1 General

1.1 Application — This specification is applied to KW4A(S) Micro Switch used for electronic equipment.

1.2 Operating temperature range — -25℃ to +125℃

1.3 Test conditions — Unless otherwise specified. The atmospheric conditions for making measurements and tests are as follows

Ambient temperature: 15~35℃

Relative humidity: 45~85%

Air pressure: 86~106kPa (860~1060 mbar)

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

Ambient temperature: 20±2℃

Relative humidity: 60~70%

Air pressure: 86~106kPa (860~1060 mbar)

2 Appearance construction and dimensions

2.1 Appearance — Switch shall have good finishing, and no rust crack or plating failures.

2.2 Construction and dimensions — Refer to individual product drawing.

3 Ratings

5GPA 125/250VAC 1/4hp 250VAC 25T125,5E4,50-60Hz IP40； 4 A, 30 V dc 25T125,5E4, IP40（UL, CUL）；
5A250VAC 10E3 10T85（VDE SEMKO EK）；
5A250VAC 1E4 10T85 5(2)A250VAC 5E4 T125（CQC）
5（2）A 125/250VAC 25T125,5E4,50-60Hz IP40 4 A, 30 V dc 25T125,5E4, IP40 （DEMKO ENEC CB）；
5(2)A250VAC 5E4 T125 （CE TUV）

4 Electrical specifications

NO.	Items	Test conditions	Criteria
4.1	Contact resistance	Shall be measured at 1A,5V DC by voltage drop method after some operations without load. Applied position: Between terminal and terminal	50mΩ MAX
4.2	Insulation resistance	Test voltage:500VDC, measured after 1 min ±5s Applied position: 1)Between terminal and terminal 2)Between terminal and ground	100MΩ MIN
4.3	Voltage proof	Following test voltages shall be applied for 1 min. (Cut-off current:0.5mA) 1)Between terminal and terminal :1000VAC (50~60Hz) 2)Between terminal and ground: 1500V AC(50~60Hz)	No dielectric breakdown shall occur

5 Mechanical specifications

NO.	Item	Test conditions	Criteria
5.1 Operating character-istic	5.1.1 Operating force (OF)	The force which moves the actuating part from the free position to the actuating position and reverses the live contact from the actuating part	0.3N MAX
	5.1.2 Release force (RF)	The force which is required to reverse the live contact from the actuating part	0.08N MIN
	5.1.3 Pre Travel (PT)	The distance for the actuating part to travel from the free position to the actuating position	
	5.1.4Movement Differential (MD)	The costume for the actuating part to travel from the actuating position to the returning position	1.5mm MAX
	5.1.5 Over Travel (OT)	The distance for the actuating part to travel from the actuating position to the actuating limit position	1.6mm MIN
	5.1.6 Operating Position (OP)	After the force is place on the actuating part the live contact from the free position state to reversing position	9±1.5㎜
5.2	Actuator strength	It shall satisfy following condition when a thrust load of the specified to the operating direction vertically for 1 minutes	10N
5.3	Terminal strength	Insert and pull out	25N
5.4	Vibration	Switch shall be secured to a lasting machine by a normal mounting device and method switch shall be measured after following test. 1) Vibration frequency range: 10-55Hz 2)Total amplitude: 1.5mm 3)Sweep ratio: 10-55-10Hz Approx: 1min 4)Method of changing the sweep vibration frequency: Logarithmic or linear 5)Direction of vibration: Three perpendicular directions including actuator. 6)Duration: 2 h each (6 h in total)	Contact resistance(item 4.1): 100mΩ MAX Insulation resistance (item 4.2): 50MΩ MIN Voltage proof: (item 4.3) No dielectric breakdown shall occur. Operating characteristic (item 5.1): Operating characteristic variety Within ±10% of specified value . Shall be free from mechanical abnormalities.
5.5	Shock	Switch shall be measured after following test at the condition of releasing self-lock. 1) Mounting method: Normal mounting method 2) Acceleration: 30g 3) Duration: 11ms 4) Test direction: 6 directions 5) Number of shocks:3 times per direction (18times in total)	

6 Solder specifications

NO.	Item	Test conditions	Criteria
6.1	Solderability	Switch shall be checked after following test. 1) Soldering temperature: 235±5℃ 2) Immersing time : 3±0.5s	More than 90% of immersed part shall be covered with solder. If frame is made of tin-plate,cutting section shall not be applied.
6.2	Rsistance to solder heat	Switch shall be measured after following test. temperature and immersing time Temperature(℃) / Time(s) Dip soldering: 260±5 / 5±1 Manual soldering: 235±5 / 3±1	No abnormalities will be observed in appearance and operation.The electrical performance requirements specified in item 6 shall be satisfied.

7 Durability

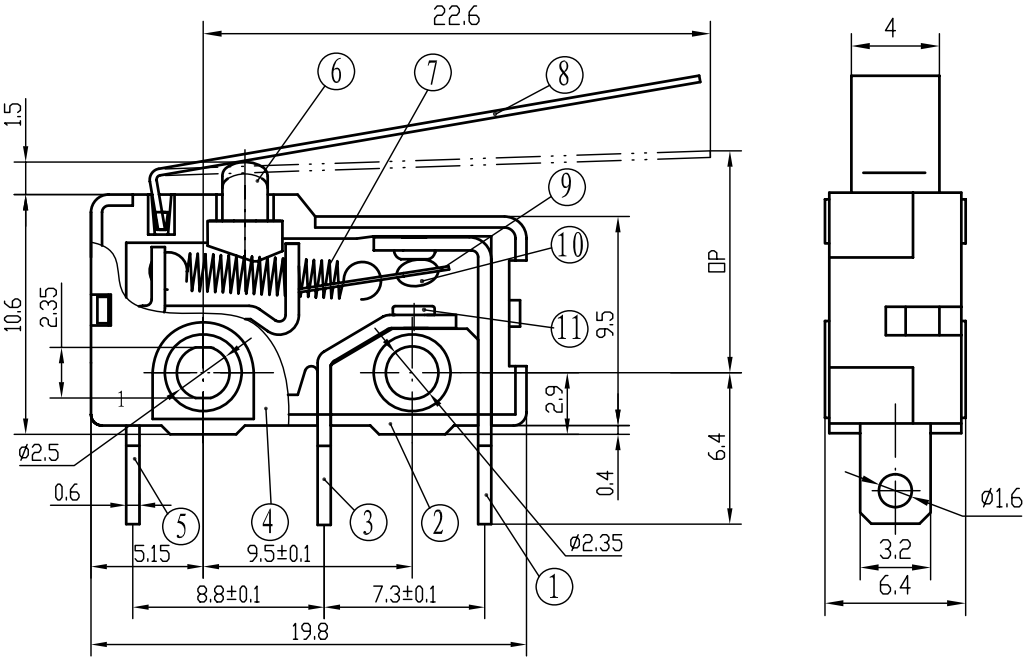
NO.	Item	Test conditions	Criteria
7.1	Cold	After testing at -25±2℃ for 96 h, the switch shall be allowed to stand under normal room temperature and humidity condition for 1h, and then measurement shall be made within 1 h. water drops shall be removed.	Contact resistance(item 4.1): 100mΩ MAX Insulation resistance (item 4.2): 50MΩ MIN Voltage proof: (item 4.3) No dielectric breakdown shall occur. Operating characteristic (item 5.1): Operating characteristic variety Within ±10% of specified value . No abnormalities shall be recognized in appearance and construction.
7.2	Dry heat	After testing at 125±2℃ for 96 h, the switch shall be allowed to stand under normal room temperature and humidity condition for 1h, and then measurement shall be made within 1 h.	
7.3	Damp heat	After testing at 40±2℃ and 90-95%RH for 96 h, the switch shall be allowed to stand under normal room temperature and humidity condition for 1h, and then measurement shall be made within 1 h. water drops shall be removed.	
7.4	Change of temperature	After 20 cycles of following conditions the switch shall be allowed to stand under normal room temperature and humidity condition for 1h, and then measurement shall be made within 1 h. water drops shall be removed.	
7.5	Salt mist	Switch shall be checked after following lest. 1) Temperature: 35±2℃ 2) Salt solution: 5±1% (solids by mass) 3) Duration: 24±1h After test, salt deposit shall be removed in running water	No remarkable corrosion shall be recognized in metal part

8 Durability

NO.	Item	Test condition	Criteria
8.1	Endurance (According to UL61058)	1/4hp 250VAC Switch shall be operated according to following sequence (Test1~Test2)	Insulation resistance(item 4.2): 50MΩ MIN Voltage proof: Terminal and ground:1000VAC No dielectric breakdown shall occur. Operating characteristic (item 5.1): Operating characteristic variety Within ±20% of specified value . 6000cycles,Temperature rise:30℃ MAX 50000cycles,Temperature rise:55℃ MAX No abnormalities shall be recognized in appearance and construction
8.2	Endurance (According to IEC 61058-1 /EN61058-1)	5（2）A 125/250VAC ； 4 A, 30 VDC Switch shall be operated 50,000 cycles at 15~20 cycles/min Voltage proof(Cut-off current:0.5mA) Test voltages shall be applied for 1 min.	Insulation resistance(item 4.2): 50MΩ MIN Voltage proof: Terminal and terminal:750VAC Terminal and ground:1125VAC No dielectric breakdown shall occur. Operating characteristic (item 5.1): Operating characteristic variety Within ±20% of specified value . Temperature rise:55℃ MAX No abnormalities shall be recognized in appearance and construction

	Voltage	Current	Power factor	Operation rate	Number of operation
Test1	250V	17.4A	0.4-0.5	6-10 cycles/min	50cycles
Test2	250V	2.9A	0.7-0.8	6-10 cycles/min	50000cycles

Voltage proof(Cut-off current:0.5mA)
Test voltages shall be applied for 1 min
5GPA 125/250VAC；4 A, 30 V dc
Switch shall be operated 50,000 cycles at 15~20 cycles/min
Voltage proof(Cut-off current:0.5mA)
Test voltages shall be applied for 1 min.



1. Specifications 技术特性表

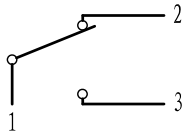
RATINGS额定值 TEMPERATURE 温度等级 ELECTRONICAL LIFE 电气寿命	5(2)A125/ 250V AC 5GPA 125/250VAC 1/4hp 250VAC 4A 30VDC 25T125 5B4 IP40 25T125 5E4 50-60Hz IP40
INSULATION STRENGTH 绝缘电阻	100MΩ MIN
TEST VOLTAGE 耐电压	AC1000V/1500V
CONTACT RESISTANCE 接触电阻	50mΩ MAX
OPERATING FORCE 动作力	0.3N MAX
OPERATING POSITION 动作位置OP	9±1.5mm

2. Parts List 零件材质表

No.	Name 名称	Material 材料
1	NC terminal 常闭端子	Brass alloy H65,Silver plated 黄铜,镀银
2	CASE 基座	Plastic PBT4308(黑色) 工程塑料
3	NO terminal 常开端子	Brass alloy H65,Silver plated 黄铜,镀银
4	COVER 盖	Plastic PBT4308(黑色) 工程塑料
5	TERMINAL 支架	Brass alloy H65,Silver plated 黄铜,镀银
6	Plunger 开关子	Plastic PPS-HGR41(棕色) 工程塑料
7	Pull spring 拉簧	SUS304H 不锈钢丝
8	Moving arm 动臂	Stainless steel SUS304 不锈钢
9	Moving piece 可动片	Tin-brass QSn6.5-0.1 锡青铜
10	Contact 电触点	AgNi10 银-镍
11	Contact 电触点	AgNi10 银-镍

3. Safety authentication 安全认证

SCHEMATIC DIAGRAM



					DESIGN	陈丹琼20121029	KW4A(S)-Z2F150
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EDITION		20121029					
PROJ					STANDARDIZATION		DONGNAN ELECTRONICS
					APPROVED BY	江小林20121029	