

# SPECIFICATION FOR APPROVAL

## PRODUCT APPROVAL SHEET

PRODUCT NAME : Tactile Switch

PART NO : 12x12mm Four-pin Surface-Mount Device

PART NO : \_\_\_\_\_

DESIGNED BY	CHECK BY	APPROVED BY	
WU Yongyu	WU Yongyou	ZHANG Peng	
DATE 20201117	DATE 20201117	DATE 20201117	

APPROVAL SIGNATURE

CUSTOMER NAME: \_\_\_\_\_

CUSTOMER TYPE: \_\_\_\_\_

CUSTOMER NO: \_\_\_\_\_

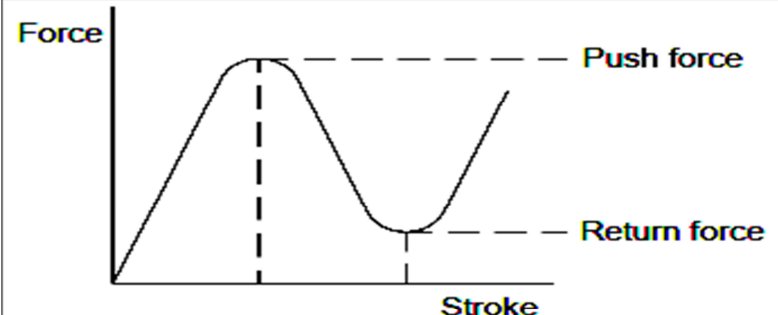
PLEASE ACKNOWLEDGE AND RETURN BY \_\_\_\_\_ DATE: \_\_\_\_\_

PLEASE RETURN TO US AFTER CONFIRMED! THANK YOU!



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Shenzhen Kinghelm Electronics Co., Ltd.		Product Line	Tact Switch
TACT SWITCH SPECIFICATION			
<p>1、GENERAL</p> <p>1.1 Application</p> <p>This specification is applied to the requirements for TACTILE SWITCH (MECHANICAL CONTACT)</p> <p>1.2 Operating Temperature Range</p> <p>-20 ~ 70 (Normal humidity,normal air pressure)</p> <p>1.3 Storage Temperature Range</p> <p>-40 ~ 85 (Normal humidity,normal air pressure)</p> <p>1.4 Test Conditions</p> <p>Unless otherwise specified,tests and measurement shall be made in the following standard conditions:</p> <p>Normal temperature.....5 ~ 35</p> <p>Normal humidity.....relative humidity 45% ~ 85%</p> <p>Normal air pressure.....86KPa ~ 106KPa</p> <p>If any doubt arise from the judgment, tests shall be conducted at the following conditions :</p> <p>Temperature.....20 ±2</p> <p>Relative humidity.....65%±5%</p> <p>Air pressure.....86KPa ~ 106KPa</p> <p>2、DETAILED SPECIFICATION</p> <p>2.1 Appearance:There should be no defects that affect the serviceability of product.</p> <p>2.2 Style and dimension:shall conform to the assemble drawings.</p>			
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TACT SWITCH SPECIFICATION				
2.3 Type of actuating:Tactile feedback. 2.4 Contact arrangement:1 pole,1 throw(Details of contact arrangement are given in the assembly drawings.) 2.5 Ratings:DC12V 50mA				
TEST ITEM				
3、 ELECTRINICAL PERORMANCE				
3-1 CONTACT RESISTANCE Being tested at 1kHz small current and voltage (50mA, 20mA) by contact resistance meter. 100M max.				
3-2 INSULATION RESISTANCE DC 250v shall be applied for test between terminals and between terminals and frame for one minutes. 100M min.				
3-3 WITHSTAND VOLTAGE AC 250v and induction current 1mA shall be applied for test between terminals and between terminals and frame for one minute. There shall be no breakdown.				
4、 MECHANICAL PERFORMANCE				
4-1 OPERATING FORCE  160±30gf 260±30gf		 <p>Force</p> <p>Stroke</p> <p>Push force</p> <p>Return force</p> <p>Push by recommended operating conditions</p>		
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<p><b>4-2 TRIP</b></p> <p>The force exerted 2 times the constant force on the switch and the moving distance at the switch stop.</p> <p>0.40±0.1mm</p>			
<p><b>4-3 HAND VALUE</b></p> <p>Percentage of switching pressures by the difference of switching pressures minus resilience.</p> <p>Hand Value:30% ~ 70%</p>			
<p><b>4-4 TERMINAL STRENGTH</b></p> <p>A static force of 300g being applied in one direction on the tip of the terminal for 1 minute.</p> <p>There shall be of mechanical and electrical damage.</p>			
<p><b>4-5 KNOB STRENGTH</b></p> <p>Place the switch vertically to the operation direction, test the maximum pulling force that knob can withstand 3KG.</p> <p>There shall be of mechanical and electrical damage.</p>			
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## TACT SWITCH SPECIFICATION

## 5、DURABILITY

## 5-1 SOLDERING TEST

The tip of the terminal shall be dipped 0.5mm in the solder bath within temperature of  $260\pm 5$  for 3s.

Over 95% of the immersed surface was covered by tin.

## 5-2 SOLDERING RESISTANT TEST

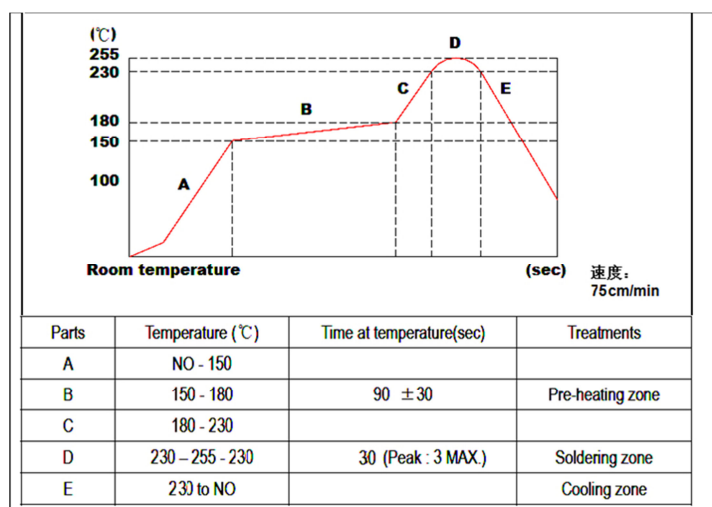
Soldering temperature  $260\pm 5$  ,soldering time  $3\pm 0.5$ s,immersion depth up to the surface of the board,thickness of PCB 1.6mm.

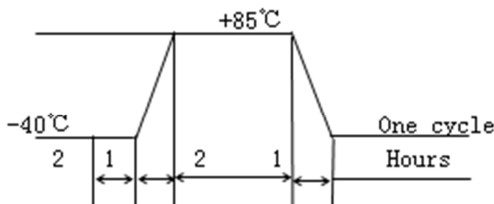
Manual soldering temperature  $350\pm 5$  , soldering time  $3\pm 0.5$ s,however excessive pressure shall not be applied to the terminal.

Without deformation of case or excessive looseness of electrical properties.

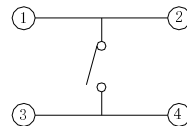
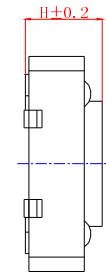
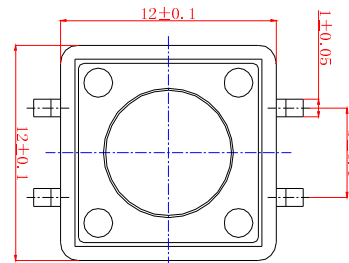
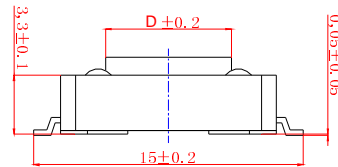
## 5-3 REFLOW SOLDERING HEAR TEST

Without deformation of case or excessive looseness of electrical properties.

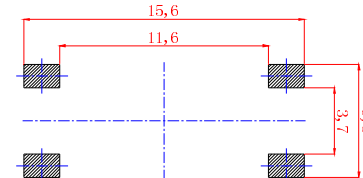


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<div>5-4 LIFE TEST</div> <div>100,000 cycles of operation at a rate of 100-120 cycles per minute with unloading.</div> <div>(1)Contact resistance 200M .</div> <div>(2)Operating force 30%initial value.</div> <div>(3)ITEM---1.2</div> <div>(4)ITEM---1.3</div> <div>(5)ITEM---2.2</div>				
<div>5-5 SAIL SPRA</div> <div>1)Temperature: 35±2</div> <div>2)Cycle: 4 Hours testing(1Times) and 1 Hours stop. Based on total 4 hours.</div> <div>3)Salt solution concentration: 5±1% by weight.</div> <div>(1)Contact resistance 200M .</div> <div>(2)Insulation resistance 100M min.</div> <div>(3)There shall be no sign of mechanical and electrical damage.</div>				
<div>5-6 HEAT RESISTAN TEST</div> <div>80±2 for 96H,test after keeping in normal condition for 30 min.</div> <div>5-7 MOISTURE RESISTANT TEST</div> <div>At 60±2 90 ~ 95% RH for 96H,test after keeping in normal condition for 30 min.</div> <div>5-8 COLD RESISTANT TEST</div> <div>At -40±2 for 96H,test after keeping in normal condition for 30 min.</div> <div>5-9 TEMPERATURE CYCLIG TEST</div> <div>According to following figure,after 5 cycles,test after keeping in normal condition for 1H.</div>	<div></div> <div>(1)Contact resistance 200M .</div> <div>(2)Insulation resistance 100M min.</div> <div>(3)There shall be no sign of mechanical and electrical damage.</div>			
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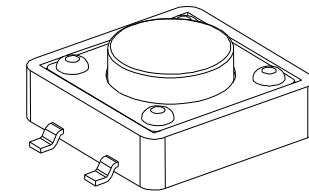
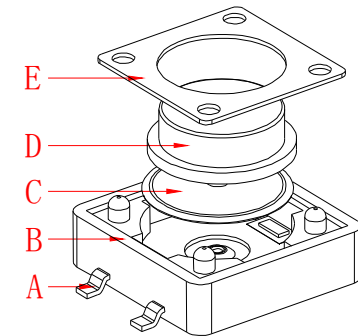
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Circuit Diagram



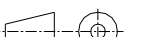
PCB Solder Diagram



D	H
4.3	
5.0	
5.5	
6.0	
6.5	
7.0	
7.5	
8.0	
8.5	
9.0	
9.5	
10.0	
10.5	
11.0	
11.5	
12.0	
12.5	
13.0	
13.5	
14.0	
14.5	
15.0	
15.5	
16.0	
17.0	
18.0	
19.0	

Technical Specifications:  
1. Rated Current: 50mA 12V DC  
2. Contact Resistance: 100 milliohms  
3. Stroke:  $0.4 \pm 0.1$  mm  
4. Resistance: 100 megohms  
5. Withstand Voltage: 250V 50Hz 1Min

Press Force	160 ± 30gf	260 ± 50gf
Lifespan	100,000 cycles	100,000 cycles

E											First Angle Projection	Scale	Specification /Part No	12*12 Four-pad Surface-mount Technology (SMT) Piece	E	
																
	E	Cover	Iron	1	Tin-plated Copper						General Tolerance		1:1			
											>0.5-2	±0.1				
	D	Button	PPA Black	1	Cleaning							>2-5	±0.2	Unit		Material Number /Part No
C	Spring	Stainless Steel	1		Label	Revision Number	Change Document Number	Signature	Date		Greater than 5	±0.3	mm			
											Angle	±1°				
F	B	Base	PPA Black	1	Cleaning	Designed		Checked		Approved		Shenzhen Kinghelm Electronics Co., Ltd.		www.kinghelm.net		F
	A	Contact	Brass	1	Sliver plating	WU Yongyu		ZHANG Peng		HE Chunlin		KH-12X12X6H-SMT-D				
	NO.	Name	Material	Quantity	Remarks											