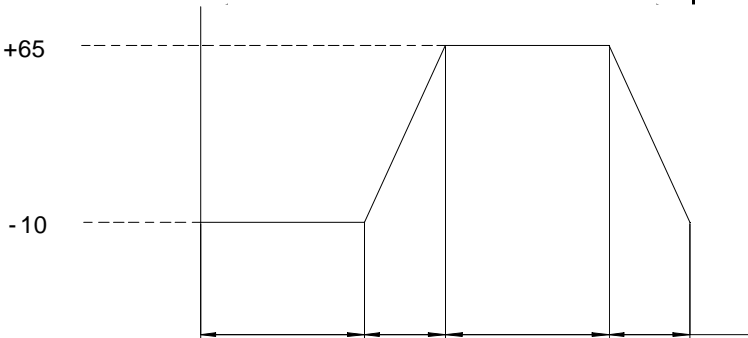


	SPECIFICATIONS										
	TACT SWITCH								PAGE		
1/4											
1. General											
1.1 Application : This specification is applied to low current circuit tactile switch for electronic equipment.											
1.2 Operating temperature range : -20℃ ~ 70℃ , 45 ~ 85% RH											
1.3 Storage temperature range : -30℃ ~ 80℃ . However, 96 hours maximum for continuous storage over a range -20 ~ -30℃ and a range 70 ~ 80℃ .											
1.4 Test conditions : The standard test conditions shall be 5 ~ 35℃ in temperature.											
45 ~ 85% RH and 860 ~ 1060 mbar in atmospheric pressure.											
Should any doubt arise in judgement, tests shall be conducted at 20±2℃, 60±5% RH											
And 860 ~ 1060mba.											
2. RATED VOLTAGE AND CURRENT.											
DC 12V 50mA											
3. ELECTRICAL PERFORMANCE											
	PROPERTY		TEST CONDITIONS						PERFORMANCE		
3.1	Contact arrangement								* 1 pole, 1 throw.		
3.2	Contact resistance		Measured DC 5V 1A or by ohmeter allowing a small current at 1kHz with a load of twice of the Actuating force.						* less than 100mΩ.		
3.3	Insulation resistance		DC 100V is applied between terminals and between terminals and cover for 1 minute ± 5 seconds .						*greater than 100MΩ.		
3.4	Dielectric Strength		AC 250V ( 50 ~ 60Hz ) is applied between terminals and between terminals and cover for 1 minute.						* No insulation defect shall be observed.		
3.5	Bounce		Measured by lightly striking the center of the button stem at the rate of 3 operations / sec"						* less than 10m sec.		
						APPD	CHKD	DSGN	TITLE		
					DOCUMENT NO.						
ZONE	SYME	DATE	APPD	CHKD	DSGD						

	SPECIFICATIONS										
	TACT SWITCH								PAGE 2/4		
4. MECHANICAL PERFORMANCE											
	PROPERTY		TEST CONDITIONS						PERFORMANCE		
4.1	Actuating force		A gradually increasing load is applied to the center of the button stem.						* As per individual manufactured drawing.		
4.2	Return force		After actuating, the load is gradually decreased until the stem returns to its free position.						* 160gf, 260gf : greater than 50gf. * 100gf, 130gf : greater than 30gf.		
4.3	Stop strength		A static load of 3kgf shall be applied to the direction of operation for 3 seconds.						*Shall be free from mechanical and electrical abnormalities.		
4.4	Stem withdrawal force		A static load of 500gf is applied to the direction of pulling for 3 seconds.						*Shall be free from mechanical and electrical degradation.		
4.5	Travel								*0.25 +0.2mm *0.25 -0.1mm		
4.6	Arrangement of action								* Tactile feed-back		
5. DURABILITY											
	PROPERTY		TEST CONDITIONS						PERFORMANCE		
5.1	Operating life		100,000cycles operation with a load of 150% of Actuating force at a rate of 2 cycles/sec. With a resistive load supplying DC 12V 50mA.						* Contact resistance : 200m max. *Bounce : 20msec max.  *Actuating force : within ±30% of the initial value.		
5.2	Shock resistance		An impact load of 30g is applied according to the method 205 , MIL - STD 202.						* The requirment in item 3 and 4 shall be met.		
5.3	Vibration resistance		The test is conducted according to the method 201, MIL - STD 202.						*The requirment in item 3 and 4 shall be satisfied without any degradation in both apperance and actuation.		
							APPD	CHKD	DSGN	TITLE	
										DOCUMENT NO.	
ZONE	SYME	DATE	APPD	CHKD	DSGN						

	SPECIFICATIONS				
	TACT SWITCH			PAGE	3/4

6. WEATHER PROOF			
	PROPERTY	TEST CONDITIONS	PERFORMANCE
6.1	Cold heat proof	After testing at -30 for 96hours, the sample is allowed to stand under normal temperature and humidity conditions for 1hour and measurement is performed within 1hour after that. Water drops should be wiped off.	* The requirement in item 3 and 4 shall be satisfied.
6.2	Dry heat proof	After testing at 85 for 96hours, the sample is allowed to stand under normal temperature for 1hour and measurement is performed within 1hour after that.	
6.3	Damp heat proof	After testing at 60±2 and 90 ~ 95% in relative humidity for 96hours, the sample is allowed to stand under normal temperature and humidity conditions for 1hour, and measurement is performed within 1hour after that. Water drops should be wiped off.	* Insulation resistance : 10m minimum. *Dielectric strength : same as item 3.4. *Contact resistance : same as item 3.2.
6.4	Termal cycle	<div>1 cycle</div>  <p>; After the test conducted under 5 cycles the sample is allowed to stand under normal temperature and humidity conditions for 1hour, and the measurement is performed within 1hour.</p>	*The requirement in item 3 and 4 shall be met.

				APPD	CHKD
					DSGN
				TITLE	
				DOCUMENT NO.	
ZONE	SYME	DATE	APPD	CHKD	DSGD

# SPECIFICATIONS

## TACT SWITCH

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### 7. SOLDERING CONDITIONS

#### 7.1 Manual soldering

7.1.1 Soldering temperature : less than 400 .

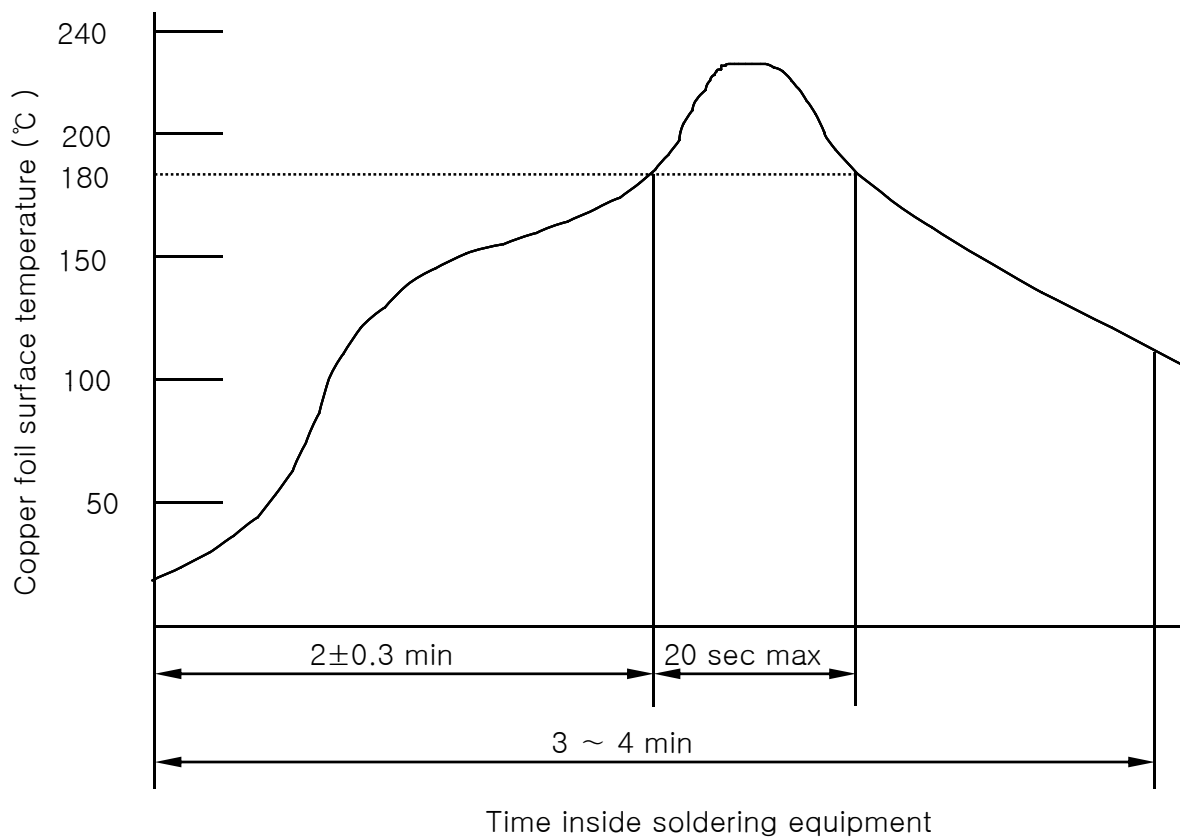
7.1.2 Soldering Time : Within 4 seconds.

### 8. AUTOMATIC SOLDERING CONDITIONS

#### Reflow soldering conditions

Preheat : temperature on the copper foil surface should reach 180 ,  $2\pm0.3$  minutes after the P.W.P entered into the soldering equipment.

Soldering heat : Temperature on ther copper foil surface should reach the peak temperature of 240 within 20 seconds after the P.W.B entered into soldering heat zone.



Temperature Profile

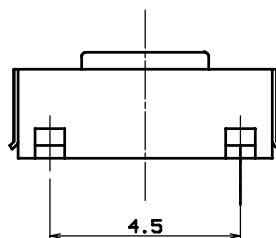
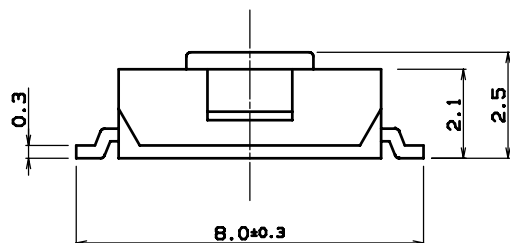
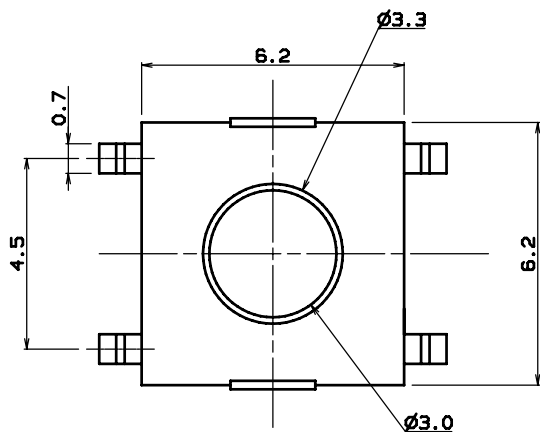
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CHKD

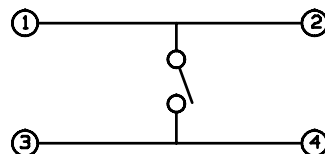
DSGN

TITLE

TITLE	<b>PRODUCT SPECIFICATIONS</b>	
MODEL No.	<b>TACT SWITCH</b>	PAGE 1/1
Caution		
<ol style="list-style-type: none"> <li>When terminals are exposed to mechanical stress during soldering, it may cause degradation in deformation and electrical property.</li> <li>Through-hole PC board, or a PC board thickness other than the recommendation may cause larger heat stress. Prior verification is highly recommended.</li> <li>In prior to the 2nd soldering switch shall be stable with normal temperature. It may cause deformation of switch, loose terminals, terminal removed from PCB, and / or degradation of electric property.</li> <li>Verify samples with actual mass production conditions.</li> <li>The products are designed and manufactured for direct current resistance. Individual consultation is recommended for use of other resistances such as inductive (L) or capacitive (C) .</li> <li>The sizes of holes and patterns on a PC board for mounting a switch, be as per the recommended dimensions in the product drawings.</li> <li>This switch is designed for manually operated units. Must not use this switch for a mechanical detection unit. For detection purposes, please use our detection switch.</li> <li>The switch will be break if impact force or a greater stress than that specified is applied. Take great care not to let the switch be subject to greater stress than specified.</li> <li>Do not apply a force from the side of the stem</li> <li>Be sure to push the center of switch for "without-stem" type. Extreme care is required for a hinge structure type. as the activation point may shift when it is pressed down.</li> <li>The circuit setting (software setting) shall be ensured for error-free operations, caused by bounce and chattering as specified by each model of the switches.</li> <li>Prior verification is needed to ensure that no corrosive gas-generating components are used near our switch. It may give negative influence such as contact failure.</li> <li>Contact resistance of a carbon contact type may very depending on push force. Confirm that it functions sufficiently in using TACT switch with a voltage divider circuit.</li> <li>Be aware of dust intrusion into a non dust-proof TACT switch.</li> <li>Storage <ul style="list-style-type: none"> <li>Storage the products as delivered, at a normal temperature and humidity, without direct sunshine and corrosive gas ambient. Use them at an earliest possible timing, not later than six months upon receipt.</li> <li>After breaking the seal, keep the products in a plastic bag to prevent out ambient air, store them in the same environment as above, and use all as soon as possible.</li> <li>Do not stack too many switches.</li> <li>Store the key switches in released position.</li> </ul> </li> <li>All specification can be changed to improve performance without any notice.</li> </ol>		



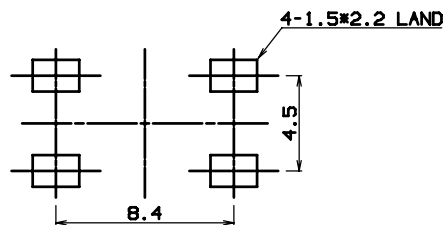
CIRCUIT DIAGRAM



NOTES

- 1.RATING : DC 12V,50mA MAX
- 2.TRAVEL : 0.25 ±0.1
- 3.CONTACT RESISTANCE : 100moMAX
- 4.OPERATING FORCE : 160 ±50gf
- \* TERMINAL LENGTH : 8mm,9mm,10mm

PCB DIMENSION

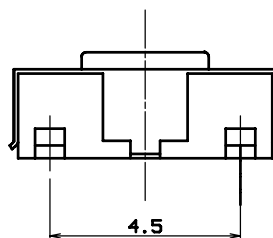
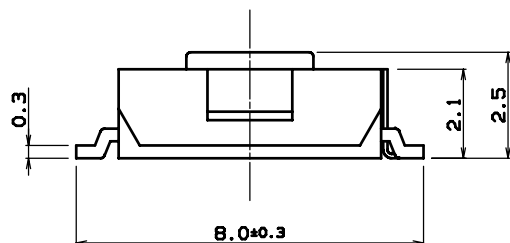
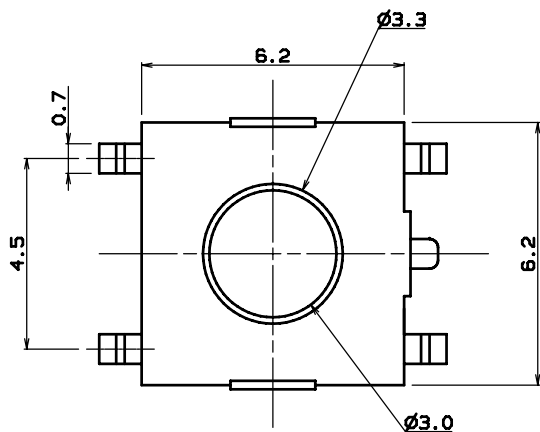


(TERMINAL : 8mm)

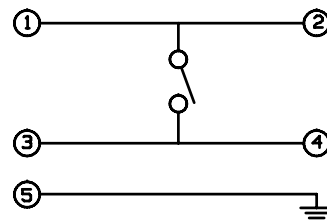
MODEL NO	"L"
MT 1157	2.5mm
MT 1157A	3.1mm

NO	PARTS NAME	Q'TY	MATERIAL	REMARK
1	CASE	1	ARLEN	BLACK
2	STEM	1	ARLEN	BLACK
3	COVER	1	SUS	
4	CONTACT	1	C5210R	Ag0.5μ CLAD
5	TERMINAL	1	C2680R	Ag PLATE

No.	PART NAME	Q'TY	MATERIAL	S I Z E	TREAT.	REMARKS
5				UNIT	SCALE	MODEL
4			3RD ANGLE PROJECTION	m/m	1	MT 1157-2
3			APPROVED	CHECKED	DESIGNED	DWG. NAME
2						ASS'Y DIAGRAM
1						DWG. NO.
NO.	DATE	NOTE	SIGN			



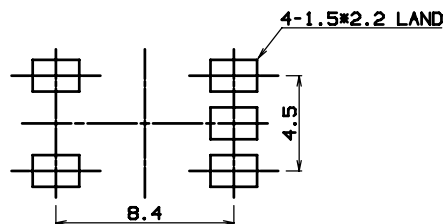
CIRCUIT DIAGRAM



NOTES

- 1.RATING : DC 12V,50mA MAX
- 2.TRAVEL : 0.25 ±0.1
- 3.CONTACT RESISTANCE : 100moMAX
- 4.OPERATING FORCE : 160 ±50gf
- \* TERMINAL LENGTH : 8mm,9mm,10mm

PCB DIMENSION

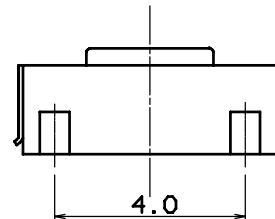
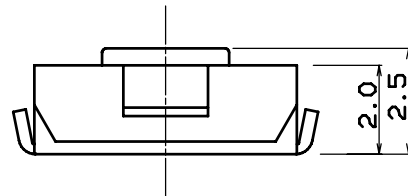
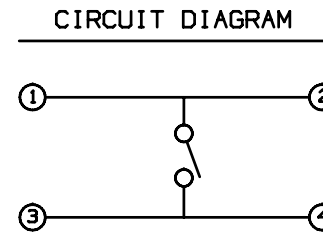
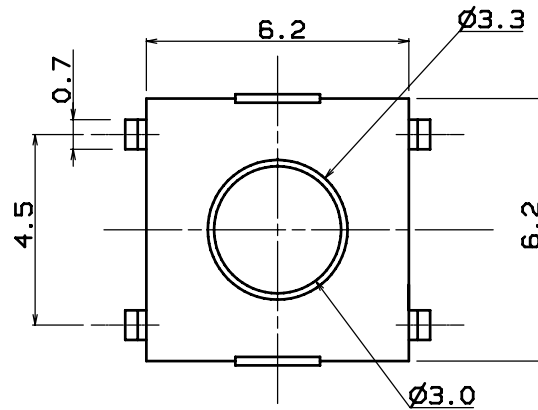


(TERMINAL : 8mm)

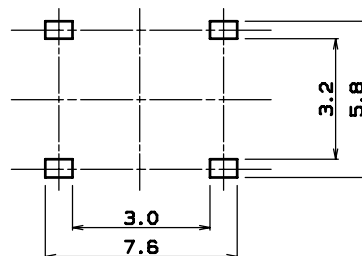
NO	PARTS NAME	Q'TY	MATERIAL	REMARK
1	CASE	1	ARLEN	
2	STEM	1	ARLEN	
3	COVER	1	SUS	Sn PLATE
4	CONTACT	1	C5210R	Ag0.5μ CLAD
5	TERMINAL	1	C2680R	Ag PLATE

No.	PART NAME	Q'TY	MATERIAL	S I Z E	TREAT.	REMARKS
5				UNIT	SCALE	MODEL
4			3RD ANGLE PROJECTION	m/m	1	MT 1157P
3			APPROVED	CHECKED	DESIGNED	DWG. NAME
2						ASS'Y DIAGRAM
1						DWG. NO.
NO.	DATE	NOTE	SIGN			

MODEL NO	"L"
MT 1157U	2.5mm
MT1157UA	3.1mm



PCB DIMENSION



NOTES

1. RATING : DC 12V,50mA MAX
2. TRAVEL : 0.25 ± 0.1
3. CONTACT RESISTANCE : 100mΩMAX
4. OPERATING FORCE : 160 ± 30gf

No.	PART NAME	Q'TY	MATERIAL	S I Z E	TREAT.	REMARKS
5			UNIT	SCALE	MODEL	
4			m/m	5	1	MT 1157U-2
3			APPROVED	CHECKED	DESIGNED	DWG. NAME
2						ASS'Y DIAGRAM
1						DWG. NO.
NO.	DATE	NOTE	SIGN		01.02.10	