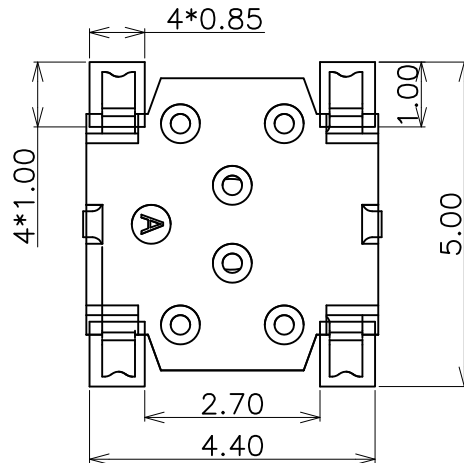
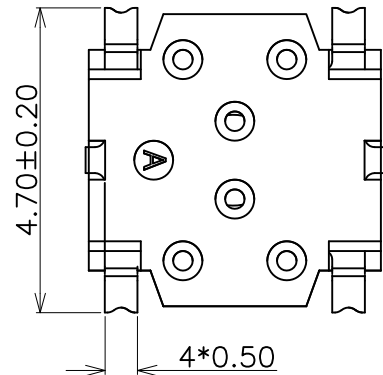
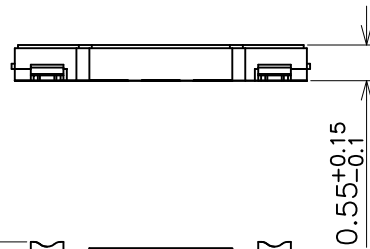
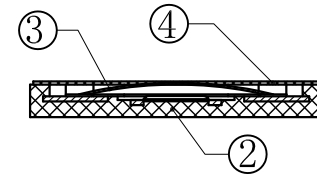
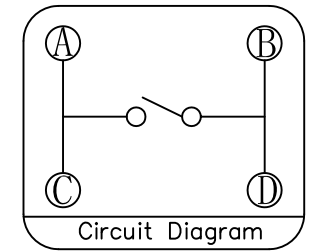
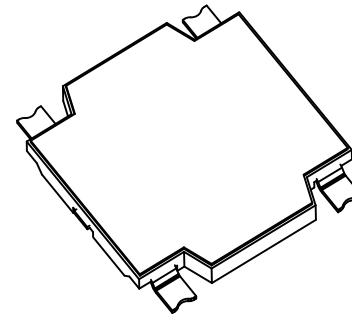
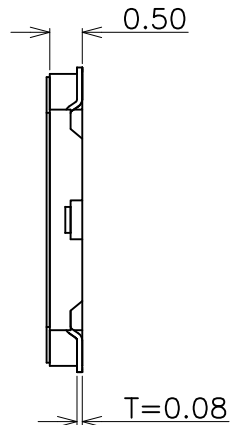
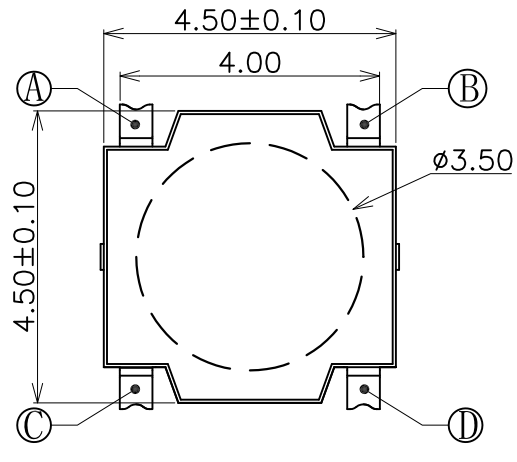


ABIDE BY WEEE & ROHS



Recommended PCB Layout
(Pattern Side) Tolerance: ±0.05mm

Specification :

- 1. Rated voltage: DC. 15V 20mA and DC. 2V 10uA
- 2. Contact Resistance: 100mΩ (Max)
- 3. Insulation resistance: 50MΩ (Min) DC100V
- 4. Dielectric strength: AC100V (50-60Hz) for 1 minute
- 5. Operation force: 160±30gf
- 6. Travel closure: 0.20±0.10mm
- 7. Life Test : 300,000 Cycles (min)

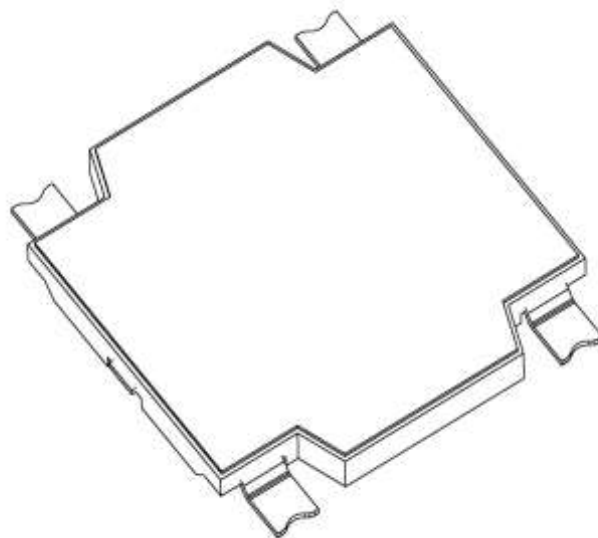
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③	Shrapnel	————		Stainless Steel	Plating Silver	————
②	Base	————		PPS	Black	————
①	Terminal D	————	1	Phosphor bronze(0.08t)	Plating Silver	————
	Terminal C	————	1	Phosphor bronze(0.08t)	Plating Silver	————
	Terminal B	————	1	Phosphor bronze(0.08t)	Plating Silver	————
	Terminal A	————	1	Phosphor bronze(0.08t)	Plating Silver	————

ITEM	PART NAME	TER'NO.	QTY.	MATERIAL	FINISHING	REMARK
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APPROVALS		DATE		 东莞市凯华电子有限公司 KAIHUA ELECTRONICS CO., LTD	
DRAWN	Ma Yan Hua	2023. Aug. 10			
CHECKED				TITLE:	TA4555-1 Membrane Switch
APPROVALS				PART NO:	TA455501S01
TOLERANCES ARE	30 < L	±0.30	ANGLE UNIT: mm	SCALE: 1:1	PROJ: 
	10 < L	±0.20			
	5 < L	±0.15			
	1 < L	±0.10			
		±2°	DRAWING NO.	KHA-TA4555-001EN	SHEET: 10F1

ECN NO.	REV.	DATE.	DESCRIPTION.	CHANGE.	CHECK.	APPRO.
	A		NEW			

Product Specification



P/N: _____

CTA455501S01

Title :

Tact Switch

Rev.	ECN	Release and Revision Description:	Prepared By /Date:	Checked By/Date:	Approved By/Date:
A	— —	New releasing	WZF 2024/10/29	XYJ 2024/10/29	CC 2024/10/29

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1. Scope:

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

2. Product Application:

The Switch is applied in all types of electrical appliances. Please let us know before using any of the products in the application not described abovev.

3. Technology Parameters:

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

Normal Condition:

Ambient temperature:	20±5
Relative humidity:	65%±5% R.H.;
Air pressure :	86~101KPa;
Contact Resistance:	100 mΩ Max;
Operation Force:	160±30gf
Solder Ability :	Tim-lead soldering : 245℃±5℃ 5s±0.5s;
	Lead-free welding : 255℃±5℃ 5s±0.5s;
Withstand Soldering Temperature:	260±5℃ 5±0.5s;

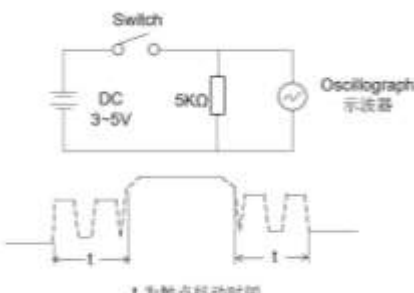
4. Rated Performance Requirements:

Rating:	DC12V / 50mA
Insulation Resistance:	≥100MΩ/DC 250V;
Withstand Voltage:	250V AC 1 Minute;
Mechanical Life:	300,000 Cycles.

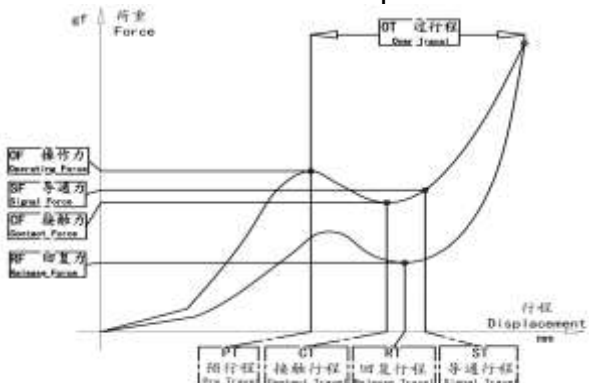
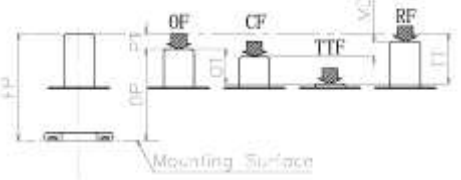
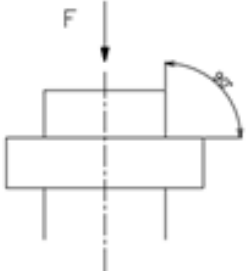
5. Profile Dimensions :

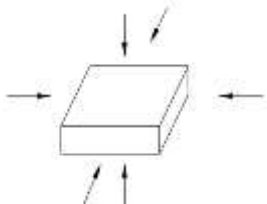
See the product drawing

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) Measured at low current (100mA or less).	100mΩ Max
6.2	Insulation Resistance	Apply a Voltage of DC 250 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 AC250 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 Oscilloscope Switch Bouncing Test Circuit.  t 为触点抖动时间	Before Life cycle: On: 5ms MAX Off: 5ms MAX After Life cycle: On: 10ms MAX Off: 10ms MAX

7. Mechanical Performance:

It	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 (gF) on the y-axis and Displacement (mm) on the x-axis. The curve starts at the origin, rises to a peak labeled 'CF 保持力' (Operation Force), then drops to a lower peak labeled 'GF 导通力' (Signal Force), then drops to a minimum labeled 'GF 接触力' (Contact Force), then rises to a peak labeled 'RF 回弹力' (Release Force), and finally drops to zero. The x-axis is divided into five regions: PT (预行程), CT (接触行程), MT (回弹行程), ST (导通行程), and DT (总行程). The y-axis is labeled 'gF 荷重' and 'Force'.	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 diagram shows a cross-section of the switch mechanism with various force points labeled: OF (Operation Force), CF (Contact Force), MT (Release Force), ST (Signal Force), and RF (Release Force). The mounting surface is indicated at the bottom.	See page 08
7.3	Static Strength	A static load of 3kgf shall be applied in the direction of button operation for a period of 60 seconds.  The diagram shows a cross-section of the switch mechanism with a downward force 'F' applied to the button.	No damage (Electrical and mechanical)

7.4	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
7.5	Life Test	(1) 1 Applying Force: $250 \pm 50\text{gf}$ (2) Operation speed: 2~3cycles/s (3) Cycles: 300,000 times Min	Contact resistance: $10\ \Omega$ Max Operation force: Variation rate within $\pm 30\%$

8. Environmental Performance:

Item	Description	Test Condition	Requirement
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 : 1	Contact resistance: $200\text{m}\ \Omega$ 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: $200\text{m}\ \Omega$ 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 of test
1 cycle	20±5℃	1h
	-20±5℃	1h
	20±5℃	h
	70±5℃	1

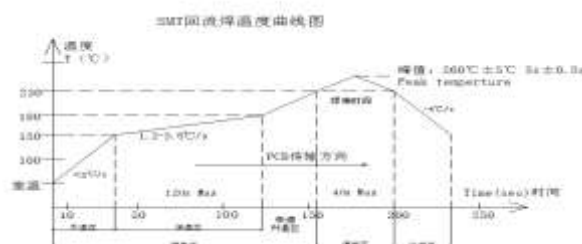
Contact resistance:
200mΩ Max
Shall meet :
No. 6.2 to 6.4
No. 7.1 to 7.2

8.4

Soldering heat test

Soldering area: 1/2 of PWB thickness.
(PWB: T=1.6mm)

Soldering temperature: 260±5℃
Soldering time: 5±0.5s



Appearance:
No abnormality.

8.5

Solder ability

Lead-tin soldering:
Soldering temperature: 245±5℃
Soldering time: 5±0.5s

Lead free soldering:
Soldering temperature: 255±5℃
Soldering time: 5±0.5s

At least 90% of surface area of immersed portion shall be covered by solder.

8.6

Humidity test

- (1) Temperature : 60±2℃
(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:
200mΩ 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 : (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. Recommended PCB Layout

(Top View)

(Single face board T=1.6mm)

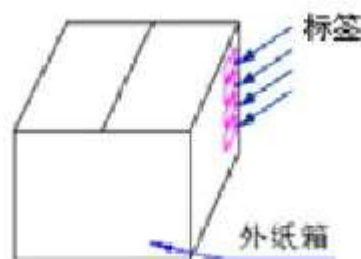
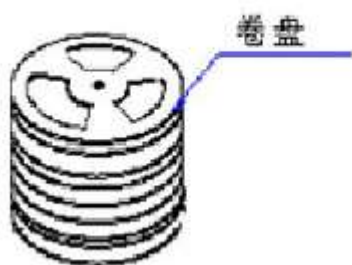


10. Loading Parameter (FP /OP/PT/OF) Specification

Parameter	Unit	Specification	Remark
FP	mm	$0.55^{+0.15}_{-0.1}$	
PT	mm	0.20 ± 0.10	
OF	gf	160 ± 30	
CR	%	30-65	$\text{CR} = (\text{OF} - \text{CF}) / \text{OF} * 100\%$

11. Packaging

Packing Style	Quantity	Notes
Tape & Reel	5000PCS.	5000Pcs/Reel,
Inner Carton	50000PCS.	Reel:10 PCS



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±5℃ 260±5℃
Time of immersion	5±0.5s 5±0.5s
Number of soldering	2times 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℃±5℃ with 3±0.5s.

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