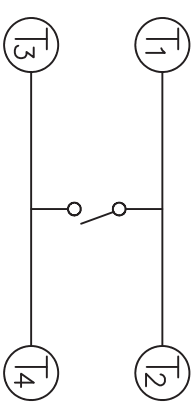
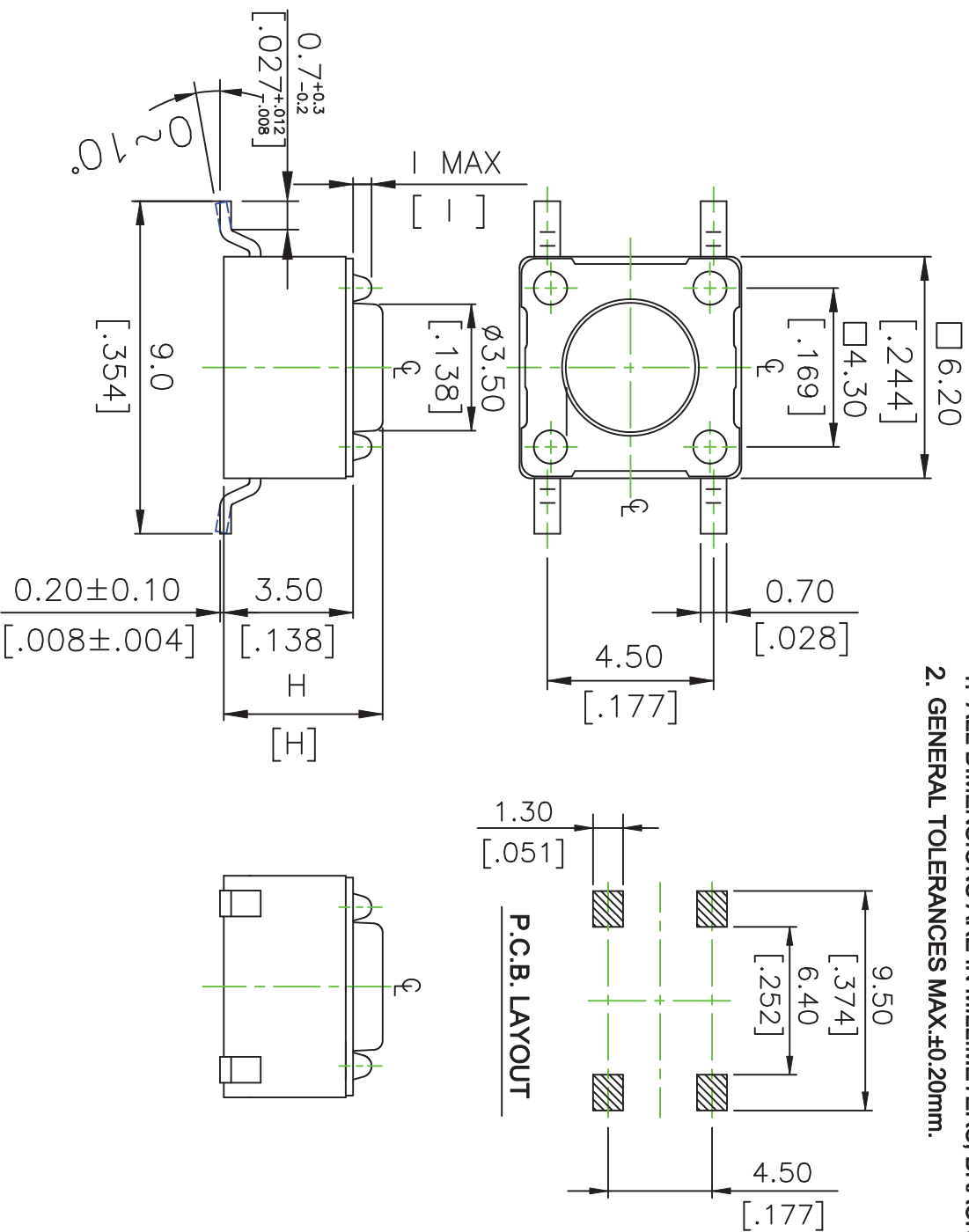


- NOTE:**
1. ALL DIMENSIONS ARE IN MILLIMETERS, BRACKETED DIMENSIONS ARE IN INCHES.
 2. GENERAL TOLERANCES MAX. ±0.20mm.



CIRCUIT DIAGRAM

DTSM-62~66 □ -V	0.6 MAX	.0236MAX
DTSM-61 □ -V	0.5 MAX	.0197MAX
PROD. NO.	1	INCHES.

DTSM-66 □ -V	13.0[.512]
DTSM-65 □ -V	9.5[.374]
DTSM-63 □ -V	7.0[.275]
DTSM-62 □ -V	5.0[.197]
DTSM-61 □ -V	4.3[.169]
PROD. NO.	H

符號	原尺寸	修改後尺寸	變更日期
1 ①		圖面更新	DEC-29-2011
2 ②			
3 ③			
4 ④			
5 ⑤			

SCALE (比例): 8:1
 TOLERANCE (公差): ±0.20mm
 FILE NAME: Y0089

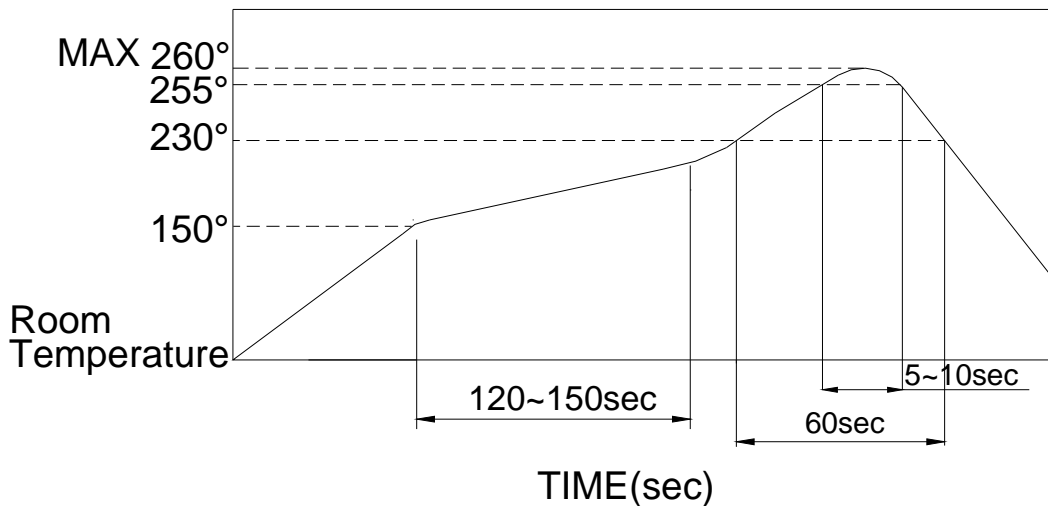
德利威電子股份有限公司
DAILYWELL ELECTRONICS CO.,LTD.

TITLE	TACTILE SWITCH SMT TYPE	SIZE	A4
DWG NO.	DTSM-62N	圖紙	
REV.	B	UNIT	Inch
DATE	APR - 26 - 2002	單位	mm
CHECKED BY	RICHARD	SHEET	1 of 1
審核		張數	
DRAWN BY	IRENE		
製圖			

	17	Resistance Humidity	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:40±2°C 2)Relative Humidity:90~95% 3)Time:96 hours	1)As shown in item 4~7 2)Contact Resistance: 200mΩ Max 3)Insulation Resistance: 10MΩ Min
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5. SOLDERING CONDITIONS:

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



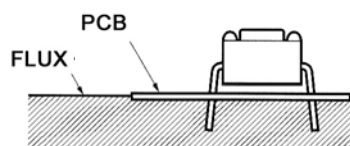
- The condition mentioned above is the temperature on the Cu foil of the PCB surface. There are cases where board's temperature greatly differs from switch's surface be used not to allow switch's surface temperature to exceed 260°C.

■ Manual Soldering

Soldering Temperature	Max.350°C
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



產品型態：

本規格書是描述”觸動式開關”，一般之機械特性與電氣特性，而該觸動式之開關主要是用來作為訊號開關之電子裝置。

1. 使用之溫度範圍：-25°C ~ +70°C
2. 儲存之溫度範圍：-30°C ~ +80°C

二、額定電流：50mA, 12V DC

三、操作類型：觸動回復式。

四、測試項目：

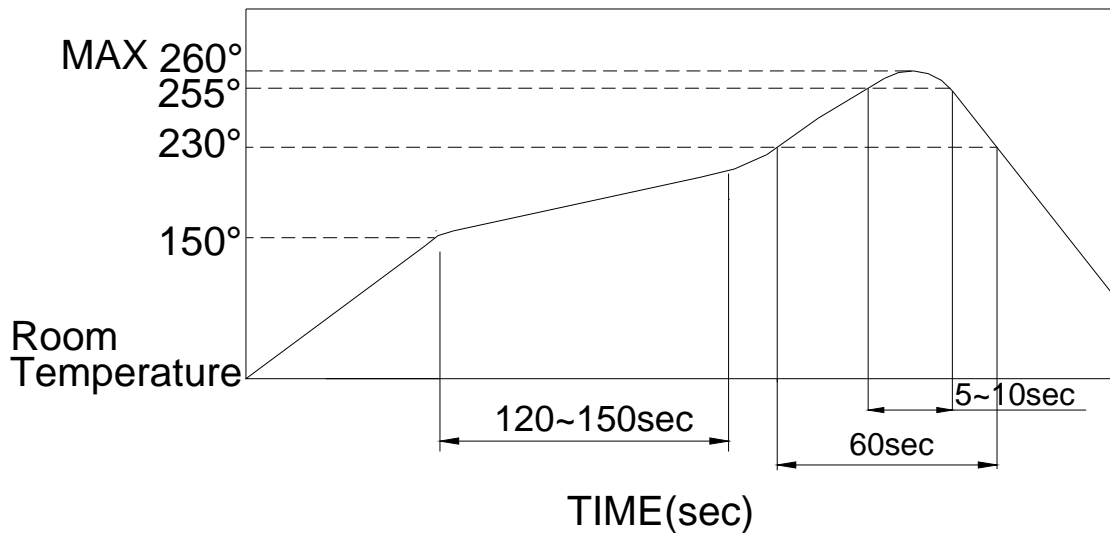
特性	項次	測試種類	測試條件	測試要求	
外觀	1	目視檢查	在未施加任何外力及試驗前，以目視方式檢測	產品的外觀不能有影響產品功能之不良缺點	
	電氣特性	2	接觸阻抗	用一作動力 1.5-2 倍力量的靜態荷重，實際按壓觸鈕的中央處，並以 1KHz 規格的微電流阻抗計，量測接觸阻抗值	接觸阻抗值不得高於 100mΩ
		3	絕緣阻抗	以 500V 的直流電壓絕緣測量裝置，將試驗電壓施於端子間及端子與金屬上蓋間，於 1 分鐘±5 秒後測定絕緣阻抗值	絕緣阻抗不得低於 100MΩ
		4	耐電壓	以 250V 的交流電(50Hz 或 60Hz 近似正弦波電壓)，電壓施於端子間及端子與金屬上蓋間，並保持 1 分鐘之加壓狀態後，檢查是否能耐該值	成品不得有故障，跳火及絕緣體破壞等不良現象
		5	靜電容量	在頻率 1MHZ ± 10KHZ 下，測量電容含值	該電容值需在 5pF 以下
		6	回彈試驗	以圖示的迴路測之，測試時以每秒 3-4 次的速度為一循環，觀察示波器上之顯示 	回彈的反應時間，不得高於 5 毫秒 

機械特性	7	作動力 (OF)	測定推鈕操作方向之力量 	OF				
				K	N	R	S	Y
				100±50g [.98N±.49N]	160±50g [1.568N±.49N]	260±50g [2.548N±.49N]	320±80g [3.136N±.784N]	520±130g [5.068N±1.274N]
	8	作動量	將成品放置定位後,以一垂直力慢慢施壓在按鈕的中央處,使按鈕從開始按壓到無法按壓停止,測量實際按壓過程的距離	0.25+0.2/-0.1mm				
	9	操作部強度	將成品放置定位後,以3Kgf(29.4N)垂直力的靜態荷重施壓於按鈕上,時間保持15秒	1)受測後得成品仍需符前述4~7測試項規格之要求 2)經過測試後之接觸阻抗值不得高於200mΩ 3)受測後之絕緣阻抗值不得低於10MΩ				
	10	抗鉍錫熱	■Through Hole Type 1)鉍溫:260±5°C 2)浸鉍時間:5±1 秒 3)浸錫操作的次數,最多2次 (PCB的厚度為1.6mm) ■SMT Type ~ Series(4/4)	1)浸鉍後,端子不得有明顯的焦黑鍍層剝落或斷裂現象 2)受測後的成品仍需符合前述4、5測試項規格的要求 3)經過測試後之接觸阻抗值不得高於200mΩ 4)受測後之絕緣阻抗值不得低於10MΩ				
11	振動試驗	請依照MIL-STD-202F, 210A所規定的方法作測試 1)頻率:以10-55-10Hz的頻率循環測試,週期1分鐘 2)振動方向:以X.Y.Z三軸向(包含按鈕操作方向) 3)測試時間:每一方向2小時 4)全振幅:1.5 mm	1)受測後得成品仍需符前述4~7測試項規格之要求 2)經過測試後之接觸阻抗值不得高於200mΩ 3)受測後之絕緣阻抗值不得低於10MΩ					
12	衝擊實驗	請依照MIL-STD-202F, 213B條件A所規定的方法作測試 1)加速度:50G 2)測定時間:11±1 毫秒 3)受測方向:以成品全周,三軸六個方向作測試 4)受測次數:每一方向三次	1)受測後得成品仍需符前述4~7測試項規格之要求 2)經過測試後之接觸阻抗值不得高於200mΩ 3)受測後之絕緣阻抗值不得低於10MΩ					

機械特性	13	沾錫性	<p>1)Through Hole 銲溫:245±3°C 銲錫規格:M705E JIS Z 3282 A級 (錫96.5%,銀3%,銅0.5%)</p> <p>2)助銲劑:沾著5-10秒</p> <p>3)浸銲時間:5±1秒</p>	<p>鍍銀面不能有拒銲現象</p> <p>沾錫面積占總面積66%以上</p>
耐久性	14	壽命測試	<p>測試時需按照下列所設定之情況</p> <p>1)施以5mA,5VDC之直流電</p> <p>2)測定時需於開關操作方向以OF上限之靜態荷重施於按鈕中央處</p> <p>3)受測次數: (Through Hole、S.M.T Dome=Phosphor Bronze) 200,000次~100,160gf 100,000次~260gf 50,000次~320,520gf (S.M.T Dome=Stainless Steel) 1,000,000次~100,160gf 500,000次~260gf 300,000次~320、520gf</p>	<p>1)受測後的成品仍需符合4、5測試項規格的要求</p> <p>2)測試後,作動力之變化需為初始值±50%</p> <p>3)測試後的接觸阻抗值不得高於10Ω</p> <p>4)受測後的絕緣阻抗值不得低於10MΩ</p> <p>4)受測後的回彈反應時間須於10毫秒內</p>
耐候性	15	耐寒性	<p>請依照下列所設定的條件測試後,並於常溫常濕中放置1小時後測定</p> <p>1)受測溫度:-25±3°C</p> <p>2)受測時間:96小時</p>	<p>1)受測後得成品仍需符前述4~7測試項規格之要求</p> <p>2)經過測試後之接觸阻抗值不得高於200mΩ</p> <p>3)受測後之絕緣阻抗值不得低於10MΩ</p>
	16	耐熱性	<p>請依照下列所設定的條件測試後,並於常溫常濕中放置1小時後測定</p> <p>1)受測溫度:80±2°C</p> <p>2)受測時間:96小時</p>	<p>1)受測後得成品仍需符前述4~7測試項規格之要求</p> <p>2)經過測試後之接觸阻抗值不得高於200mΩ</p> <p>3)受測後之絕緣阻抗值不得低於10MΩ</p>
	17	耐濕性	<p>請依照下列所設定的條件測試後,並於常溫常濕中放置1小時後測定</p> <p>1)受測溫度:40±2°C</p> <p>2)相對濕度:90-95%</p> <p>3)受測時間:96小時</p>	<p>1)受測後之成品仍需合上述4~7測試項規格之要求</p> <p>2)經過測試後之接觸阻抗值不得高於200mΩ</p> <p>3)受測後之絕緣阻抗值不得低於10MΩ</p>

五、鐸錫條件

■ DTSM-6-V 系列



■ 上述提到的情況, 是 PCB 上銅箔之溫度。

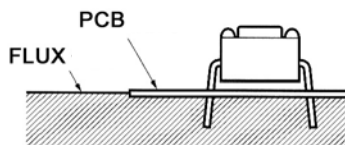
有一些情形是這 PCB 的溫度和開關表面之溫度會有很大的不同, 這和 PCB 材質、大小、厚度等有很大的關係, 因此要小心不要讓開關表面的溫度超過 260°C

■ 手工鐸錫

鐸錫溫度	350°C 以下
連續鐸錫時間	5 秒以下

■ 處理時注意事項

1. 在 P.C 板面上之助鐸劑, 不要黏到開關本身。
2. 不可以清洗到開關本身。
3. 若使用 FLUX 為發泡式, 則要管制其發泡面高度, 不可超過已放置 S.W 的 PCB 表面, 如果 FLUX 發泡面超過 PCB 表面, 可能會侵入 S.W 內部, 會變成導通不良原因



1. Style

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

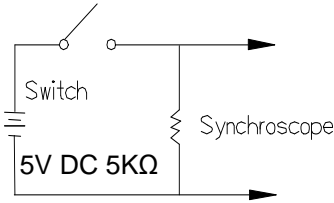
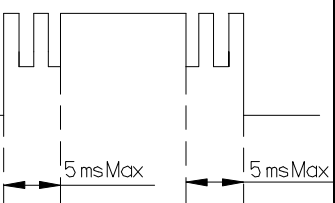
1.1 Operating Temperature Range: -25°C+70°C


1.2 Storage Temperature Range : -30°C+80°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.
ELECTRIC PERFORMANCE	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.
	3	Insulation Resistance	Measurements shall be made following application of 500 V DC potential across terminals and cover for 1 minute ±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 ±10kHz	5 pF max.
	6.	Bounce	3 to 4 operations at a rate of 1 cycles per second 	15 m seconds Max. 

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

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MECHANICAL PERFORMANCE	12	Shock	<p>Shall be shocked in accordance with Method 213B condition A of MIL-STD-202F</p> <p>1)Acceleration; 50G 2)Action time:11±1m seconds 3)Testing Direction: 6 sides 4)Test Cycle: 3 times in each direction</p>	<p>1)As shown in item 4~7 2)Contact Resistance: 200mΩ Max 3)Insulation Resistance: 10MΩ Min</p>
	13	Solder ability	<p>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</p>	<p>No anti-soldering and the coverage of dipping into solder must more than 66% was requested.</p>
DURABILITY	14	Operating Life	<p>Measurements shall be made following the test forth below:</p> <p>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</p>	<p>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</p>
WEATHER-PROOF	15	Resistance Low Temperature	<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:-25±3℃ 2)Time:96 hours</p>	<p>1)As shown in item 4~7 2)Contact Resistance: 200mΩ Max 3)Insulation Resistance: 10MΩ Min</p>
	16	Resistance High Temperature	<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:80±2℃ 2)Time:96 hours</p>	<p>1)As shown in item 4~7 2)Contact Resistance: 200mΩ Max 3)Insulation Resistance: 10MΩ Min</p>



Part Number	Part Name	material	Model	Supplier	Detection Date	Report No	Attachment
DTSM-62N-V-T/R	COVER	Stainless Steel	SUS430	庆晖	2012/1/9	CE/2011/10427	
	STEM	plastic	PA9T2458 NA	华立	2011/11/1	CE/2011/A4649	
		Toner	Brown	正辉	2012/1/4	CE/2011/C5251	
	CONTACT	Phosphor Bronze	C5210R	实立达	2011/7/25	CE/2011/707347	
	BASE	plastic	FR52G30NH NC	协佑	2011/5/12	CE/2011/51378	
		Toner	Brown (63051)	正辉	2012/1/4	CE/2011/C5252	
	TERMINAL	brass	C2680R	德刚	2011/3/3	CE/2011/23797	
	Plating layer	Nickel-Plating	Nickel-Plating	民创建	2011/3/21	CANEC1100854406	
		silvering-plating	silvering-plating	民创建	2011/3/21	CANEC1100854407	