

	□ A	2.4	[.095]
DTS-644 □ -V	□ B	1.6	[.063]
	□ A	2.8	[.110]
DTS-648 □ -V	□ B	2.0	[.079]
PROD.	NO.	LOC.	MM. INCH

	符號	原尺寸	修改後尺寸	變更日期
1	Ⓐ			
2	Ⓑ			
3	Ⓒ			
4	Ⓓ			
5	Ⓔ			

SCALE (比例) : 2 : 1

TOLERANCE (公差) :

0.00 mm  $\pm$  0.25mm

0.0 mm  $\pm$  0.40mm

FILE NAME : Y0577

TITLE 圖名	TACT Switch			SIZE 圖紙 UNIT	A4 inch
DWG NO. 圖號	DTS-648N-V			單位	mm
REV. 版本	A	DATE 日期	AUG - 01 - 2007	SHEET 張數	1 of 1
CHECKED BY 審核	RICHARD		DRAWN BY 製圖	FION	

NOTE:

1. ALL DIMENSIONS ARE IN MILLIMETERS, BRACKETED DIMENSIONS ARE IN INCHES.
2. GENERAL TOLERANCES MAX.±0.20mm.

德利威電子股份有限公司  
DAILYWELL ELECTRONICS CO.,LTD.

## 1. Style

This specification describes "TACTILE SWITCH", mainly used as signal switch of electric devices, with the general requirements of mechanical and electrical characteristic.

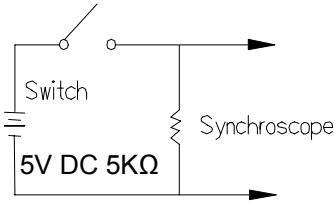
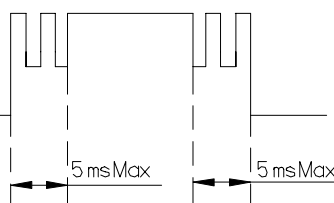
1.1 Operating Temperature Range:  $-25^{\circ}\text{C} + 70^{\circ}\text{C}$

1.2 Storage Temperature Range :  $-30^{\circ}\text{C} + 80^{\circ}\text{C}$

2. Current Range: 50mA, 12 VDC

3. Type of Actuation: Tactile feedback

4. Test Sequence:


	ITEM	DESCRIPTION	TEST CONDITIONS	REQUIREMENTS
APPEARANCE	1	Visual Examination	By visual examination check without any out pressure & testing.	There shall be no defects that affect the serviceability of the product.
	2	Contact Resistance	Applying a static load 1.5~2 times the operating force to the center made with a 1 kHz small current contact resistance meter.	100mΩ Max.
ELECTRIC PERFORMANCE	3	Insulation Resistance	Measurements shall be made following application of 500 V DC potential across terminals and cover for 1 minute $\pm 5$ seconds.	100MΩ Min.
	4	Dielectric Withstanding Voltage	250 V AC(50Hz or 60Hz) shall be applied across terminals and cover for 1 minute	There shall be no breakdown or flashover.
	5	Capacitance	1 MHz $\pm 10\text{kHz}$	5 pF max.
	6.	Bounce	3 to 4 operations at a rate of 15 cycles per second 	5 m seconds Max. 

## DTS□-6□□-□-V SPECIFICATION

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MECHANICAL PERFORMANCE	7.	Operating Force	Applied in the direction of operation. 	OF				
				K	N	R	S	Y
				100±50 [98N±49N]	160±50 [156N±49N]	260±50 [254N±49N]	320±80 [313N±78N]	520±130 [509N±127N]
	8.	Stroke	Placing the switch such that the direction of switch operation is vertical and then gradually increasing the load applied to the stem, the stroke distance for the stem to come to a stop shall be measured.	0.25 +0.2/-0.1 mm				
	9.	Stop Strength	Placing the switch such that the direction of switch operation is vertical, a static load of 3 kgf(29.4N) shall be applied in the direction of stem operation for a period of 15 seconds	①As shown in item 4~7 ②Contact Resistance: 200mΩ Max ③Insulation Resistance: 10MΩ Min				
	10.	Solder Heat Resistance	■Through Hole Type ①Soldering Temperature:260 ±5℃ ②Duration of Solder Immersion: 5 ± 1 seconds. ③Frequency of Soldering Process 2 times max. (PCB is 1.6 mm in thickness) ■SMT Type ~DTSM Series(4/4)	①Shall be free from pronounced backlash and falling-off or breakage terminals ②As shown in item 4、5 (Contact Resistance: 200mΩ Max) ( Insulation Resistance: 10MΩ Min)				
	11.	Vibration	Shall be vibrated in accordance with Method 201A of MIL-STD-202F (Frequency: 10-55-10Hz in 1-min/cycle. (Direction: 3 vertical directions including the directions of operation (Test time: 2 hours each direction. ( Swing distance=1.5mm	①As shown in item 4~7 (Contact Resistance: 200mΩ Max (Insulation Resistance: 10MΩ Min				

## DTS□-6□□-□-V SPECIFICATION

FILE NO. : E-V-AT01

REV. : C

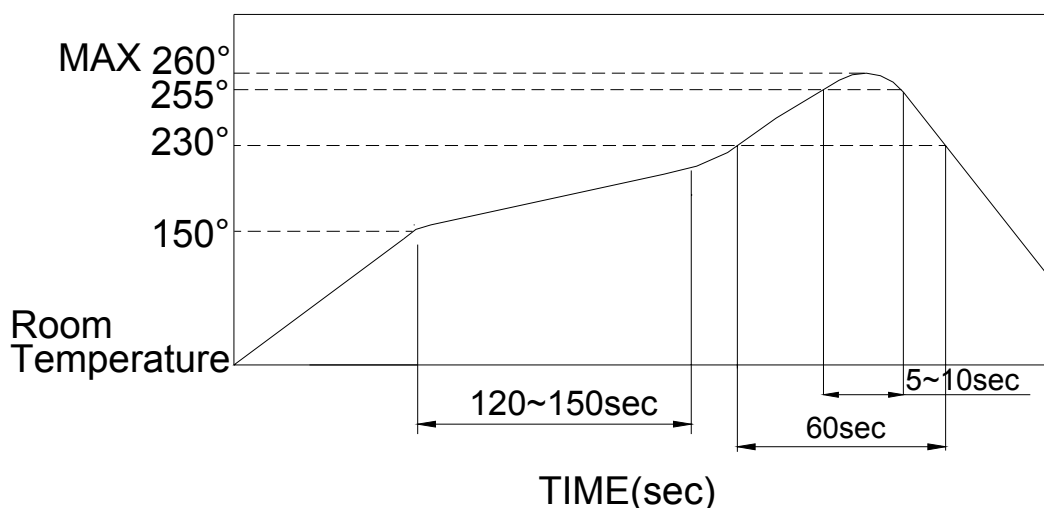
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MECHANICAL PERFORMANCE	12	Shock	Shall be shocked in accordance with Method 213B condition A of MIL-STD-202F 1)Acceleration; 50G 2)Action time:11±1m seconds 3)Testing Direction: 6 sides 4)Test Cycle: 3 times in each direction	1)As shown in item 4~7 2)Contact Resistance: 200mΩ Max 3)Insulation Resistance: 10MΩ Min
	13	Solder ability	Through Hole Soldering 1)Temperature : 245±3℃ Lead-Free solder : M705E JIS Z 3282 A (Tin 96.5% , Silver 3% , Copper 0.5%) 2)Flux : 5~10 sec 3)Duration of solder Immersion: 5±1 sec	No anti-soldering and the coverage of dipping into solder must more than 66% was requested.
DURABILITY	14	Operating Life	Measurements shall be made following the test forth below: 1)5 mA,5 VDC resistive load 2)Applying a static load the operating force to the center of the stem in the direction of operation 3)Cycle of Operation: (Through Hole 、 S.M.T Dome=Phosphor Bronze) 200,000 cycle's Min. For 100,160gf 100,000 cycle's Min. For 260gf 50,000 cycle's Min. For 320,520gf (S.M.T Dome=Stainless Steel) 1,000,000 cycle's Min~100,160gf 500,000 cycle's Min~260gf 300,000 cycle's Min~320 、 520gf	1)As shown in item 4 、 5 2)Operating force:±50% of initial force. 3)Contact Resistance: 10Ω Max 4)Insulation Resistance: 10MΩ Min 5)Bounce: 10 m seconds Max
WEATHER-PROOF	15	Resistance Low Temperature	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for an hour before the measurements are made: 1)Temperature:-25±3℃ 2)Time:96 hours	1)As shown in item 4~7 2)Contact Resistance: 200mΩ Max 3)Insulation Resistance: 10MΩ Min
	16	Resistance High Temperature	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for an hour before the measurements are made: 1)Temperature:80±2℃ 2)Time:96 hours	1)As shown in item 4~7 2)Contact Resistance: 200mΩ Max 3)Insulation Resistance: 10MΩ Min

17	Resistance Humidity	<p>Following the test set forth below the sample shall be left in normal temperature and humidity conditions for an hour before the measurements are made:</p> <p>1)Temperature:40±2℃  2)Relative Humidity:90~95%  3)Time:96 hours</p>	<p>1)As shown in item 4~7  2)Contact Resistance:  200mΩ Max  3)Insulation Resistance:  10MΩ Min</p>
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#### 5. SOLDERING CONDITIONS:

##### ■ Condition for Reflow Soldering – S.M.T Series



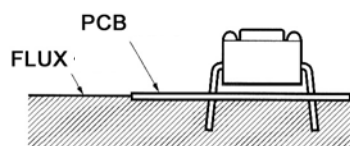
- The condition mentioned above is the temperature on the Cu foil of the PCB surface. There are cases where board's temperature greatly differs from switch's surface be used not to allow switch's surface temperature to exceed 260℃.

##### ■ Manual Soldering

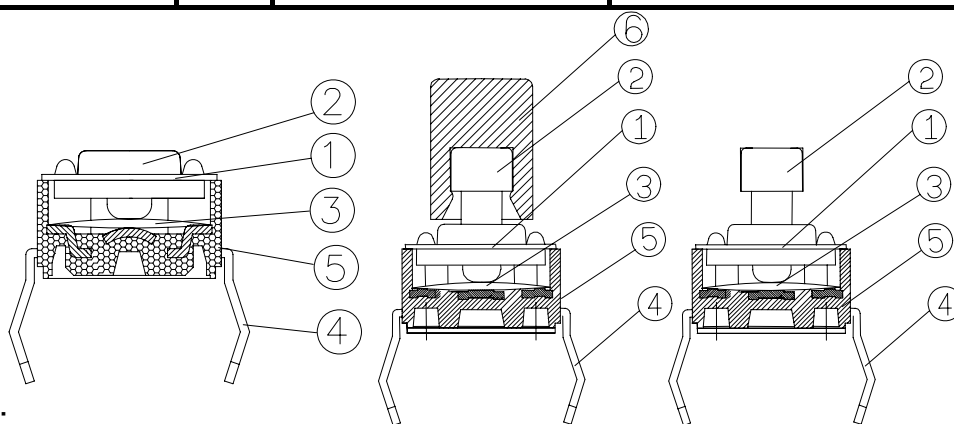
Soldering Temperature	Max.350℃
Continuous Soldering Time	Max. 5 seconds

##### ■ Precautions in Handling

1. Care should be exercised so that flux from the upper part of the printed circuit board does not adhere to the switch.
2. Except for washable type do not wash the switch body.
- 3.
4. Please make sure that there is no flux rose over the surface of the PCB



ITEM	DESC	Q'TY	MATERIALS	TREATMENT	REMARK
1.	COVER	1	STAINLESS STEEL	NONE	-
2.	STEM	1	HIGH – TEMP THERMOPLASTIC NYLON UL 94V-0	→	-
3.	CONTACT	1	PHOSPHOR BRONZE	WITH SILVER CLADDING	-
4.	TERMINAL	1	BRASS	WITH SILVER PLATING	-
5.	BASE	1	HIGH – TEMP THERMOPLASTIC NYLON UL 94V-0	MOLDED BLACK	-
6.	CAP	1	THERMOPLASTIC ABS	→	-



Remark:

Prod. No. : D T S ☐ - 6 ☐ ☐ ☐ - V

K = With Cap

Soldering:

V = Lead Free

Dimension H:

1 = 4.3 mm  
2 = 5.0 mm  
3 = 7.0 mm  
44(48)= 7.3 mm  
5 = 9.5 mm  
6 = 13 mm

Color Of Stem For  
Operating Force:

K = Black , 100g.  
N = Brown , 160g.  
R = Red , 260g.  
S = Salmon, 320g.  
Y = Yellow, 520g.

A	DWG. REL.	
REV.	ECO. NO.	APPD

TITLE: TACTILE SWITCH 6x6		APPD. :
PRROD. NO. : DTS <input type="checkbox"/> -6 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> - <input type="checkbox"/> -V		CHKD. :
FILE NO. : E-V-CT01		PR. : 張慧玲
		REV : A SHEET : 1 of 1