

## SLIDE SWITCH SPECIFICATION

## 1. General

1.1 Appearance and dimensions : Refer to drawing spec
1.2 Operation temperature range : $-20^{\circ} \mathrm{C} \sim+85^{\circ} \mathrm{C}$
1.3 Preservative temperature range : $-40^{\circ} \mathrm{C} \sim+85^{\circ} \mathrm{C}$
1.4 Switch rating: DC $12 \mathrm{~V}, 50 \mathrm{~mA}$
1.5 Standard conditions : Unless otherwise specified, the test and measurements shall be carried out as follows :

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Ambient temperature : 5~ 35 ' C
Relative humidity : 45~85\%RH
Air pressure : 86~106kpa (860~1060mbar)
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However, if doubt arises on the decision based on the measured value under the above-mentioned conditions, The following conditions shall be employed.

Ambient temperature : $20 \pm 2^{\circ} \mathrm{C}$
Relative humidity : $65 \pm 5 \% \mathrm{RH}$
Air pressure : 86~106kpa (860~1060mbar)

## 2. Performance

### 2.1 Electrical characteristics

| No | Items | Test Conditions | Performance |
| :---: | :--- | :--- | :--- |
| 2.1.1 | Contact <br> Resistance | Measurement shall be made with a 1kHz current contact <br> resistance meter. (20mV, 5~50mA) | $100 \mathrm{~m} \Omega$ Max. |
| 2.1.2 | Insulation <br> Resistance | DC 250V (Between terminals) frame for 1 minute. |  |$\quad 100 \mathrm{M} \Omega$ Min..


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|  |  |  | 2024 | 1.11 | Handa | Jeff | Jeff |  |  |  |
| 01 | 2020/01/11 |  |  |  |  |  |  | DRAWING | SS - 000 P-W-SP2-S085 |  |
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### 2.2 Mechanical characteristics

| No | Items | Test Conditions | Performance |
| :---: | :---: | :---: | :---: |
| 2.2.1 | Operation <br> Force | Push by recommended operating condition | Push force ( $160 \pm 100 \mathrm{gf}$ ) |
| 2.2.2 | Travel | Push by recommended operating condition $F=($ Operation force $) \times 2$ | $1.5 \pm 0.1 \mathrm{~mm}$ |
| 2.2.3 | Push strength | A static load of 9.8 N ( 1 kgf ) shall be applied in the direction of stem operation for a period of 60 seconds. | No damage <br> (Electrical and Mechanical) |
| 2.2.4 | Vibration Test | (1) Amplitude : 1.5 mm <br> (2) Sweep rate : $10-55-10 \mathrm{~Hz}$ for 1 minute. <br> (3) Sweep method: Logarithmic frequency sweep rate. <br> (4) Vibration direction : X.Y.Z (3 directions). <br> (5) Time : Each direction 2 hours (Total 6 hours). | No. 2.1 and 2.2.1 to 2.2 .2 shall be satisfied. |
| 2.2.5 | Shock | Peak acceleration : 500m/S ${ }^{2}$ <br> Pulse duration: 11 ms <br> Test time-6direction,each 3 times total 18 times | Contact resistance : 200m $\Omega$ Max. Insulation resistance : 100M $\Omega$ Min. Withstand voltage : No. destruction. No. 2.2.1 to 2.2.2 shall be satisfied. |
| 2.2.6 | Solderbility | After sprayed flux <br> Temperature : $245 \pm 5^{\circ} \mathrm{C}$ <br> Soldering time : $3 \pm 0.5 \mathrm{sec}$ | $90 \%$ or more of surface area of the portion immersed in solder shall be covered by new solder |
| 2.2.7 | Soldering <br> heat <br> resistance | Soldering temperature : $260 \pm 5^{\circ} \mathrm{C}$ <br> Soldering time : $3 \pm 0.5 \mathrm{sec}$ | No damage <br> (Electrical and Mechanical) |



### 2.3 Climatic characteristics

| No | Items | Test Conditions | Performance |
| :---: | :---: | :---: | :---: |
| 2.3.1 | Cold test | (1) Temperature : $-40 \pm 2^{\circ} \mathrm{C}$ <br> (2) Duration of test : 96 hours <br> (3) Take off a drop water <br> (4) Standard conditions after test : 1 hour | Contact Resistance : <br> $200 \mathrm{~m} \Omega$ Max. <br> Insulation resistance : <br> 100M $\Omega$ Min. <br> Withstand voltage : <br> No. destruction. <br> No. 2.2.1 to 2.2.2 shall be satisfied. |
| 2.3.2 | Heat test | (1) Temperature: $80 \pm 2^{\circ} \mathrm{C}$ <br> (2) Duration of test : 96 hours <br> (3) Standard conditions after test : 1 hour |  |
| 2.3.3 | Temperature Cycle | (1) Test cycles : 5 cycles <br> (2) Standard conditions after test : 1 hour |  |
| 2.3.4 | Humidity <br> Test | (1) Temperature : $60 \pm 2^{\circ} \mathrm{C}$ <br> (2) Relative humidity : $90 \sim 95 \%$ <br> (3) Duration of test : 96 hours <br> (4) Take off a drop water <br> (5) Standard conditions after test : 1 hour |  |


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| 01 | 2020/01/11 |  |  |  |  |  |  | drawing |  |  |
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### 2.4 Durability characteristics

| No | Items | Test Conditions | Performance |
| :---: | :---: | :---: | :---: |
| 2.4.1 | Endurance <br> Test | (1) Operation speed : 20~30 time/s <br> (2) Push force : Maximum value of operation force <br> (3) Operation number : 10,000 Cycles <br> install | Contact resistance : <br> 200m $\Omega$ Max. <br> Bouncing : <br> 10ms Max. <br> Insulation resistance : <br> 100M $\Omega$ Min. <br> Withstand voltage : <br> No. destruction. <br> Variations rate of operation <br> force shall be within $\pm 30 \%$ to <br> the value before testing. <br> No. 2.2.2 shall be satisfied. |

## 3. SOLDERING

### 3.1 Reflow soldering conditions

| ITEM | CONDITION |
| :--- | :--- |
| Preheat temperature | $150^{\circ} \mathrm{C}$ Max (Environmental temperature of soldering surface of P.C.B) |
| Preheat time | 60 sec Max. |
| Temperature of solder | $260 \pm 5^{\circ} \mathrm{C} \mathrm{Max}$. |
| Time of immersion | Within 5 sec |


(1) After switches were soldered, please be careful not clean switches with solvent.
(2) In the case of using soldering iron, soldering conditions shall be $280^{\circ} \mathrm{C}$ Max and 3 sec Max.
(3) Right after switches were soldered, Please be careful not to load on the knobs of switches.



