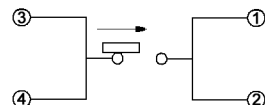


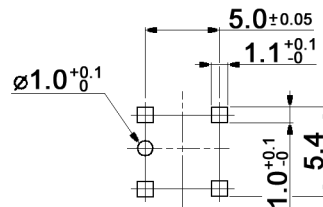
CIRCUIT DIAGRAM



Specifications:

Contact rating:	1 mA, 5 V DC
Contact resistance:	500 mOhm max.
Insulation resistance:	100 MOhm min. at 500 V DC for 1 minute +/- 5 sec.
Dielectric strength:	500 V AC (50/60 Hz, 2 mA) for 1 minute
Operating temperature:	-20°C to +70°C
Storage temperature:	-25°C to +70°C
Mechanical life:	100 000 cycles
Operating force:	0.25 N max.
Soldering conditions:	260 +/- 5°C, 5 +/- 1 sec.
Material:	Contact plate: BeCu, 0.5µm Ag over 0.5µm Ni Slider: POM, black Cover: PA66, black Case: PA46, black Terminal: brass, 0.5µm Ag over 1µm Ni

P.C.B. MOUNTING HOLE DIMENSIONS



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Testcondition for specification displayed on page one and below is:

Unless otherwise specified,the atmospheric conditions for making measurements and tests are as follows.

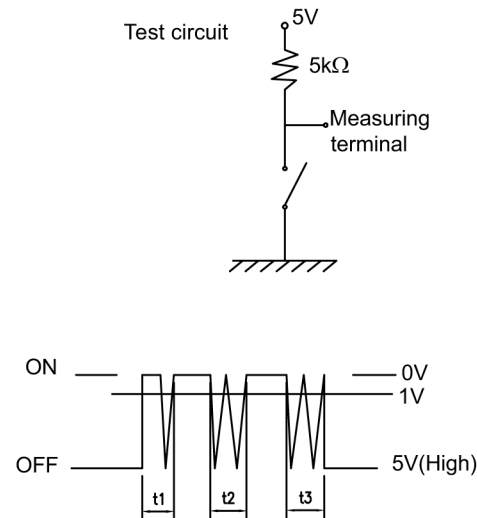
Ambient temperature :5~35°C
Relative humidtiy : 25~85%
Air pressure : 86~106kpa

Should any doubt arise in judgment , tests shall be conducted at the following conditions.

Ambient temperature :20±2°C
Relative humidity : 60 ~ 70%
Air pressure : 86~106kpa

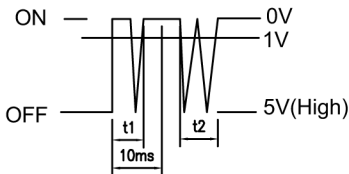
Contact chattering
and bouncing

Measured at the operation speed of 50 mm/1s , 5V DC 1mA
(Resistive load).

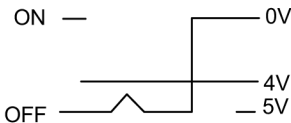


Resolution of measuring equipment shall be 200 μs.

t1,t2,and t3 shall be defined the voltage fluctuation time exceeding 1V.
Contact chattering t1,t3 10 m s max .
Contact bouncing t2 10 m s max.
When 250 μs interval less than 1V exists between each bouncings , the bouncings shall be measured individually.
At the point after 10ms from the point of "OFF→ON" or "ON →OFF",subsequent voltage fluctuation exceeding 1V shall be measured as t2.



Noise voltage at the range of OFF cade shall be 4V min.



Robustness of terminal

A static load of 3 N shall be applied to the tip of terminal in a desired direction for 30 s . The test shall be done once per terminal .

Shall be free from terminal looseness, damage and breakage of terminal holding portion. Terminals may be bent after test. Contact and isolation resistance and dielectric strength requirement shall be satisfied.

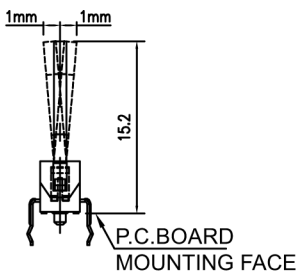
Robustness of actuator

A static load of 1 N shall be applied in the operating direction of actuator for 15s.
A static load of 1 N shall be applied in the perpendicular direction of operation at the tip of actuator for 15s.

Shall be free from pronounced wobble, deformation and mechanical abnormalities

Wobble of actuator

Run-out (p-p) shall be measured by applying a static load of 0.5 N in the perpendicular direction of operation at the tip of actuator.



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Tolerances: up to 4: ±0.2 mm above 4-16: ±0.3 mm			Date	Name	DT 220 C-P		
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Vibration	Switch shall be secured to a testing machine by a normal mounting device and method. Switch shall be measured after following test. (1) Vibration frequency range :10~55Hz (2) Total amplitude : 1.5 mm (3) Sweep ratio :10-55-10Hz Approx. 1min. (4) Method of changing the sweep vibration frequency :Logarhmic or linear. (5) Direction of vibration : Three perpendicular directions including actuator . (6) Duration :2 h each (6 h in total)	Contanct resistance 500 mΩ MAX Insulation resistance 100 MΩ MIN Voltage proof Apply 500 V AC for 1 min. No dielectric breakdown shall occur. Operating force Within specified value. Shall be free from mechanical abnormalities.									
Shock	Switch shall be measured after following test. (1) Mounting method :Normal mounting method. (2) Acceleration :490 m/s ² (3) Duration : 11ms (4) Test direction :6 direction (5) Number of shocks:3 times per direction (18 times in total)										
Solderability	Swich shall be checked after following test. (1) solder :H63A(JIS Z 3282) (2) Flux :Rosin flux (JIS K 5902) having a normal composition of 25% solids by mass of water white rosion in 2-propanol(JIS K 8839) solution. (3) Soldering temperature :240±5℃ immersing time :3±0.5s Flux immersing time shall be 5~10 s in normal room temperature. (4) Immersion depth : Immersion depth shall be at copper plating portion for P.C.B. terminal after mounting. Thickness of P.C.B. : 1.6mm Immersion depth shall be at wiring portion of lead wire for lead wire terminal.	More than 90% of immersed part shall be covered with solder.									
Resistance to soldering heat	Switch shall be measured after following test. (1) solder :H63A(JIS Z 3282) ,RH60(JIS Z 3283) (2) Flux :Rosin flux (JIS K 5902) having a normal composition of 25% solids by mass of water white rosion in 2-propanol(JIS K 8839) solution. (3) Temperature and immersing time: <table><tr><th></th><th>Temperature(℃)</th><th>Time(s)</th></tr><tr><td>Dip soldering</td><td>260±5</td><td>5±1</td></tr><tr><td>Manual soldering</td><td>350~400</td><td>3⁺¹₀</td></tr></table> (4) Immersion depth : Immersion depth shall be at copper plating portion for P.C.B. terminal after mounting. Thickness of P.C.B. : 1.6mm Immersion depth shall be at wiring portion of lead wire for lead wire terminal.		Temperature(℃)	Time(s)	Dip soldering	260±5	5±1	Manual soldering	350~400	3 ⁺¹ ₀	No abnormalities shall be observed in apearance and operation. Contact and isolation resistance and dielectric strength requirement shall be satisfied.
	Temperature(℃)	Time(s)									
Dip soldering	260±5	5±1									
Manual soldering	350~400	3 ⁺¹ ₀									

Compliance: RohS III (2015/863/EU)

Tolerances: up to 4: ±0.2 mm above 4-16: ±0.3 mm			Date	Name	DT 220 C-P	
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Cold	After testing at $-40\pm 2^{\circ}\text{C}$ for 96 h, the switch shall be allowed to stand under normal room temperature and humidity conditions for 1 h , and then measurement shall be made within 1 h. Water drops shall be removed.	Contanct resistance 500 m Ω MAX Insulation resistance 100 M Ω MIN Voltage proof Apply 500 V AC for 1 min. No dielectric breakdown shall occur. Operating force Within +10% of specified value. No abnormalities shall be recognized in appearance and construction.
Dry heat	After testing at $85\pm 2^{\circ}\text{C}$ for 96 h, the switch shall be allowed to stand under normal room temperature and humidity conditions for 1 h , and then measurement shall be made within 1 h.	
Damp heat	After testing at $40\pm 2^{\circ}\text{C}$ and 90~95% for 96 h, the switch shall be allowed to stand under normal room temperature and humidity conditions for 1 h , and then measurement shall be made within 1 h. Water drops shall be removed.	
Change of temperature	After 5 cycles of following condition , the switch shall be allowed to stand under normal room temperature and humidity conditions for 1 h and measurement shall be made within 1 h after that. Water drops shall be removed. <div style="text-align: center;"> <p>70$\pm 2^{\circ}\text{C}$ Normal room temperature -25$\pm 3^{\circ}\text{C}$</p> <p>30min 30min 2~3min 2~3min 1 cycle</p> </div>	
Damp heat with load (Resistance to silver migration)	DC voltage 1.5 times as much as rated voltage shall be applied continuously between adjacent terminals at $60\pm 2^{\circ}\text{C}$ and 90~95% RH. After 500 h testing, switch for 1h ,and measurement shall be made within 1h after that. water drops shall be removed.	Insulation resistance (500V DC): 100M Ω MIN Voltage proof : Apply 500V AC for 1 min. No dielectric breakdown shall occur.
Resistance to sulfuration	After following testing, the switch shall be allowed to stand under normal room temperature and humidity conditions for 1 h, and measurement shall be made after that. Temperature : $40 \pm 2^{\circ}\text{C}$ Humidity : 90 to 95% Density : 3 ± 1 ppm Duration : 168 h	
Manual shock contact resistance	Contact resistance shall be measured under the switch condition installed mounting device , and struck body with a pen . And contact resistance shall be measured under the switch condition shocked again after it moved 5 times . Contact chattering shall be measured on the above condition .	Contanct resistance 500 m Ω MAX Contact chattering 7 ms MAX

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