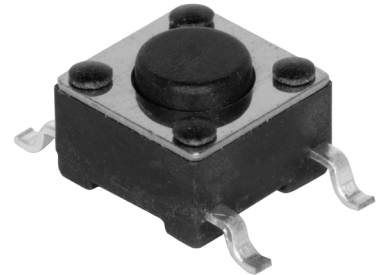


**SERIES:** TS04 | **DESCRIPTION:** TACTILE SWITCH**FEATURES**

- surface mount
- black actuator

**SPECIFICATIONS**

| parameter             | conditions/description                                   | min  | typ     | max  | units  |
|-----------------------|----------------------------------------------------------|------|---------|------|--------|
| rated voltage         |                                                          | 1    |         | 12   | Vdc    |
| rated current         |                                                          | 0.01 |         | 50   | mA     |
| withstanding voltage  | for 1 minute                                             |      | 250     |      | Vac    |
| contact resistance    | applying load of 2 times operating force at 5 Vdc, 10 mA |      |         | 100  | mΩ     |
| insulation resistance | at 100 Vdc for 1 minute                                  | 100  |         |      | MΩ     |
| operating force       | see force table                                          |      |         |      |        |
| actuator travel       |                                                          | 0.15 | 0.25    | 0.35 | mm     |
| operating temperature |                                                          | -30  |         | 80   | °C     |
| storage temperature   |                                                          | -40  |         | 90   | °C     |
| life                  | rated load, 2 cycles/second, 1.5 times operating force   |      |         |      |        |
|                       | 100 gf models                                            |      | 100,000 |      | cycles |
|                       | 160 gf models                                            |      | 80,000  |      | cycles |
|                       | 260 gf models                                            |      | 60,000  |      | cycles |
| vibration             | 10~55~10 Hz, 1.5 mm amplitude, 2 hours on each XYZ       |      |         |      |        |
| flammability rating   | see material table                                       |      |         |      |        |
| RoHS                  | yes                                                      |      |         |      |        |

**PART NUMBER KEY**

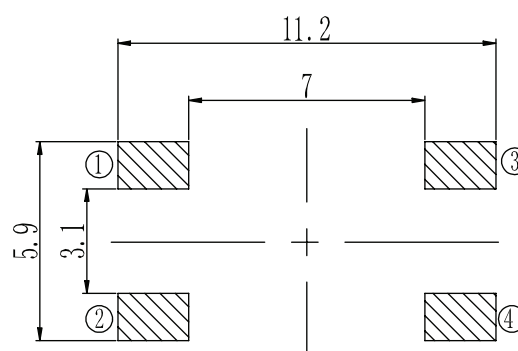
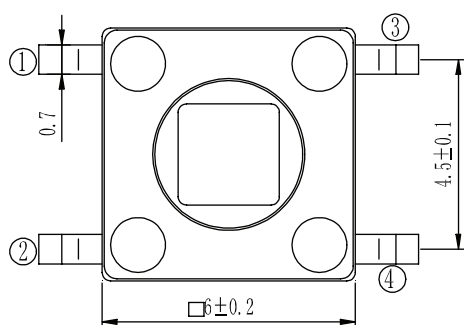
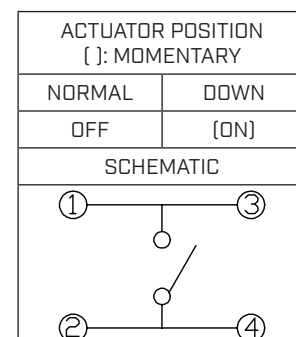
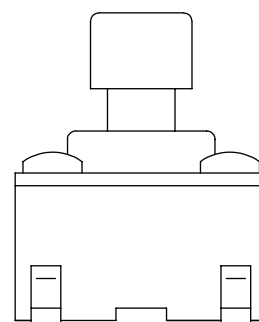
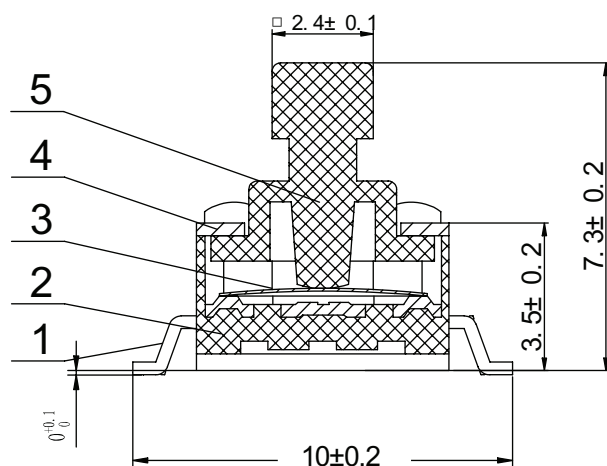
| TS04 - 66 - XX - BK - XXX - SMT - XX |                  |              |                    |
|--------------------------------------|------------------|--------------|--------------------|
| Base Number                          | Actuator Height: | Push Force:  | Packaging:         |
|                                      | 43 = 4.3 mm      | 100 = 100 gf | "blank" = bag      |
|                                      | *73 = 7.3 mm     | 160 = 160 gf | TR = tape and reel |
|                                      | 50 = 5.0 mm      | 260 = 260 gf |                    |
|                                      | 55 = 5.5 mm      |              |                    |
|                                      | 65 = 6.5 mm      |              |                    |
|                                      | 70 = 7.0 mm      |              |                    |
|                                      | 75 = 7.5 mm      |              |                    |
|                                      | 85 = 8.5 mm      |              |                    |
|                                      | 95 = 9.5 mm      |              |                    |

Note: \*7.3 mm height versions have square actuator top. All other models have round actuator top.

## MECHANICAL DRAWING (7.3 MM HEIGHT MODELS)

units: mm  
tolerance:  $\pm 0.2$  mm  
unless otherwise noted

| ITEM | DESCRIPTION | MATERIAL        | PLATING/COLOR |
|------|-------------|-----------------|---------------|
| 1    | terminals   | brass           | silver        |
| 2    | case        | PA66 (UL94HB)   | black         |
| 3    | contacts    | stainless steel | silver        |
| 4    | cover       | stainless steel |               |
| 5    | stem        | PA66 (UL94HB)   | black         |



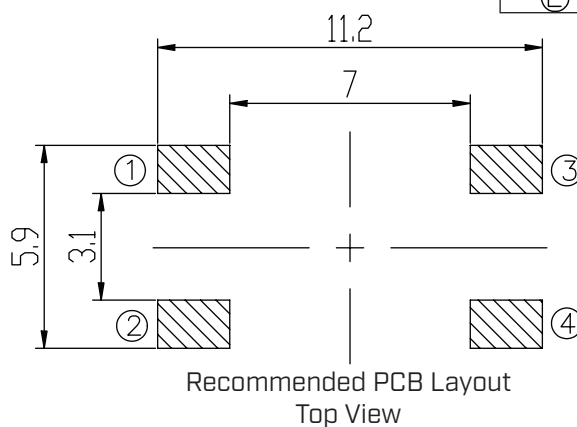
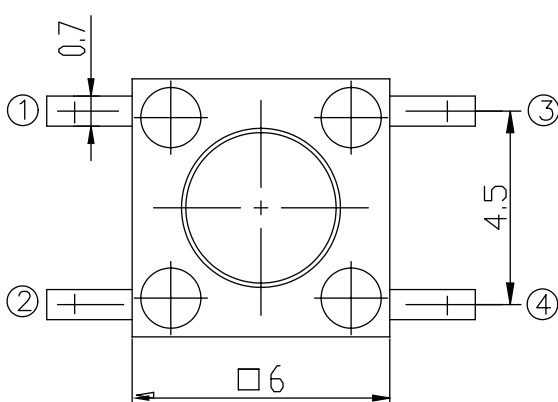
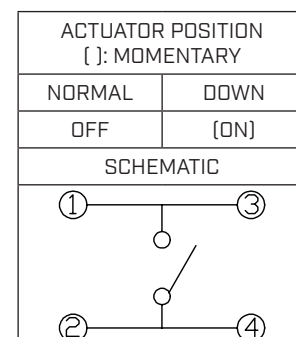
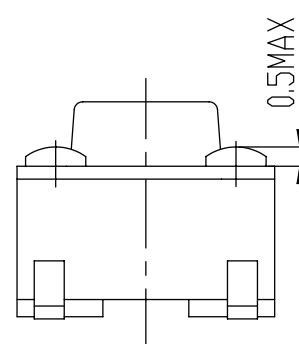
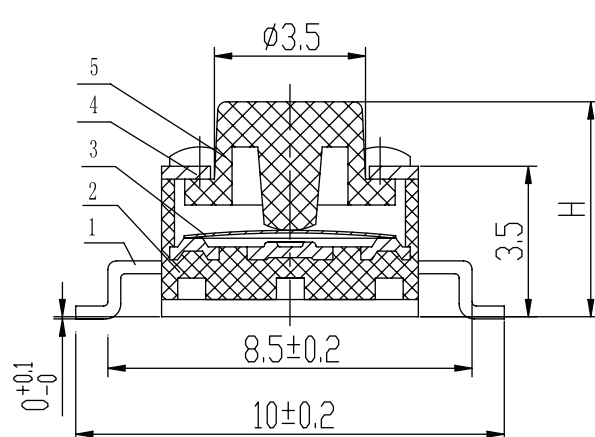
Recommended PCB Layout  
Top View

| Operating Force Table |                 |                  |
|-----------------------|-----------------|------------------|
| Model                 | Press Force [N] | Return Force [N] |
| 100                   | $1.0 \pm 0.3$   | $> 0.2$          |
| 160                   | $1.6 \pm 0.5$   | $> 0.2$          |
| 260                   | $2.6 \pm 0.5$   | $> 0.2$          |

## MECHANICAL DRAWING (ALL OTHER HEIGHT MODELS)

units: mm  
tolerance:  $\pm 0.2$  mm  
unless otherwise noted

| ITEM | DESCRIPTION | MATERIAL        | PLATING/COLOR |
|------|-------------|-----------------|---------------|
| 1    | terminals   | brass           | silver        |
| 2    | case        | PA66 (UL94HB)   | black         |
| 3    | contacts    | stainless steel | silver        |
| 4    | cover       | stainless steel |               |
| 5    | stem        | PA66 (UL94HB)   | black         |

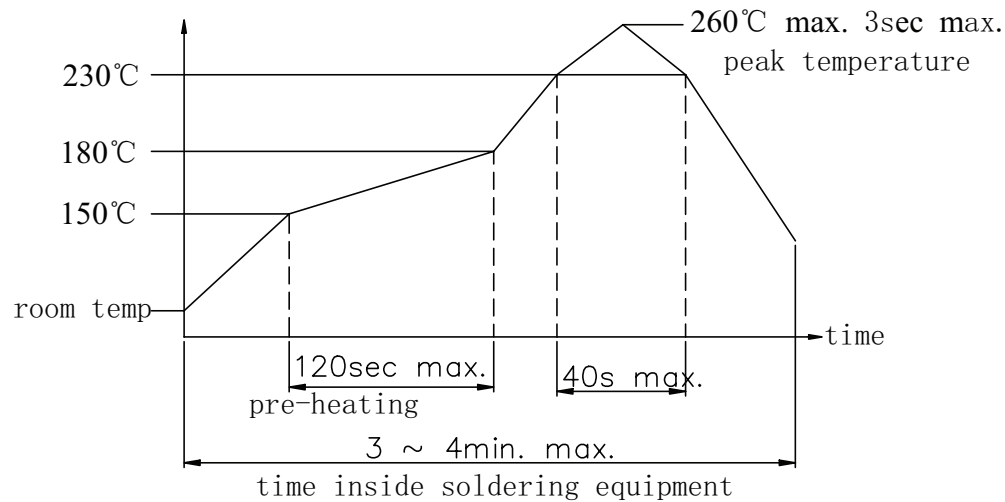


| Operating Force Table |                 |                  |
|-----------------------|-----------------|------------------|
| Model                 | Press Force [N] | Return Force [N] |
| 100                   | 1.0 $\pm$ 0.3   | >0.2             |
| 160                   | 1.6 $\pm$ 0.5   | >0.2             |
| 260                   | 2.6 $\pm$ 0.5   | >0.2             |

## SOLDERABILITY

| parameter                     | conditions/description | min | typ | max | units |
|-------------------------------|------------------------|-----|-----|-----|-------|
| hand soldering                | for maximum 3 seconds  |     |     | 350 | °C    |
| reflow soldering <sup>1</sup> | see reflow profile     |     |     | 260 | °C    |

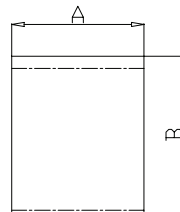
Notes: 1. Do not exceed 2 reflow cycles.



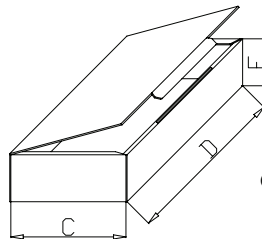
## PACKAGING (BAG)

units: mm

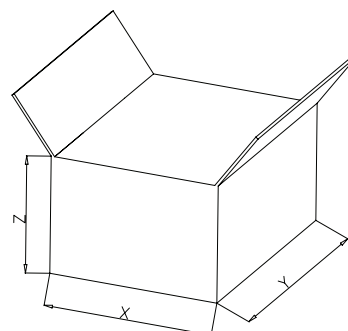
Bag Size: 190 x 160 mm  
 Carton Box Size: 445 x 350 x 280 mm  
 Bag QTY: 1,000 pcs per bag  
 Carton Box QTY: 60,000 pcs per carton



A=160mm、B=190mm



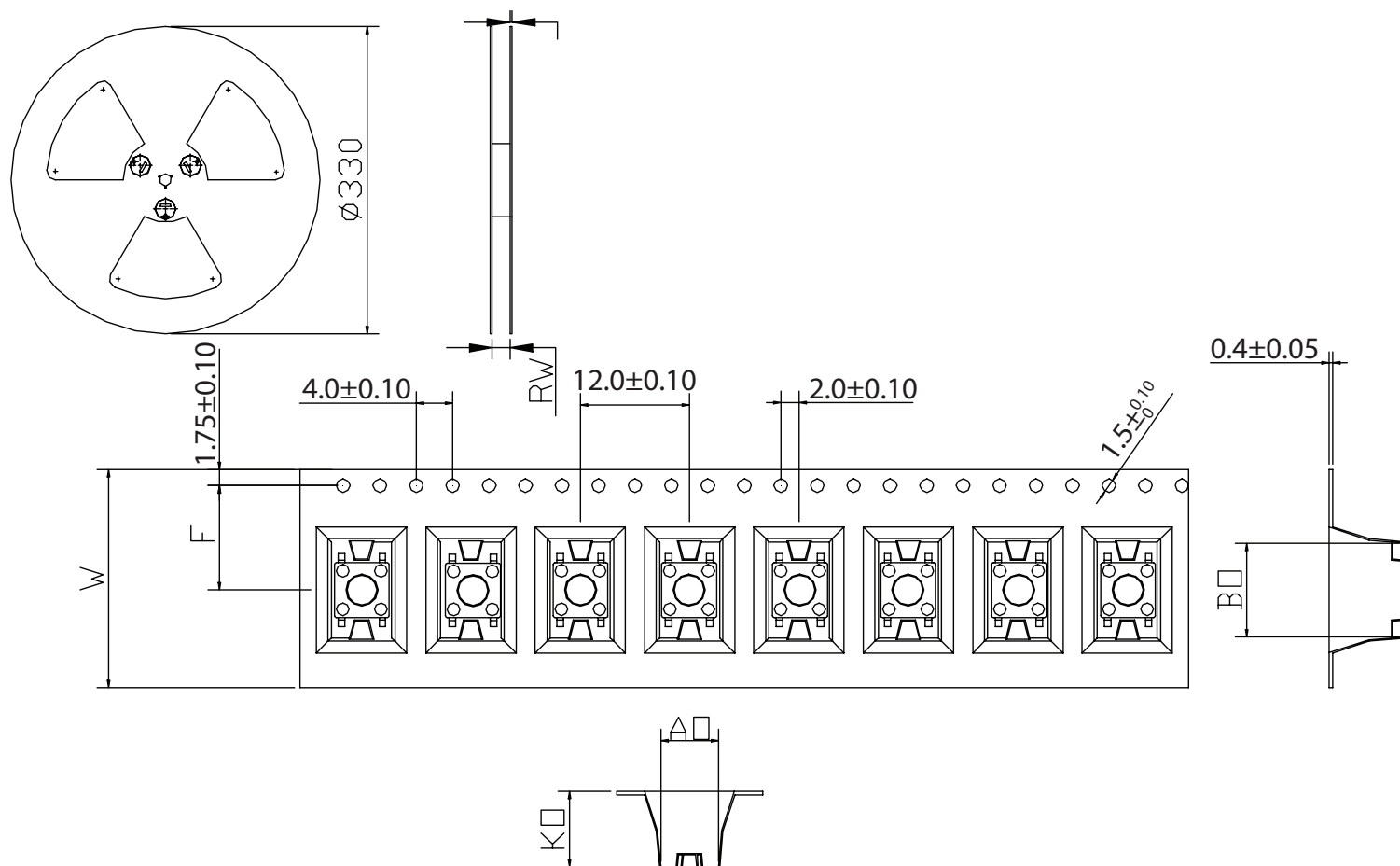
C=160mm、D=216mm、E=48mm



X=350mm、Y=455、Z=280mm

## PACKAGING (TAPE & REEL)

| Packaging Table             |          |                          |            |         |        |         |          |                                   |          |
|-----------------------------|----------|--------------------------|------------|---------|--------|---------|----------|-----------------------------------|----------|
| Actuator Height Models (mm) | Reel QTY | Carton Size [XxYxZ] (mm) | Carton QTY | RW (mm) | W (mm) | AO (mm) | BO (mm)  | KO (mm)                           | F (mm)   |
| 4.3                         | 1,000    | 340 x 430 x 340          | 20,000     | 16.5    | 16±0.3 | 6.3±0.1 | 10.4±0.1 | 4.5±0.1                           | 7.5±0.1  |
| 5.0                         | 1,000    | 340 x 430 x 340          | 20,000     | 16.5    | 16±0.3 | 6.3±0.1 | 10.4±0.1 | 5.2±0.1                           | 7.5±0.1  |
| 5.5                         | 1,000    | 340 x 430 x 340          | 20,000     | 16.5    | 16±0.3 | 6.3±0.1 | 10.4±0.1 | 5.7±0.1                           | 7.5±0.1  |
| 6.5                         | 800      | 340 x 430 x 340          | 16,000     | 16.5    | 16±0.3 | 6.3±0.1 | 10.4±0.1 | 6.7±0.1                           | 7.5±0.1  |
| 7.0                         | 750      | 340 x 430 x 340          | 10,500     | 24.5    | 24±0.3 | 6.3±0.1 | 10.3±0.1 | 7.3±0.1                           | 11.5±0.1 |
| 7.3                         | 750      | 340 x 430 x 340          | 10,500     | 24.5    | 24±0.3 | 6.4±0.1 | 10.5±0.1 | 7.8±0.1                           | 11.5±0.1 |
| 7.5                         | 750      | 340 x 430 x 340          | 10,500     | 24.5    | 24±0.3 | 6.4±0.1 | 10.5±0.1 | 7.8±0.1                           | 11.5±0.1 |
| 8.5                         | 500      | 340 x 430 x 340          | 7,000      | 24.5    | 24±0.3 | 6.3±0.1 | 10.4±0.1 | 8.6 <sup>+0.1</sup> <sub>-0</sub> | 11.5±0.1 |
| 9.5                         | 500      | 340 x 430 x 340          | 7,000      | 24.5    | 24±0.3 | 6.3±0.1 | 10.4±0.1 | 9.6 <sup>+0.1</sup> <sub>-0</sub> | 11.5±0.1 |



- Note: 1. Actuator height 4.3 & 5.0 models have about 15~25 open positions reserved for the front and rear positions of the reel.  
 2. Actuator height 5.5 & 6.5 models have about 15~30 open positions reserved for the front and rear positions of the reel.  
 3. Actuator height 7.0, 7.3, & 7.5 models have about 20~35 open positions reserved for the front and rear positions of the reel.  
 4. Actuator height 8.5 & 9.5 models have about 30~50 open positions reserved for the front and rear positions of the reel.

## REVISION HISTORY

| rev. | description                          | date       |
|------|--------------------------------------|------------|
| 1.0  | initial release                      | 09/20/2021 |
| 1.01 | added 7.3 mm height model drawing    | 11/03/2021 |
| 1.02 | logo, datasheet style update         | 08/05/2022 |
| 1.03 | added tape and reel packaging option | 05/12/2023 |

The revision history provided is for informational purposes only and is believed to be accurate.



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