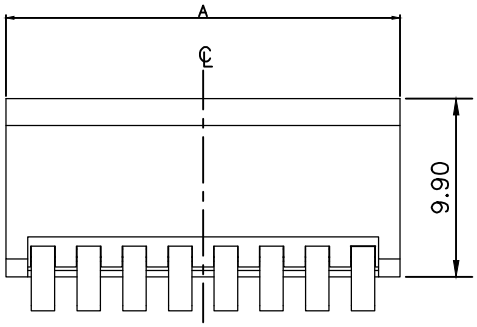
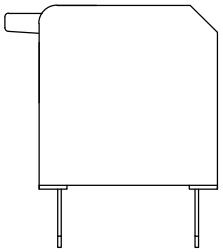
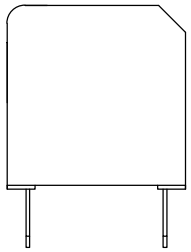
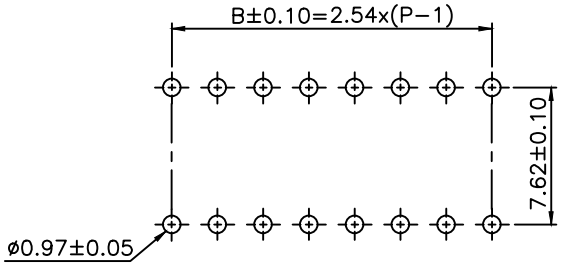




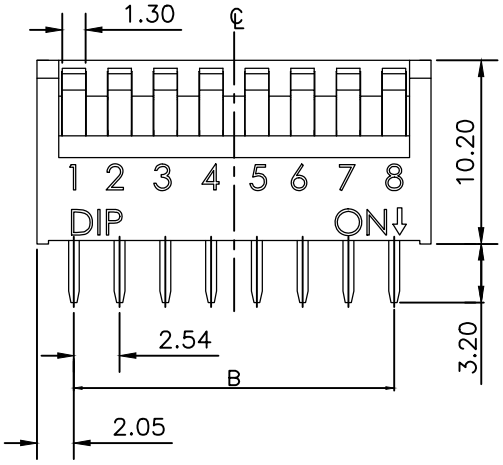
NDPL SERIES

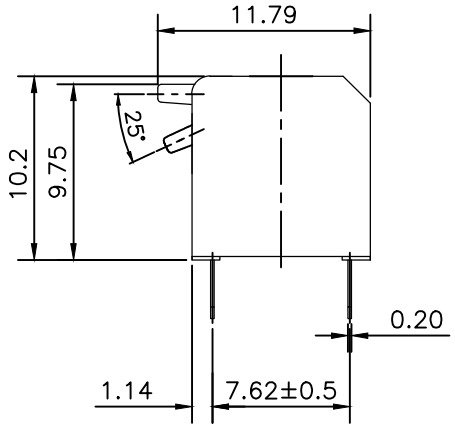


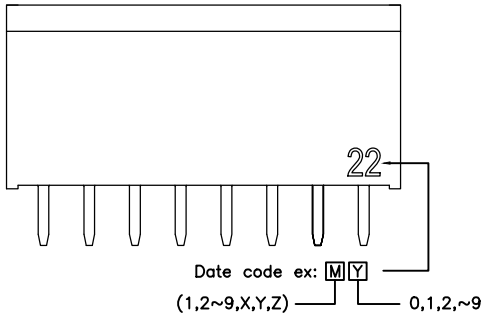
NDP SERIES



P.C.B. LAYOUT







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

PROD. NO.	NO. OF POS.	DIM. A	DIM. B
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

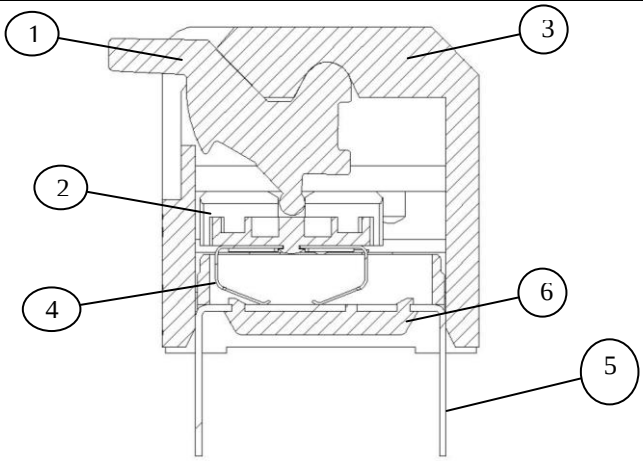
SCHEMATIC(TYP.)

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

ZONE	REV	DESCRIPTION	DATE	APPD.
4				
3				
2				
1	A1	DWG.REL	08.19'15	

APPD:	DATE:	泰立電子有限公司 TACLEX ELECTRONICS CO., LTD.	PART NAME: PIANO TYPE DIP SWITCH
CHKD:	SCALE: 5:1		
DR: Michelle 08.19'15	REV: A1 / UNITS: mm	PART NO: NDP□-□□□□V / MAT'L:	DWG NO: RD2P1
DESIGN: LARRY		FINISH:	

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

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℃ ~ +85℃

1.2 Storage Temperature Range : -40℃ ~ +85℃

1.3 The shelf life of product is within 6 months.

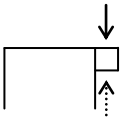
2. **Current Range:**

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)

MECHANICAL PERFORMANCE	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 : TEMP: 260℃±5℃ / TIME: 5±1 sec.	As shown in item 2~6
	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℃ 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.
DURABILITY	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)

WEATHER-PROOF	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℃±3℃ 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℃±2℃ 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℃±2℃ ②Relative Humidity :90~95% ③Time: 96 hours	1 As shown in item 4,6 2 Contact Resistance: 100mΩ Max. 3 Insulation Resistance : 10MΩ Min.

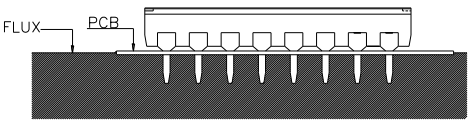
5. SOLDERING CONDITIONS:

■ 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 solderbility:

1. temperature within -40~+85℃ & 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