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|  | TACT SWITCH | $1 / 4$ |

## 1. GENERAL MATTERS

1.1 Application: This specification is applied to low current circuit tactile switch for electronic equipment.
1.2 Operating temperature range : $-20 \sim 70^{\circ} \mathrm{C}, 45 \sim 85 \% \mathrm{RH}$
1.3 Storage temperature range : $-30 \sim 80^{\circ} \mathrm{C}$. However, 96 hours maximum for continuous storage over a range $-20 \sim-30^{\circ} \mathrm{C}$ and a range $70 \sim 80^{\circ} \mathrm{C}$.
1.4 Test conditions: The standard test conditions shall be $5 \sim 35^{\circ} \mathrm{C}$ in temperature, $45 \sim 85 \% \mathrm{RH}$ and $860 \sim 1060 \mathrm{mbar}$ in atmospheric pressure.
Should any doubt arise in judgement, tests shall be conducted at $20 \pm 2^{\circ} \mathrm{C}$, $65 \pm 5 \% \mathrm{RH}$ and $860 \sim 1060 \mathrm{mbar}$.
2. RATED VOLTAGE AND CURRENT.

DC 12V 50mA
3. ELECTRICAL PERFORMANCE

|  | PROPERTY | TEST CONDITIONS | PERFORMANCE |
| :--- | :--- | :--- | :--- |
| 3.1 | Contact <br> arrangement |  | $* 1$ pole, 1 throw. |
| 3.2 | Contact <br> resistance | Measured at DC 5V 10mA or by ohmmeter allowing <br> a small current at 1 KHz with a load of $150 \%$ of the <br> actuating force. | *As per individual <br> manufactured drawing. |
| 3.3 | Insulation <br> resistance | DC 100V is applied between terminals and <br> between terminals and earth for 1minute <br> $\pm 5$ seconds. | * greater than $100 \mathrm{M} \Omega$. |
| 3.4 | Dielectric <br> strength | AC 250V (50 $\sim 60 \mathrm{~Hz})$ is applied between terminals <br> and between terminals and earth for 1 minute. | * No insulation defect |
| shall be observed. |  |  |  |



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4. MECHANICAL PERFOMANCE

|  | PROPERTY | TEST CONDITIONS | PERFORMANCE |
| :---: | :---: | :---: | :---: |
| 4.1 | Actuating force | A gradually increasing load is applied to the center of the button stem. | * As per individual manufactured drawing. |
| 4.2 | Return force | After actuating, the load is gradually decreased until the stem returns to its free position. | * 160gf, 260gf : <br> greater than 50 gf . <br> * 100gf, 130gf : greater than 30gf. |
| 4.3 | Stop strength | A static force of 3 Kgf shall be applied to the direction of operation for 3 seconds. | * Shall be free from mechanical and electrical abnormalities. |
| 4.4 | Stem <br> withdrawal force | A static load of 500 gf is applied to the direction of pulling for 3 seconds. | * Shall be free from mechanical and electrical degradation. |
| 4.5 | Travel |  | * As per individual manufactured drawing. |
| 4.6 | Arrangement of action |  | * Tactile feed-back. |

5. DURABILITY

|  | PROPERTY | TEST CONDITIONS | PERFORMANCE |
| :---: | :---: | :--- | :--- |
| 5.1 | Operating life | The test in conducted according to the below. <br> (1) DC12V 50mA resistive load <br> (2) Rate of operation : 120 cycle/min <br> (3) Actuating force : 150\% of actuating force <br> (4) Operating cycle: As per individual manufactured <br> drawing. | * Contact resistance : <br> $200 \mathrm{~m} \Omega$ max. |
| * Actuating force : max. |  |  |  |
| within $\pm 30 \%$ of the |  |  |  |
| initial value. |  |  |  |



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6. WEATHER PROOF

|  | PROPERTY | TEST CONDITIONS | PERFORMANCE |
| :---: | :---: | :---: | :---: |
| 6.1 | Cold heat proof | After testing at $-30^{\circ} \mathrm{C}$ for 96 hours. the sample is allowed to stand under normal temperature and humidity conditions for 1 hour and measurement is performed within 1hour after that. Water drops should be wiped off. | * The requirement in item 3 and 4 shall be satisfied. |
| 6.2 | Dry heat proof | After testing at $85^{\circ} \mathrm{C}$ for 96 hours. the sample is allowed to stand under normal temperature for 1 hour and measurement is performed within 1 hour after that. | * The requirement in item 3 and 4 shall be satisfied. |
| 6.3 | Damp heat proof | After testing at $60 \pm 2^{\circ} \mathrm{C}$ and $90 \sim 95 \%$ in relative humidity for 96 hours, the sample is allowed to stand under normal temperature and humidity conditions for 1 hour and measurement is performed within 1 hour after that. <br> Water drops should be wiped off. | * Insulation resistance 10M8 minimum. <br> * Dielectric strength : same as item 3.4. <br> * Contact resistance : same as item 3.2. |
| 6.4 | Thermal cycling | After the test conducted under 5 cycles the sample is allowed to stand under normal temperature and humidity conditions for 1 hour, and the measurement is performed within 1 hour. | * The requirement in item 3 and 4 shall be met. |



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7. REFLOW SOLDERING
7.1 Reflow soldering conditions
1) Preheat ------------- $150^{\circ} \mathrm{C} \sim 200^{\circ} \mathrm{C}, 120 \pm 20$ (sec)
2) Peak temperature $---260^{\circ} \mathrm{C}$ max. 10 (sec)
3) Soldering area temperature ------ $217^{\circ} \mathrm{C}, 90 \sim 120$ (sec)

8. Manual soldering
8.1 Soldering temperature ----------350 ${ }^{\circ} \mathrm{C} \pm 5^{\circ} \mathrm{C}$
8.2 Soldering time 5(sec)


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