我们协商。

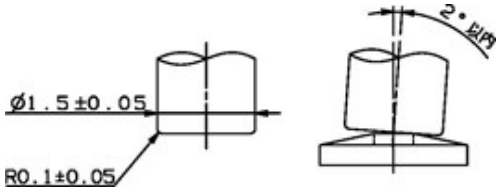


图-1

・为了防止开关和按键的偏芯，设计时请保证按键位置能够按压推杆全部表面。
和开关的偏芯，请在0.3mm以下使用。
・按键设计与推荐不同时，请保证按键的尺寸大于产品外形。
・设计外罩与按键之间无摩擦，以避免影响产品操作感触。
3）设计整机操作部时，请不要接触开关推杆（AC）以外的其他部分。
4）整机设计时请不要向开关推杆施加如图-2所示的侧面方向的力（静荷重或者冲击）
（特别注意整机组立时不要施加力）

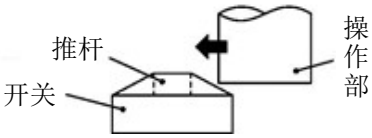


图-2

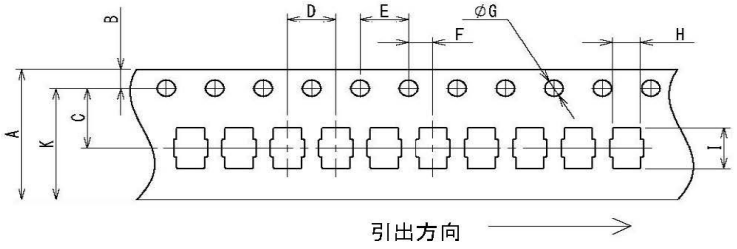
6.3 其他注意事项

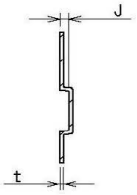
1） 为了避免端子变形、接触不良、动作不良等情况，请不要对产品施加过大负荷。
2） 为了防止开关内部异物（P.W.B基板的粉末、助焊剂的粉末等）入侵发生接触不良，
实装后的P.W.B基板请小心拿取。
并且，请避免堆积存放P.W.B基板等情况。
3） 产品保管时，请避免高温高湿、腐蚀性气体的环境。
特别是长时间保存时，请不要从包装箱内取出，避免单品状态的保存。
4） 避免使用尖锐物体按压盖膜。
5） 关于清洗
・ 如果焊接时助焊剂或者焊锡飞散到基板表面及接点部时，会损坏本产品的机能。
・ 不允许在产品焊接后进行清洗。
6） 请避免开关长时间处于ON状态。
7） 如果在开关附近使用大量的焊锡，有可能导致开关内部出现助焊剂入侵。
因此请使用本式样书中推荐的焊盘设计，并且请避免在开关的近旁追加焊盘。
8） 回流焊接后，请不要对本产品进行涂层处理。
9） 开关实装时，注意不要对开关侧面施加载荷，防止膜变形。

式样书名	交 货 规 范	式样书编号 20210028
品 名 3.0mm×2.0mmSMD 轻触开关	型 号 EVP6AWD40T01	15 / 16

7. 包 装 规 范

载体编带



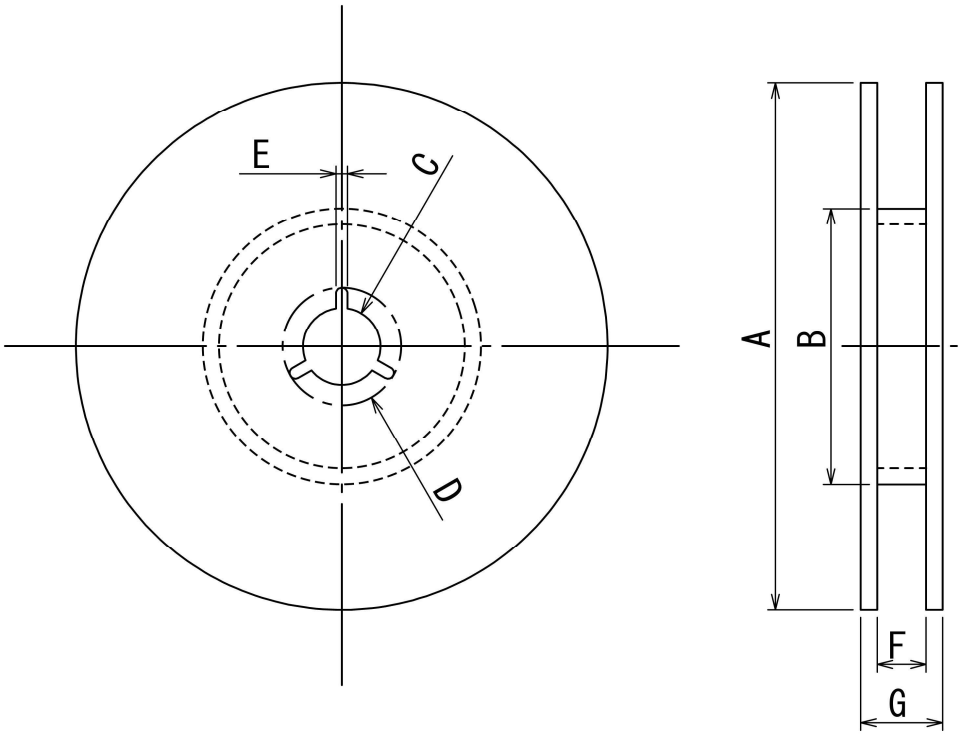


单位 ： mm

A	B	C	D	E	F	G	H	I	J	K	t
±0.3 12	±0.1 1.75	±0.1 5.5	±0.1 4	±0.1 4	±0.1 2	±0.3 1.5	±0.2 2.3	±0.2 3.8	±0.2 0.75	(10.25)	+0.15 −0.1 0.3

顶部薄膜剥离强度0.2~1.0N。（剥离角度：165° ）
编带状态：编带中产品脱落最多1个，但应该确保1卷内产品数量。
编带连接：每卷盘内接头数最多1个。

卷盘（ 20000 个/卷）



A	B	C	D	E	F	G
±2 Φ380	±1 Φ80	±0.2 Φ13	±0.8 Φ21	±0.5 2	±1 13.4	±1 17.4

单位:mm

＜请严格遵守下述禁止事项及注意事项＞

【可能引发冒烟、火灾的禁止事项】

・绝对禁止超出开关的额定范围使用，那样可能引发火灾。
当错用或非常使用在电压超出额定值的场合，要采用正确的措施，如加电流熔断器作为保护电路等。

・禁止在易发生延烧的场所使用，或者事先进行延烧防止对策。

【对安全性有要求的机器的拜托事项】

・尽管高度保证重视开关的质量，但性能劣化、短路、断路不能说是完全不发生的。
在设计重视安全性的机器时，针对本产品单一故障要事先研讨对机器的影响

・设计保护回路、保护装置，实现系统上的安全性
・设计一套冗余回路等增强系统安全性解决个别故障造成的危险
确保安全性。

【关于保管条件的注意事项】

・当产品保存在下列环境和条件下，可能会影响性能劣化和焊接性等性能，应避免在下列条件下保存：

(1)温度-10 ℃以下、+40 ℃以上、湿度85 %以上的环境。
(2)有腐蚀性气体的环境。
(3)产品到达后，长期保存 6 个月以上。
(4)阳光直射的场所。

・在不施加荷重且在包装的状态下保存。。
・请尽快使用，建议期限 3 个月，允许期限 6 个月。
・内箱包打开装使用后，若有剩余请用防潮、防气等适合方法进行包装。