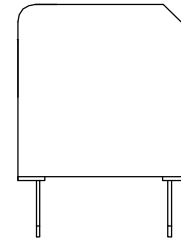
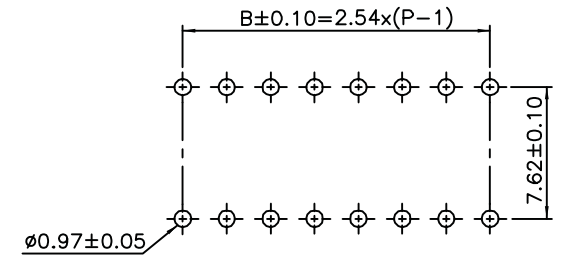


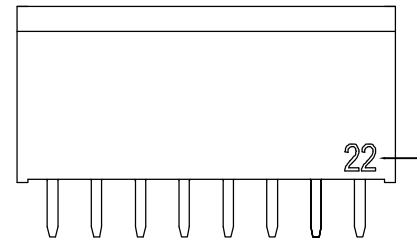
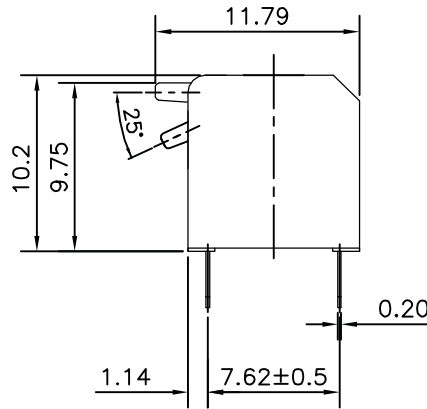
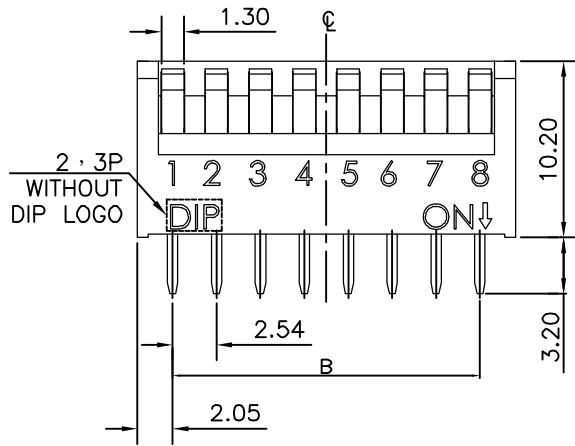
NDPL SERIES



NDP SERIES



P.C.B. LAYOUT



Date code ex: (1,2~9,X,Y,Z) 0,1,2,~9

NOTE: 1. ALL DIMENSIONS ARE IN MILLIMETERS.  
2. GENERAL TOLERANCES ±0.2mm

NDP -12V NDPL-12V	12	32.04	27.94
NDP -10V NDPL-10V	10	26.96	22.86
NDP -09V NDPL-09V	9	24.42	20.32
NDP -08V NDPL-08V	8	21.88	17.78
NDP -07V NDPL-07V	7	19.34	15.24
NDP -06V NDPL-06V	6	16.80	12.70
NDP -05V NDPL-05V	5	14.26	10.16
NDP -04V NDPL-04V	4	11.72	7.62
NDP -03V NDPL-03V	3	9.18	5.08
NDP -02V NDPL-02V	2	6.64	2.54
PROD. NO.	NO. OF POS.	DIM. A	DIM. B

SCHEMATIC(TYP.)

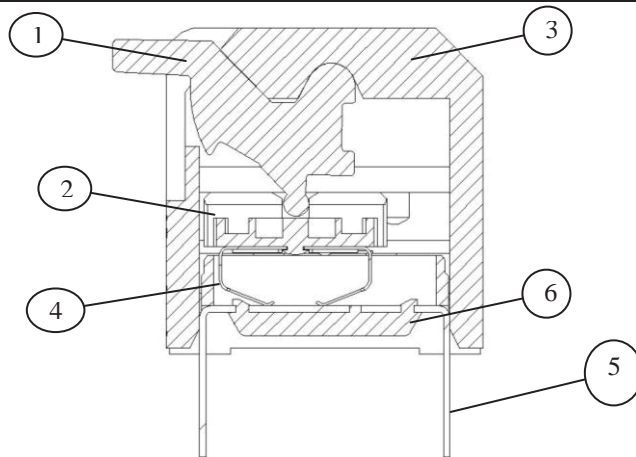


(2,3,4,5,6,7,8,9,10,12, POS AVAIL)

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

符號	原尺寸	修改後尺寸	變更日期	SCALE (比例) : 5 : 1	TITLE 圖名	PIANO TYPE DIP SWITCH	SIZE 圖紙	A4		
1	Ⓐ			FILE NAME : Y1899	DWG NO. 圖號	NDP(L) SERIES	UNIT 單位	mm		
2	Ⓑ				REV. 版本		A		DATE 日期	JUN - 15- 2017
3	Ⓒ				CHECKED BY 審核			DRAWN BY 製圖	IRENE	
4	Ⓓ									
5	Ⓔ									

ITEM	DESC.	Q'TY	MATERIALS	TREATMENT	REMARK
1.	LEVER	1	THERMOPLASTIC PBT UL 94V-0	WHITE	
2.	SLIDER	1	THERMOPLASTIC PBT UL 94V-0	WHITH	
3.	COVER	1	THERMOPLASTIC PBT UL 94V-0	RED	
4.	CONTACT	1	<b>COPPER ALLOY</b>	GOLD PLATED	
5.	TERMINAL	1	BRASS	GOLD PLATED	
6	BASE	1	THERMOPLASTIC PA66 UL 94V-0	BLACK	



REMARK:

① PROD. NO.: NDP □ - □ □ □ □ V

Actuator Type:  
 □ = Short Key  
 L = Long Key

Number Of Position :  
 02 = 2 Position .  
 03 = 3 Position .  
 04 = 4 Position .  
 05 = 5 Position .  
 06 = 6 Position .  
 07 = 7 Position .  
**08 = 8 Position .**  
 09 = 9 Position .  
 10 = 10 Position .  
 12 = 12 Position .

Lead Free Solderable

Seal:  
 □ = Regular  
 T = Top Tape Sealed

Color of Cover:  
 □ = Red  
 B = Blue  
 K = Black

A1	DWG.REL	
REV.	ECO. NO.	APPD.

TITLE :	APPD. :
SLIDE TYPE DIP SWITCHES	CHKD. :
PRROD.NO:NDP(L)-□□□□V	PR. : Michelle
FILE NO: E-V-CD21	REV : A1   SHEET : 1of1



# NDP(L)-□□□□V 產品規格書

文件編號：E-V-AD21  
 版次：A1  
 頁次：1 / 4

## 一、產品型態：

本規格書是描述"指撥式開關"，一般之機械特性與電氣特性，而該指撥式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：-40°C ~ +85°C
2. 儲存之溫度範圍：-40°C ~ +85°C
3. 產品保存期限：6個月內。

## 二、額定電流：

1. 當開關之設定已固定不再作任何切換，而使電流常處於一平穩的通電狀態時，則額定電流為：100mA, 50 V DC。
2. 當開關的設定不固定常需作任意切換，而使電流常處於一脈衝狀態時，則額定電流為：25mA, 24 V DC。

## 三、操作類型：指撥滑動。

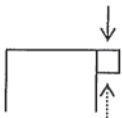
## 四、測試項目：

特性	項次	測試種類	測 試 條 件	測 試 要 求
電 氣	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
	2	接觸阻抗	①測定通路，在開關的兩極端測量端子間的接觸阻抗值 ②測定時以 1KHZ 規格的微電流阻抗計測量之	接觸阻抗的初值不得高於 50mΩ
	3	絕緣阻抗	直流電壓 500V, 1 分鐘±5 秒	絕緣阻抗不得低於 100MΩ
特 性	4	耐 電 壓	以 500V 的交流電(50Hz 或 60Hz 近似正弦波電壓)，施於兩相鄰端子與底座間，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 5pF 以下



NDP(L)-□□□□V 產品規格書

文件編號：E-V-AD21  
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機	6	作動力	如圖所示,各箭頭方向即為測定推鈕操作方向之力量 ON→OFF OFF→ON 	400gf Max (3.92N Max)
	7	操作部強	以 1kgf(9.8N)的靜態荷重施於操作方向測定,操作時間 15 秒	操作部不得變形及機械的功能發生故障或損壞
械	8	抗鐸錫熱	鐸溫：	受測後的成品仍需符合前述 2~6 測試項規格的要求
			溫度 260±5°C	
特	9	振動測試	請依照 MIL-STD-202F, 201A 所規定之方法做測試 ①頻率: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,包含推鈕操作之方向 ③測試時間:每一方向 2 小時	受測後之成品仍需符合前述 2~6 測試項規格的要求
	10	衝擊試驗	請依照 MIL-STD-202F, 213B 條件 A 所規定之方法做測試 ①加速度:50G ②測定時間:11±1 毫秒 ③受測方向:以成品全周,三軸六個方向做測試 ④受測次數:每一方向 3 次	受測後之成品仍需符合前述 2~6 測試項規格的要求
性	11	沾錫性	①DP(L)-V 鐸溫:245±3°C 鐸錫規格:M705E JIS Z 3282 A 級(錫 96.5%,銀 3%,銅 0.5%) ②助鐸劑:5-10 秒 ③浸錫時間:5±1 秒	鍍金/錫面不能有拒鐸現象 沾錫面積占總面積 75%以上

耐 久 性       候       性	12	壽命測試	測試時需依照下列所設定情況 ①施以 25mA, 24V 之直流電 ②作動速度：15~20 回/Min ③受測次數：2000 回	①受測後之成品仍需符合前述 3.4 測試項規格之要求 ②經過測試後之接觸阻抗值不得高於 100mΩ
	13	耐寒性	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 ①受測溫度：-40±3°C ②受測時間：96 小時	受測後之成品仍需符合前述 2~6 測試項規格之要求
	14	耐熱性	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 ①受測溫度：85±2°C ②受測時間：96 小時	①受測後之成品仍需符合前述 3~6 測試項規格之要求 ②經過測試後之接觸阻抗值不得高於 100mΩ
	15	耐濕性	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 ①受測溫度：40±2°C ②相對濕度：90-95% ③受測時間：96 小時	①受測後之成品仍需符合前述 4~6 測試項規格之要求 ②經過測試後之接觸阻抗值不得高於 100mΩ ③受測後之絕緣阻抗不得低於 10MΩ

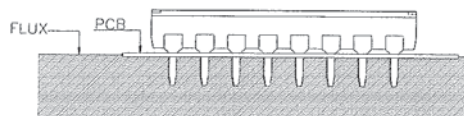
五、 鐸錫條件

■ 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. 除了有貼 TAPE 的產品形式，可使用沖洗式清洗外，其它則不可洗到開關本身。
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 SW 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。







## ■ 儲存條件的注意事項：

當物品被儲存於以下的情形與條件它可能會影響產品功能變差及吃錫性等..  
應避免儲存於下列情形

1. 溫度超過-40~+85°C & 濕度超過 85%的地方
2. 在有腐蝕性氣體的地方
3. 長時間儲存超過 6 個月
4. 陽光直接照射的地方

\*以包裝的狀態儲存以避免重力承載

\*請儘快使用我們建議 3 個月之內最多 6 個月內使用完畢

\*打開包裝後, 要將未使用完剩餘產品存放在適當的防潮&密閉環境中



# NDP(L)-□□□□V SPECIFICATION

FILE No. : E-V-AD21  
 REV. : A1  
 Page : 1 / 4

## 1. Style:

This specification describes "DUAL IN-LINE PACKAGE SWITCHES" mainly used as signal switch of electric devices with the general requirements of mechanical and electrical characteristics.

1.1 Operating Temperature Range : -40°C ~ +85°C

1.2 Storage Temperature Range : -40°C ~ +85°C

1.3 The shelf life of product is within 6 months.

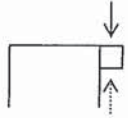
## 2. Current Range:

2.1 Non-Switching : 100mA, 50V DC

2.2 Switching : 25mA, 24V DC

## 3. Type of Actuation: Actuated by sliding

## 4. Test Sequence :

	ITEM	DESCRIPTION	TEST CONDITIONS	REQUIREMENTS
ELECTRIC PERFORMANCE	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	1.To be measured between the two terminals associated with each switch pole. 2.Measurements shall be made with a 1kHz shall current contact resistance meter.	50mΩ Max. (initial)
	3	Insulation Resistance	500V DC, 1 minute ± 5 sec.	100MΩ Min.
	4	Dielectric withstand- ing Voltage	500V AC (50Hz or 60 Hz) shall be applied between all the adjacent terminals and between the terminal and the frame for 1 minute.	There shall be no breakdown or flashover
	5	Capacitance	1 MHz ± 10 kHz	5 pF Max.
MECHANICAL PERFORMANCE	6	Operation Force	Applied in the direction of operation. ON→OFF OFF→ON  	400gf Max (3.92N Max)



NDP(L)-□□□□V SPECIFICATION

FILE No. : E-V-AD21  
 REV. : A1  
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<b>MECHANICAL PERFORMANCE</b>	7	Stop Strength	A static load of 1 kgf(9.8N) is applied in the operating direction and pulling direction operated for a period of 15 seconds.	There shall be no sign of damage mechanically	
	8	Soldering Heat Resistance	Soldering Temperature :		As shown in item 2~6
			TEMP	TIME	
				260°C±5°C	5±1 sec.
	9	Vibration	Shall be vibrated in accordance with Method 201A of MIL-STD-202F ①Frequency: 10-55-10 Hz 1 min/cycle. ②Direction: 3 vertical directions including the direction of operation. ③Test Time: 2 hours each direction.	As shown in item 2~6	
10	Shock	Shall be shocked in accordance with Method 213B condition A of MIL-STD-202F ①Acceleration: 50G. ②Action Time : 11 ± 1 m sec. (Testing Direction: 6 sides. (Test cycle : 3 times in each direction	As shown in item 2~6		
11	Solderability	1.NDP(L)-VSoldering Temperature:245±3°C Lead-Free solder : M705E JIS Z 3282 Class A (Tin 96.5% , Silver 3% , Copper 0.5%) 2.Flux: 5-10 seconds. 3.Duration of solder Immersion: 5±1 sec.	No anti-soldering and the coverage of dipping into solder must more than 75% was requested.		
<b>DURABILITY</b>	12	Operation Life	Measurements shall be made following the test set forth below: 1. 25 mA, 24V DC resistive load 2. Rate of Operation: 15~20 cycles/ minute 3. Cycle of Operation: 2000 cycles.	1.As shown in item 3,4 2.Contact Resistance: 100mΩ Max. (final-after test)	





<b>WEATHER-PROOF</b>	13	Resistance Low Temperature	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for an hour before measurements are made : ①Temperature : $-40^{\circ}\text{C}\pm 3^{\circ}\text{C}$ ②Time: 96 hours	As shown in item 2~6
	14	Resistance High Temperature	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for an hour before measurements are made : ①Temperature : $85^{\circ}\text{C}\pm 2^{\circ}\text{C}$ ②Time: 96 hours	1.As shown in item 3~6 2.Contact Resistance: 100mΩ Max.
	15	Humidity Resistance	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for an hour before measurements are made : ①Temperature : $40^{\circ}\text{C}\pm 2^{\circ}\text{C}$ ②Relative Humidity :90~95% ③Time: 96 hours	1 As shown in item 4,6 2 Contact Resistance: 100mΩ Max. 3 Insulation Resistance : 10MΩ Min.

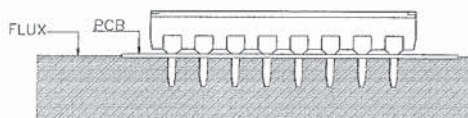
### 5. SOLDERING CONDITIONS:

■ 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. Don't clean the switch body except with top tape sealed type, which can only spray of cleaning method from top of s/w.
3. Please make sure that there is no flux rose over the surface of the PCB





■ Notes on storage conditions:

Do not store in the following environment or it may affect product's function and solderability:

1. temperature within  $-40\sim+85^{\circ}\text{C}$  & humidity over 85%
2. environment with corrosive gas
3. storage over 6 months
4. under direct sunlight

Store with proper packaging conditions and to avoid loading heavy force

We suggest to use the products within 3 months or at least 6 months.

After opening the package, the rest products must be stored in the appropriate moisture-proof & airtight environment