

# S P E C I F I C A T I O N S

1. THIS SPECIFICATIONS APPLY TO RS45111A6A08 POTENTIOMETER.
2. CONTENTS OF THIS SPECIFICATIONS.  
0027180536  
5S0001-33,5S0001-34  
S4518P601A
3. MARKING
  - MARKING ON ALL UNITS
  - DATE CODE, RESIST. VALUE, TAPER

## · CAUTION

1. For the export of products which are controlled items subject to foreign and domestic export laws and regulations, you must obtain approval and/or follow the formalities of such laws and regulations.
2. Products must not be used for military and/or antisocial purposes such as terrorism, and shall not be supplied to any party intending to use the products for such purposes.
3. Unless provided otherwise, the products have been designed and manufactured for application to equipment and devices which are sold to end-users in the market, such as AV (audio visual) equipment, home electric equipment, office and commercial electronic equipment, information and communication equipment or amusement equipment. The products are not intended for use in, and must not be used for, any application of nuclear equipment, driving control equipment for aerospace or any other unauthorized use.  
With the exception of the above mentioned banned applications, for applications involving high levels of safety and liability such as medical equipment, burglar alarm equipment, disaster prevention equipment and undersea equipment, please contact an Alps sales representative and/or evaluate the total system on the applicability. Also, implement a fail-safe design, protection circuit, redundant circuit, malfunction protection and/or fire protection into the complete system for safety and reliability of the total system.
4. Before using products which were not specifically designed for use in automotive applications, please contact an Alps sales representative.
5. Please store the product without open package, keep same condition as delivery, under normal temperature and humidity, prevent direct sunlight, and corrosive gas exposure then use product as soon as you can within about six months after delivery. Once you open package, please use plastic bag which is used for packaging and prevent product from exposure of outside air then store the product under same condition as above.
6. Any characteristic and condition for test or measurement are not mentioned on this document should be examined by each product number in order to specify them.  
If it is necessary, please contact our sales representative.  
In case if you use this product under different condition from the past or introduce this product to your another model, please confirm in advance all the content of this product specification is appropriate.

CLASS No.	TITLE	
	STANDARD TYPE POTENTIOMETER (SLIDE)	

**ELECTRICAL**

- Overall resistance : 10kΩ±20%
- Minimum resistance : Across term.1-2 30Ω max. ,Across term.2-3 50Ω max.
- Taper : B Taper
- Rated power : 0.25 Watts
- Rated voltage : Rated voltage =  $\sqrt{P \cdot R}$  (V)  
P : rated power (W)  
R : nominal overall resistance (Ω)

When the rated voltage exceeds the maximum operating voltage the maximum operating voltage shall be the rated voltage.  
Maximum operating voltage : A. C. 200 V , D. C. 10 V

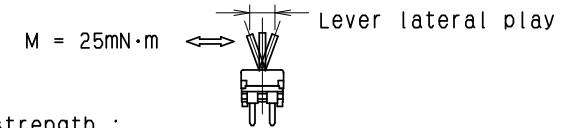
- Dielectric test : Units shall be designed to withstand 300 volts A. C. 50 Hz R. M. S. between resistance elements and case for a period of one minute without damage or arcing.
- Insulation resistance : Greater than 100 megohms between resistance elements and case when tested by a 250 volts D. C. insulation resistance meter.
- Sliding life test : 15,000 cycles.

\*Lever shall be operable with speed of 20 mm per sec. without noise by static electricity.

CLASS No.	TITLE	
	STANDARD TYPE POTENTIOMETER (SLIDE)	

**MECHANICAL**

- Travel : Specified in particular Figure.
- Operating force : 0.3N - 2.5N ( Note 1 )
- Starting force : Operating force + 1N max. ( Note 1 )  
( Note 1 ) Measuring temperature : 5°C - 35°C  
Measuring point : 5 mm from lever end .  
Sliding speed : 20 mm per sec.
- Stop strength :  
50N at a position 5 mm from mounting surface.
- Lever lateral play :  
When an alternating bending moment of 25mN·m is applied perpendicular to the direction of lever travel , the both sides movement of the lever shall be less than  $2(2xL/20)$ mm.  
L : Lever length on the measurement point from mtg. surface.  
( Note 2 ) Exempt warping of insulated lever.

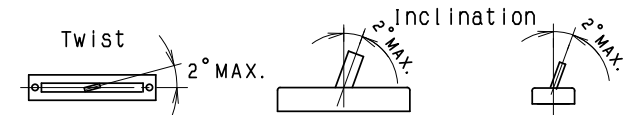


**6. Lever strength :**

- To be resistant with 50N static force of pull or push applied to lever in thrust direction for 10 seconds without damage.
- To be resistant with following static force applied to lever in vertical direction to lever driving for 10 seconds without damage.
  - No damage with an application of 0.2N·m : In case of pot., mounted to chassis with screws.
  - No damage with an application of 0.2N·m : in case of pot., mounted to P. C. B. with both terminals and mounting plate.



**7. Lever inclination and twist :**



**8. Resistance to soldering heat : 3 sec. max. at 350°C**

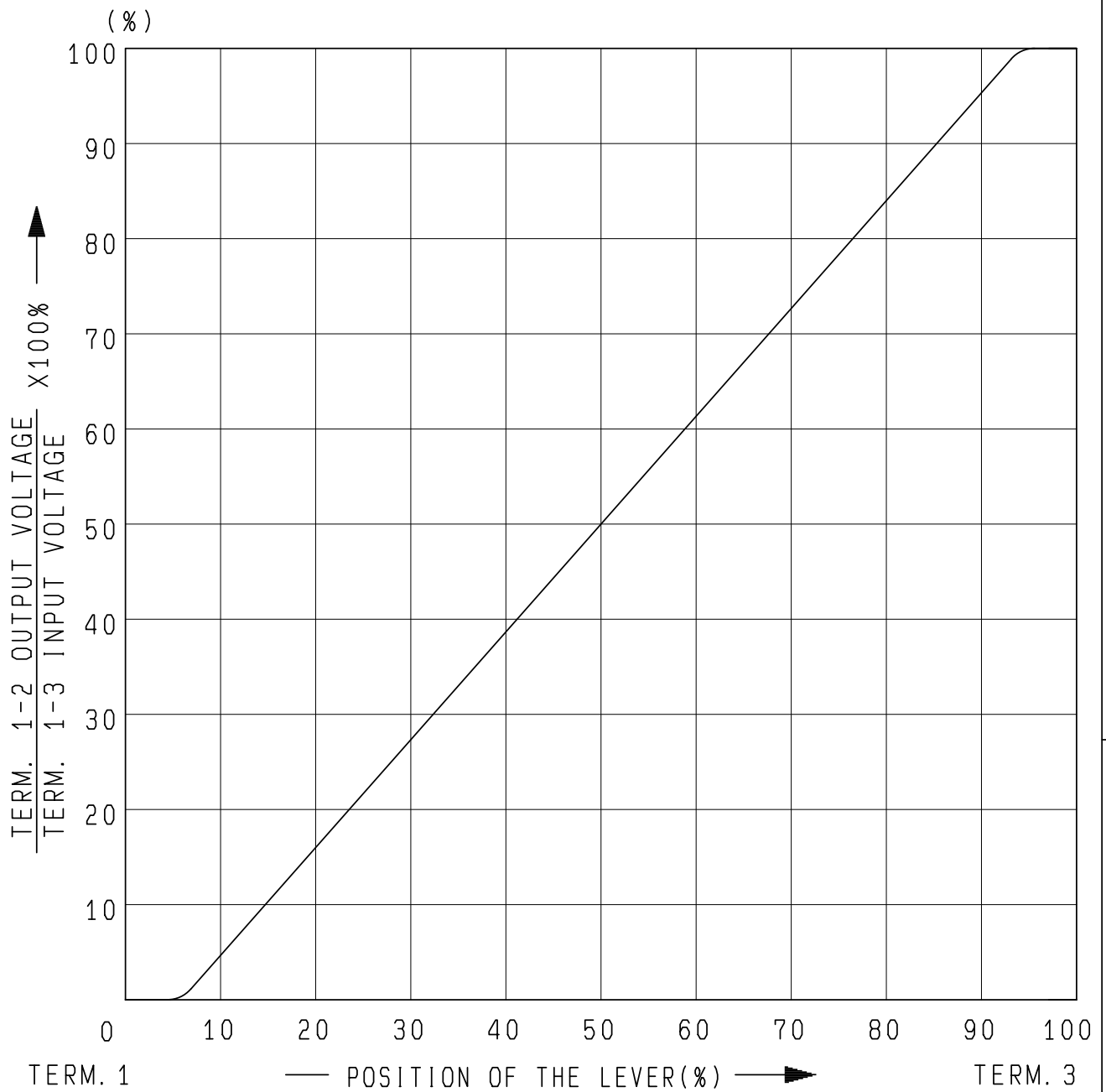
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		'96-04-01	'96-04-01	'96-04-01	SPECIFICATIONS				
		Y. YOSHIOKA	H. ITO	H. KIMURA	DOCUMENT NO.				
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AT 50% TRAVEL FROM TERM.1 VOLTAGE PERCENT SHALL FALL WITHIN THE LIMITS OF 40~60 PERCENT.

					APPD. <i>Apr. 01, '96</i>	CHKD. <i>S. Sasaki</i>	DSGD. <i>Apr. 01, '96</i>	NAME 45mm TRAVEL TYPE B RESISTANCE TAPER
SYMB	DATE	APPD	CHKD	DSGD			<i>K. Matsukawa</i>	DOCUMENT NO. 0027180536
								( 3 / 3 )

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ご使用上の注意  
PRECAUTION IN USE

1. 偏心ツマミをご使用になる場合

レハ<sup>\*</sup>の中心より離れたところを作用点としてご使用になる場合、可能な限り  
 下図A寸法を短くしてご使用下さい。

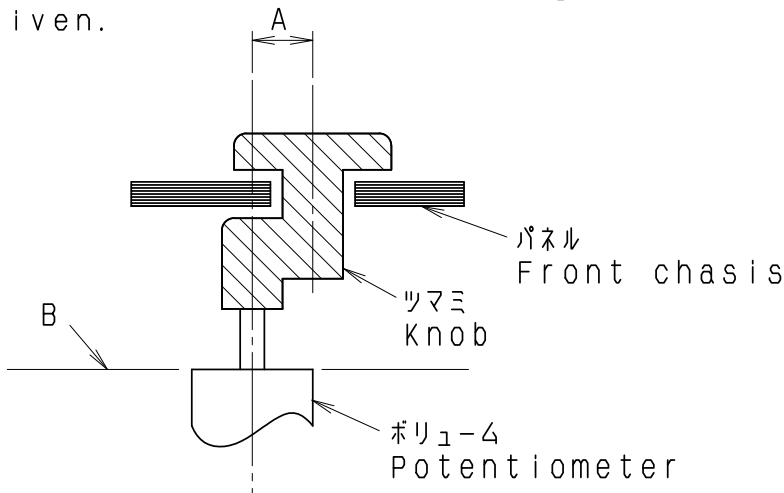
If it will be used the operating point away from the center line of the lever, it should be shorter as possible.

2. レハ<sup>\*</sup> -長さについて

レハ<sup>\*</sup> -長さについては、ツマミを含めて、下図B面より極力短いものをご使用願います。レハ<sup>\*</sup> -長さについては、作用点までの距離が短いほどしゅう動感が良好となり、長いほど好ましくない感触になります。

About the length of lever  
 If conditions permit, it is advisable to use the shortest possible lever.

The longer the length up to operating point, the more unfavorable slide feeling will be given.



3. レハ<sup>\*</sup> -の駆動に関しては上記内容を考慮の上、セット実装を行い

あらかじめ異常のないことをご確認願います。

Regarding the operation of the lever, please consider the above mentioned, and make sure nothing is wrong with the operation under installing in your appliance that you plan to use our products actually.

4. ツマミ挿入及びレハ<sup>\*</sup> -操作は、ホ<sup>\*</sup>リウムマウント基板に

ソリ(曲がり)のない状態で行って下さい。

Knob assembly on the lever and functioning the lever to be performed under the condition of P.W.B. without warp.

5. 電圧調整形回路において出力側のインピーダンスが低い場合には抵抗体と摺動子間の接触抵抗の影響を受けることがありますのでインピーダンスを公称全抵抗値の100倍以上に設定願います。

There is a possibility that might be affected by contact resistance of resistive element and wiper in case of low impedance of output side in voltage regulation circuit. for this reason, we require that you adjust to impedance of output side more than 100 times of total resistance.

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- 6. 当製品は密閉構造ではありませんので、使用環境によって外部ガスが製品内部に侵入し接点障害を起こす場合があります。  
同一セット内に以下の様な部材を使用しないで下さい。  
・硫化、酸化ガスを発生する部材（例：ゴム材，接着剤，合板，潤滑剤，梱包材）  
・低分子シリキサンガスを発生する部材（例：シリコン系ゴム，潤滑剤，接着剤）  
As this product does not have hermetical structure , it is possible gas from outside get inside of product and may cause contact failure depends on using environment.  
Please avoid using following materials. If you have to use any of material in parentheses , please pay special attention and confirm it does not influence to products through tests under actual using conditions.  
-materials which may generate sulfide gas or oxidized gas.  
(rubber , glue , adhesive , plywood , packaging material)  
-materials which may generate low-molecular-weight siloxane gas.  
(silicone base rubber , lubricant , glue)
- 7. 高湿度環境下、又は結露する環境下、液体が製品にかかる環境下では、端子間の電流リークが発生する恐れがありますのでご使用にならないで下さい。  
Please not to use this product under the atmosphere with high humidity , with possibility of dew condensation or of direct splash of liquid. Because it may cause leak between terminals.
- 8. ツマミを挿入する際に、レバーに規定荷重以上の力や衝撃荷重が加わると製品が破壊する場合があります。  
ツマミの寸法や 挿入治具の圧力管理は、規定荷重以下で挿入できる設定の配慮をお願いします。  
The product may have malfunction if excessive stress or impact than specified value is applied when insert knob to the lever.  
Please fix appropriate dimension for knob or fix insertion force of knob of mounting equipment which can avoid excessive stress to the product than specified value.
- 9. 使用温度範囲の上限、下限付近で長期間の連続使用はできません。  
動作寿命の規定は常温15℃～35℃、常湿25%～85%の環境条件に限りです。  
使用温度範囲の上限、下限付近で長期間の連続動作を行う場合は、機種毎に仕様規定が可能かどうか確認が必要になります。  
This product can't be continuously used under high operating temperature or low operating temperature specified in this document.  
Unless otherwise specified , the durability is specified only under normal conditions , temperature 15 to 35 degree Celsius and related humidity 25 to 85%.  
When this product is operated at temperature near from upper or lower limit of operating temperature range , feasibility must be examined by each product specification.
- 10. 製品本体を規定の取付面まで挿入して水平になるように取付けて下さい。  
水平にならないまま取付けますと、動作不良の要因となります。  
Insert these products to the specified mounting surface and mount them horizontally.  
If not mounted horizontally, these products will malfunction.
- 11. 塵埃が多い環境で使用されますと塵埃が開口部から入り出力不良や動作不良の原因となることがありますのでセット設計時に予めご配慮ください。  
If this product is used under dusty conditions , dust or debris may get inside of product from openings and possible to cause output failure or malfunction. Please consider protections against dust when surrounding parts of the product are designed.

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はんだ付け条件

FOLLOW THE NEXT CONDITIONS FOR SOLDERING

1. はんだ SOLDER

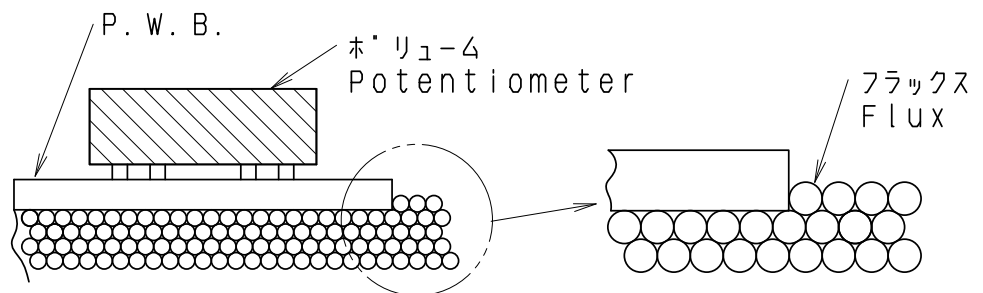
JIS Z 3282に規定のA30C5はんだを使用  
JIS Z 3282, A30C5

2. 使用基板 BOARD IN USE

両面スルーホール基板又は、片面銅張積層板 板厚 t=1.6mm  
Double-faces through-hole board or Single-face  
copper laid laminate board.  
Plate thickness (t)=1.6mm

3. 自動はんだ<DIP条件> IN THE CASE OF DIP SOLDERING

- (1) レベル位置 センター付近に設定願います。  
State of potentiometer  
Position a lever in the vicinity of center.
- (2) フラックス比重 0.83±0.01(発泡式)  
Specific Gravity of Flux  
0.83±0.01(foaming type)
- (3) フラックス高さ フロント基板の板厚の半分の位置にフラックスの上面が接するレベル(図1)  
又、ホリウム挿入面への流れ込みのないこと。(フラックス上がり、飛散に注意)  
Height of Flux face  
A level of the upper face of flux for reaching  
the position at a half of the plate thickness  
of printed board. (Fig. 1)  
Further, no flow of flux invading on the surface  
of printed board on the side of installing  
potentiometer is allowed.
- (4) フロリヒート温度 100°C max. 時間1分以内。(フロント基板のホリウム挿入側の温度)  
Preheat condition  
100°C max., within 1 minute  
(Temperature on the side of installing printed  
board is designated.)
- (5) はんだ温度 260°C max. 時間5秒以内。 はんだ回数は1回までとする。  
Soldering condition  
Solder temperature; 260°C max.  
Soldering period ; within 5 seconds  
Time of soldering ; only one time is permitted



(Fig. 1)

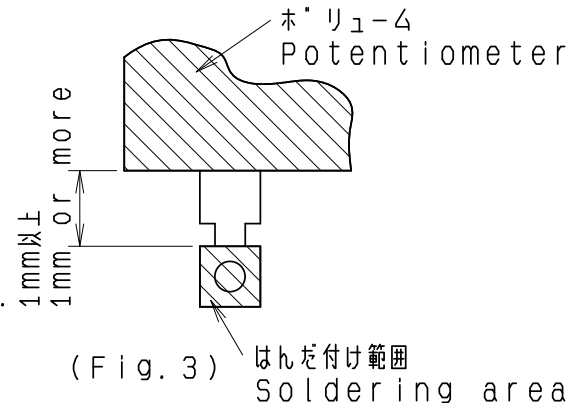
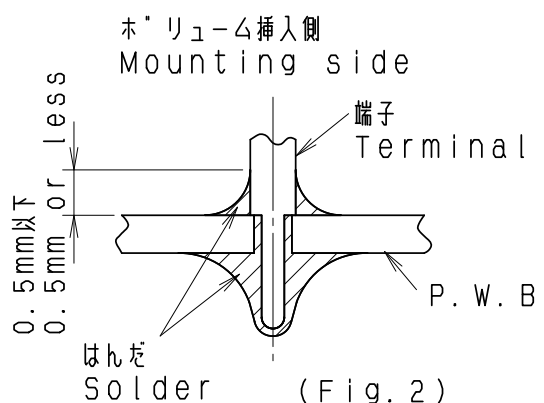
4. 手はんだ IN THE CASE OF MANUAL SOLDERING

はんだ温度 350°C max. 時間3秒以内 はんだ回数は1回までとする。  
Solder temperature ; 350°C max.  
Soldering period ; within 3 seconds  
Time of soldering ; only one time is permitted

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5. 注意事項 MATTERS TO BE NOTED

- (1) はんだ付けの際に、端子にストレスを加えないで下さい。例えば、端子に熱を加えたまま製品を動かしますと、かしめ力<sup>\*</sup>及び電気的特性が劣化する恐れがあります。  
Do not add any stress on terminals in the case of soldering. For instance, forced movement of potentiometer with terminals being heated may probably deteriorate the electric features due to generation of looseness in connection between resistant board and terminals.
- (2) 両面スルーホール基板を使用する場合は、ホ<sup>\*</sup>リューム挿入側の端子取付穴に、はんだランド<sup>\*</sup>がないようにご配慮願います。ホ<sup>\*</sup>リューム挿入側での配線が必要な場合は端子取付穴からの直接取り出しを避けスルーホール配線用の穴を設けるなどのご配慮をお願いします。  
If double-face through hole P.W.B. is necessary, please avoid to have land pattern to the potentiometer installing side.  
If wiring on the potentiometer installing side is necessary, please prevent direct connection from through hole for potentiometer.  
For example add another through hole for wiring or route from the other through hole which is not used for potentiometer.
- (3) ホ<sup>\*</sup>リューム挿入側へのはんだ上がりは、はんだ熱による端子接触不良の発生原因となりますので(図2)を参照願います。  
Use caution to soldering process so as to prevent solder from rising up to the surface of printed board on the side of installing potentiometer, because defective contact may take place in terminal connecting part due to soldering heat(Fig. 2)
- (4) リード<sup>\*</sup>配線の場合、ホ<sup>\*</sup>リューム本体と、はんだ付け部の距離を1mm以上開けてはんだ付け願います。(図3)  
In the case of lead wiring, solder it so that a gap of 1 mm or more may be reserved between the potentiometer body and soldering part. (Fig. 3)
- (5) はんだ付けによるホ<sup>\*</sup>リュームへの影響は、フ<sup>\*</sup>リント基板の大きさ、ホ<sup>\*</sup>リュームの取付け位置、はんだ槽の大きさ、等により異なりますのであらかじめ実使用状態で実施し、異常のないことを確認の上、はんだ付けて下さい。  
The grade of influence of soldering exerted on the potentiometer depends upon the size of a printed board, installing position of the potentiometer, and the size of a solder bath etc. Therefore, make sure, in advance, of no abnormal state under the conditions of soldering to be carried out at present.



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- (6) 基板に挿入される金属足は、はんだ付けして、ご使用願います。  
Please solder all inserted metal terminals and bracket to a P.W.B.
- (7) はんだ付け後、溶剤などで製品を洗浄しないで下さい。  
After soldering, please not to wash or clean products by liquid such as solvent or any similar.
- (8) Selective solderingの場合は、Dip solderingと条件が異なりますので、事前に貴社設備で充分確認の上、条件設定をお願いします。  
Please thoroughly test and decide appropriate parameters for soldering by your soldering equipment under actual condition of production.  
(For example, parameters for selective soldering can be different from for wave soldering.)
- (9) Spray fluxerの場合は、製品の実装側からfluxが侵入しないようにして下さい。  
If you use spray fluxer equipment, please prevent the flux from entering the inside of product from mounting side.

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