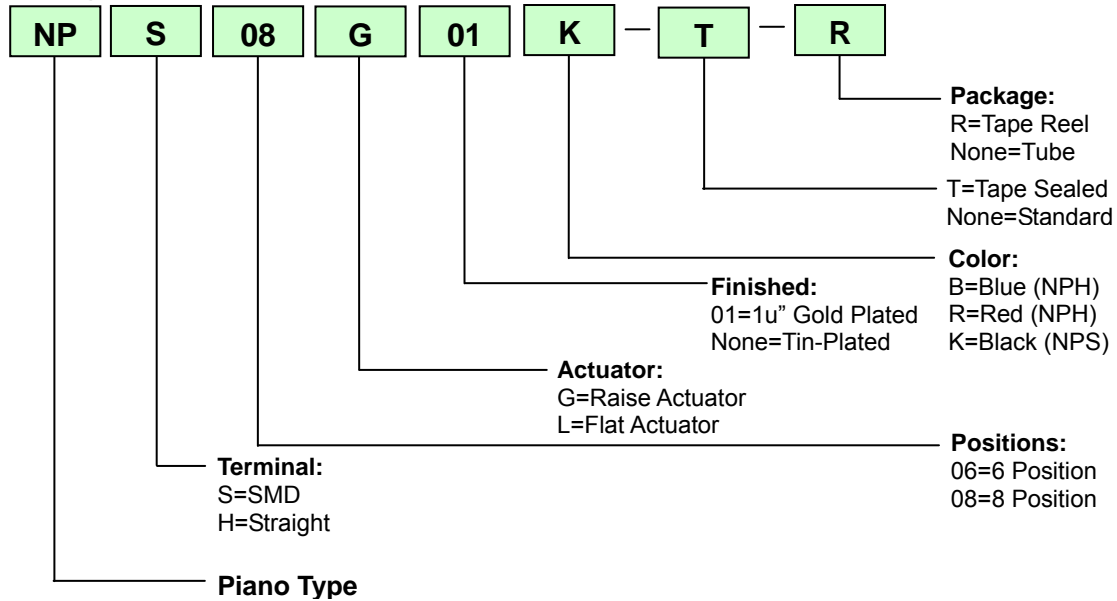


<b>MODEL</b>	<b>SPECIFICATION</b> RoHS Compliant DIP SWITCH	SP-001	Page
<b>NP series</b>			1/10
New Piano Type			

**Ordering Information:**



**Specifications**

◆ Contact Rating	Switching..... 25mA, 24VDC
	Non-Switching.....100mA, 50VDC
◆ Contact Resistance	Initial.....50mΩ Max.
	After Life Test.....100mΩ Max.
◆ Insulation Resistance	.....100MΩ Min. at 500VDC
◆ Dielectric Strength	.....500VDC / 1 minute
◆ Operation Force	.....1,000g max
◆ Mechanical Life	..... <b>5,000 cycles (Min.)</b>
◆ Electrical Life	..... <b>2,000 cycles / 25mA, 24VDC</b>
◆ Operation Temperature	.....-40°C ~ +85°C
◆ Storage Temperature	.....-40°C ~ +85°C

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### **Soldering Information**

◆ **Hand Soldering**

Soldering iron 30W or under at 350°C for 3 sec max or at 270°C for 5 sec max.

◆ **Reflow Soldering**

(1) Gold-plated series available 2~3 times process

(2) Tin-plated series available 1 time process

(3) Vapor Phase Heating (VPH) switch must with Tape sealed type

◆ **Wave Soldering**

For lead free wave solder simulation of typical components, the solder bath temperature

Shall be maintained to 275°C.

The hold time in the solder shall be 10 +2/-0 seconds.

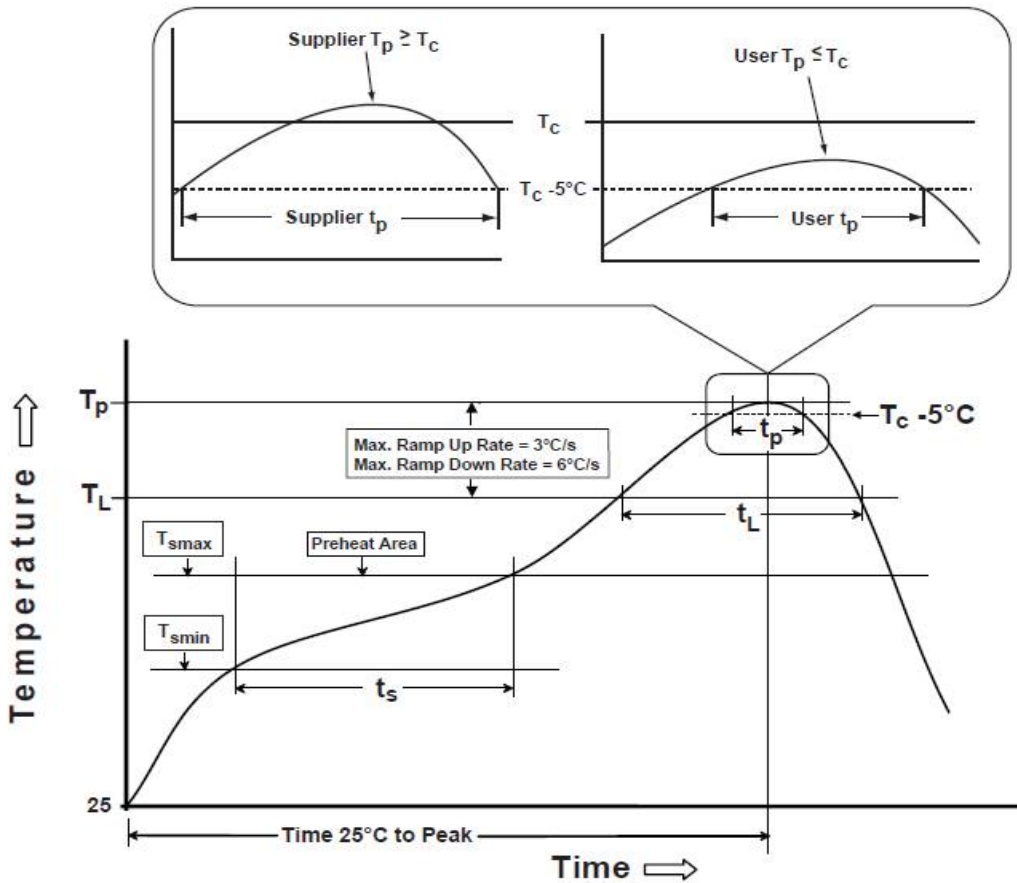
◆ **Keep all actuators in "OFF" position during soldering and cleaning process.**

### Classification Reflow Profiles

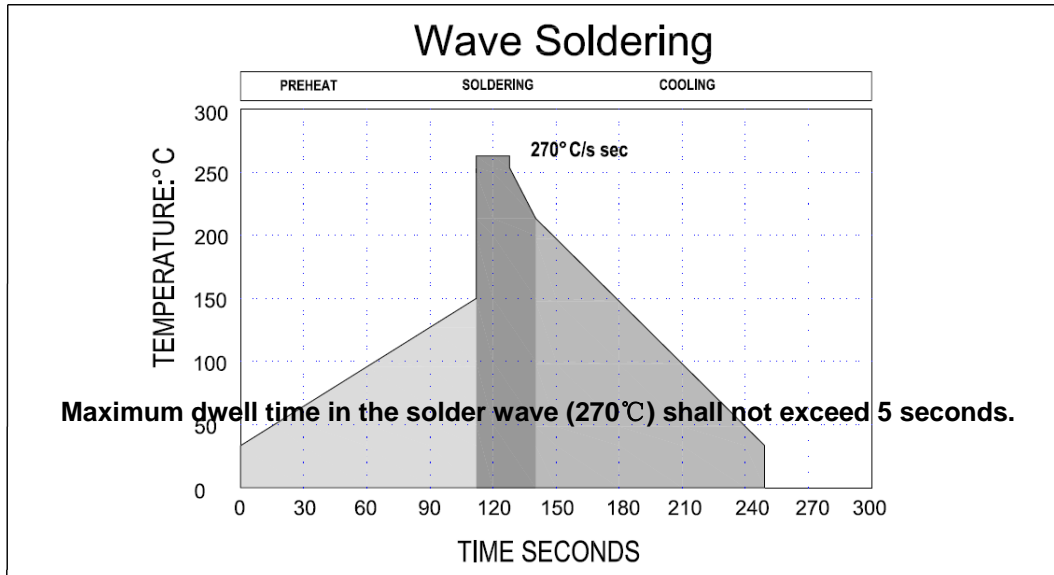
Profile Feature	Pb-Free Assembly
<b>Preheat / Soak</b>	
Temperature Min ( $T_{smin}$ )	150°C
Temperature Max ( $T_{smax}$ )	200°C
Time(ts) from ( $T_{smin}$ to $T_{smax}$ )	60 ~120 seconds
Ramp-up Rate ( $T_L$ to $T_p$ )	3°C/second max
Liquidous temperature ( $T_L$ )	217°C
Time ( $t_L$ ) maintained above to $T_L$	60 ~ 150 seconds
Peak package body temperature ( $T_p$ )	For users $T_p$ must not exceed the Classification temp:250°C (Package Thickness>2.5mm) For suppliers $T_p$ must equal or exceed the Classification temp:250°C (Package Thickness>2.5mm)
Time ( $t_p$ ) within 5°C of specified classification Temperature ( $T_c$ )	30 seconds
Ramp-Down Rate ( $T_p$ to $T_L$ )	6°C/second max
Time 25°C to Peak Temperature	8 minutes max
*Tolerance for peak profile temperature( $T_p$ ) is defined as a supplier minimum and a user maximum	

**Note 1:** All temperatures refer to topside of the package, measured on the package body surface.  
**Note 2:** Time within 5 °C of actual peak temperature ( $t_p$ ) specified for the reflow profiles is a “supplier” minimum and “user” maximum.

#### The table copy from IPC/JEDEC J-STD-020 D.1 Reflow Soldering Standard Conditions



### Classification Wave Soldering Profiles



#### Switch

- (1) Use tweezers for operation.
- (2) Flux cleaning should be done without removing the Tape.
- (3) If the tape is removed, it adheres less than before when it is placed back on, possibly causing flux inflow
- (4) Do Not Remove Tape sealed before Reflow processing
- (5) Ultrasonic cleaning not re-commended.

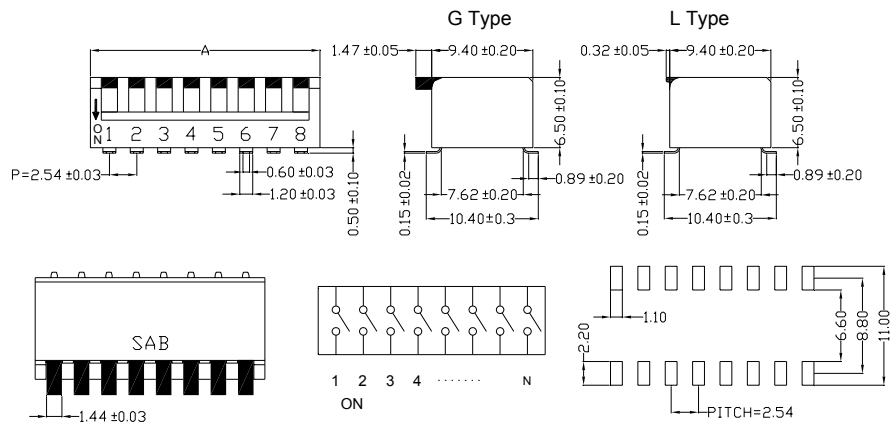
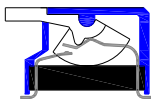
- ※ All switches must set in OFF position when through Soldering process.
- ※ Any flux enters the switch may influence contact function.

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**Materials:**

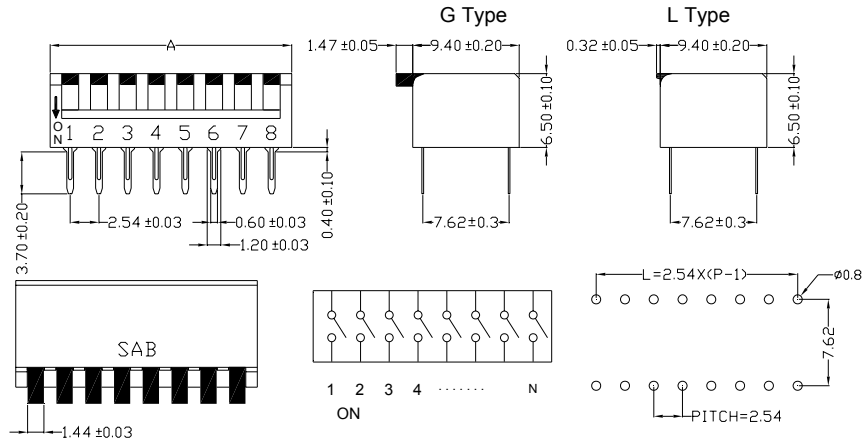
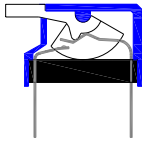
◆ Cover	NPS/H.....PPS (UL 94V-0), Black NPH.....PBT (UL 94V-0), Red / Blue
◆ Base	NPS.....PA6T (UL 94V-0), Black NPH.....PA66 (UL 94V-0), Black
◆ Actuator	NPS.....PA46 (UL 94V-0), White NPH.....PA66 (UL 94V-0), White
◆ Contact	.....Gold Plated
◆ Terminal	.....40u" +/-10u" Nickel Cover (Pure) Tin-Plated .....40u" +/-10u" Nickel Cover 1u" Gold-Plated
◆ Tape	.....Polyester Film

**NPS**



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### NPH

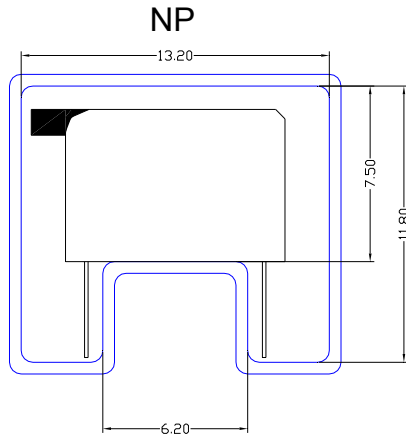


### Part Number Table

No. Pos.	Dim. "A"	Through Hole	SMD
		1u" Gold Lead Raise Actuator Red Color Tube Package	Flat Actuator Black Color Tape Reel
2	6.08	NPH02G01R	NPS02LK-R
3	8.62	NPH03G01R	NPS03LK-R
4	11.16	NPH04G01R	NPS04LK-R
5	13.70	NPH05G01R	NPS05LK-R
6	16.24	NPH06G01R	NPS06LK-R
7	18.78	NPH07G01R	NPS06LK-R
8	21.32	NPH08G01R	NPS08LK-R
10	26.40	NPH10G01R	NPS10LK-R
12	31.48	NPH12G01R	NPS12LK-R

**Tube Package:**

POLE	2	3	4	5	6	7	8	10	12
TUBE	85	61	47	38	32	28	24	20	16
BOX	4760	3416	2632	2128	1792	1568	1344	1120	896
CTN 1	9520	6832	5264	4256	3584	3136	2688	2240	1792
CTN 2	19040	13664	10528	8512	7168	6272	5376	4480	3584

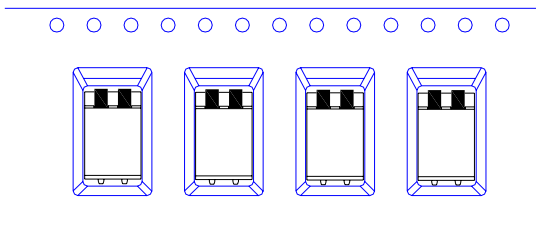


**Tape & Reel package**

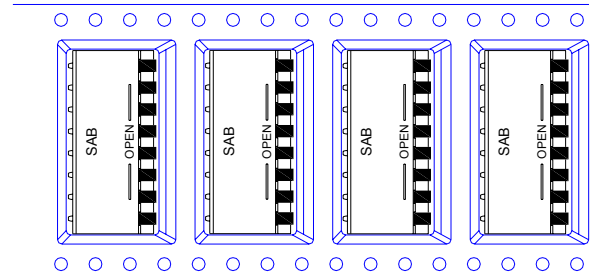
◆ NPS

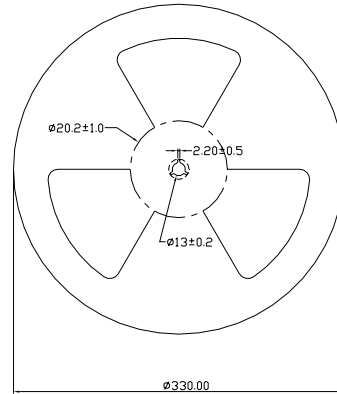
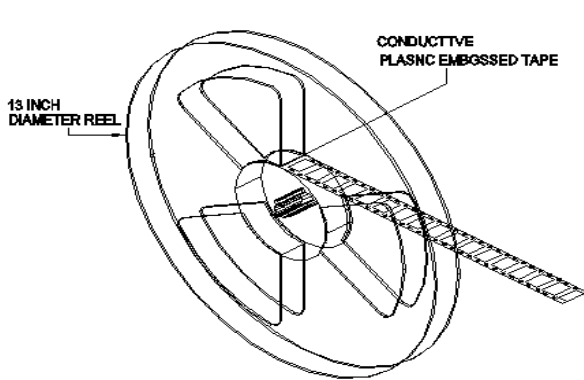
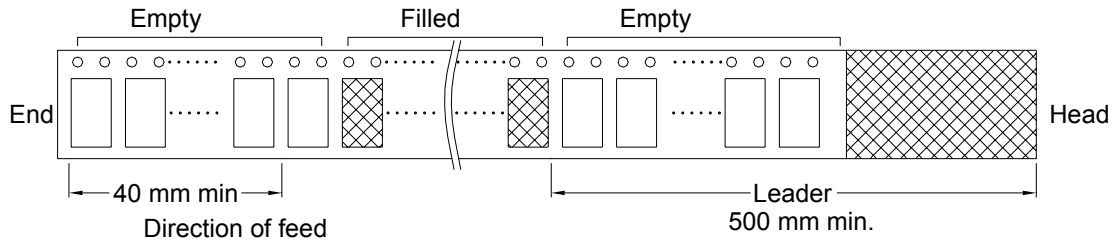
POLE	02	03	04	05	06	07	08	10	12
Pitch (mm)	12	16	16	16	16	16	16	16	16
Width (mm)	24	24	24	24	24	44	44	44	44
Per Reel	700	500	500	500	500	500	500	500	500

NPS02



NPS03~NPS12





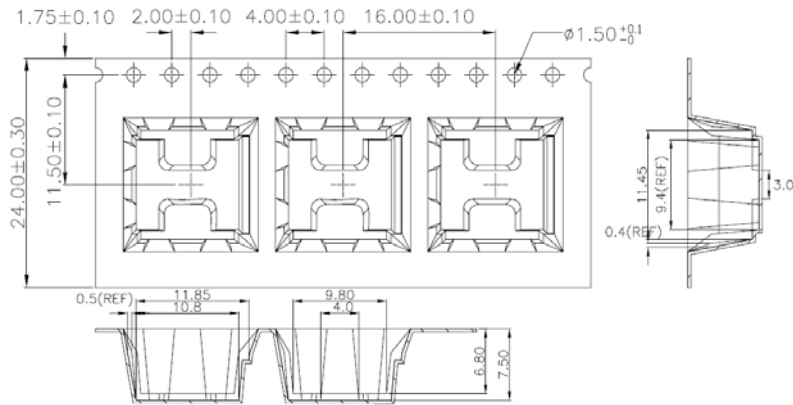
**Carrier Tape Table:**

P/N.	Pitch(mm)	Thickness(mm)	Width (mm)	Sellotape(mm)	@REEL/BOX	Q'ty/Reel
NPS02	12	0.4	24	21.3	4	700
NPS03	16	0.4	24	21.3		500
NPS04	16	0.4	24	21.3		500
NPS05	16	0.4	24	21.3		500
NPS06	16	0.4	32	25.5	3	500
NPS08	16	0.4	44	37.5	2	500
NPS10	16	0.4	44	37.5		500
NPS12	16	0.4	44	37.5		500

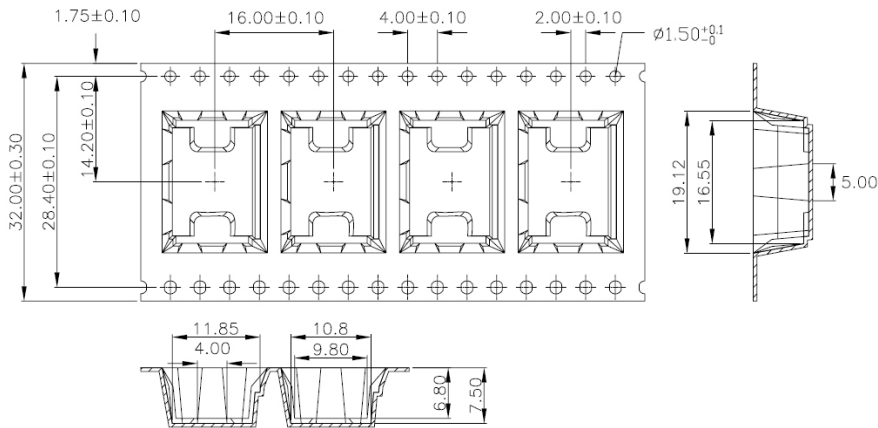


<b>MODEL</b> <b>NP series</b> New Piano Type	<b>SPECIFICATION</b> RoHS Compliant DIP SWITCH	SP-009	Page
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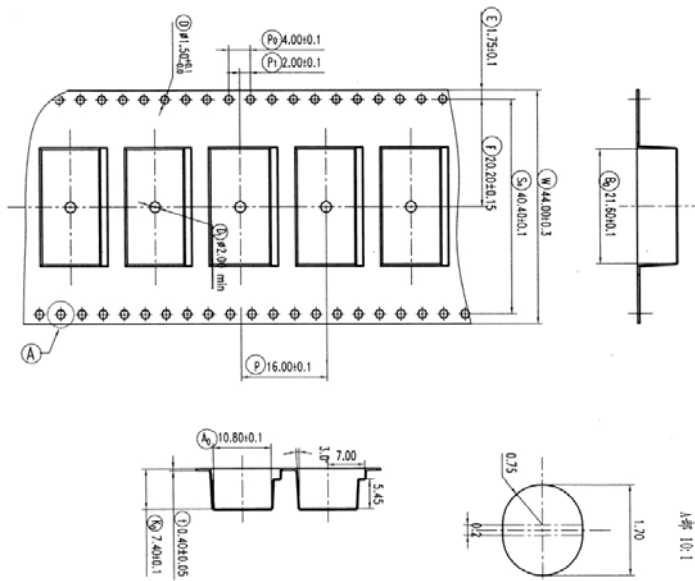
### 24mm



### 32mm



### 44mm



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<b>NP series</b> New Piano Type			<b>RoHS Compliant DIP SWITCH</b>

**Box Dimension:**

- ◆ Tube .....56cm × 12cm × 12cm
- ◆ Tape & Reel .....34cm x 12cm x 33cm

**Carton Dimension:**

- ◆ Tube           CTN 1 / 2 Boxes.....58.5cm x 26.5cm x 16cm  
                  CTN 2 / 4 Boxes.....58.5cm x 26.5cm x 24cm
- ◆ Tape & Reel   .....34cm x 26cm x 35cm