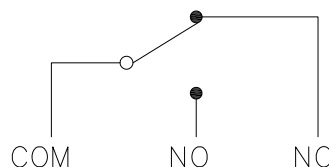
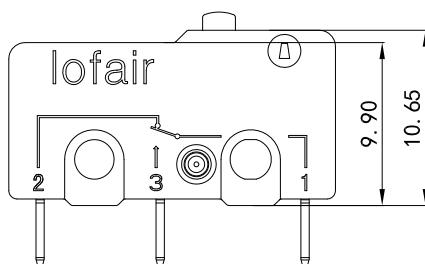
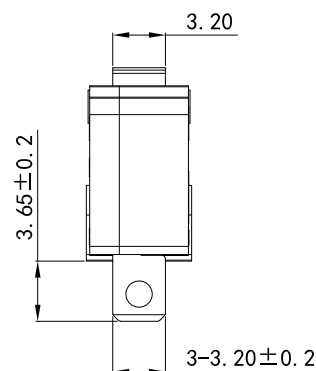
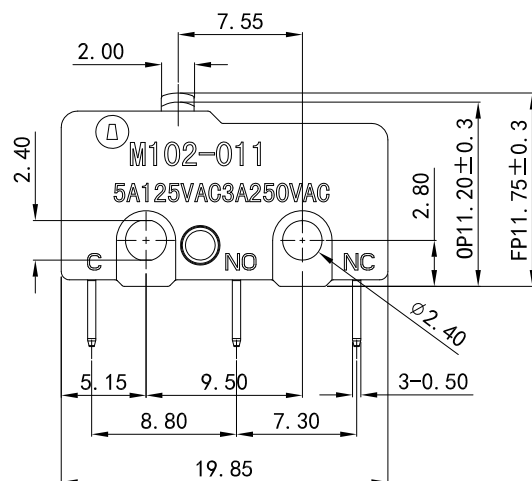
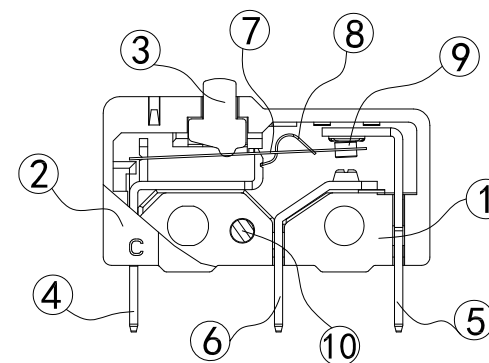
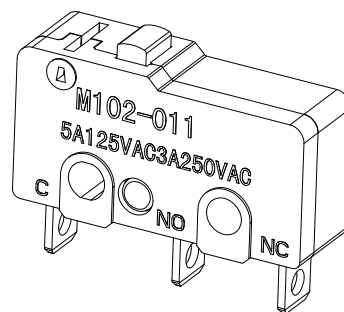
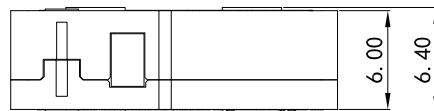


ABIDE BY WEEE & ROHS



SCHMATIC

Reliable Rating:

1. Rated Voltage/Current: DC12V 0.1A
2. Contact Resistance: $\leq 100\text{m}\Omega$
3. Insulation Resistance: $\geq 100\text{M}\Omega$ DC500V
4. Withstand Voltage: AC1000V 1 minute
5. Operating Force: $110 \pm 30\text{gf}$
6. Position Travel: $0.6 \pm 0.2\text{mm}$
7. Mechanical Life :1,000,000 cycles

⑩	Rivet	—	1	Aluminous	Natural	
⑨	Contact	—	1	Copper	Ag-Plated	
⑧	Reed	—	1	Beryllium bronze	Natural	
⑦	Movable Plate	—	1	Beryllium bronze	Natural	
⑥	NC Terminal	NC	1	Brass	Ag-Plated	
⑤	NO Terminal	NO	1	Brass	Ag-Plated	
④	COM Terminal	COM	1	Brass	Ag-Plated	
③	Keystoke	—	1	PBT	Black	
②	Cover	—	1	PBT	Black	
①	Base	—	1	PBT	Black	
ITEM	PART NAME	TER'NO.	QTY.	MATERIAL	FINISHING	REMARK

APPROVALS		DATE		 东莞市凯华电子有限公司 KAIHUA ELECTRONICS CO., LTD	
DRAWN	Xiao Yi jiang	2022.08.13			
CHECKED				TITLE:	MI1910 MICRO SWITCH
APPROVALS				PART NO:	MI191003W01
TOLERANCES ARE	30<L	±0.30	ANGLE UNIT: mm	SCALE: 1:1	PROJ: 
	10<L≤30	±0.20			
	5<L≤10	±0.15			
	L≤5	±0.10			
			±2°	DRAWING NO.	SHEET: 10F

ECN-1706-22	B	2017.06.24	Canceled character with note "ⓅB"	L. Zhang		
	A	2013.06.11	NEW	Xu Qi Feng		
ECN NO.	REV.	DATE.	DESCRIPTION.	CHANGE.	CHECK.	APPRO.

Product Specification



P/N: CM1191003W01			Title : Micro Switch		
Rev.	ECN	Release and Revision Description:	Prepared By /Date:	Checked By/Date:	Approved By/Date:
A	--	New releasing	XQF/2013/06/11	XQF 锋/2013/06/11	LPH/2016/06/13
B	--	Revise format	ZL/2016/07/21	ZL/2016/07/21	MZL/2016/07/21

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Product Specification

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1. Scope:

This Product Specification covers the requirement of Micro switch on product performance, test methods and quality assurance provisions.

2. Product Application:

The Switch is applied in the automobile, home appliances , electric tools, industrial control equipment, medical equipment and security equipment. Please let us know before using any of the products in the application not described above.

3. Technology Parameters:

Ambient Humidity: 45~85% R.H.;
Operating Temperature Range: -10°C ~ +70°C;
Storage Temperature Range: -20°C ~ +70°C;
Suggested storage period : about 6 months

Normal Condition:

Ambient temperature: $20 \pm 2^\circ\text{C}$

Relative humidity: $65\% \pm 5\%$ R.H.;

Air pressure : 86~101KPa;

Contact Resistance: 100 mΩ Max;

Operation Force: $110 \pm 30 \text{ gf}$;

Solder Ability : Tim-lead soldering : $245^{\circ}\text{C} \pm 5^{\circ}\text{C}$ $5\text{s} \pm 0.5\text{s}$;

Lead-free welding : $255^{\circ}\text{C} \pm 5^{\circ}\text{C}$ $5\text{s} \pm 0.5\text{s}$;

Withstand Soldering Temperature: Wave soldering: $260 \pm 5^{\circ}\text{C}$ $5 \pm 0.5\text{s}$;

4. Ratings:

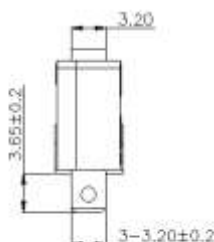
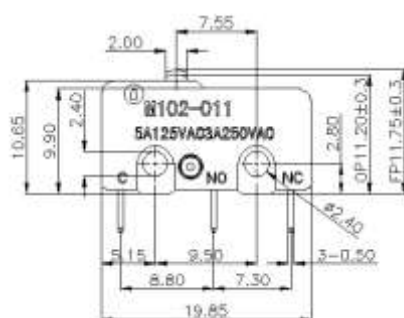
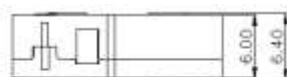
Rating: DC12V / 0.3A;

Insulation Resistance: $\geq 100\text{M}\Omega/\text{DC } 100\text{V};$

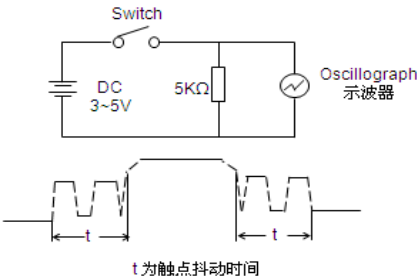
Withstand Voltage: 500V AC 1 Minute:

Mechanical Life: 1,000,000 Cycles.

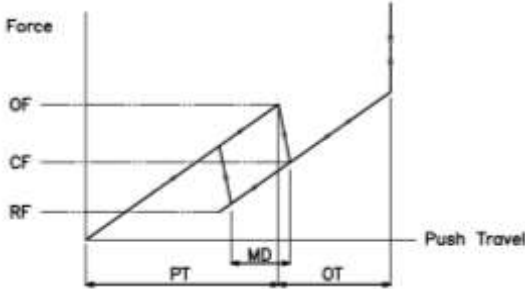
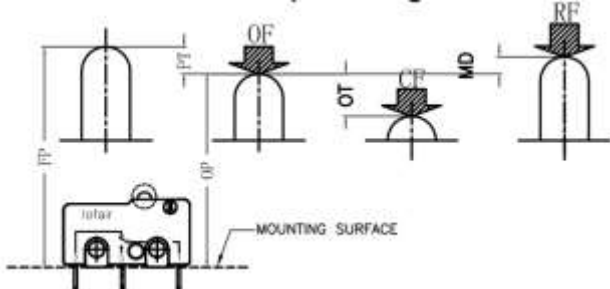
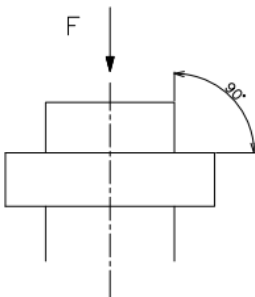
5. Profile Dimensions

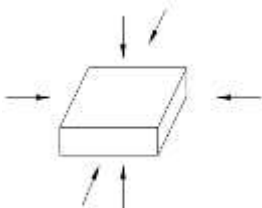


6. Electrical Performance:

Item	Description	Test Condition	Requirement
6.1	Contact Resistance	Static load: (Operation force)x2, which is applied on the center of Switch stem. Be measured when the switch contact stabilization. Measurement tool: Contact resistance Meter. (1KHz, 20mV, 5~50mA)	100mΩ Max
6.2	Insulation Resistance	Apply a Voltage of DC 500 V for 1 minute, according to the below method. (1) Between terminals. (2) Between terminal and Body.	100MΩ Min
6.3	Dielectric withstanding voltage	Apply a Voltage of AC 500 V (50~60Hz) for 1 minute, according to the below method. (1) Between terminals. (2) Between terminal and Body.	No evidence of breakdown.
6.4	Bouncing	Operation speed: 3~4 times/s Slightly push the center of stem by 3~4 times/s, to test the bounce at "ON" and "OFF" Oscillo scope Switch Bouncing Test Circuit 触点抖动用图: 	Before Life cycle: On: 5ms MAX Off: 5ms MAX After Life cycle: On: 10ms MAX Off: ms MAX

7. Mechanical Performance:

Item	Description	Test Condition	Requirement
7.1	Loading Curve	Place the vertical direction of switch operation and gradually increase the load applied to the center of the stem until it stop.  The graph shows Force on the y-axis and Push Travel on the x-axis. The curve starts at the origin, rises linearly to a peak labeled OF (Operating Force) at a travel distance of PT (Pre-travel). It then drops to a lower level labeled CF (Contact Force) at a travel distance of MD (Mechanical Delay). The curve then rises again to a point labeled RF (Release Force) at a total travel distance of OT (Over-travel).	See page 08
7.2	Loading Parameter	Place the vertical direction of switch operation and gradually increase the load applied to the center of the stem until it stop.  The diagrams show the physical components of the switch: the main body, the stem with force OF applied, the contact with force CF applied, the mechanical delay MD, and the release force RF. A separate diagram shows the switch mounted on a MOUNTING SURFACE with a 10mm dimension indicated.	See page 08
7.3	Static Strength	A static load of 1 Kgf shall be applied in the direction of button operation for a period of 60 seconds.  The diagram shows a cross-section of the switch with a downward force F applied to the stem. A 90° angle is indicated between the stem and the base.	No damage (Electrical and mechanical) Contact resistance 100mΩ Max
7.4	Stem Pull Strength	Break by a pull force applied opposite to the direction of stem operation	500gf Min

7.5	Shock	Measured by according to the below condition: (1) Acceleration: 80g accelerated speed (2) Cycles of test: 3 cycles each in 6 directions, for a total of 18 cycles. 	Shall meet No.6, 7.1, 7.2.
7.6	Life Test	(1) 1mA 5VDC Resistance load (2) Operation speed: 60 cycles/s (3) Actuation force: 250 gf (4) Cycles: 1,000,000 times Min	Contact resistance: 10 Ω max Bounce: 10ms max No 6.2 to 6.4 and 7.2 shall be satisfied

8. Environmental Performance:

Item	Description	Test Condition	Req ment
8.1	Cold test	(1) Temperature : $-20 \pm 2^{\circ}\text{C}$ (2) Duration of test: 96h (3) Take off a drop water (4) Standard conditions after test : 1h	Contact resistance: 200m Ω Max Shall meet : No. 6.2 to 6.4 No. 7.1 to 7.2
8.2	Heat test	(1) Temperature : $70 \pm 2^{\circ}\text{C}$ (2) Duration of test: 96h (3) Take off a drop water (4) Standard conditions after test : 1h	Contact resistance: 200m Ω Max Shall meet : No. 6.2 to 6.4 No. 7.1 to 7.2

8.3

Temperature
cycle

- (1) Test cycles: 5 cycles
- (2) Standard condition after test: 1h

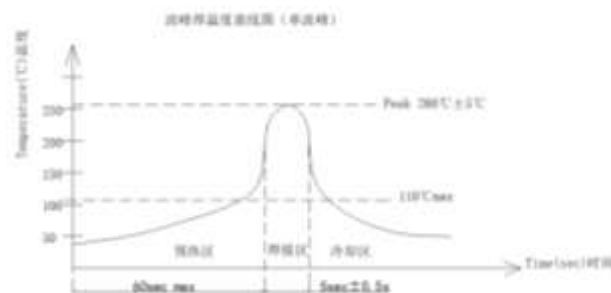
	Temperature	Duration
1 cycle	20±5℃	1h
	-20±5℃	1h
	20±5℃	h
	70±5℃	1h

Contact resistance:
200mΩ Max
Shall meet :
No. 6.2 to 6.4
No. 7.1 to 7.2

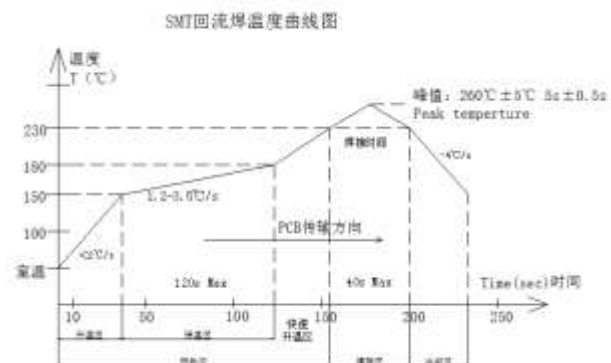
8.4

Soldering
heat test

Soldering area: T/2 of PWB thickness.
(PWB: T=1.6mm)
Soldering temperature: 260±5℃
Soldering time: 5±0.5s



Automatic Reflow soldering:
For the product of SMT, according to below
condition:
oldering temperature: 260±5℃
Soldering time: 5±0.5s



Appearance:
No abnormality.

Product Specification

P/N: CMI191003W01	DOC. No.: KH-PS1612-52	Rev.: B	Page: 8/10
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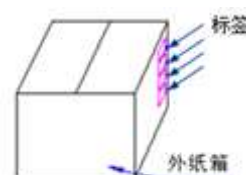
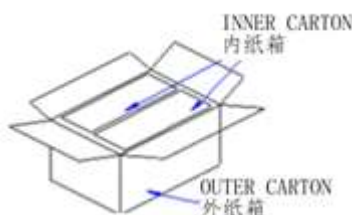
8.5	Solderability	1 Lead-tin soldering: Soldering temperature: $245 \pm 5^{\circ}\text{C}$ Soldering time: $5 \pm 0.5\text{s}$ Lead free soldering: Soldering temperature: $255 \pm 5^{\circ}\text{C}$ Soldering time: $5 \pm 0.5\text{s}$	At least 90% of surface area of immersed portion shall be covered by solder.
8.6	Humidity test	(1) Temperature : $60 \pm 2^{\circ}\text{C}$ (2) relative humidity: 90~95% R.H. (3) Duration of test: 96h (4) Take off a drop water (5) Standard conditions after test: 1h	Contact resistance: $200\text{m}\Omega$ Max Shall meet : No. 6.2 to 6.4 No. 7.1 to 7.2
8.7	Salt Spray	Apply the following environment to test(Only for contact test) : (1) Temperature : $35 \pm 5^{\circ}\text{C}$ (2) Salt water density: $5 \pm 1\%$ (3) Duration: 24hours (4) After test, the salt deposit shall be removed by running water.	Appearance: No corrosion spot, no crack, no base plate naked. Contact Resistance: $200\text{m}\Omega$ Max
8.8	Withstand K_2S	Apply the following environment to test: (1) Temperature: $35 \pm 5^{\circ}\text{C}$ (2) K_2S Density: 2%; (3) Duration: 2 minute.	Appearance: No corrosion spot, no crack, no base plate naked. Contact Resistance: $200\text{m}\Omega$ Max

9. Loading Parameter (FP/OP/PT/OF/OT/MD/RF) Specification :

Parameter	Unit	Specification	Remark
FP	mm	11.75 ± 0.3	
OP	mm	11.20 ± 0.3	
OF	gf	110 ± 30	

10. Packaging :

Packing Style	Quantity	Notes
Forming Box	100PCS.	
Inner Carton	1500PCS.	Forming Box: 15PCS
Outer Carton	6000PCS.	Inner Carton: 4PCS



11. Precaution

11.1 Immersion Soldering condition

ITEM	CONDITION
Preheat temperature	110℃ Max (Ambient temperature of soldering surface of P.W.B)
Preheat time	60s, Max
Area of flux	1/2 Max of PWB Thickness
Temperature of solder	$260 \pm 5^\circ\text{C}$ $260 \pm 5^\circ\text{C}$
Time of immersion	$5 \pm 0.5\text{s}$ $5 \pm 0.5\text{s}$
Number of soldering	2time Max (But should down heat of the first soldering)
Printed wiring board	Single side copper-clad laminates

- (1) After switches were soldered, please be careful not to clean switches with solvent
- (2) Under the condition of using soldering iron, soldering temperature shall be $350^\circ\text{C} \pm 5^\circ\text{C}$ with $3 \pm 0.5\text{s}$.

11.2 Notes

- (1) Please be cautious not to give excessive static load or shock to switches.
- (2) Please be careful not to stack up P. W. B. after switches were soldered.
- (3) Preservation under high temperature and high humidity or corrosive gas should be avoided
Especially. When you need to preserve for a long period, do not open the carton.
- (4) The standard storage period is 3 months, with maximum up to 6months, preferably to be used as soon as possible. After opening the package, you should put the remaining switches in a plastic bag to prevent from damp and corrosive gas.
- (5) This Product Specification is considered as the technical agreement on product between the receiving customer and Kailh. Any information on Product Catalogue which is in conflict with or different from the corresponding information of this document is considered as invalid.
- (6) It will be considered that customer already confirmed and accepted this specification if customer issue purchase order to us directly.
- (7) If there is no order or no request for new specification after 1 year upon this specification is issued, the specification will be regarded as invalid.
- (8) Products meet the ROHS & REACH environmental management substances control standards