

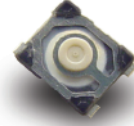
# KMT2 Series Nano-Miniature SMT Top Actuated

## Features

- **Smallest footprint**
- **High number of cycles within the smallest packaging**
- **Smallest thickness with integrated actuator**
- **Ground pin option**
- **Halogen free**

## Typical Applications

- **Mobile Phones**
- **Hearing Aids**
- **MP3 accessories**
- **Bluetooth Headset**



B

Tactile Switches

## Specification

FUNCTION: momentary action  
CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.  
TERMINALS: Gullwing type for SMT

## Mechanical

| Type G and NG  | Operating force<br>Newtons (grams) | Operating<br>Life | Tactile<br>Feeling | Travel mm  |
|----------------|------------------------------------|-------------------|--------------------|------------|
| KMT 211 HF LFS | 1.0 (100) ± 0.25                   | 150,000           | ≥ 10%              | 0.15 ± 0.1 |
| KMT 221 HF LFS | 1.6 (160) ± 0.40                   | 150,000           | ≥ 30%              | 0.15 ± 0.1 |

## Electrical

|                        |                  |
|------------------------|------------------|
|                        | Silver           |
| MAXIMUM POWER:         | 0.5 VA           |
| MAXIMUM VOLTAGE:       | 32 VDC           |
| MINIMUM VOLTAGE:       | 20 mV            |
| MAXIMUM CURRENT DC:    | 50 mA            |
| MINIMUM CURRENT DC:    | 1 mA             |
| DIELECTRIC STRENGTH:   | ≥ 250 Vrms (1mn) |
| CONTACT RESISTANCE:    | ≤ 150 mΩ         |
| INSULATION RESISTANCE: | ≥ 50 MΩ          |
| BOUNCE TIME:           | ≤ 6 ms           |

## Environmental

|                        |                                   |
|------------------------|-----------------------------------|
|                        | Silver                            |
| OPERATING TEMPERATURE: | -40°C to 85°C                     |
| STORAGE TEMPERATURE:   | -55°C (10 days)<br>+85°C (4 days) |

## Process

SOLDERING: This component is suited to the following methods:  
– Infrared Reflow Soldering in accordance with IEC61760-1

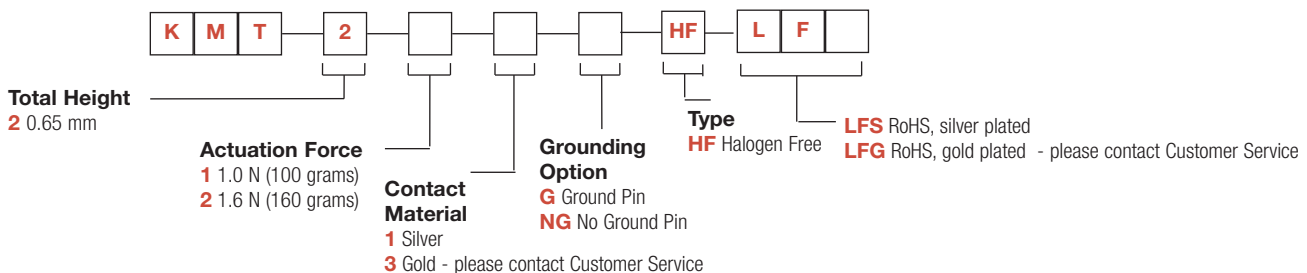
## Packaging

In reels of 4,000 pieces.  
Dimensions of reels according to EIA 481B  
External diameter 180 mm

**NOTE:** Specifications listed above are for switches with standard options.  
For information on specific and custom switches, consult Customer Service Center.

## Part Number Description

For any part number different from those listed above, please consult your local representative.

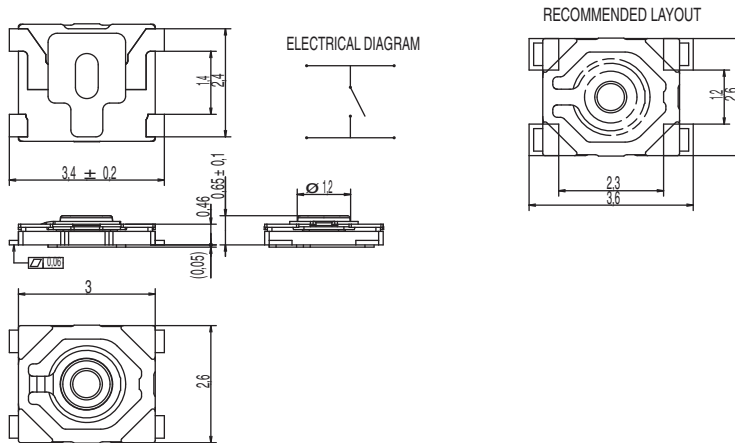


# KMT2 Series Nano-Miniature SMT Top Actuated

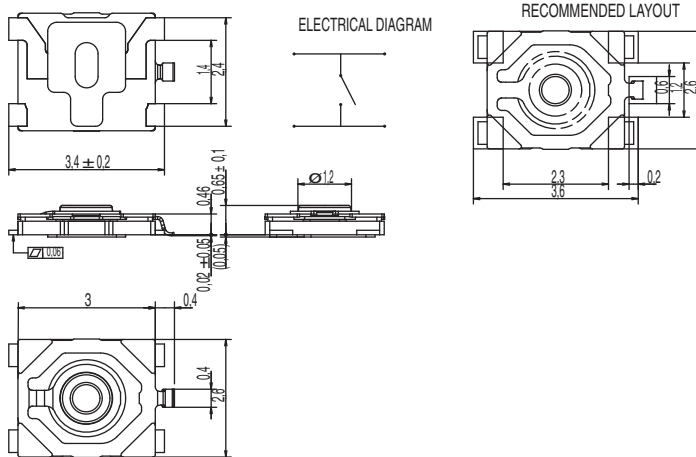
B

Tactile Switches

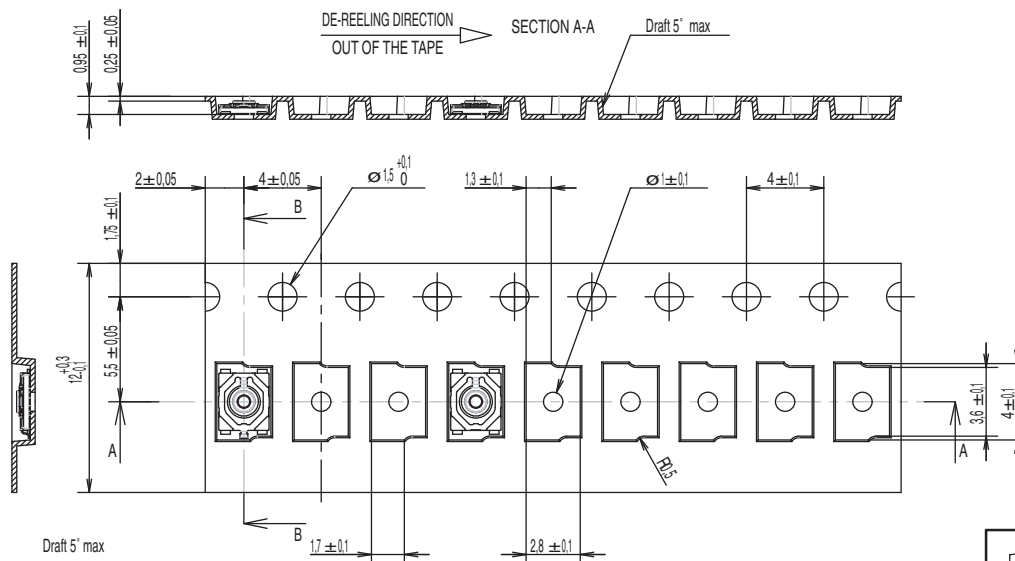
## KMT Series – No Ground Pin



## KMT Series – With Ground Pin



## TAPE & REEL



Dimensions are shown: mm  
Specifications and dimensions subject to change



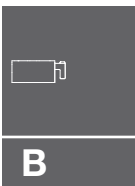
# KMT0 Series Nano-Miniature SMT Top Actuated

## Features

- **Smallest footprint**
- **Smallest thickness with integrated actuator**
- **Extended life cycles**
- **IP68**
- **Ultra low current capabilities**

## Typical Applications

- **Mobile Phones**
- **Hearing Aids**
- **MP3 accessories**
- **Bluetooth Headset**
- **Automotive keyless entry system**
- **Smoke and CO detectors**
- **E-readers**
- **Home automation remote controls**



B

Tactile Switches

## Specification

FUNCTION: momentary action, normally open  
CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.  
TERMINALS: J lead type for SMT

## Mechanical

TRAVEL (mm): 0.15 ± 0.1

|              | Operating force<br>Newtons (grams) | Tactile<br>Feeling | Operating<br>Life |
|--------------|------------------------------------|--------------------|-------------------|
| KMT011NGJLHS | 1.0 (100) ± 25%                    | ≥ 10%              | 300,000           |
| KMT021NGJLHS | 1.6 (160) ± 25%                    | ≥ 30%              | 300,000           |
| KMT071NGJLHS | 2.3 (230) ± 25%                    | ≥ 30%              | 300,000           |
| KMT031NGJLHS | 3.4 (340) ± 25%                    | ≥ 30%              | 300,000           |

|              | Operating force<br>Newtons (grams) | Tactile<br>Feeling | Operating<br>Life |
|--------------|------------------------------------|--------------------|-------------------|
| KMT012NGJLHS | 1.0 (100) ± 25%                    | ≥ 10%              | 1,000,000         |
| KMT022NGJLHS | 1.6 (160) ± 25%                    | ≥ 30%              | 600,000           |
| KMT072NGJLHS | 2.3 (230) ± 25%                    | ≥ 30%              | 600,000           |

## Electrical

|                        |                  |
|------------------------|------------------|
| MAXIMUM POWER:         | 0.5 VA           |
| MAXIMUM VOLTAGE:       | 32 VDC           |
| MINIMUM VOLTAGE:       | 20 mV            |
| MAXIMUM CURRENT DC:    | 50 mA            |
| MINIMUM CURRENT DC:    | 1 mA             |
| DIELECTRIC STRENGTH:   | ≥ 250 Vrms (1mn) |
| CONTACT RESISTANCE:    | ≤ 150 mΩ         |
| INSULATION RESISTANCE: | ≥ 50 MΩ          |
| BOUNCE TIME:           | ≤ 6 ms           |

## Environmental

OPERATING TEMPERATURE: -40°C to 85°C  
STORAGE TEMPERATURE: -55°C (10 days) +85°C (4 days)

## Process

SOLDERING: This component is suited to the following methods:  
– Infrared Reflow Soldering in accordance with IEC61760-1

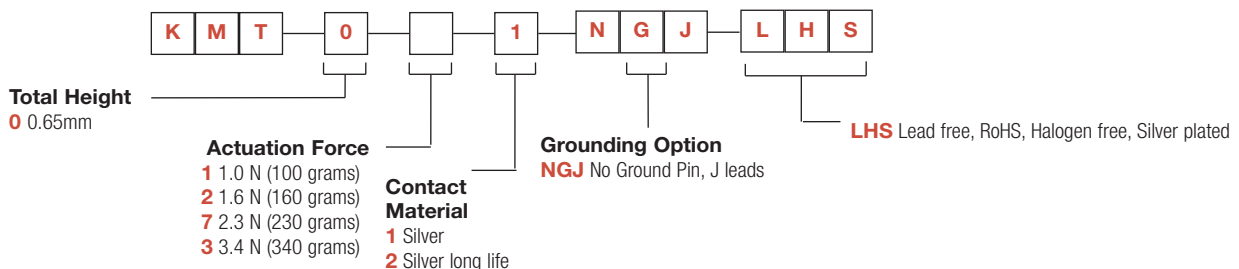
## Packaging

In reels of 5,000 pieces.  
Dimensions of reels according to EIA 481B  
External diameter 180 mm

**NOTE:** Specifications listed above are for switches with standard options.  
For information on specific and custom switches, consult Customer Service Center.

## Part Number Description

For any part number different from those listed above, please consult your local representative.

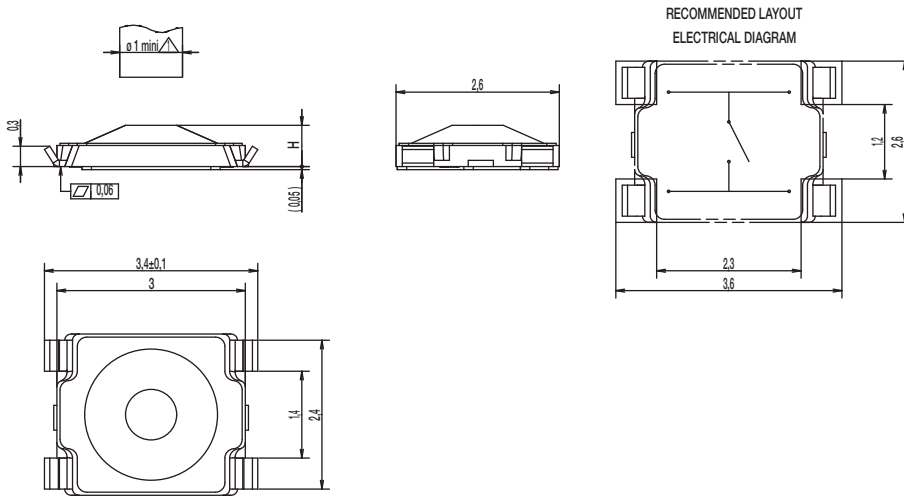


# KMT0 Series Nano-Miniature SMT Top Actuated

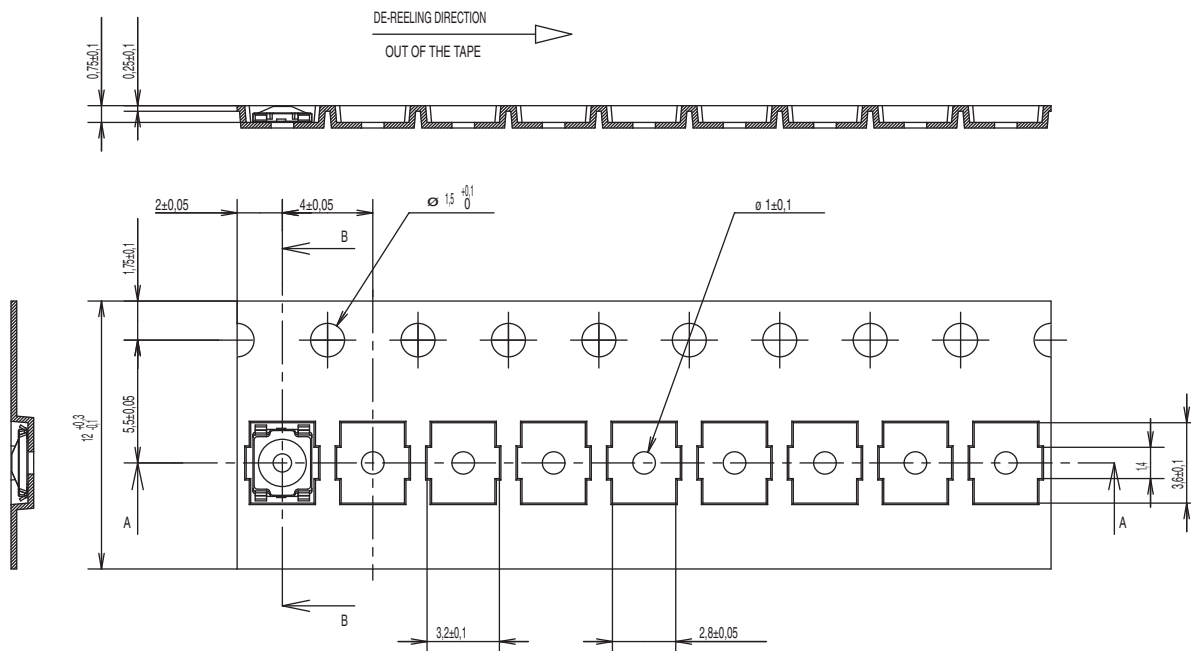
Minimum actuator diameter is 1.0 mm. It is recommended to enlarge this diameter to a full flat surface covering the switch.

Tactile Switches

B



## TAPE & REEL



Dimensions are shown: mm  
Specifications and dimensions subject to change

# KMR 2 Series Microminiature SMT Top Actuated

## Features/Benefits

- Long Life version
- 4 actuation forces
- Optional ground pin
- Ultra low current capabilities
- Excellent tactile feel

## Typical Applications

- Automotive
- Cellular phones
- Industrial electronics
- Medical equipment



Tactile Switches

## Specification

FUNCTION: momentary action  
CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.  
TERMINALS: Gullwing type for SMT

## Mechanical

| Type G and NG<br>(except gold<br>version G only)<br>See description<br>below | Operating<br>force<br>N (grs) | Operating<br>life<br>(cycles) | Travel (mm)   |
|--|-------------------------------|-------------------------------|---------------|
| KMR211 LFS   | 1.2 (120) ± 0.30              | 200 000                       | 0.20 mm ± 0.1 |
| KMR213 LFG   | 1.2 (120) ± 0.30              | 200 000                       | 0.20 mm ± 0.1 |
| KMR221 LFS   | 2.0 (200) ± 0.50              | 200 000                       | 0.25 mm ± 0.1 |
| KMR223G LFG  | 2.0 (200) ± 0.50              | 200 000                       | 0.25 mm ± 0.1 |
| KMR231 LFS   | 3.0 (300) ± 0.75              | 150 000                       | 0.25 mm ± 0.1 |
| KMR233G LFG  | 3.0 (300) ± 0.75              | 150 000                       | 0.25 mm ± 0.1 |
| KMR231 ULC LFS   | 3.0 (300) ± 0.75              | 150 000                       | 0.25 mm ± 0.1 |
| KMR232 LFS   | 3.0 (300) ± 0.75              | 300 000                       | 0.25 mm ± 0.1 |
| KMR232 ULC LFS   | 3.0 (300) ± 0.75              | 300 000                       | 0.25 mm ± 0.1 |
| KMR241 LFS   | 4.0 (400) ± 1.00              | 100 000                       | 0.30 mm ± 0.1 |
| KMR243G LFG  | 4.0 (400) ± 1.00              | 100 000                       | 0.30 mm ± 0.1 |
| KMR241 ULC LFS   | 4.0 (400) ± 1.00              | 100 000                       | 0.30 mm ± 0.1 |
| KMR242 LFS   | 4.0 (400) ± 1.00              | 200 000                       | 0.30 mm ± 0.1 |
| KMR242 ULC LFS   | 4.0 (400) ± 1.00              | 200 000                       | 0.30 mm ± 0.1 |

TACTILE FEELING: for KMR 2 series: ≥ 30% (1.2N at 20%)

## Electrical

|                        | Silver     | Gold    |
|------------------------|------------|---------|
| MAXIMUM POWER:         | 1 VA       | 0.2 VA  |
| MAXIMUM VOLTAGE:       | 32 VDC     | 32 VDC  |
| MINIMUM VOLTAGE:       | 20 mVDC    | 20 mVDC |
| MAXIMUM CURRENT:       | 50 mA      | 10 mA   |
| MINIMUM CURRENT:       | 1 mA*      | 1 mA*   |
| DIELECTRIC STRENGTH:   | ≥ 250 Vrms |         |
| CONTACT RESISTANCE:    | ≤ 100 mΩ   |         |
| INSULATION RESISTANCE: | ≥ 1GΩ      |         |
| BOUNCE TIME:           | ≤ 3 ms     |         |

\*For ULC version minimum current is 1μA at 1.8 VDC

## Environmental

|                        | Silver        | Gold           |
|------------------------|---------------|----------------|
| OPERATING TEMPERATURE: | -40°C to 85°C | -40°C to 125°C |
| STORAGE TEMPERATURE:   | -55°C to 85°C | -55°C to 125°C |

## Process

Infrared Reflow Soldering in accordance with IEC61760-1

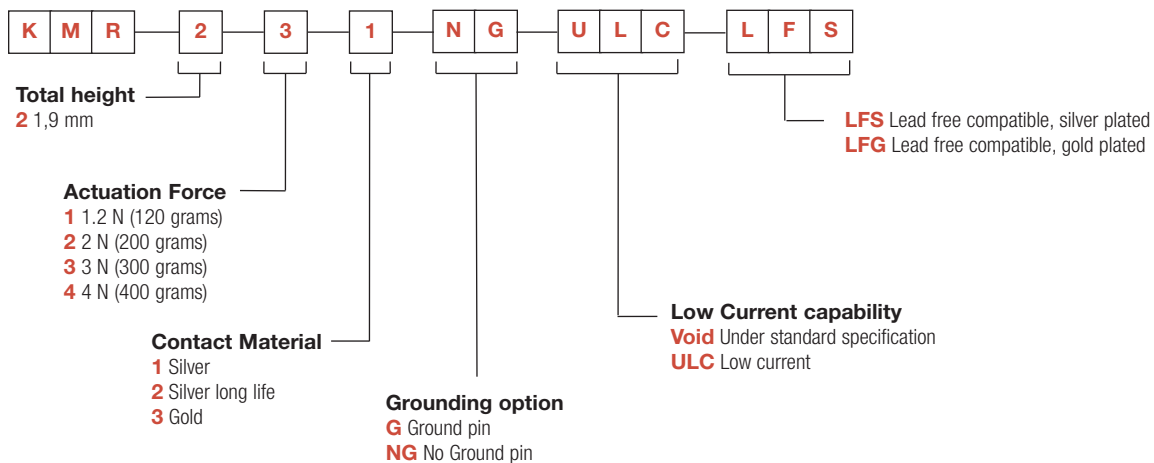
## Packaging

In reels of 7,000 pieces for KMR 2  
External diameter 330 mm ± 2 mm

**NOTE:** Specifications listed above are for switches with standard options.  
For information on specific and custom switches, consult Customer Service Center.

## Part Number Description

For any part number different from those listed above, please consult your local representative.



# KMR 2 Series Microminiature Tact Switch for SMT

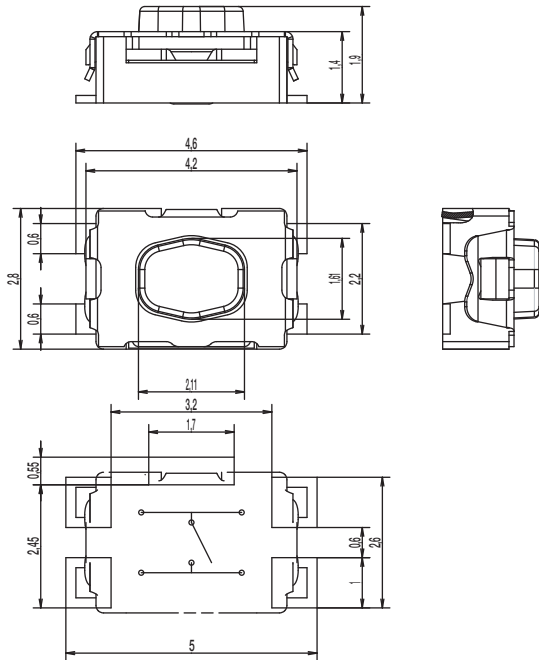
KMR 2 Series - 1.9 mm height

PCB layout shown with ground pin option

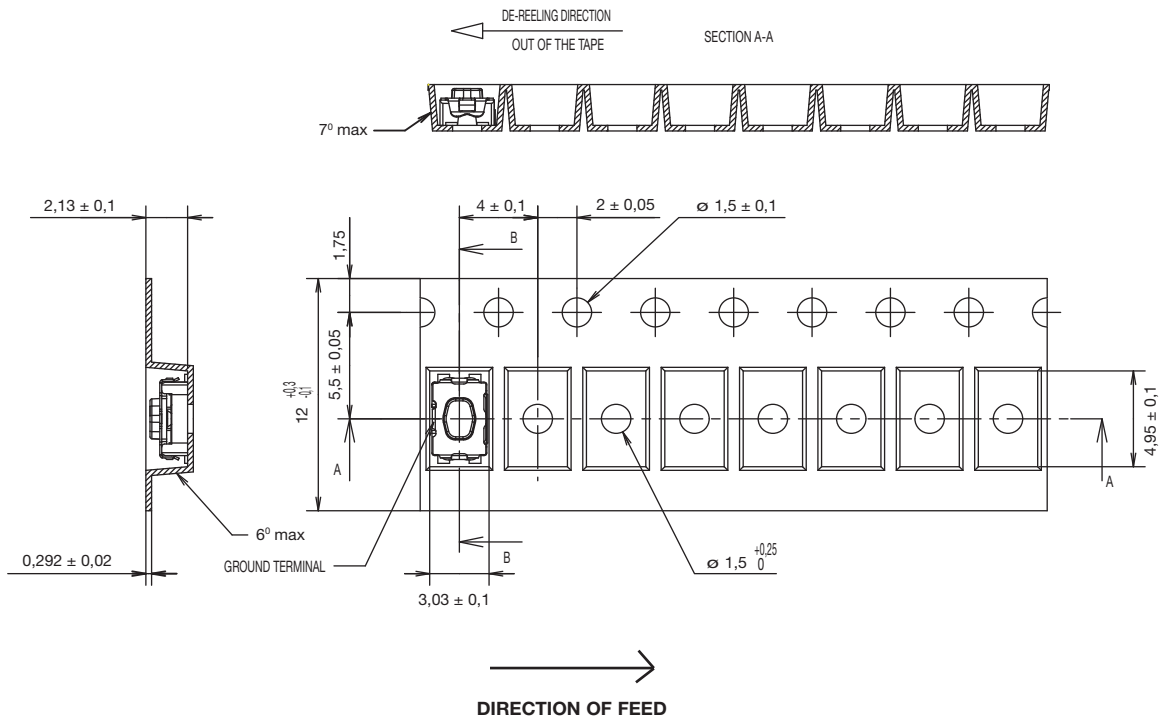


B

Tactile Switches



## TAPE & REEL



First Angle  
Projection

Dimensions are shown: mm  
Specifications and dimensions subject to change



# KMR 4 Series Microminiature SMT Top Actuated

## Features/Benefits

- Long Life version
- 4 actuation forces
- Optional ground pin
- Ultra low current capabilities
- Excellent tactile feel

## Typical Applications

- Automotive
- Cellular phones
- Industrial electronics
- Medical equipment



B

Tactile Switches

## Specification

FUNCTION: momentary action  
CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.  
TERMINALS: Gullwing type for SMT

## Mechanical

| Type G and NG<br>(except gold<br>version G only)<br>See description<br>below | Operating<br>force<br>N (grs) | Operating<br>life<br>(cycles) | Travel (mm)   |
|--|-------------------------------|-------------------------------|---------------|
| KMR421 LFS   | 2.0 (200) ± 0.50              | 200 000                       | 0.25 mm ± 0.1 |
| KMR431 LFS   | 3.0 (300) ± 0.75              | 150 000                       | 0.30 mm ± 0.1 |
| KMR431 ULC LFS   | 3.0 (300) ± 0.75              | 150 000                       | 0.30 mm ± 0.1 |
| KMR432 LFS   | 3.0 (300) ± 0.75              | 300 000                       | 0.30 mm ± 0.1 |
| KMR432 ULC LFS   | 3.0 (300) ± 0.75              | 300 000                       | 0.30 mm ± 0.1 |
| KMR441 LFS   | 4.0 (400) ± 1.00              | 100 000                       | 0.35 mm ± 0.1 |
| KMR441 ULC LFS   | 4.0 (400) ± 1.00              | 100 000                       | 0.35 mm ± 0.1 |
| KMR442 LFS   | 4.0 (400) ± 1.00              | 200 000                       | 0.35 mm ± 0.1 |
| KMR442 ULC LFS   | 4.0 (400) ± 1.00              | 200 000                       | 0.35 mm ± 0.1 |

TACTILE FEELING: for KMR 4 series: ≥ 25%

## Electrical

|                        | Silver     | Gold    |
|------------------------|------------|---------|
| MAXIMUM POWER:         | 1 VA       | 0.2 VA  |
| MAXIMUM VOLTAGE:       | 32 VDC     | 32 VDC  |
| MINIMUM VOLTAGE:       | 20 mVDC    | 20 mVDC |
| MAXIMUM CURRENT:       | 50 mA      | 10 mA   |
| MINIMUM CURRENT:       | 1 mA*      | 1 mA*   |
| DIELECTRIC STRENGTH:   | ≥ 250 Vrms |         |
| CONTACT RESISTANCE:    | ≤ 100 mΩ   |         |
| INSULATION RESISTANCE: | ≥ 1GΩ      |         |
| BOUNCE TIME:           | ≤ 3 ms     |         |

\*For ULC version minimum current is 1µA at 1.8 VDC

## Environmental

|                        | Silver        | Gold           |
|------------------------|---------------|----------------|
| OPERATING TEMPERATURE: | -40°C to 85°C | -40°C to 125°C |
| STORAGE TEMPERATURE:   | -55°C to 85°C | -55°C to 125°C |

## Process

Infrared Reflow Soldering in accordance with IEC61760-1

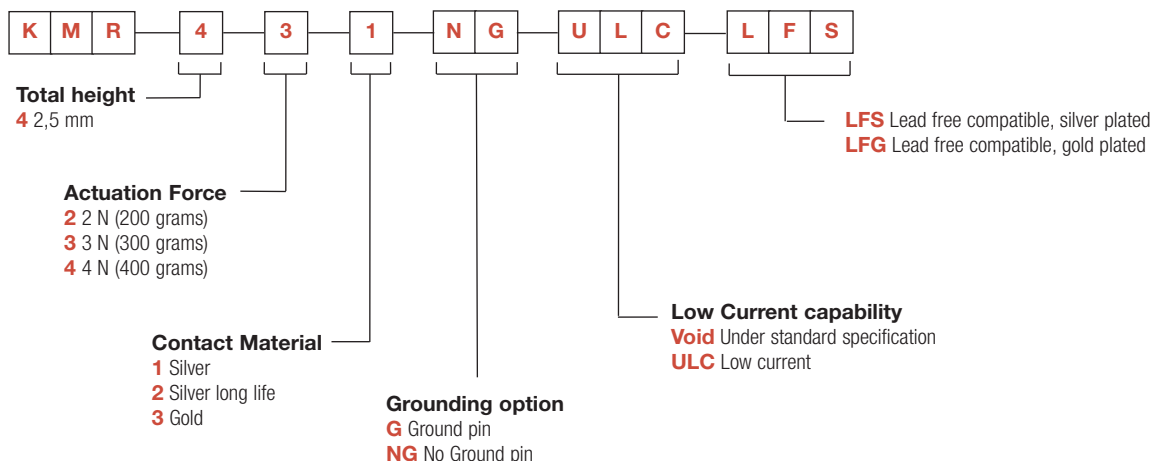
## Packaging

In reels of 6,000 pieces for KMR 4  
External diameter 330 mm ± 2 mm

**NOTE:** Specifications listed above are for switches with standard options.  
For information on specific and custom switches, consult Customer Service Center.

## Part Number Description

For any part number different from those listed above, please consult your local representative.



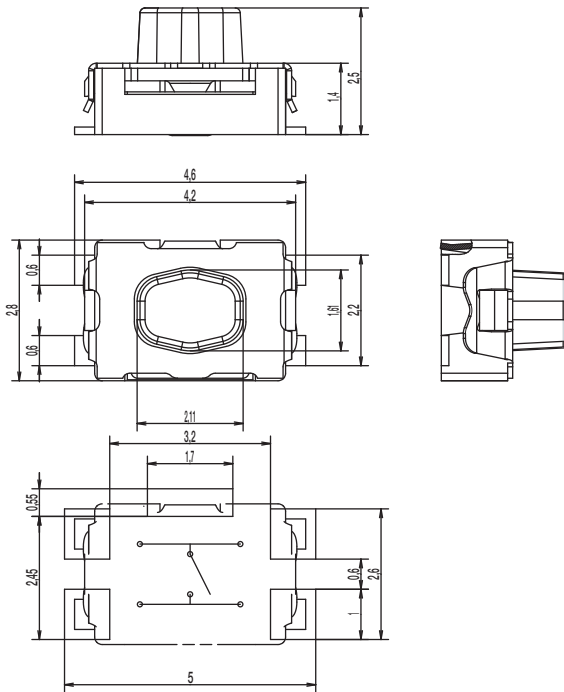
# KMR 4 Series Microminiature Tact Switch for SMT

KMR 4 Series - 2.5 mm height

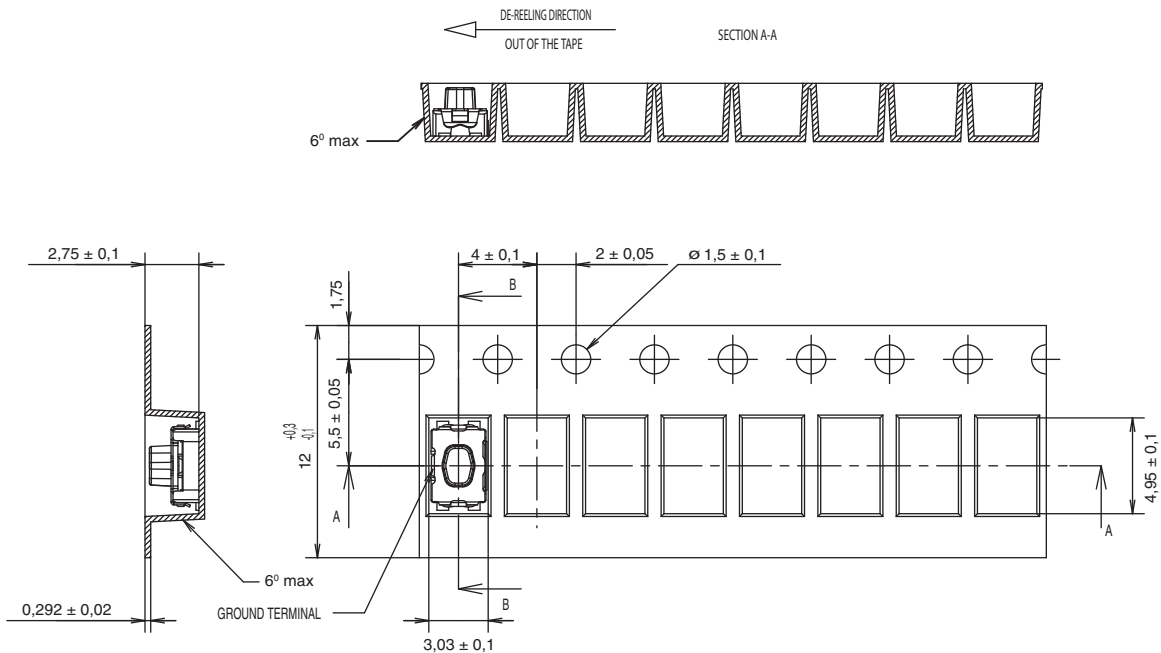
PCB layout shown with ground pin option

B

Tactile Switches



## TAPE & REEL



First Angle  
Projection

Dimensions are shown: mm  
Specifications and dimensions subject to change



# KMS Series Microminiature SMT Side Actuated

## Features/Benefits

- Compact size
- Excellent tactile feel
- ESD protection
- Positioning pegs for stability
- RoHS compliant and compatible

## Typical Applications

- Mobile phones
- Medical handheld monitors
- Consumer electronics
- Telecommunication networks



B

Tactile Switches

## Specification

FUNCTION: Momentary  
CONTACT ARRANGEMENT: SPST, N.O.  
TERMINALS: Gullwing type for SMT  
IP40 Sealed

## Mechanical

OVERLOAD: 20N  
TACTILE FEELING: 15% min. for the 2N version  
25% min for the 2.5N version

| Type       | Operating force<br>Newtons (grams) | Operating life<br>(operations) | Travel      |
|------------|------------------------------------|--------------------------------|-------------|
| KMS221G/GP | 2N (200) ± 0.5                     | 100 K cycles                   | 0,25 ± 0,15 |
| KMS223G/GP | 2N (200) ± 0.5                     | 100 K cycles                   | 0,25 ± 0,15 |
| KMS231G/GP | 3N (300) ± 0.6                     | 100 K cycles                   | 0,3 ± 0,15  |
| KMS233G/GP | 3N (300) ± 0.6                     | 100 K cycles                   | 0,3 ± 0,15  |

**Note:** Specifications listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

## Packaging

Tape and reels in reels of 3,000 pieces.  
External diameter 330mm ± 2mm.

## Electrical

|                        | Silver            | Gold   |
|------------------------|-------------------|--------|
| MAXIMUM POWER:         | 1 VA              | 0.2 VA |
| MAXIMUM VOLTAGE:       | 32 VDC            | 32 VDC |
| MAXIMUM CURRENT DC:    | 50 mA             | 10 mA  |
| MINIMUM CURRENT DC:    | 1 mA              | 1 mA   |
| DIELECTRIC STRENGTH:   | 250 VDC           |        |
| CONTACT RESISTANCE:    | ≤100 mΩ           |        |
| INSULATION RESISTANCE: | 10 <sup>9</sup> Ω |        |
| BOUNCE TIME:           | ≤ 3 ms            |        |

## Environmental

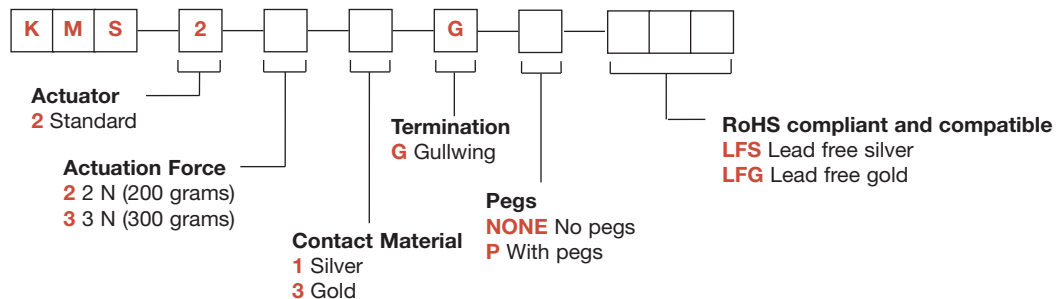
|                        | Silver        | Gold           |
|------------------------|---------------|----------------|
| OPERATING TEMPERATURE: | -40°C to 85°C | -40°C to 125°C |
| STORAGE TEMPERATURE:   | -55°C to 85°C | -55°C to 125°C |

## Process

Infrared reflow soldering in accordance with IEC 61760-1

## How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

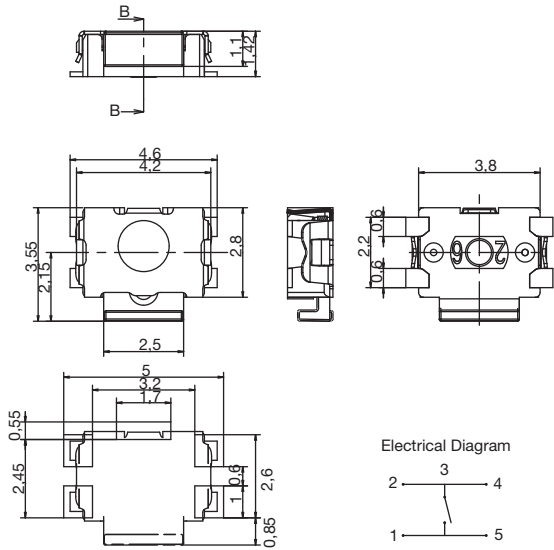


# KMS Series Microminiature SMT Side Actuated

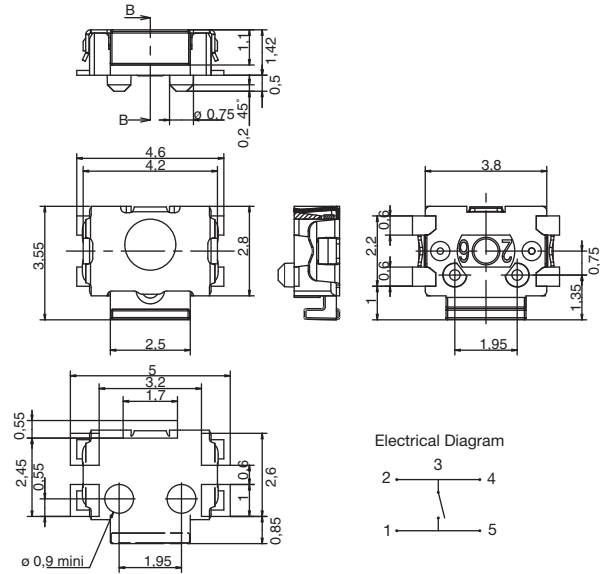
Tactile Switches

B

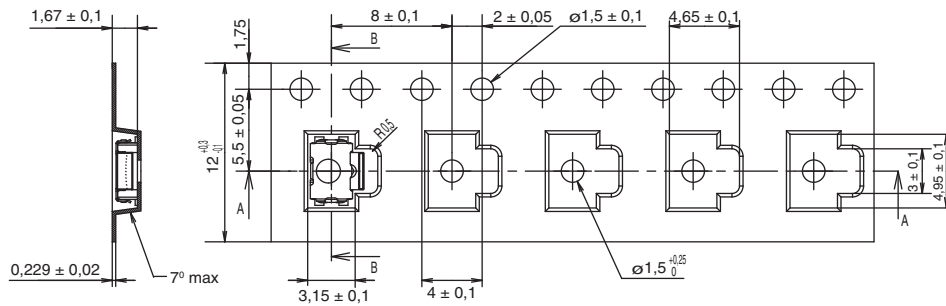
## KMS



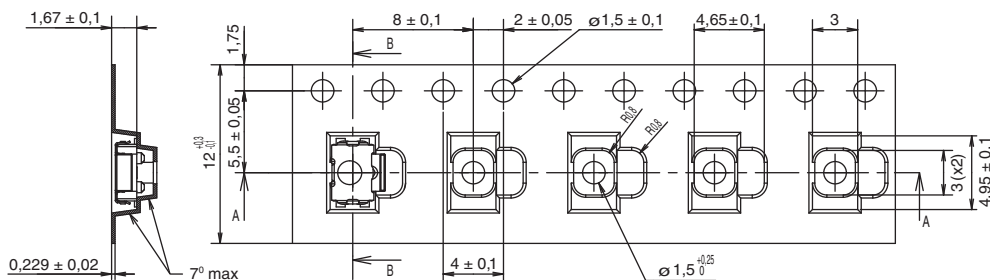
## KMS WITH PEGS



## TAPE & REEL



## WITH PEGS



→  
DIRECTION OF FEED



First Angle  
Projection

Dimensions are shown: mm  
Specifications and dimensions subject to change



# PTS 525 Series Microminiature Tact Switch for SMT

## Features/Benefits

- 0.8 & 1.5 mm actuator height
- Ruggedized package in a compact size
- High number of cycles

## Typical Applications

- Consumer products
- Instrumentation
- Remote controls



B

Tactile Switches

## Specification

FUNCTION: Momentary action  
CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.

## Electrical

MAXIMUM VOLTAGE: 15 VDC  
MAXIMUM CURRENT DC: 20 mA  
DIELECTRIC STRENGTH: 250 VA C (1mn)  
CONTACT RESISTANCE:  $\leq 100 \text{ m}\Omega$   
INSULATION RESISTANCE:  $\geq 100 \text{ M}\Omega$   
BOUNCE TIME:  $\leq 10 \text{ ms}$

## Environmental

OPERATING TEMPERATURE:  $-20^\circ\text{C}$  to  $70^\circ\text{C}$

## Process

SOLDERING: This component is suited to the following methods:  
Infrared Reflow Soldering in accordance with IEC61760-1

## Packaging

Switches in reels of:  
5,000 pieces in 0.8 mm height  
4,000 pieces in 1.5 mm height  
Dimensions of reels according to EIA 481B  
External diameter 330 mm

**NOTE:** Specifications listed above are for switches with standard options.  
For information on specific and custom switches, consult Customer Service Center.

## How To Order

Please see chart below for full part numbers.

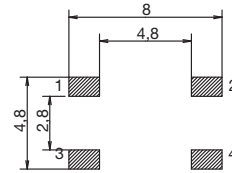
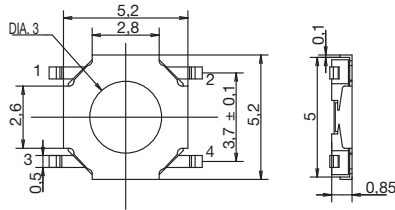
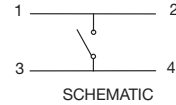
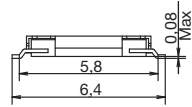
| Part Number              | Height (mm) | Leads Shape | Ground Pin | Force              | Travel (mm)    | Operating Life |
|--------------------------|-------------|-------------|------------|--------------------|----------------|----------------|
| PTS525 SM08 SMTR 2 LFS   | 0.8         | G           | No         | 160 gf $\pm$ 50 gf | 0.25 $\pm$ 0.2 | 1,000,000      |
| PTS525 SK08 SMTR 2 LFS   | 0.8         | G           | No         | 260 gf $\pm$ 50 gf | 0.25 $\pm$ 0.2 | 200,000        |
| PTS525 SM15 SMTR 2 LFS   | 1.5         | G           | No         | 160 gf $\pm$ 50 gf | 0.25 $\pm$ 0.2 | 1,000,000      |
| PTS525 SK15 SMTR 2 LFS   | 1.5         | G           | No         | 260 gf $\pm$ 50 gf | 0.25 $\pm$ 0.2 | 500,000        |
| PTS525 SMG15 SMTR 2 LFS  | 1.5         | G           | Yes        | 160 gf $\pm$ 50 gf | 0.25 $\pm$ 0.2 | 1,000,000      |
| PTS525 SKG15 SMTR 2 LFS  | 1.5         | G           | Yes        | 260 gf $\pm$ 50 gf | 0.25 $\pm$ 0.2 | 500,000        |
| PTS525 SMG15J SMTR 2 LFS | 1.5         | J           | Yes        | 160 gf $\pm$ 50 gf | 0.25 $\pm$ 0.2 | 1,000,000      |
| PTS525 SKG15J SMTR 2 LFS | 1.5         | J           | Yes        | 260 gf $\pm$ 50 gf | 0.25 $\pm$ 0.2 | 500,000        |



Dimensions are shown: mm  
Specifications and dimensions subject to change

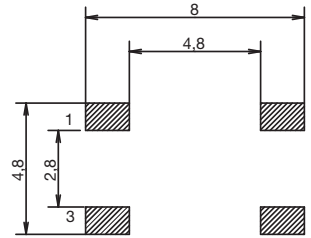
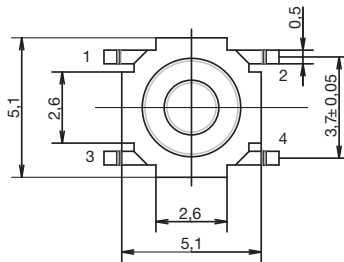
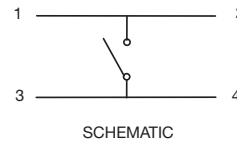
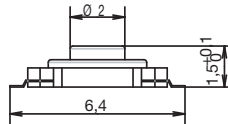
# PTS 525 Series Microminiature Tact Switch for SMT

**PTS525 SM08 SMTR2 LFS**  
**PTS525 SK08 SMTR2 LFS**



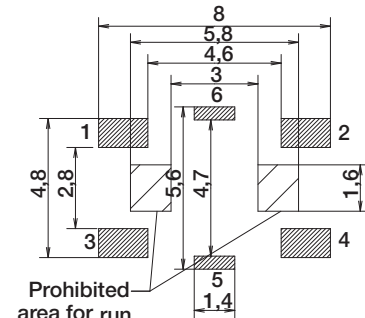
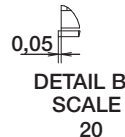
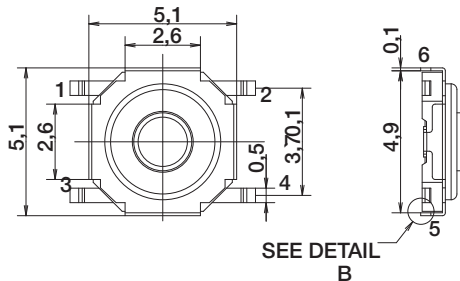
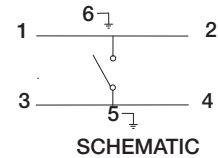
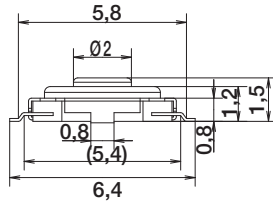
RECOMMENDED PCB LAYOUT

**PTS525 SM15 SMTR2 LFS**  
**PTS525 SK15 SMTR2 LFS**



RECOMMENDED PCB LAYOUT

**PTS525 SMG15 SMTR2 LFS**  
**PTS525 SKG15 SMTR2 LFS**



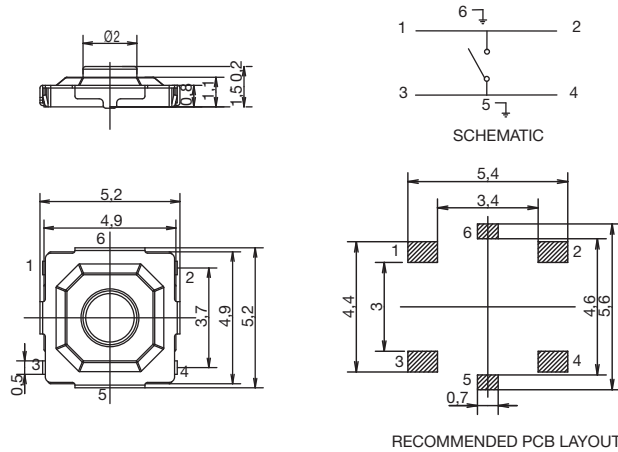
RECOMMENDED PCB LAYOUT

*Dimensions are shown: mm  
Specifications and dimensions subject to change*



# PTS 525 Series Microminiature Tact Switch for SMT

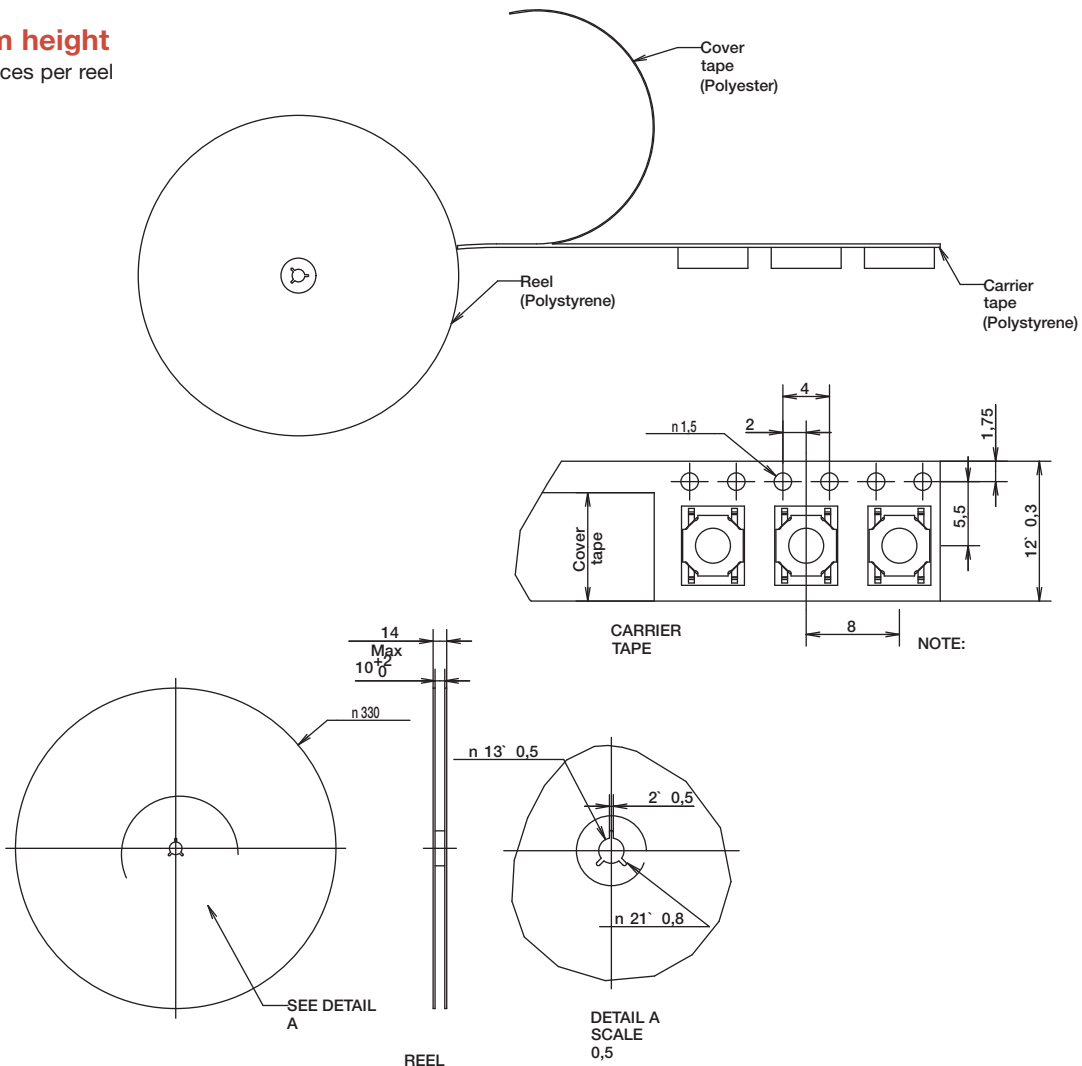
PTS525 SMG15J SMTR2 LFS  
PTS525 SKG15J SMTR2 LFS



B  
Tactile Switches

## TAPE & REEL

**0.8 mm height**  
5,000 pieces per reel



Dimensions are shown: mm  
Specifications and dimensions subject to change

# PTS 525 Series Microminiature Tact Switch for SMT

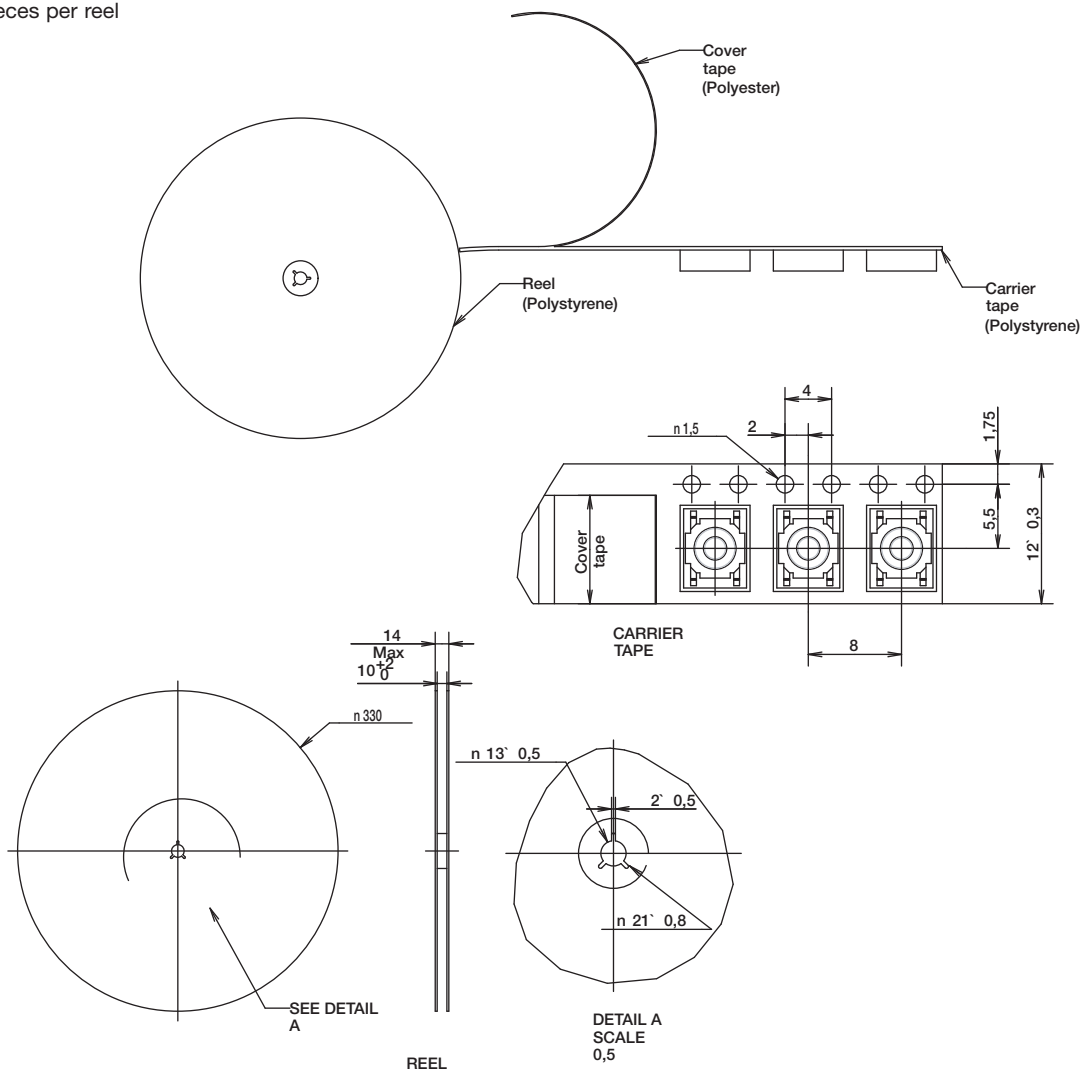
## TAPE & REEL

**1.5 mm height**  
4,000 pieces per reel



**B**

Tactile Switches



First Angle  
Projection

Dimensions are shown: mm  
Specifications and dimensions subject to change



# PTS 530 Series Ultra Low Profile SMT Top Actuated

## Features/Benefits

- 4.5 x 4.5 mm footprint
- 0.55 mm thickness
- High number of cycles
- Symbol line identification

## Typical Applications

- MP3 accessories
- Bluetooth headset
- Remote controls
- Garage door opener



B

Tactile Switches

## Specifications

FUNCTION: momentary action  
CONTACT ARRANGEMENT: 1 make contact = SPST N.O.  
TERMINALS: Gullwing for SMT  
TRAVEL: 0.2mm - 0.1 /+ 0.15mm

| Part Number           | Operating Force (gf) | Operating Life (operations) |
|-----------------------|----------------------|-----------------------------|
| PTS530 GN055 SMTR LFS | 100 ± 30             | 1,000,000                   |
| PTS530 GM055 SMTR LFS | 160 ± 30             | 1,000,000                   |
| PTS530 GH055 SMTR LFS | 200 ± 30             | 200,000                     |
| PTS530 GK055 SMTR LFS | 260 ± 30             | 200,000                     |
| PTS530 GG065 SMTR LFS | 400 ± 70             | 300,000                     |
| PTS530 GS065 SMTR LFS | 600 - 50/+100        | 150,000                     |

## Electrical

MAXIMUM VOLTAGE: 12 VDC  
MAXIMUM CURRENT DC: 50 mA  
DIELECTRIC STRENGTH: 250 VA C (1mn)  
CONTACT RESISTANCE: ≤ 100 mΩ  
INSULATION RESISTANCE: ≥ 100 MΩ  
BOUNCE TIME: ≤ 10 ms

## Environmental

OPERATING TEMPERATURE: -40°C to 85°C

## Process

SOLDERING: This component is suited to the following methods:  
Infrared Reflow Soldering in accordance with IEC61760-1

## Packaging

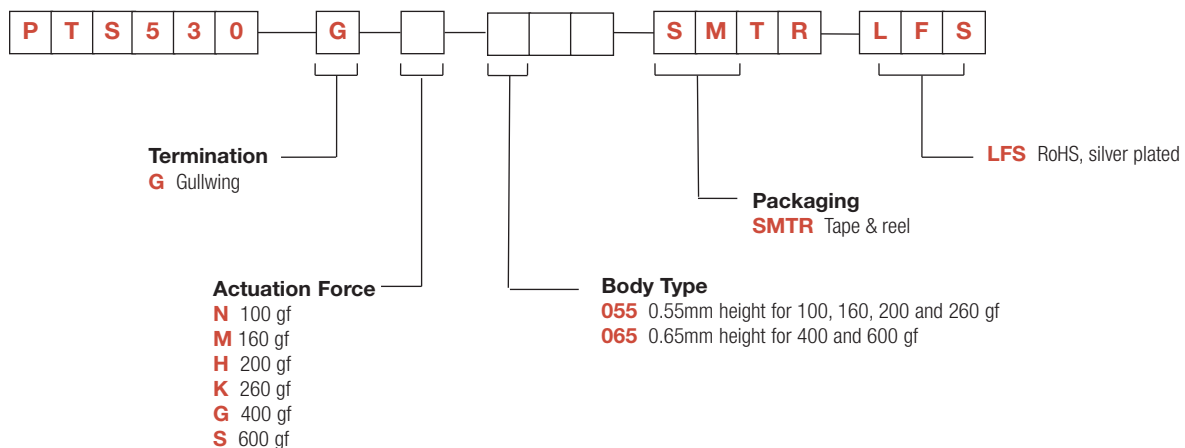
Switches in reels of 7,000 pieces.  
Dimensions of reels according to EIA 481B  
External diameter 330 mm

**NOTE:** Specifications listed above are for switches with standard options.  
For information on specific and custom switches, consult Customer Service Center.

## How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

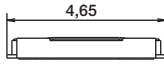
For any part number different from those listed above, please consult your local representative.



# PTS 530 Series Ultra Low Profile SMT Top Actuated

## TERMINATION

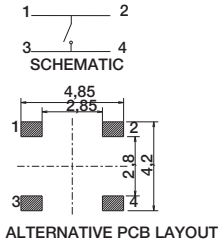
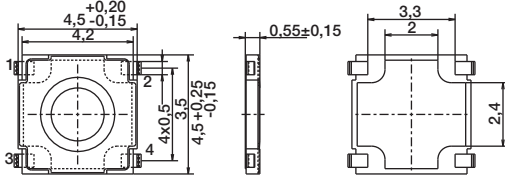
**G GULLWING**



## BODY TYPE / ACTUATION FORCE

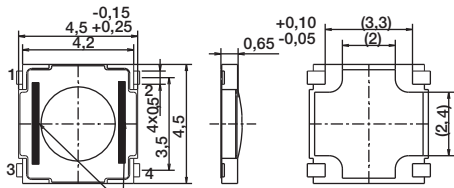
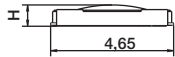
Tactile Switches

**055 0,55 MM HEIGHT**

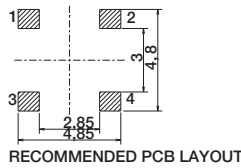
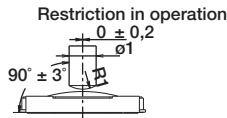


**065 0,65 MM HEIGHT**

| PART NUMBER             | HEIGHT                |
|-------------------------|-----------------------|
| PTS 530 GS 065 SMTR LFS | +0.1<br>-0.05<br>0.72 |
| PTS 530 GG 065 SMTR LFS | 0.68                  |



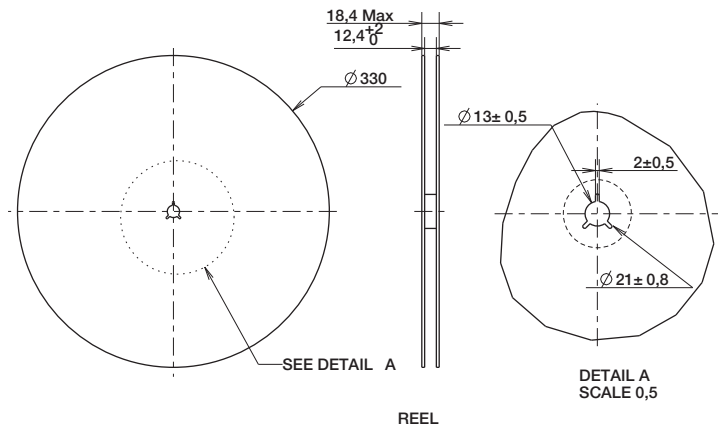
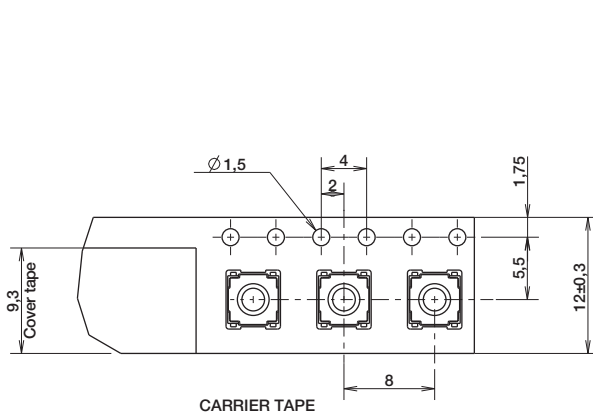
Force symbol lines for 600 gf  
No symbol line for 400 gf



Actuation force identification lines:

|           |          |
|-----------|----------|
| N: 100 gf |          |
| M: 160 gf | No Lines |
| H: 200 gf |          |
| K: 260 gf |          |
| G: 400 gf | No Lines |
| S: 600 gf |          |

## TAPE & REEL





# PTS 540 Series Ultra Low Profile SMT Top Actuated

## Features/Benefits

- 3.7 x 3.7 mm footprint
- 0.35 mm thickness
- High number of cycles

## Typical Applications

- MP3 accessories
- Bluetooth headset
- Remote controls



B

Tactile Switches

## Specifications

FUNCTION: momentary action  
CONTACT ARRANGEMENT: 1 make contact = SPST N.O.  
TERMINALS: J type for SMT  
TRAVEL: 0.15 mm ± 0.1 mm

## Mechanical

| Part Number           | Operating Force (gf) | Operating Life (operations) |
|-----------------------|----------------------|-----------------------------|
| PTS540 JM035 SMTR LFS | 160 ± 50             | 500,000                     |
| PTS540 JK035 SMTR LFS | 230 ± 50             | 300,000                     |

## Packaging

Switches in reels of 10,000 pieces.  
Dimensions of reels according to EIA 481B  
External diameter 330 mm

## Electrical

MAXIMUM VOLTAGE: 12 VDC  
MAXIMUM CURRENT DC: 50 mA  
DIELECTRIC STRENGTH: 250 VA C (1mn)  
CONTACT RESISTANCE: ≤ 100 mΩ  
INSULATION RESISTANCE: ≥ 100 MΩ  
BOUNCE TIME: ≤ 10 ms

## Environmental

OPERATING TEMPERATURE: -30°C to 85°C

## Process

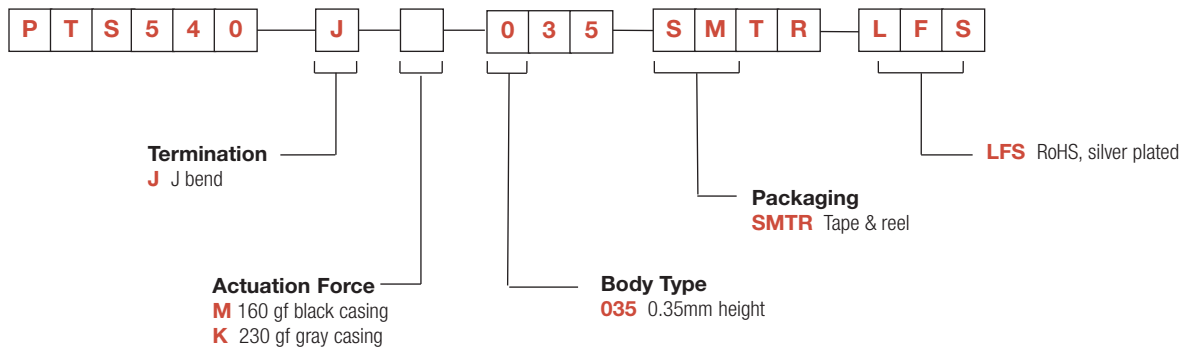
SOLDERING: This component is suited to the following methods:  
Infrared Reflow Soldering in accordance with IEC61760-1

**NOTE:** Specifications listed above are for switches with standard options.  
For information on specific and custom switches, consult Customer Service Center.

## How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

For any part number different from those listed above, please consult your local representative.

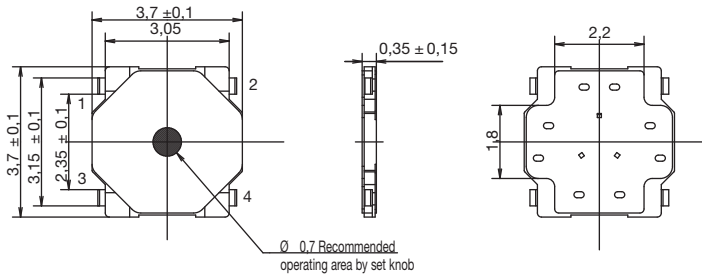


# PTS 540 Series Ultra Low Profile SMT Top Actuated

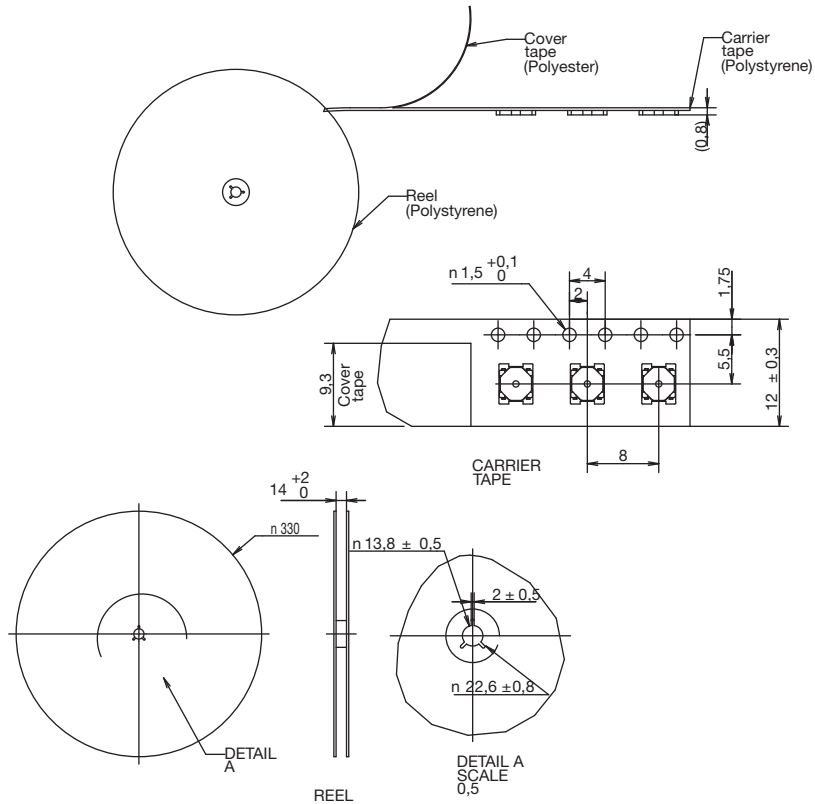
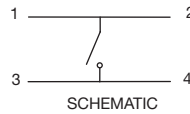
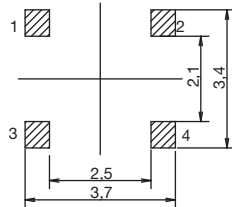
PTS 540

Tactile Switches

B



RECOMMENDED PCB



# PTS 810 Series Microminiature SMT Top Actuated

## Features/Benefits

- 4.2 x 3.2 mm footprint
- 2.5 mm thickness
- High number of cycles
- Color coded actuators

## Typical Applications

- Control panels
- Nomad devices
- Remote controls
- Keyless entry system



## Specifications

FUNCTION: momentary action  
 CONTACT ARRANGEMENT: 1 make contact = SPST N.O.  
 TERMINALS: J type for SMT  
 TRAVEL: 160 & 260 gf: 0.15mm ± 0.1mm  
 400 & 600 gf: 0.20mm ± 0.1mm

|                         | Operating Force (gf) | Operating Life (operations) |
|-------------------------|----------------------|-----------------------------|
| PTS810 SJM 250 SMTR LFS | 160 ± 50             | 150,000                     |
| PTS810 SJK 250 SMTR LFS | 260 ± 70             | 50,000                      |
| PTS810 SJG 250 SMTR LFS | 400 ± 100            | 100,000                     |
| PTS810 SJS 250 SMTR LFS | 600 ± 150            | 150,000                     |

## Packaging

Switches in reels of 2,900 pieces.  
 Dimensions of reels according to EIA 481B  
 External diameter 330 mm

## Electrical

MAXIMUM VOLTAGE: 16 VDC  
 MAXIMUM CURRENT DC: 50 mA  
 DIELECTRIC STRENGTH: 250 VA C (1mn)  
 CONTACT RESISTANCE: ≤ 500 mΩ  
 INSULATION RESISTANCE: ≥ 100 MΩ  
 BOUNCE TIME: ≤ 10 ms

## Environmental

OPERATING TEMPERATURE: -40°C to 85°C

## Process

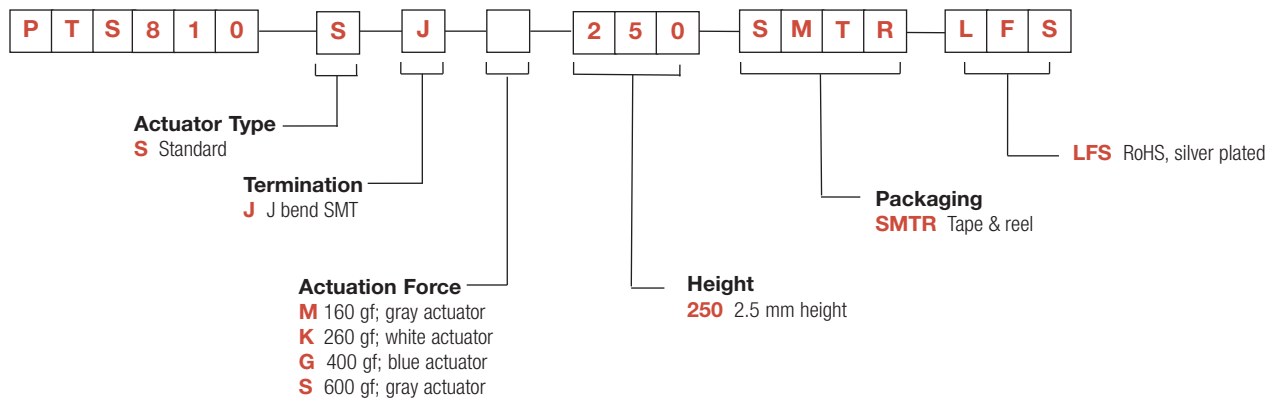
SOLDERING: This component is suited to the following methods:  
 Infrared Reflow Soldering in accordance with IEC61760-1

**NOTE:** Specifications listed above are for switches with standard options.  
 For information on specific and custom switches, consult Customer Service Center.

## How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

For any part number different from those listed above, please consult your local representative.

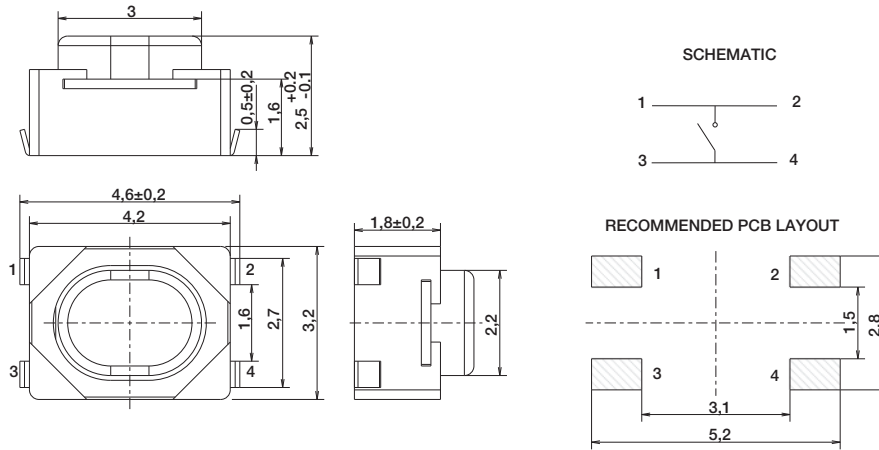


# PTS 810 Series Microminiature SMT Top Actuated

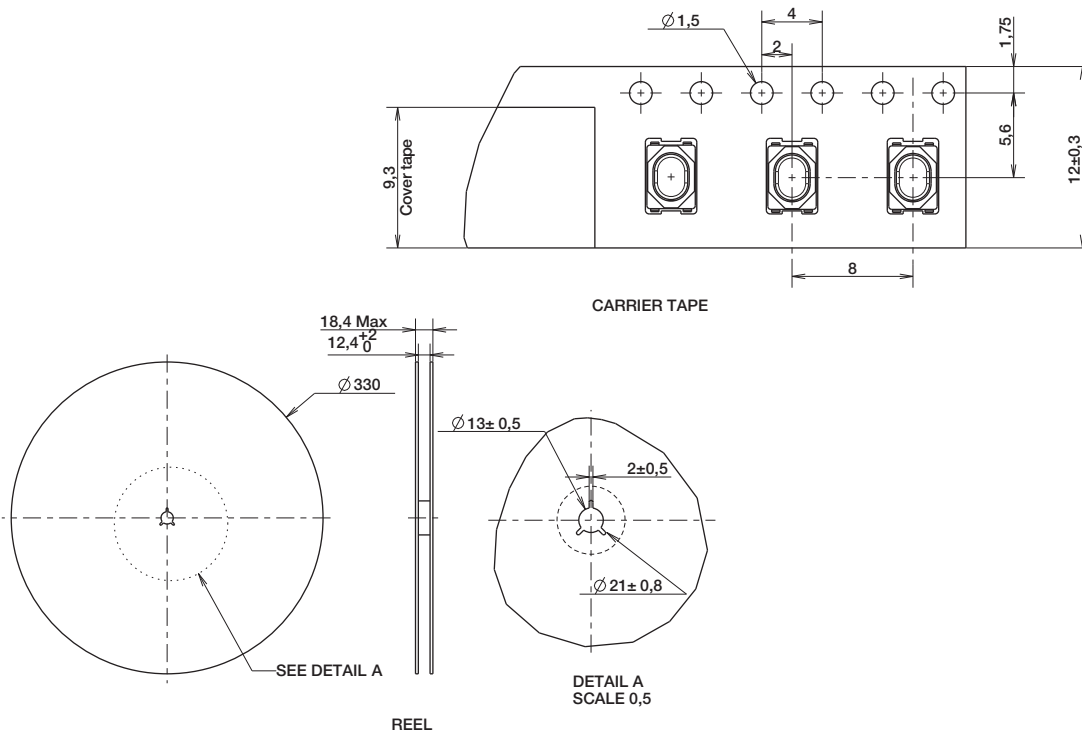
PTS810

Tactile Switches

B



## TAPE & REEL



# PTS 820 Series Microminiature SMT Top Actuated

## Features/Benefits

- 3.9 x 2.9 mm footprint
- Three different heights
- High number of cycles
- Reduced footprint

## Typical Applications

- Control panels
- Nomad devices
- Remote controls
- Keyless entry system



## Specifications

FUNCTION: momentary action  
 CONTACT ARRANGEMENT: 1 make contact = SPST N.O.  
 TERMINALS: J type for SMT  
 TRAVEL: 0.2mm + 0.1mm / -0.05 mm

|                       | Operating Force (gf) | Life Cycles | Height mm | Pegs |
|-----------------------|----------------------|-------------|-----------|------|
| PTS820 J25M SMTR LFS  | 160 ± 50             | 200,000     | 2.5       | No   |
| PTS820 J25K SMTR LFS  | 250 ± 50             | 100,000     | 2.5       | No   |
| PTS820 J25MP SMTR LFS | 160 ± 50             | 200,000     | 2.5       | Yes  |
| PTS820 J25KP SMTR LFS | 250 ± 50             | 100,000     | 2.5       | Yes  |
| PTS820 J20M SMTR LFS  | 160 ± 50             | 200,000     | 2.0       | No   |
| PTS820 J20K SMTR LFS  | 250 ± 50             | 100,000     | 2.0       | No   |
| PTS820 J20MP SMTR LFS | 160 ± 50             | 200,000     | 2.0       | Yes  |
| PTS820 J20KP SMTR LFS | 250 ± 50             | 100,000     | 2.0       | Yes  |
| PTS820 J15M SMTR LFS  | 160 ± 50             | 200,000     | 1.5       | No   |
| PTS820 J15K SMTR LFS  | 250 ± 50             | 100,000     | 1.5       | No   |
| PTS820 J15MP SMTR LFS | 160 ± 50             | 200,000     | 1.5       | Yes  |
| PTS820 J15KP SMTR LFS | 250 ± 50             | 100,000     | 1.5       | Yes  |

## Packaging

Switches in reels of 2,500 pieces for 1.5 and 2.0 mm height  
 Switches in reels of 2,300 pieces for 2.5 mm height  
 Dimensions of reels according to EIA 481B  
 External diameter 330 mm

## Electrical

MAXIMUM VOLTAGE: 12 VDC  
 MAXIMUM CURRENT DC: 50 mA  
 DIELECTRIC STRENGTH: 100 VA C (1mm)  
 CONTACT RESISTANCE: ≤ 100 mΩ  
 INSULATION RESISTANCE: ≥ 100 MΩ  
 BOUNCE TIME: ≤ 10 ms

## Environmental

OPERATING TEMPERATURE: -40°C to 85°C

## Process

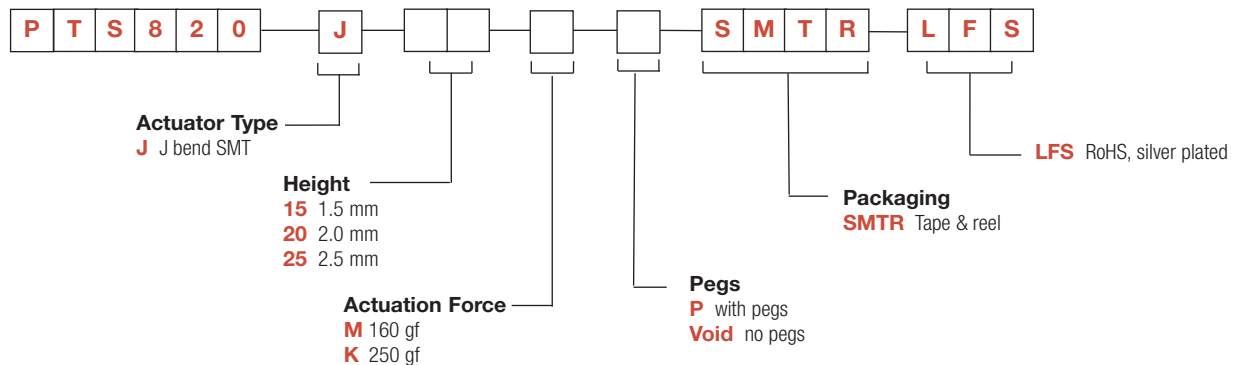
SOLDERING: This component is suited to the following methods:  
 Infrared Reflow Soldering in accordance with IEC61760-1

**NOTE:** Specifications listed above are for switches with standard options.  
 For information on specific and custom switches, consult Customer Service Center.

## How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

**For any part number different from those listed above, please consult your local representative.**

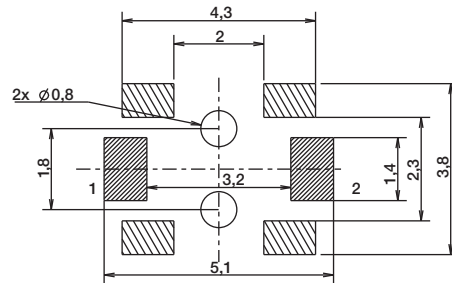
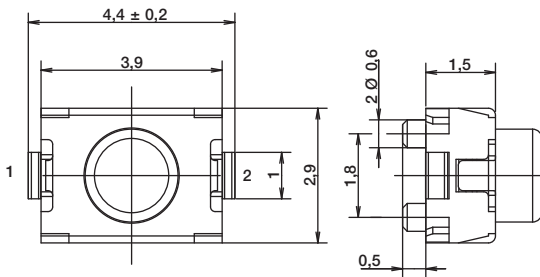
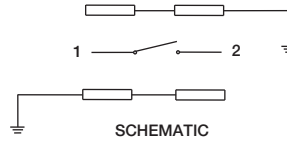
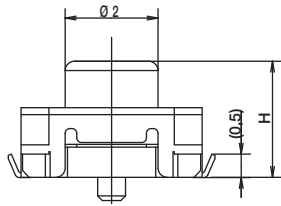


# PTS 820 Series Microminiature SMT Top Actuated

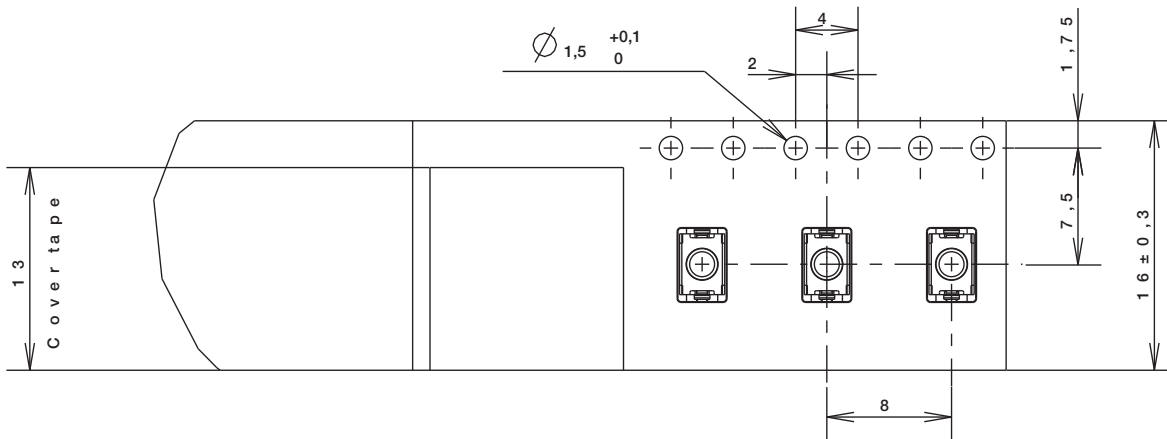
2.5 & 2.0 mm height (H) - version shown here with pegs

Tactile Switches

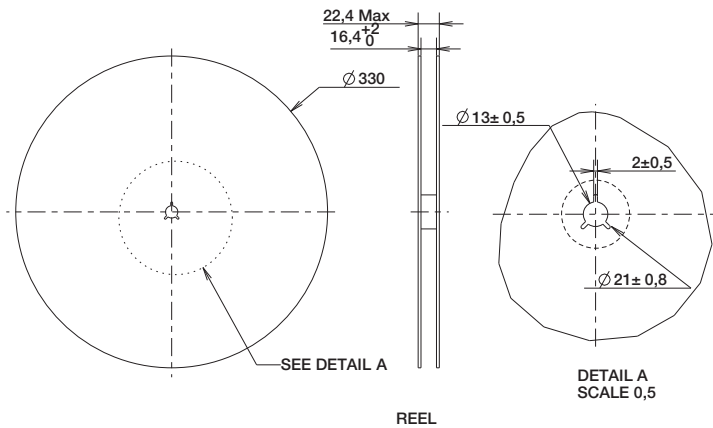
B



RECOMMENDED PCB LAYOUT

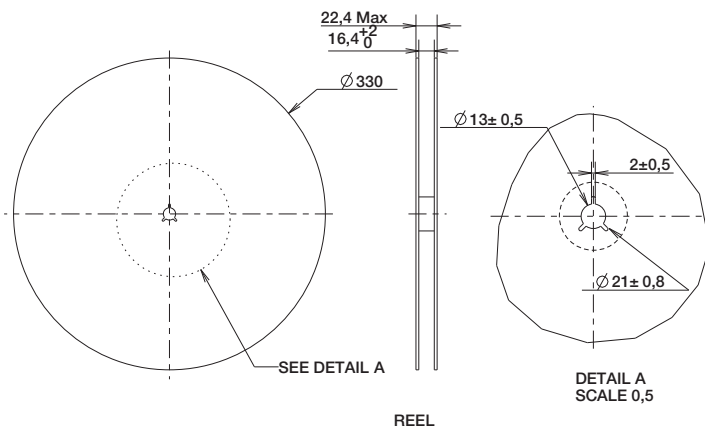
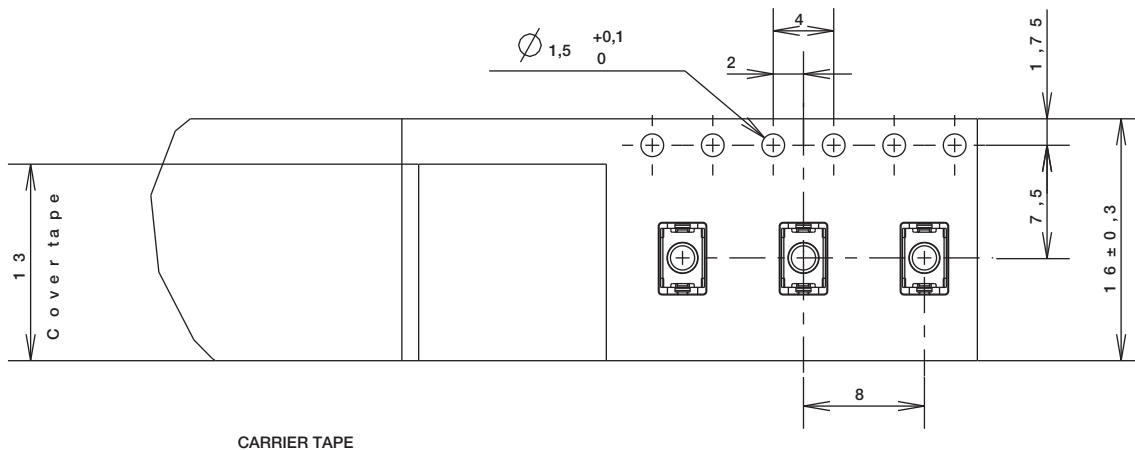
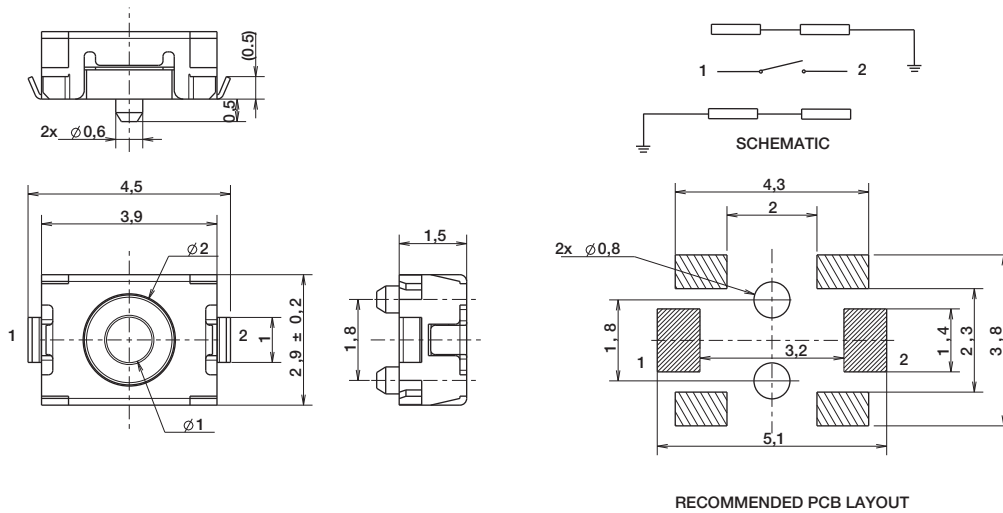


CARRIER TAPE



# PTS 820 Series Microminiature SMT Top Actuated

1.5 mm height (H) - version shown here with pegs



**B**  
Tactile Switches



Dimensions are shown: mm  
Specifications and dimensions subject to change

# PTS 830 Series Microminiature SMT Top Actuated

**NEW**



## Features/Benefits

- 3.5 x 2.6 mm footprint
- High number of cycles
- Optional ground pin

## Typical Applications

- Wearable electronics
- Nomad devices
- Remote controls
- Keyless entry system

**B**

Tactile Switches

## Specifications

FUNCTION: momentary action  
 CONTACT ARRANGEMENT: 1 make contact = SPST N.O.  
 TERMINALS: G type for SMT  
 TRAVEL: 0.15 mm + 0.1 mm

|                        | Operating Force (gf) | Life Cycles | Ground Pin |
|------------------------|----------------------|-------------|------------|
| PTS830 GM140 SMTR LFS  | 160 ± 50             | 500,000     | No         |
| PTS830 GG140 SMTR LFS  | 450 ± 80             | 200,000     | No         |
| PTS830 GM140G SMTR LFS | 160 ± 50             | 500,000     | Yes        |
| PTS830 GG140G SMTR LFS | 450 ± 80             | 200,000     | Yes        |

## Packaging

Switches in reels of 9,500 pieces  
 Dimensions of reels according to EIA 481B  
 External diameter 330 mm

## Electrical

MAXIMUM VOLTAGE: 12 VDC  
 MAXIMUM CURRENT DC: 50 mA  
 DIELECTRIC STRENGTH: 100 VA C (1mm)  
 CONTACT RESISTANCE: ≤ 100 mΩ  
 INSULATION RESISTANCE: ≥ 100 MΩ  
 BOUNCE TIME: ≤ 10 ms

## Environmental

OPERATING TEMPERATURE: -40°C to 85°C

## Process

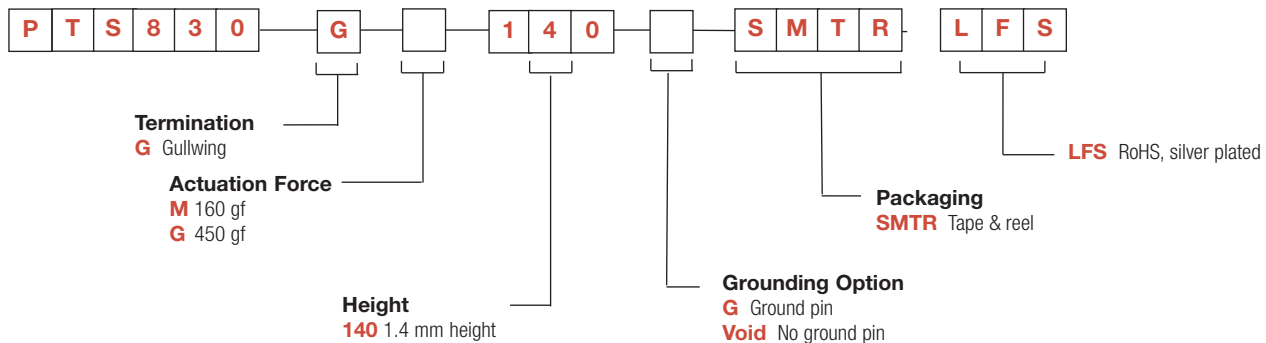
SOLDERING: This component is suited to the following methods:  
 Infrared Reflow Soldering in accordance with IEC61760-1

**NOTE:** Specifications listed above are for switches with standard options.  
 For information on specific and custom switches, consult Customer Service Center.

## How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

For any part number different from those listed above, please consult your local representative.



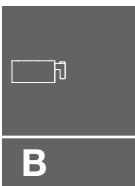
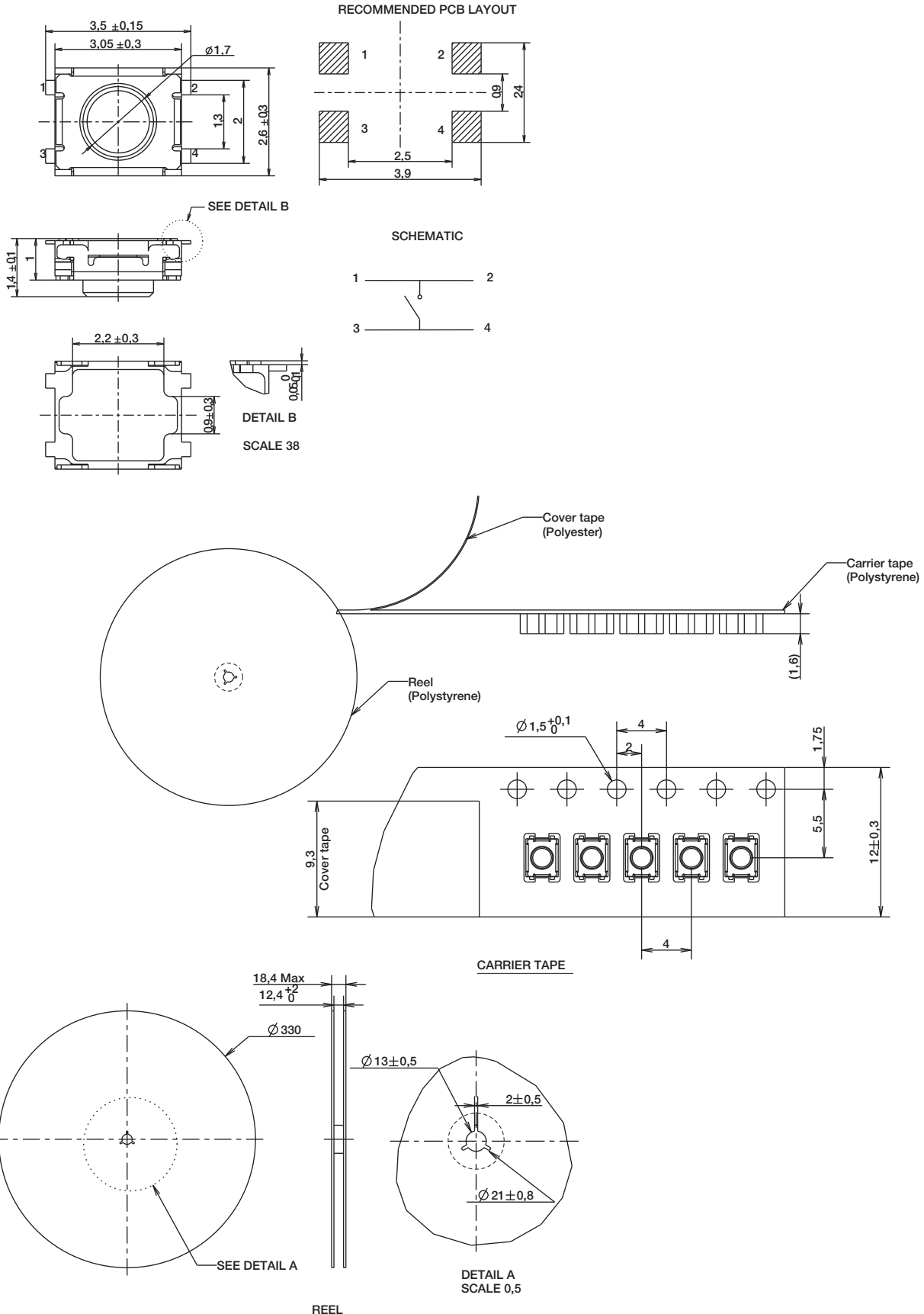
Dimensions are shown: mm  
 Specifications and dimensions subject to change



**NEW**

# PTS 830 Series Microminiature SMT Top Actuated

**PTS830 GX 140 SMTR LFS**



**B**

**Tactile Switches**



Dimensions are shown: mm  
Specifications and dimensions subject to change

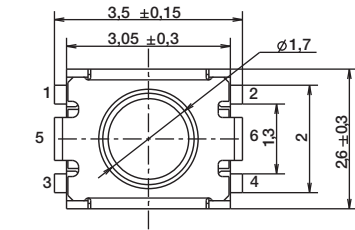
# PTS 830 Series Microminiature SMT Top Actuated

**NEW**

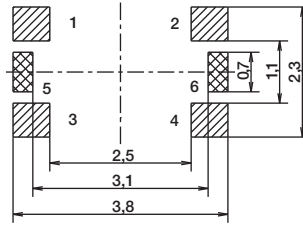
PTS830 GX 140 G SMTR LFS

Tactile Switches

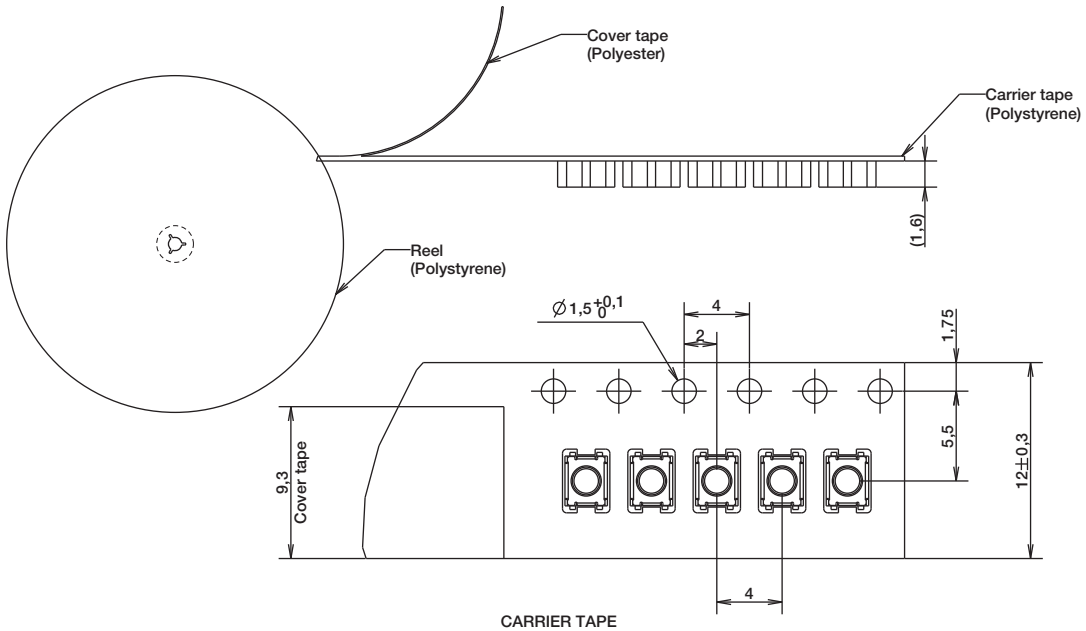
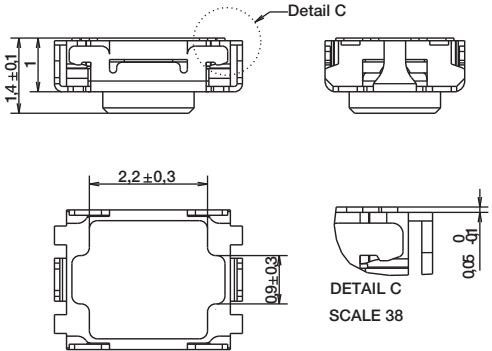
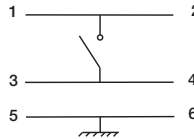
**B**



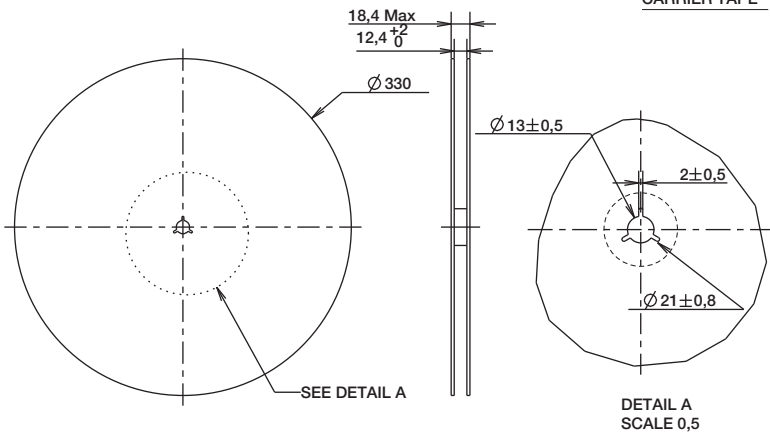
RECOMMENDED PCB LAYOUT



SCHEMATIC



CARRIER TAPE

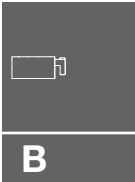


REEL

DETAIL A  
SCALE 0,5



Dimensions are shown: mm  
Specifications and dimensions subject to change

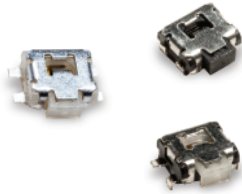


**B**

**Tactile Switches**

# PTS 840 Series

## Microminiature SMT Side Actuated



### Features/Benefits

- 3.5 x 3.55 mm footprint
- Front PIP leads option for strong shear resistance
- ESD pin option
- Reduced footprint

### Typical Applications

- Nomad devices
- Remote controls
- Personal health diagnostics
- Consumer electronics

B

Tactile Switches

### Specifications

FUNCTION: momentary action  
 CONTACT ARRANGEMENT: 1 make contact = SPST N.O.  
 TERMINALS: G and front PIP types for SMT  
 TRAVEL: 0.2mm + 0.2mm / -0.1 mm  
 LIFE: 100,000 cycles

| Type                      | Operating Force (gf) | SMT Leads | Pegs |
|---------------------------|----------------------|-----------|------|
| <b>Without ground pin</b> |                      |           |      |
| PTS840 GM SMTR LFS        | 160 -40/+70          | G leads   | No   |
| PTS840 GK SMTR LFS        | 220 -70/+80          | G leads   | No   |
| PTS840 PM SMTR LFS        | 160 -40/+70          | P leads   | No   |
| PTS840 PK SMTR LFS        | 220 -70/+80          | P leads   | No   |
| PTS840 GMP SMTR LFS       | 160 -40/+70          | G leads   | Yes  |
| PTS840 GKP SMTR LFS       | 220 -70/+80          | G leads   | Yes  |
| <b>With ground pin</b>    |                      |           |      |
| PTS840 ESDGM SMTR LFS     | 160 -40/+70          | G leads   | No   |
| PTS840 ESDGK SMTR LFS     | 220 -70/+80          | G leads   | No   |
| PTS840 ESDPM SMTR LFS     | 160 -40/+70          | P leads   | No   |
| PTS840 ESDPK SMTR LFS     | 220 -70/+80          | P leads   | No   |
| PTS840 ESDGMP SMTR LFS    | 160 -40/+70          | G leads   | Yes  |
| PTS840 ESDGKP SMTR LFS    | 220 -70/+80          | G leads   | Yes  |

### Electrical

MAXIMUM VOLTAGE: 12 VDC  
 MAXIMUM CURRENT DC: 50 mA  
 DIELECTRIC STRENGTH: 250 VA C (1mm)  
 CONTACT RESISTANCE: ≤ 500 mΩ  
 INSULATION RESISTANCE: ≥ 100 MΩ  
 BOUNCE TIME: ≤ 10 ms

### Environmental

OPERATING TEMPERATURE: -40°C to 85°C

### Process

SOLDERING: This component is suited to the following methods:  
 Infrared Reflow Soldering in accordance with IEC61760-1

### Packaging

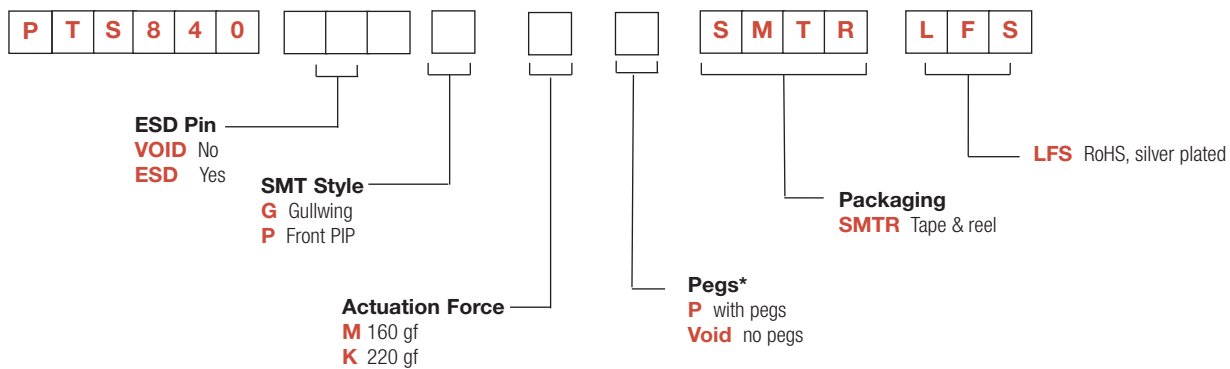
In reels of 3,500 pieces  
 Dimensions of reels according to EIA 481B  
 External diameter 330 mm

**NOTE:** Specifications listed above are for switches with standard options.  
 For information on specific and custom switches, consult Customer Service Center.

### How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

**For any part number different from those listed above, please consult your local representative.**



### Design Recommendations

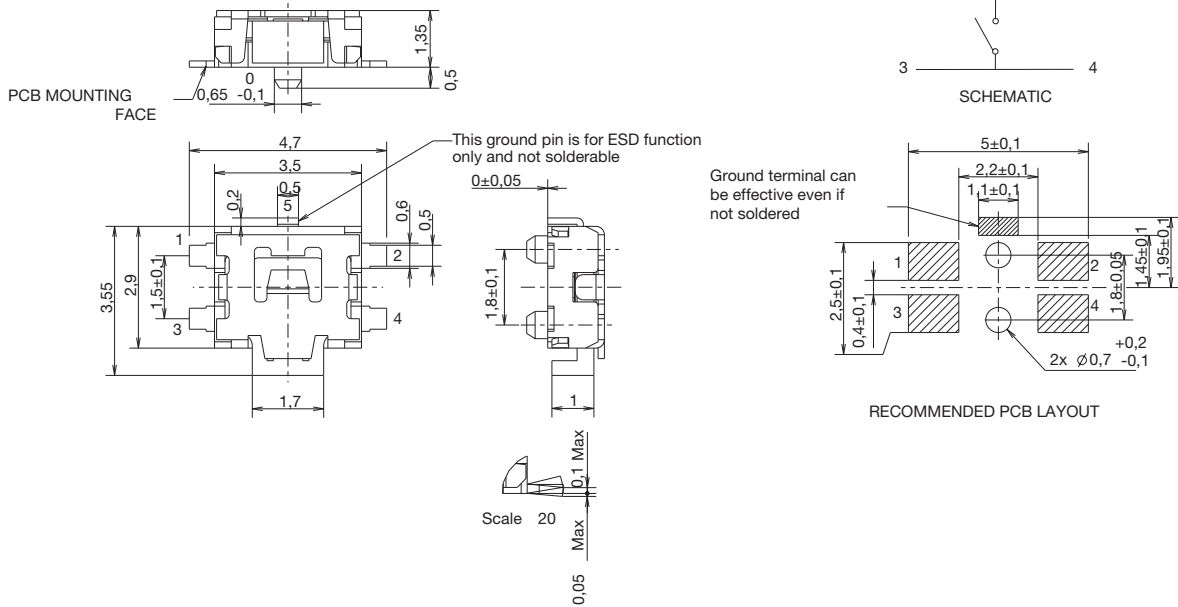
- "P" leads are recommended for applications where shear resistance is of importance
- When a precise alignment between application button and the switch is requested, version with pegs are the right choice to limit the possible floating of the switch during solderability.



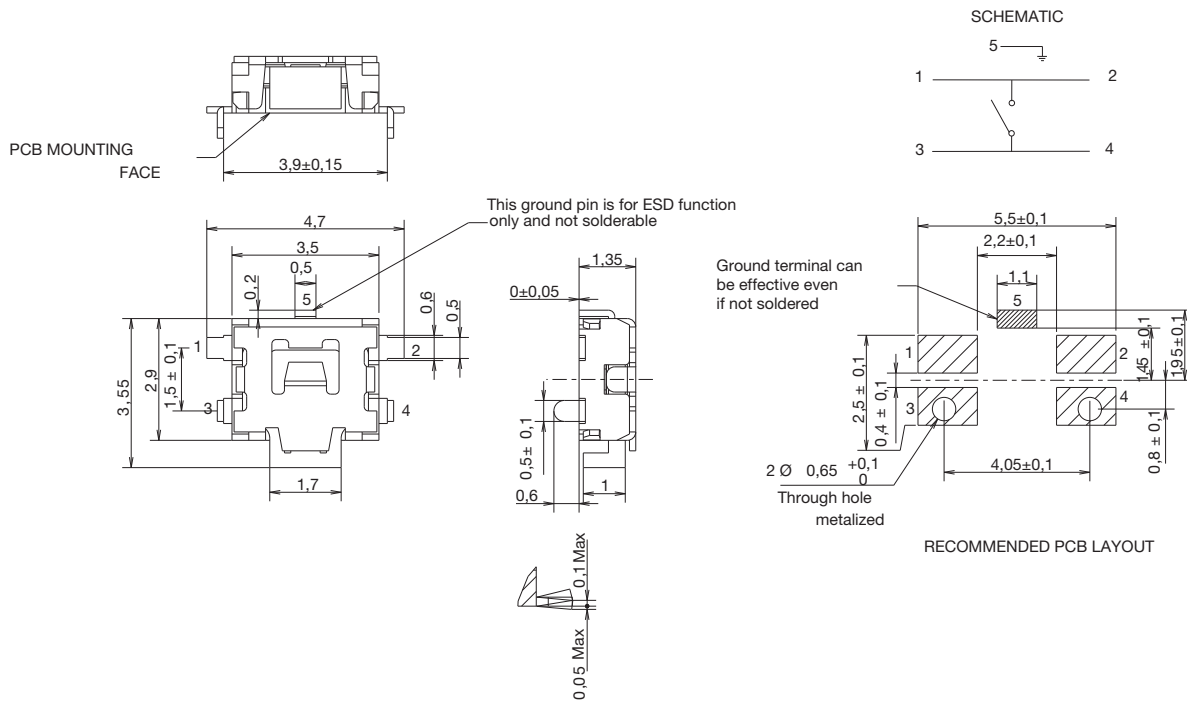
Dimensions are shown: mm  
 Specifications and dimensions subject to change

# PTS 840 Series Microminiature SMT Side Actuated

## Standard G SMT Leads with ESD and Peg options

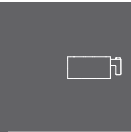


## P SMT Leads with ESD option



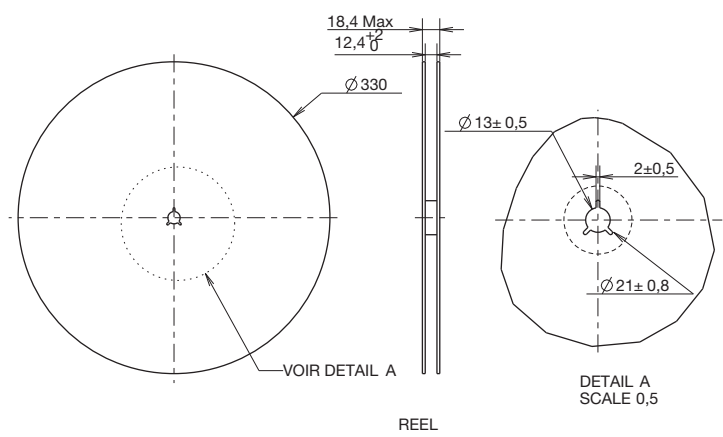
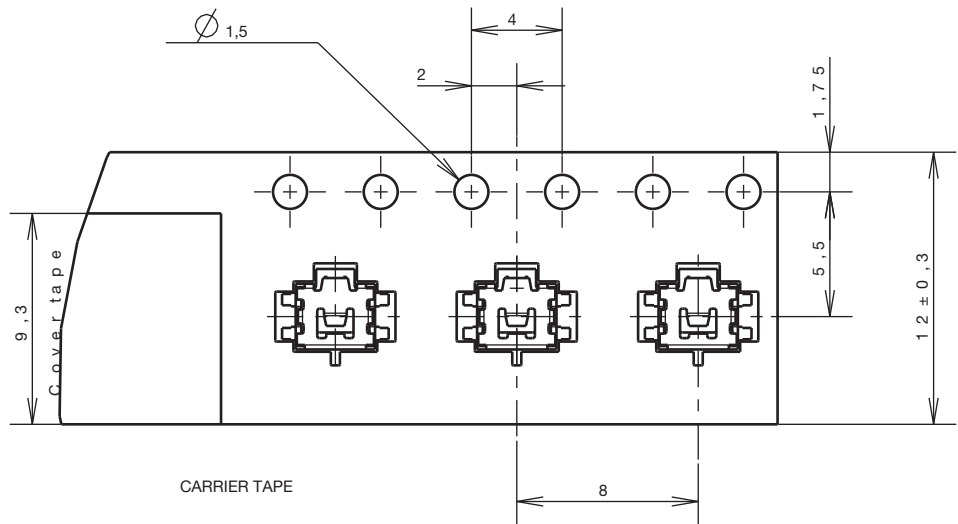
# PTS 840 Series Microminiature SMT Side Actuated

## TAPE & REEL



B

Tactile Switches



Dimensions are shown: mm  
Specifications and dimensions subject to change

# KSR Series Subminiature Tact Switch for SMT

## Features/Benefits

- 4 actuation forces
- G terminations
- N.O. and N.C.
- Detect type available
- Rubber actuator
- IP50 sealed
- RoHS compliant and compatible

## Typical Applications

- Automotive
- Medical equipment
- Industrial electronics
- Smart meters



B

Tactile Switches

## Specification

FUNCTION: momentary action  
CONTACT ARRANGEMENT: Normally Open  
TERMINALS: Gullwing type for SMT

## Mechanical

| Type                      | Operating force<br>Newtons (grams) | Operating life<br>(operations) | Travel<br>(mm) |
|---------------------------|------------------------------------|--------------------------------|----------------|
| KSR211G LFS / KSR213G LFG | 1,5 < 1,85 (185) < 2,2             | 100,000                        | 0,25 ± 0,15    |
| KSR221G LFS / KSR223G LFG | 1,9 < 2,25 (225) < 2,6             | 100,000                        | 0,3 ± 0,15     |
| KSR231G LFS /KSR233G LFG  | 2,25 < 3,00 (300) < 3,75           | 100,000                        | 0,35 ± 0,15    |
| KSR251G LFS / KSR253G LFG | 3,4 < 4,50 (450) < 5,6             | 100,000                        | 0,5 ± 0,15     |
| KSR221G NC LFS            | 1,5 < 2,25 (225) < 3               | 30,000                         | 0,3 ± 0,15     |
| KSR223G NC LFG            | 1,5 < 2 (200) < 2,5                | 30,000                         | 0,3 ± 0,15     |

Overload: 20 Newtons  
Detect switch versions are available. Please see Detect chapter  
KSR2D/M series.

## Packaging

Switches are delivered on continuous tape, in reels of 2,500 pieces.

## Electrical

|                     | Silver | Gold   |
|---------------------|--------|--------|
| MAXIMUM POWER:      | 1 VA   | 0.2 VA |
| MAXIMUM VOLTAGE:    | 32 VDC | 32 VDC |
| MINIMUM VOLTAGE:    | 20 mV  | 20 mV  |
| MAXIMUM CURRENT DC: | 50 mA  | 10 mA  |
| MINIMUM CURRENT DC: | 1 mA   | 1 mA   |

CONTACT RESISTANCE: ≤ 100 mΩ  
INSULATION RESISTANCE: (100 V): 1G Ω (between terminals)  
BOUNCE TIME: 1 ms max.

## Environmental

|                        | Silver        | Gold           |
|------------------------|---------------|----------------|
| OPERATING TEMPERATURE: | -40°C to 85°C | -40°C to 125°C |
| STORAGE TEMPERATURE:   | -55°C to 85°C | -55°C to 125°C |

## Process

SOLDERING: Compatible with lead free reflow soldering process.

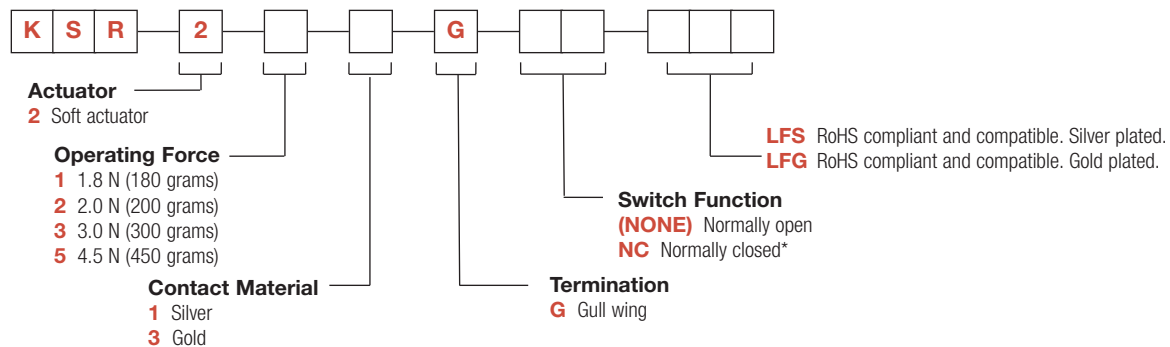
**NOTE:** Specifications listed above are for switches with standard options.  
For information on specific and custom switches, consult Customer Service Center.

## How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

**However, please note that all the combinations of these options are not feasible.**

**For any part number different from those listed above, please consult your local representative.**



\*Available on KSR223G only.



Dimensions are shown: mm  
Specifications and dimensions subject to change

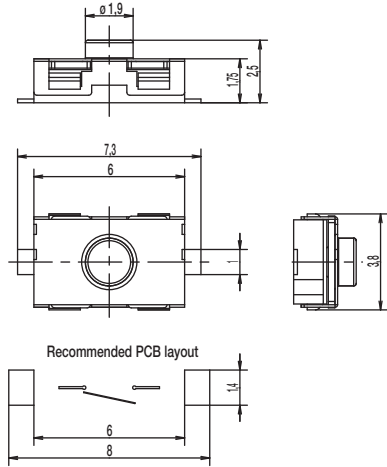
# KSR Series Subminiature Tact Switch for SMT

KSR

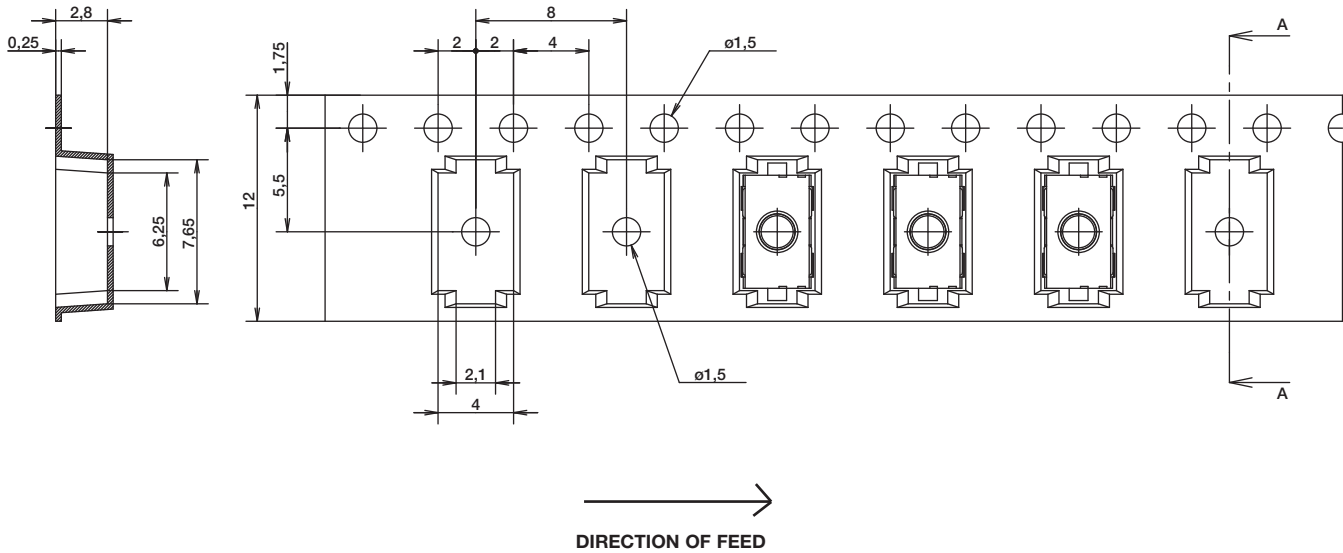


B

Tactile Switches



## TAPE & REEL



First Angle  
Projection

Dimensions are shown: mm  
Specifications and dimensions subject to change



# KSR Long Life-200,000 cycles-Gold and Silver Series Subminiature Tact Switch for SMT

## Features/Benefits

- 4 actuation forces
- G terminations
- N.O.
- Detect type available
- Rubber actuator
- IP50 sealed
- RoHS compliant and compatible

## Typical Applications

- Automotive
- Medical equipment
- Industrial electronics



Tactile Switches

## Specification

FUNCTION: momentary action  
CONTACT ARRANGEMENT: Normally Open  
TERMINALS: Gullwing type for SMT

## Mechanical

| Type                   | Operating force(Fa)<br>Newtons (grams) | Operating life<br>(operations) | Travel<br>(mm) |
|------------------------|--|--------------------------------|----------------|
| <b>Silver versions</b> |  |                                |                |
| KSR212G LFS            | 1,5 < 1,85 (185) < 2,2                 | 200,000                        | 0,25 ± 0,15    |
| KSR222G LFS            | 1,9 < 2,25 (225) < 2,6                 | 200,000                        | 0,3 ± 0,15     |
| KSR232G LFS            | 2,25 < 3,00 (300) < 3,75               | 200,000                        | 0,35 ± 0,15    |
| KSR252G LFS            | 3,4 < 4,50 (450) < 5,6                 | 200,000                        | 0,5 ± 0,15     |
| <b>Gold versions</b>   |  |                                |                |
| KSR214G LFS            | 1,5 < 1,85 (185) < 2,2                 | 200,000                        | 0,25 ± 0,15    |
| KSR224G LFS            | 1,9 < 2,25 (225) < 2,6                 | 200,000                        | 0,3 ± 0,15     |
| KSR234G LFS            | 2,25 < 3,00 (300) < 3,75               | 200,000                        | 0,35 ± 0,15    |
| KSR254G LFS            | 3,4 < 4,50 (450) < 5,6                 | 200,000                        | 0,5 ± 0,15     |

OVERLOAD: 20 Newtons

## Packaging

Switches are delivered on continuous tape, in reels of 2,500 pieces.

## Electrical

|                     | Silver   | Gold     |
|---------------------|----------|----------|
| MAXIMUM POWER:      | 1 VA     | 0.2 VA   |
| MAXIMUM VOLTAGE:    | 32 V dc  | 32 V dc  |
| MINIMUM VOLTAGE:    | 20 m Vdc | 20 m Vdc |
| MAXIMUM CURRENT DC: | 50 mA    | 10 mA    |
| MINIMUM CURRENT DC: | 1 mA     | 1 mA     |

CONTACT RESISTANCE: ≤ 100 m Ω  
INSULATION RESISTANCE (100 V): 1 G Ω (between terminals)  
BOUNCE TIME: 1 ms max

## Environmental

|                        | Silver        | Gold           |
|------------------------|---------------|----------------|
| OPERATING TEMPERATURE: | -40°C to 85°C | -40°C to 125°C |
| STORAGE TEMPERATURE:   | -55°C to 85°C | -55°C to 125°C |

## Process

SOLDERING: Compatible with lead free reflow soldering process.

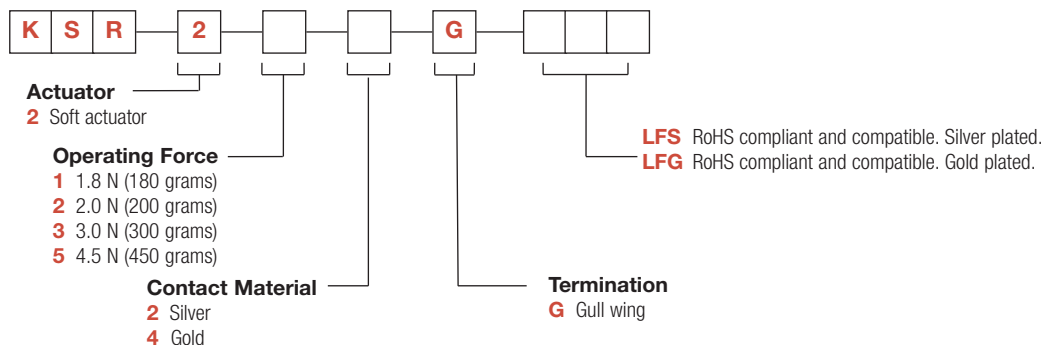
**NOTE:** Specifications listed above are for switches with standard options.  
For information on specific and custom switches, consult Customer Service Center.

## How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

**However, please note that all the combinations of these options are not feasible.**

**For any part number different from those listed above, please consult your local representative.**





# KSS Series Subminiature SMT Side Actuated

## Features/Benefits

- Low profile of 1.7 mm
- Excellent tactile feel
- High shear force
- Range of actuation forces
- Large flat top
- RoHS compliant and compatible

## Typical Applications

- Cellular phone
- Industrial electronics
- Health diagnostic electronics



B

Tactile Switches

## Specification

FUNCTION: momentary action  
CONTACT ARRANGEMENT: N.O.  
TERMINALS: Gullwing  
IP40 sealed

## Mechanical

OVERLOAD: 20N  
TACTILE FEELING: 2 and 4N: 25% min.  
2.5N: 30% min.

| Type    | Operating force<br>Newtons (grams) | Operating life<br>(operations) | Travel<br>(mm) |
|---------|------------------------------------|--------------------------------|----------------|
| KSS221G | 2.0 (200) ± 0.5                    | 100,000                        | 0,3 ± 0,15     |
| KSS231G | 2.5 (250) ± 0.5                    | 100,000                        | 0,3 ± 0,10     |
| KSS241G | 4.0 (400) ± 1.0                    | 100,000                        | 0,3 ± 0,15     |

**NOTE:** Specifications listed above are for switches with standard options.  
For information on specific and custom switches, consult Customer Service Center.

## Electrical

|  | Silver | Gold   |
|--|--------|--------|
| MAXIMUM POWER:                                       | 1 VA   | 0.2 VA |
| MAXIMUM VOLTAGE:                                     | 32 VDC | 32 VDC |
| MAXIMUM CURRENT:                                     | 50 mA  | 10 mA  |
| MINIMUM CURRENT:                                     | 1 mA   | 1 mA   |
| DIELECTRIC STRENGTH: ≥ 250 VDC                       |        |        |
| CONTACT RESISTANCE: < 100 mΩ                         |        |        |
| INSULATION RESISTANCE (100 VDC): ≥ 10 <sup>9</sup> Ω |        |        |
| BOUNCE TIME: < 3 ms                                  |        |        |

## Environmental

|                        | Silver        | Gold           |
|------------------------|---------------|----------------|
| OPERATING TEMPERATURE: | -40°C to 85°C | -40°C to 125°C |
| STORAGE TEMPERATURE:   | -55°C to 85°C | -55°C to 125°C |

## Process

Infrared reflow soldering in accordance with IEC 61760-1

## Packaging

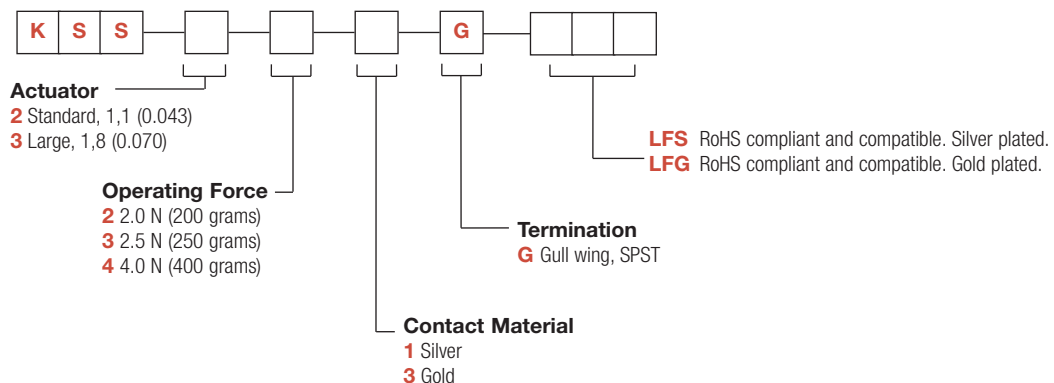
Tape and reels in reels of 3,000 pieces.  
External diameter 330mm ± 2mm.

## How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

**However, please note that all the combinations of these options are not feasible.**

**For any part number different from those listed above, please consult your local representative.**

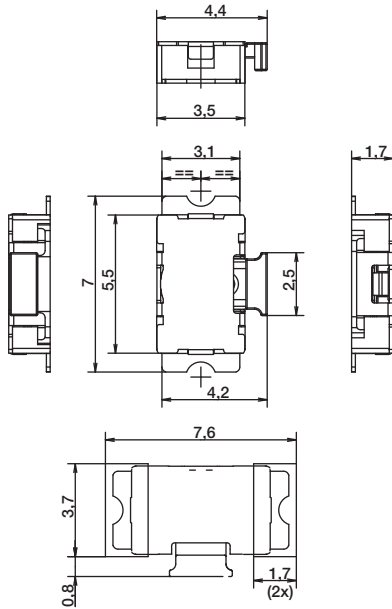


# KSS Series Subminiature SMT Side Actuated

KSS

B

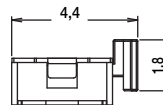
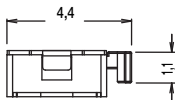
Tactile Switches



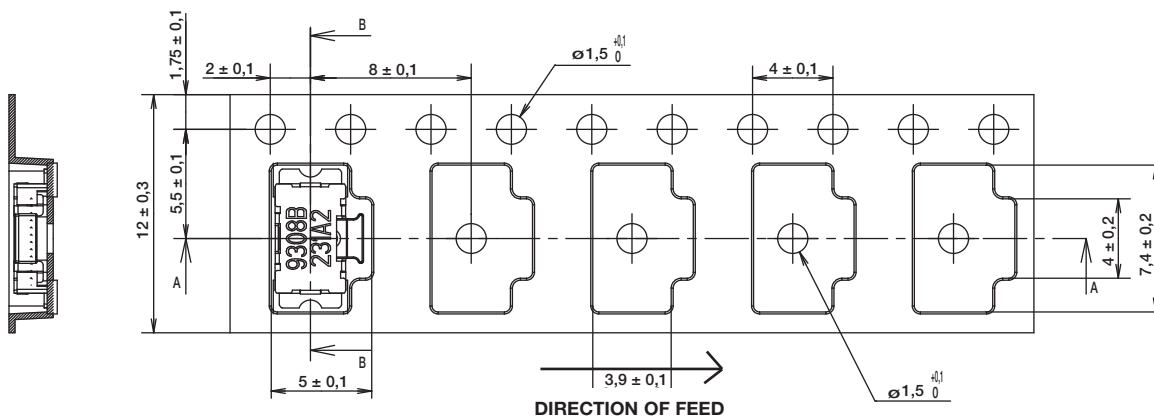
## ACTUATOR

2 STANDARD, 1,1 (0.043)

3 LARGE, 1,8 (0.070)



## TAPE & REEL



First Angle  
Projection

Dimensions are shown: mm  
Specifications and dimensions subject to change

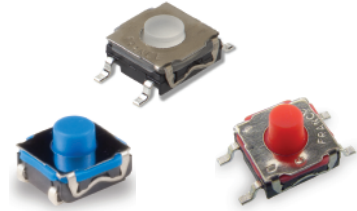
# KSC Series Sealed Tact Switch for SMT

## Features/Benefits

- Positive tactile feeling
- J or G terminations
- Various heights
- IP67

## Typical Applications

- Automotive
- Cellular phones
- Industrial electronics
- Network infrastructure and IT
- Elevator



## Specification

FUNCTION: Momentary action  
 CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.  
 TERMINALS: J bend & Gullwing type for SMT  
 SEALING: IP67 except KSC5 (IP50)

## Liability Limitation

This datasheet does not provide enough information for applications that require a certain level of quality or safety such as automotive, medical systems, or safety equipment. Please contact customer service for the contractual specification package.

## Environmental

|                        | Silver        | Gold           |
|------------------------|---------------|----------------|
| OPERATING TEMPERATURE: | -40°C to 85°C | -40°C to 125°C |
| STORAGE TEMPERATURE:   | -55°C to 85°C | -55°C to 125°C |

## Process

- SOLDERING: Depending on the application, this component is suited to the following methods:
- Terminals being silver or gold plated over a nickel barrier, the use of slightly activated flux is suitable.
  - Soldering on double wave machine for vertical versions: soldering time ≤ 5 sec.
  - Cleaning according to typical washing processes.
  - Infrared Reflow Soldering in accordance with IEC 61760-1.

## Electrical

|                  | Silver | Gold   |
|------------------|--------|--------|
| MAXIMUM POWER:   | 1 VA   | 0.2 VA |
| MAXIMUM VOLTAGE: | 32 VDC | 32 VDC |
| MINIMUM VOLTAGE: | 20 mV  | 20 mV  |
| MAXIMUM CURRENT: | 50 mA  | 10 mA  |
| MINIMUM CURRENT: | 1 mA*  | 0.1 mA |

DIELECTRIC STRENGTH (50 Hz, 1 min.): ≥ 250 Vrms  
 CONTACT RESISTANCE: ≤ 100mΩ  
 INSULATION RESISTANCE (100 V): ≥ 10M Ω  
 BOUNCE TIME: ≤ 1 ms

\* Ultra low current with 10 µA - 1 VDC version are available upon request for KSC2 and KSC4

## Packaging

Tape and Reel (see series for quantity information)

**NOTE:** Specifications listed above are for switches with standard options.

## KSC Product Range

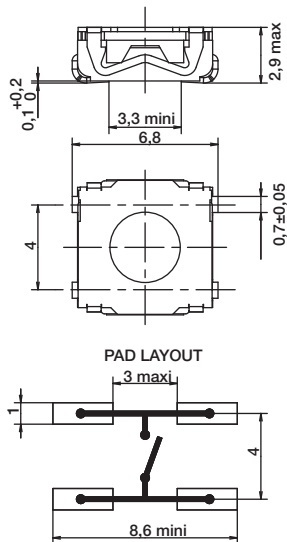
| KSC1             | KSC2          | KSC3          | KSC4          | KSC5          | KSC6          | KSC7          | KSC8          | KSC9                              | KSC10         |
|------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|-----------------------------------|---------------|
| Without actuator | Soft actuator | Hard actuator | Soft actuator | Hard actuator | Hard actuator | Soft actuator | Hard actuator | Hard actuator                     | Soft actuator |
| H = 2.5 mm       | H = 3.5 mm    | H = 3.5 mm    | H = 5.2 mm    | H = 5.6 mm    | H = 7.7 mm    | H = 4.3 mm    | H = 4.9 mm    | H = 7.7 mm compatible with button | H = 4.9 mm    |
| IP67             | IP67          | IP67          | IP67          | IP50          | IP67          | IP67          | IP67          | IP67                              | IP67          |



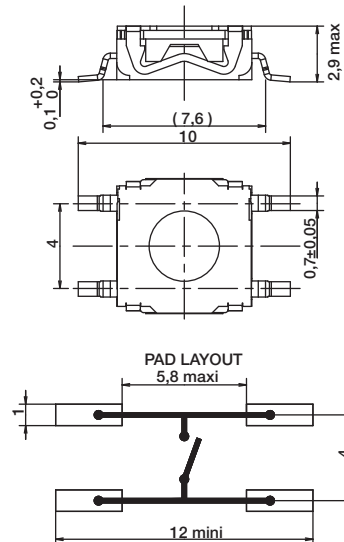
Note: KSC Series is subject to variants. Please contact customer service for other options.

# KSC Series Sealed Tact Switch for SMT

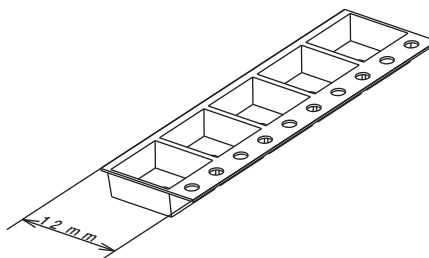
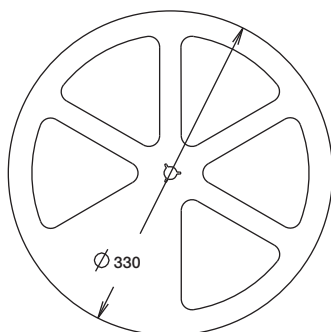
## J BEND



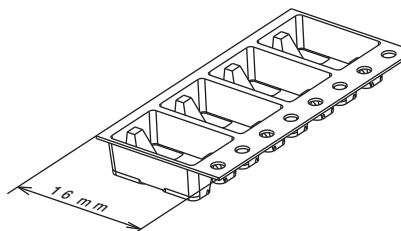
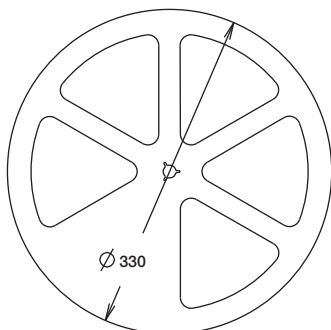
## G GULLWING



### 12 MM



### 16 MM



| 12 mm | Pieces | 16 mm      | Pieces |
|-------|--------|------------|--------|
| KSC1J | 2,000  | KSC1G      | 2,000  |
| KSC2J | 2,000  | KSC2G      | 2,000  |
| KSC3J | 2,000  | KSC3G      | 2,000  |
|       |        | KSC4J & G  | 1,000  |
|       |        | KSC5J & G  | 1,000  |
|       |        | KSC6J & G  | 750    |
|       |        | KSC7J & G  | 1,000  |
|       |        | KSC8J & G  | 1,000  |
|       |        | KSC9J & G  | 750    |
|       |        | KSC10J & G | 1,000  |



First Angle  
Projection

Dimensions are shown: mm  
Specifications and dimensions subject to change

# KSC1 Series Sealed Tact Switch for SMT

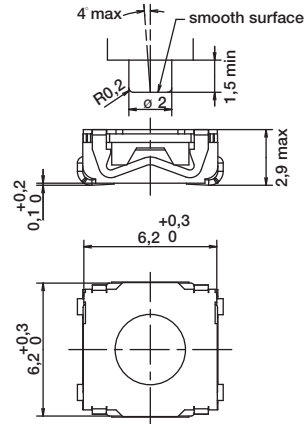
## KSC1 without actuator 2,5 mm high



| Type   | Operating force FA (Newtons) | Operating life (operations) | Travel (mm) |
|--------|------------------------------|-----------------------------|-------------|
| KSC121 | 1.8 ± 0.65                   | 200,000                     | 0.3 ± 0.15  |
| KSC141 | 3 ± 0.75                     | 200,000                     | 0.3 ± 0.15  |
| KSC151 | 5.5 ± 1.4                    | 100,000                     | 0.35 ± 0.15 |

### Packaging

Switches delivered on continuous tape & reels of 2,000 pieces  
 Dimensions according to EIA RS-481/ IEC 60286-3 standard  
 External diameter 330 ± 2 mm



B

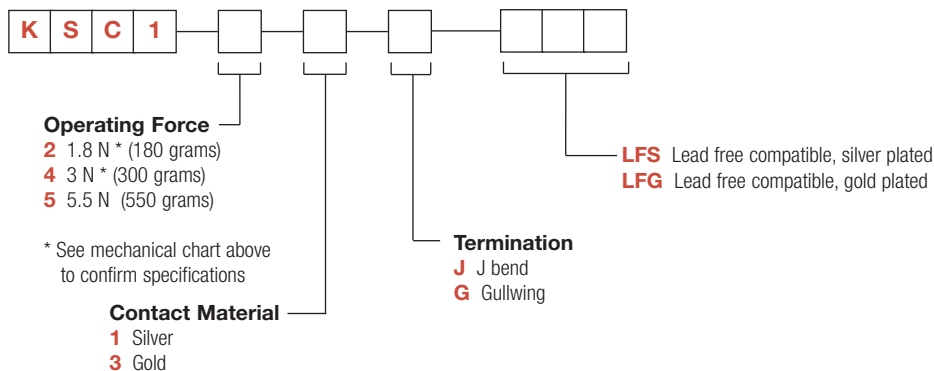
Tactile Switches

### How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

**However, please note that all the combinations of these options are not feasible.**

**For any part number different from those listed above, please consult your local representative.**



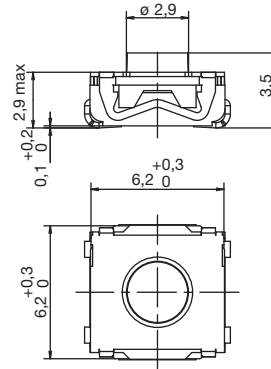
# KSC2 Series Sealed Tact Switch for SMT

KSC2 soft actuator 3,5 mm high



Tactile Switches

| Type       | Operating force FA (Newtons) | Operating life (operations) | Travel (mm)      |
|------------|------------------------------|-----------------------------|------------------|
| KSC201     | 1.6 ± 0.6                    | 5,000,000                   | 0.3 ± 0.2        |
| KSC221     | 2 ± 0.5                      | 500,000                     | 0.35 + 0.3/- 0.1 |
| KSC222     | 2 ± 0.5                      | 1,000,000                   | 0.35 ± 0.15      |
| KSC241     | 3.5 ± 0.9                    | 300,000                     | 0.5 ± 0.2        |
| KSC251     | 5.55 ± 1.45                  | 300,000                     | 0.5 ± 0.2        |
| KSC231 SPD | 3.5 ± 0.9                    | 300,000                     | 0.5 ± 0.2        |
| KSC241 SPD | 3.55 ± 0.9                   | 300,000                     | 0.5 ± 0.2        |
| KSC251 SPD | 6.2 ± 1.55                   | 100,000                     | 0.6 ± 0.2        |



## Packaging

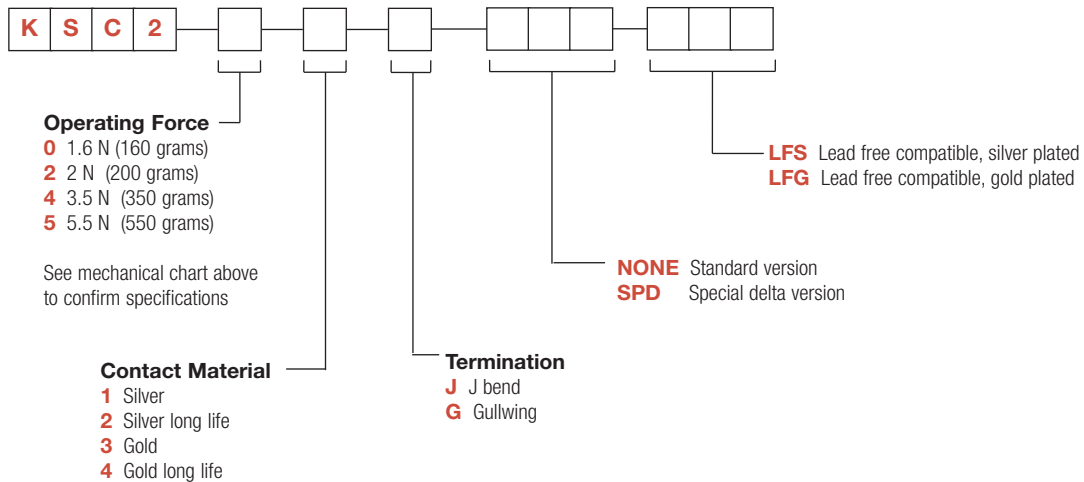
Switches delivered on continuous tape & reels of 2,000 pieces  
 Dimensions according to EIA RS-481/ IEC 60286-3 standard  
 External diameter 330 ± 2 mm

## How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

**However, please note that all the combinations of these options are not feasible.**

**For any part number different from those listed above, please consult your local representative.**



Dimensions are shown: mm  
 Specifications and dimensions subject to change

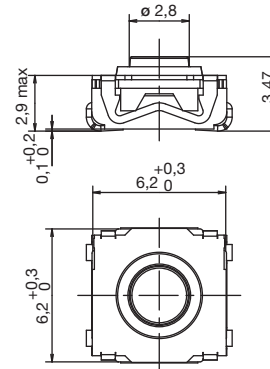


# KSC3 Series Sealed Tact Switch for SMT

## KSC3 hard actuator 3,5 mm high



| Type   | Operating force FA (Newtons) | Operating life (operations) | Travel (mm)    |
|--------|------------------------------|-----------------------------|----------------|
| KSC321 | 2 ± 0.4                      | 300,000                     | 0.2 + 0.3/- 0  |
| KSC341 | 3 ± 0.75                     | 300,000                     | 0.2 + 0.3/- 0  |
| KSC351 | 5 ± 1                        | 100,000                     | 0.25 + 0.3/- 0 |



## Packaging

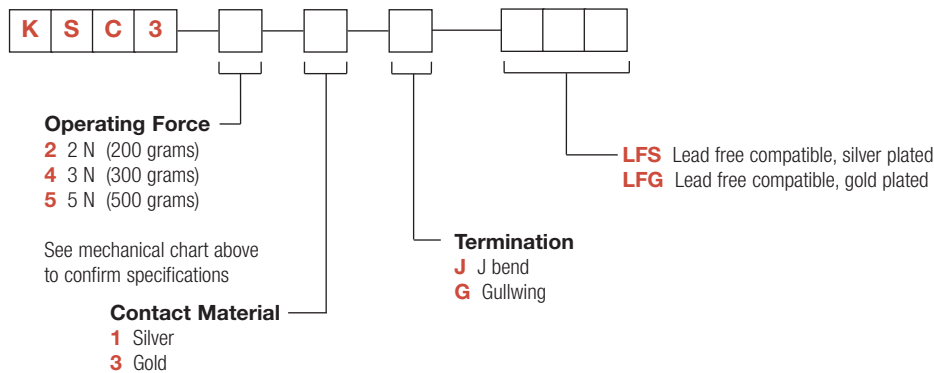
Switches delivered on continuous tape & reels of 2,000 pieces  
Dimensions according to EIA RS-481/ IEC 60286-3 standard  
External diameter 330 ± 2 mm

## How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

**However, please note that all the combinations of these options are not feasible.**

**For any part number different from those listed above, please consult your local representative.**





# KSC5 Series Tact Switch with Rocker Option for SMT

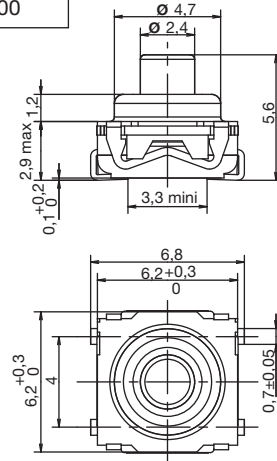
KSC5 hard actuator 5,6 mm high



| Type   | Operating force axial FA<br>N (grams) | Operating force lateral FL<br>N (grams) ±30% | Travel to make axial (mm) | Travel to make lateral (mm) | Life expectancy cycles, axial | Life expectancy cycles, lateral |
|--------|---------------------------------------|--|---------------------------|-----------------------------|-------------------------------|---------------------------------|
| KSC521 | 2 ± 0.5                               | 1.2 - 2.6                                    | 0.25 ± 0.15               | 0.5 ± 0.25                  | 100,000                       | 10,000                          |
| KSC541 | 3 ± 0.75                              | 1.8 - 3.8                                    | 0.25 ± 0.15               | 0.5 ± 0.25                  | 100,000                       | 10,000                          |

## Packaging

Switches delivered on continuous tape & reels of 1,000 pieces, dimensions according to EIA RS-481/ IEC 60286-3 standard  
External diameter 330 ± 2 mm

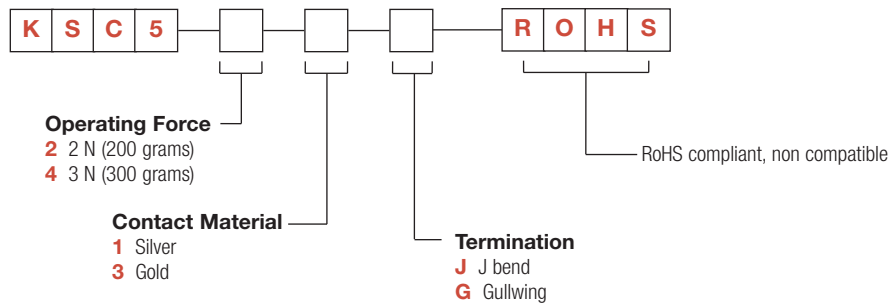


## How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

However, please note that all the combinations of these options are not feasible.

For any part number different from those listed above, please consult your local representative.

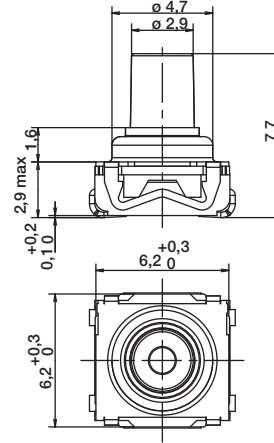


# KSC6 Series Sealed Tact Switch for SMT

KSC6 hard actuator 7,7 mm high



| Type   | Operating force FA (Newtons) | Operating life (operations) | Travel (mm) |
|--------|------------------------------|-----------------------------|-------------|
| KSC621 | 1.7 ± 0.5                    | 300,000                     | 0.4 ± 0.2   |
| KSC631 | 2.55 ± 0.65                  | 300,000                     | 0.4 ± 0.2   |
| KSC641 | 3.4 ± 0.85                   | 300,000                     | 0.4 ± 0.2   |



Tactile Switches

## Packaging

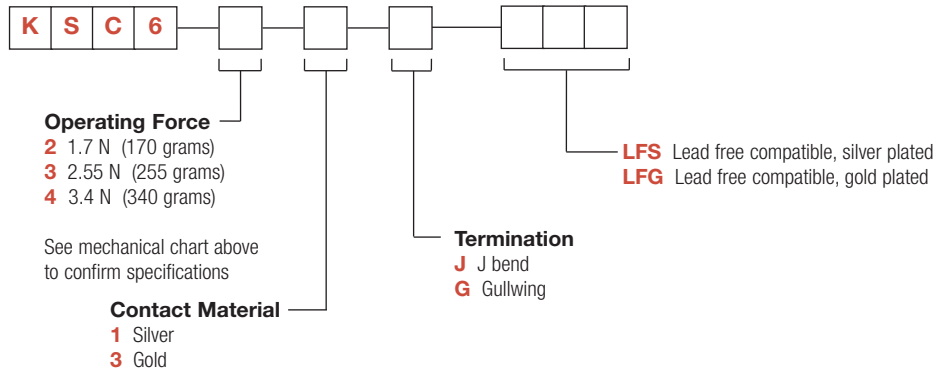
Switches delivered on continuous tape & reels of 750 pieces  
Dimensions according to EIA RS-481/ IEC 60286-3 standard  
External diameter 330 ± 2 mm

## How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

**However, please note that all the combinations of these options are not feasible.**

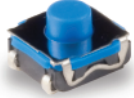
**For any part number different from those listed above, please consult your local representative.**



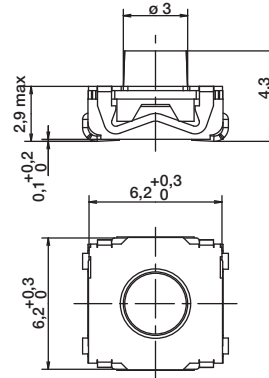
Dimensions are shown: mm  
Specifications and dimensions subject to change

# KSC7 Series Tact Switch with Rocker Option for SMT

## KSC7 soft actuator 4,3 mm high



| Type   | Operating force FA (Newtons) | Operating life (operations) | Travel (mm) |
|--------|------------------------------|-----------------------------|-------------|
| KSC701 | 1.6 ± 0.6                    | 5,000,000                   | 0.3 ± 0.2   |
| KSC721 | 2.25 ± 0.55                  | 300,000                     | 0.3 ± 0.15  |
| KSC741 | 3.9 ± 1                      | 300,000                     | 0.4 ± 0.2   |



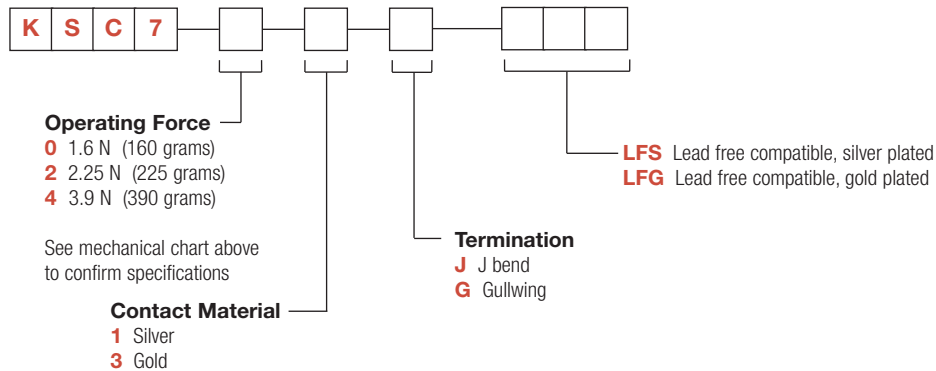
## Packaging

Switches delivered on continuous tape & reels of 1,000 pieces  
Dimensions according to EIA RS-481/ IEC 60286-3 standard  
External diameter 330 ± 2 mm

## How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

**However, please note that all the combinations of these options are not feasible.  
For any part number different from those listed above, please consult your local representative.**



# KSC8 Series Sealed Tact Switch for SMT

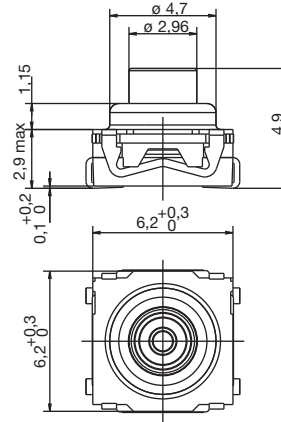
KSC8 hard actuator 4,9 mm high



| Type      | Operating force FA (Newtons) | Operating life (operations) | Travel (mm) |
|-----------|------------------------------|-----------------------------|-------------|
| KSC821    | 3.15 ± 0.75                  | 300,000                     | 0.65 ± 0.2  |
| KSC821 OL | 1.7 ± 0.5                    | 300,000                     | 0.4 ± 0.2   |
| KSC831 OL | 2.55 ± 0.65                  | 300,000                     | 0.4 ± 0.2   |
| KSC841 OL | 3.4 ± 0.85                   | 300,000                     | 0.4 ± 0.2   |

## Packaging

Switches delivered on continuous tape & reels of 1,000 pieces  
Dimensions according to EIA RS-481/ IEC 60286-3 standard  
External diameter 330 ± 2 mm

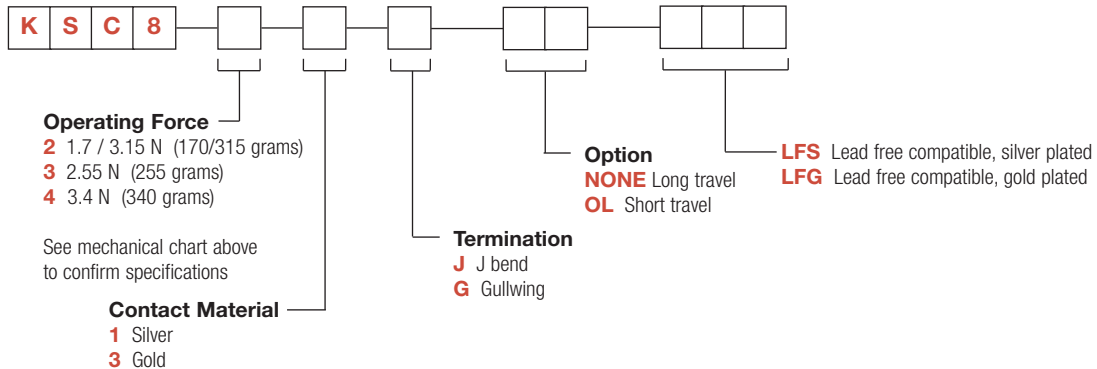


Tactile Switches

## How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

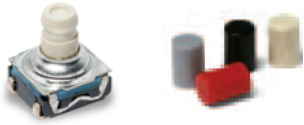
However, please note that all the combinations of these options are not feasible.  
For any part number different from those listed above, please consult your local representative.



Dimensions are shown: mm  
Specifications and dimensions subject to change

# KSC9 Series Sealed Tact Switches for SMT

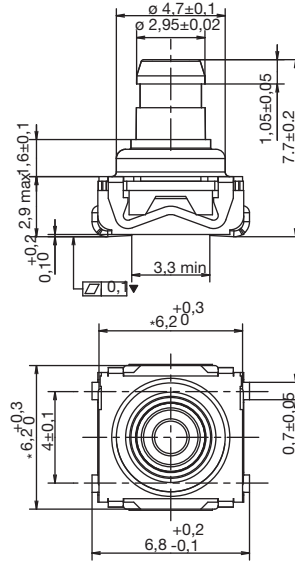
## KSC9 hard actuator 7,7 mm high



| Type   | Operating force FA (Newtons) | Operating life (operations) | Travel (mm) |
|--------|------------------------------|-----------------------------|-------------|
| KSC921 | 1.7 ± 0.5                    | 300,000                     | 0.4 ± 0.2   |
| KSC931 | 2.25 ± 0.65                  | 300,000                     | 0.4 ± 0.2   |
| KSC941 | 3.4 ± 0.85                   | 300,000                     | 0.4 ± 0.2   |

### Packaging

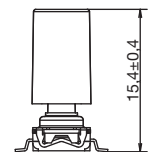
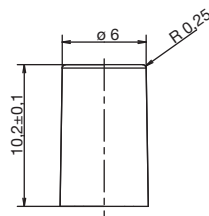
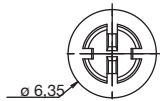
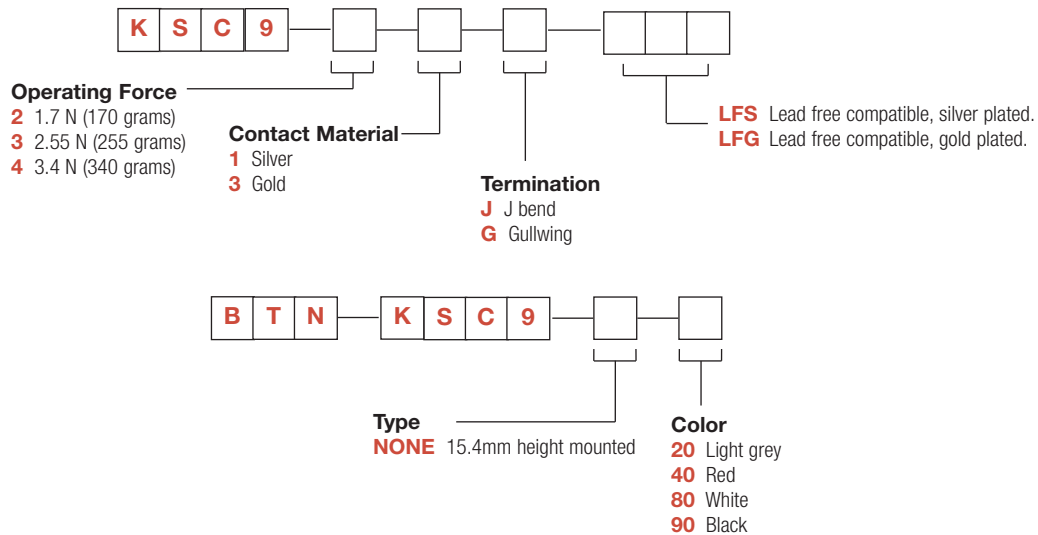
Switches delivered on continuous tape & reels of 750 pieces  
Dimensions according to EIA RS-481/ IEC 60286-3 standard  
External diameter 330 ± 2 mm



### How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

**For any part number different from those listed above, please consult your local representative.**



SWITCH WITH CAP



First Angle  
Projection

Dimensions are shown: mm  
Specifications and dimensions subject to change

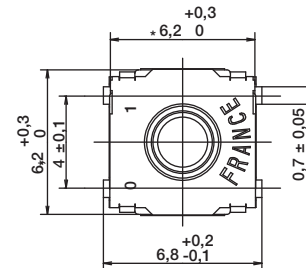
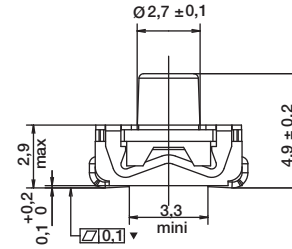
# KSC10 Series Sealed Tact Switches for SMT

KSC10 soft actuator 4,9 mm high



Tactile Switches

| Type    | Operating force FA (Newtons) | Operating life (operations) | Travel (mm) |
|---------|------------------------------|-----------------------------|-------------|
| KSC1001 | 1.45 ± 0.55                  | 5,000,000                   | 0.45 ± 0.25 |



## Packaging

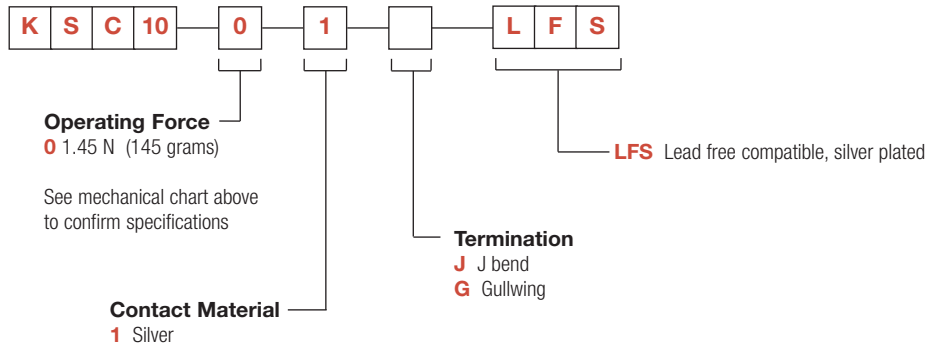
Switches delivered on continuous tape & reels of 1,000 pieces  
Dimensions according to EIA RS-481/ IEC 60286-3 standard  
External diameter 330 ± 2 mm

## How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

**However, please note that all the combinations of these options are not feasible.**

**For any part number different from those listed above, please consult your local representative.**



Note: KSC10 offered with yellow actuator as standard, hardness 55 Shore



Dimensions are shown: mm  
Specifications and dimensions subject to change



# KSC4V2 Series Side Actuated Sealed Tact Switch

## Features/Benefits

- Full SMD side actuated
- Haptic adaptability
- Pin in paste terminations
- Tape & reel
- IP67

## Typical Applications

- Automotive
- Industrial electronics
- Network equipment
- Telecommunications



## Specification

FUNCTION: momentary action  
CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.  
TERMINALS:  
2 pin in paste signal terminals  
3 SMD ground terminals

## Mechanical

| Type            | Force (N)   | Operating Life (operations) | Travel (mm) |
|-----------------|-------------|-----------------------------|-------------|
| KSC441V2SPDLFS  | 3.5 ± 1.0   | 300,000                     | 0.7 ± 0.2   |
| KSC421V270SHLFS | 1.55 ± 0.45 | 300,000                     | 0.5 ± 0.2   |

NOTE: Basic version is based on KSC441V2 SPDELTA LFS.  
Other configurations of haptics are available upon demand.

MISUSE OVERLOAD: 40N with back support  
SHEAR FORCE: 10N without back support

## Electrical

|                  | Silver | Gold   |
|------------------|--------|--------|
| MAXIMUM POWER:   | 1 VA   | 0.2 VA |
| MAXIMUM VOLTAGE: | 32 VDC | 32 VDC |
| MINIMUM VOLTAGE: | 20 mV  | 20 mV  |
| MAXIMUM CURRENT: | 50 mA  | 10 mA  |
| MINIMUM CURRENT: | 1 mA   | 0.1 mA |

DIELECTRIC STRENGTH (50 Hz, 1 min.): ≥ 250 Vrms  
CONTACT RESISTANCE: ≤ 100 mΩ  
INSULATION RESISTANCE (100 V, initial stage): > 10<sup>9</sup> Ω  
BOUNCE TIME: < 1 ms

## Environmental

|                        | Silver        | Gold           |
|------------------------|---------------|----------------|
| OPERATING TEMPERATURE: | -40°C to 85°C | -40°C to 125°C |
| STORAGE TEMPERATURE:   | -55°C to 85°C | -55°C to 125°C |

## Process

SOLDERING: Depending on the application, this component is suited to the following methods:

- Cleaning according to typical washing processes.
- Infrared Reflow Soldering in accordance with IEC 61760-1.

TERMINALS: pin in paste, silver or gold plated

TOP PLATE: tin plated

MSL level: 1

Vacuum pick head mandatory

## Packaging

In reels of 500 pieces.

Dimensions of reels according to EIA RS481 or IEC 2863.

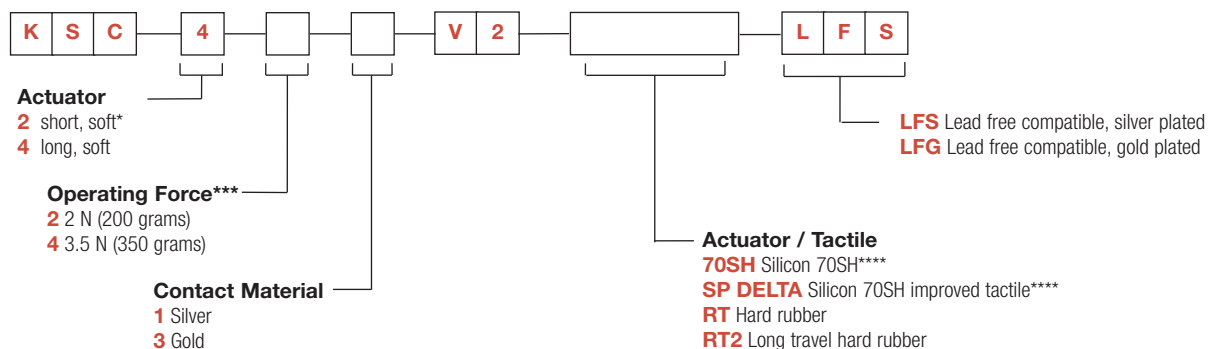
External diameter 330 mm ± 2 mm.

NOTE: This product is designed and manufactured for general electronic devices.  
For systems where reliability and safety are required, please contact your sales representative to secure product integration and function to secure usage.

## How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

**For any part number different from those listed above, please consult your local representative.**



\* KSC2 version available upon demand

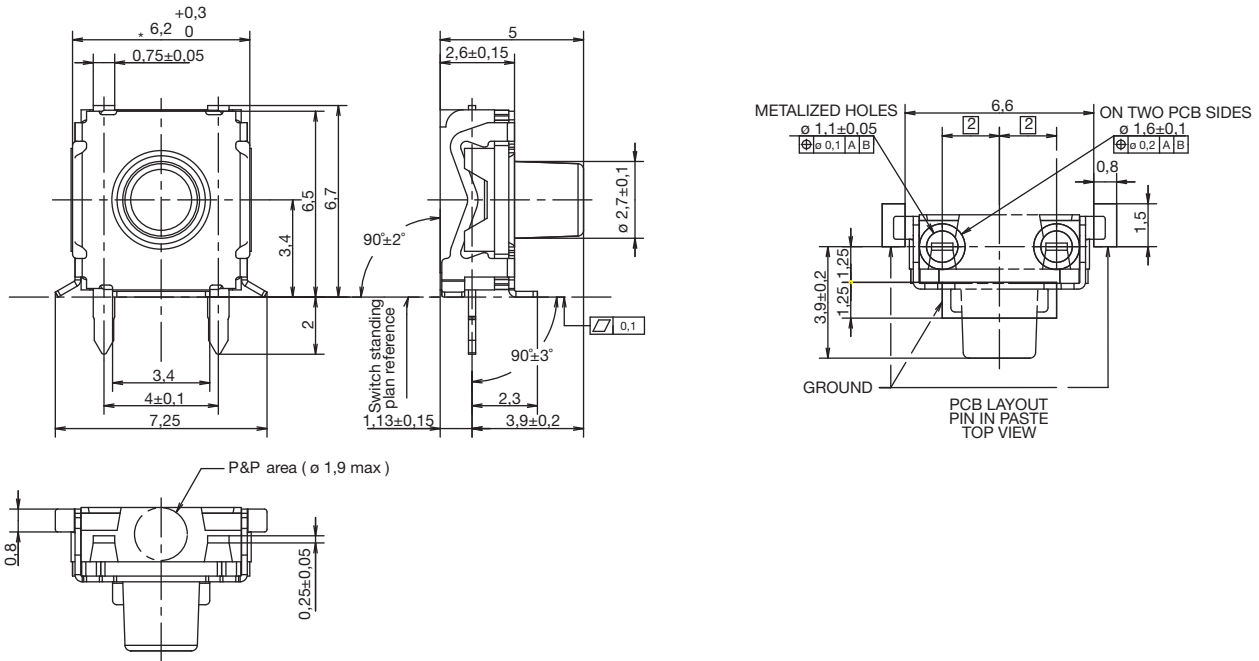
\*\*\* Force available upon demand (variant version)

\*\*\*\* Available for KSC4 only

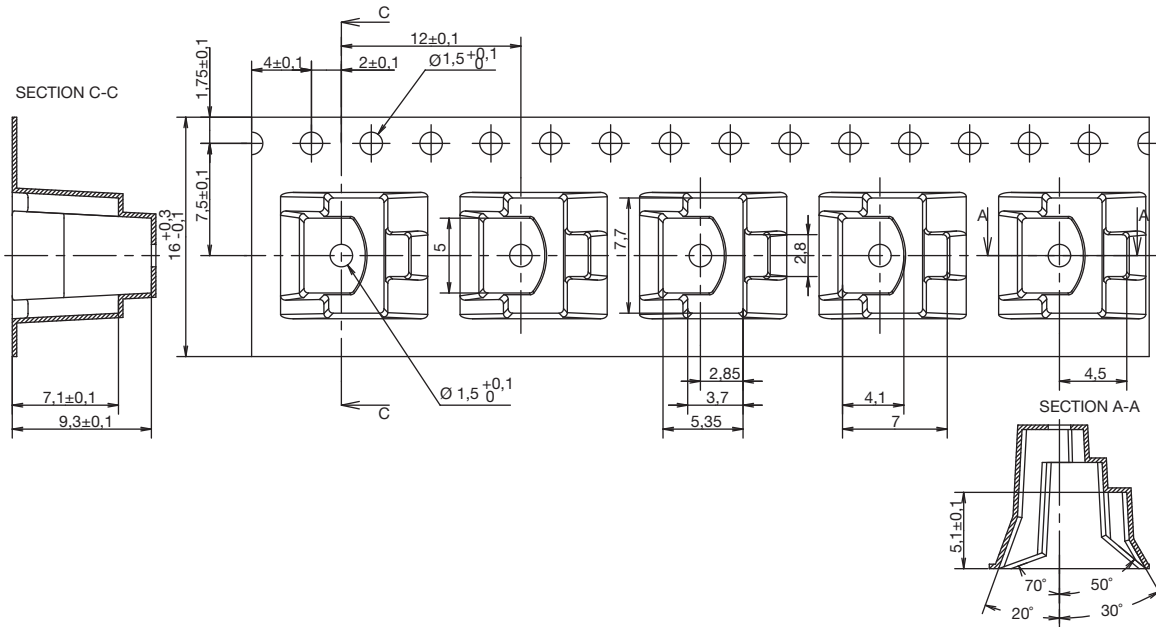
# KSC4V2 Series Side Actuated Sealed Tact Switch

Tactile Switches

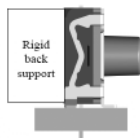
B



## TAPE AND REEL



## INTEGRATION



First Angle  
Projection

Dimensions are shown: mm  
Specifications and dimensions subject to change

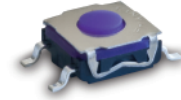
# KSE Series Low Profile Tact Switch

## Features/Benefits

- Low profile
- Cost efficient
- J or G terminations
- Tape and reel
- IP67

## Typical Applications

- Smart meters
- Home appliances
- Consumer electronics
- Industrial electronics
- Telecommunications



## Specification

FUNCTION: momentary action  
CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.  
TERMINALS: J bend & Gullwing type for SMT

## Mechanical

| Type       | Operating Force FA (Newtons) |      | Operating Life Operations | Travel (mm)    |
|------------|------------------------------|------|---------------------------|----------------|
|            | Min.                         | Max. |                           |                |
| KSEM31JLFS | 1,6 ± 0,6                    |      | 300,000                   | 0,3 + 0,1/-0,2 |
| KSEM31GLFS | 1,6 ± 0,6                    |      | 300,000                   | 0,3 + 0,1/-0,2 |
| KSEK43JLFS | 2,25 ± 0,75                  |      | 300,000                   | 0,3 ± 0,2      |
| KSEK43GLFS | 2,25 ± 0,75                  |      | 300,000                   | 0,3 ± 0,2      |

NOTE: For cost effectiveness the tactile feeling is not specified and can change along production. If your application requires a defined tactile effect, please consider KSC series for your application.

## Packaging

In reels of 2,000 pieces  
Dimensions of reels according to EIA RS481 or IEC 2863.  
External diameter 330 mm ± 2 mm.

## Electrical

MAXIMUM POWER: 1 VA  
MINIMUM/MAXIMUM VOLTAGE: 20 mV / 32 VDC  
MINIMUM/MAXIMUM CURRENT: 1 mA / 50 mA  
DIELECTRIC STRENGTH: (50 Hz, 1 min.): ≥ 250 V  
CONTACT RESISTANCE: ≤ 100 mΩ  
INSULATION RESISTANCE: (100 V): ≥ 10<sup>9</sup> Ω  
BOUNCE TIME: ≤ 1 ms

## Environmental

OPERATING TEMPERATURE: -40°C to 85°C  
STORAGE TEMPERATURE: -55°C to 85°C

## Process

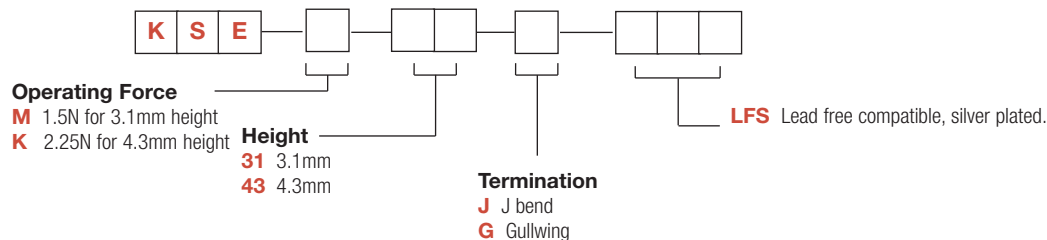
SOLDERING: Depending on the application, this component is suited to the following methods:  
– Cleaning according to typical washing processes.  
– Infrared Reflow Soldering in accordance with IEC 61760-1.

## NOTE:

Specifications listed above are for switches with standard options. KSE series is not subject to adaptation and/or modification for specific use. If you require additional features, please refer to the KSC series. KSE is not recommended for applications requiring high level of performance such as aerospace, automotive and some industrial applications.

## How To Order

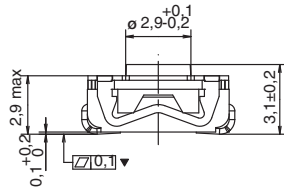
Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.



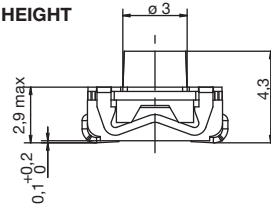
# KSE Series Low Profile Tact Switch

## HEIGHT

**31** 3.1 MM HEIGHT

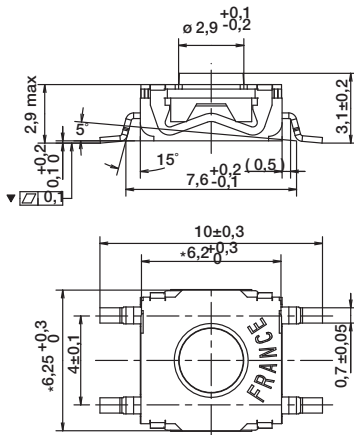


**43** 4.3 MM HEIGHT

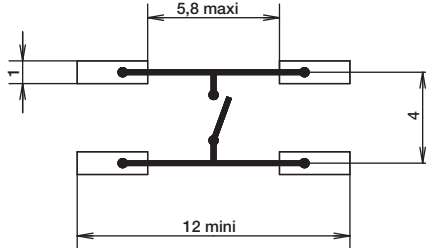


## TERMINATION

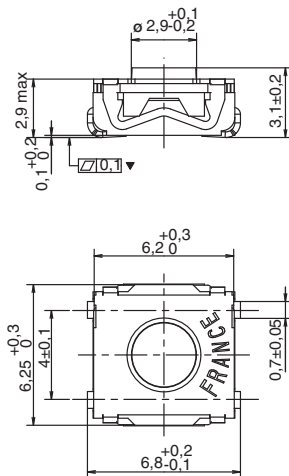
**G** GULLWING



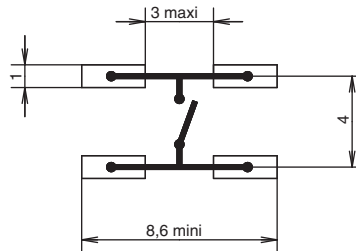
PAD LAYOUT



**J** J BEND



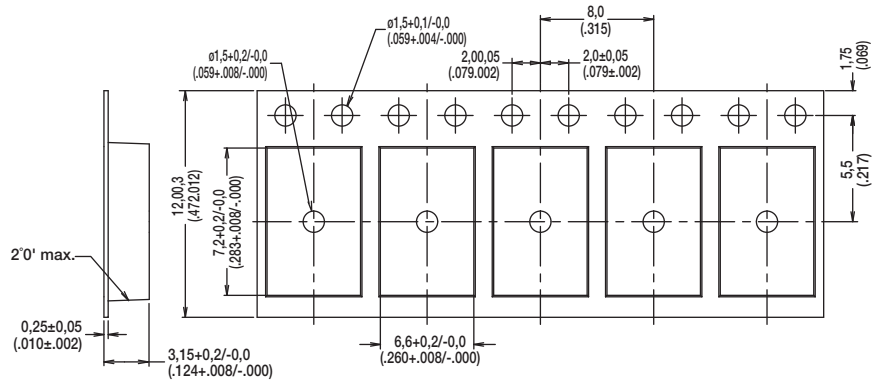
PAD LAYOUT



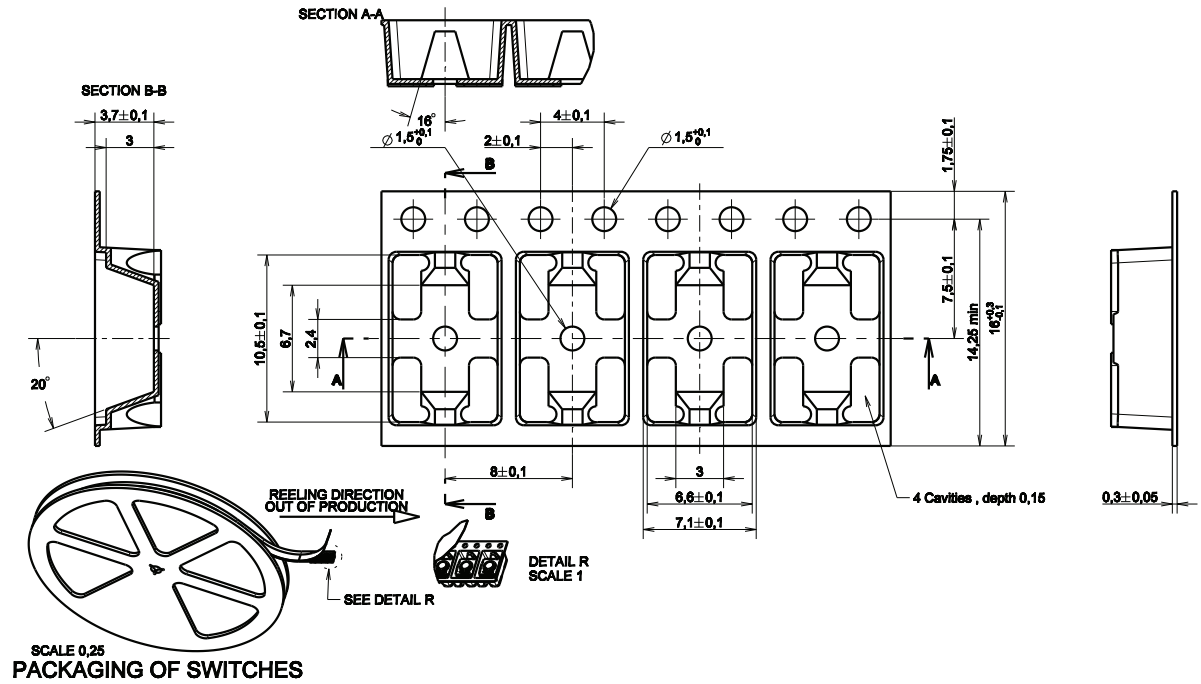
# KSE Series Low Profile Tact Switch

## TAPE & REEL

### 12 mm height



### 16 mm height



**B**  
Tactile Switches

# KT Series

## Full SMT Top & Side Actuated Sealed Tact Switch



### Features/Benefits

- Full SMT side-actuated tact switch
- SMT top-actuated tact switch with G or J terminations
- High shear force with extended bracket
- Easy to pick & place with top plate tab
- Rubber or hard plastic actuator
- Press fit or snap fit caps
- RoHS compliant and compatible

### Typical Applications

- Telecommunications
- Computer products
- Instrumentation
- Power supply

### Specification

CONTACT ARRANGEMENT: SPST, N.O.  
TERMINALS: SMT termination

### Electrical

CONTACT RATING: 1.0 VA max. @ 32 V AC or DC max.  
ELECTRICAL & MECHANICAL LIFE: 100,000 make-and-break cycles at full load.  
DIELECTRIC STRENGTH: 250 Vrms min. @ sea level.  
CONTACT RESISTANCE: Below 50 mΩ typ. initial @ 2-4 V DC, 100 mA.  
INSULATION RESISTANCE: 10<sup>9</sup> Ω min.

### Environmental

OPERATING TEMPERATURES: Ag version: -40°C to 90°C  
Au version: -40°C to 125°C

### Process

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).  
DEGREE OF PROTECTION: IP57; protection against harmful dust deposits, full-scale voltage protection.

### Packaging

Switches supplied in anti-static tape and reels per EIA 481-2. Tape and cover strip are conductive for use near statically sensitive components.

**NOTE:** Specifications listed above are for switches with standard options.  
For information on specific and custom switches, consult Customer Service Center.

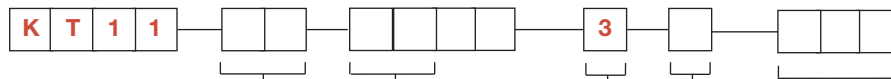
### How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

However, please note that all the combinations of these options are not feasible.

For any part number different from those listed above, please consult your local representative.

### SWITCH



#### Actuator

- B0\*** Soft, flush
- B1\*** Soft, 0,64 mm
- B2\*** Soft, 2,24 mm
- P2\*\*** Hard, 2,36 mm
- P3\*\*** Hard, 1,12 mm
- P4\*\*** Hard, 3,96 mm
- S1\*\*\*** ø0,1" for Press Fit Caps
- S2\*\*\*** ø0,14" for Snap Fit Caps (with anti-rotation)

#### Orientation and Mounting Style

- SM** Top Gullwing
- JM** Top J Bend \*\*\*\*
- SAM** Right angle
- SA1M** Right angle with front solder pad
- SA2M** Right angle with front solder pad and pick & place tab
- SA3M** Right angle with pick & place tab

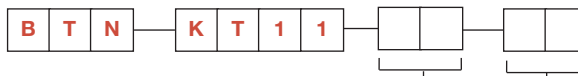
#### Contact Plating

- 4** Silver
- 5** Gold
- LFS** RoHS compliant and compatible. Silver plated
- LFG** RoHS compliant and compatible. Gold plated

\* B0, B1 & B2 available with A, A1 & A3 mounting bracket only.  
\*\* P2, P3, P4 actuators suitable with A1 & A2 mounting bracket only.  
\*\*\* S1 & S2 available with A1 & A2 mounting bracket only.  
\*\*\*\* JM available with B0, B1, B2, P2, P3, P4 without mounting bracket.

### BUTTON

To order buttons in bulk



#### Button Style

- 02** Press fit
- 03** Snap fit, high temperature

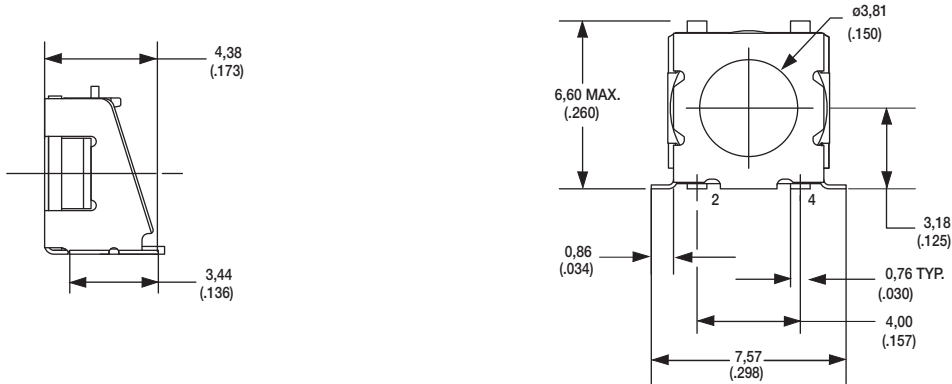
#### Button Color

- 90** Black
- 80** Ivory (natural)
- 40** Red

# KT Series Full SMT Top & Side Actuated Sealed Tact Switch

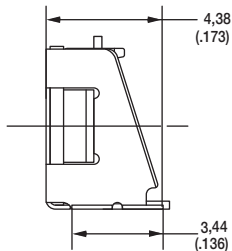
## SERIES

### KT11

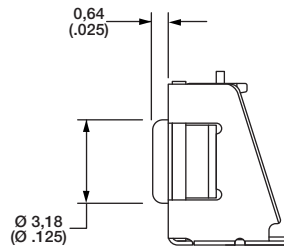


## ACTUATOR

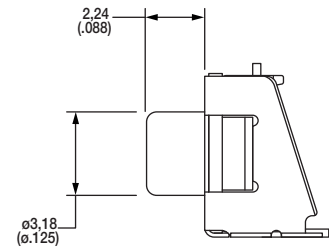
### B0 SOFT, FLUSH\*



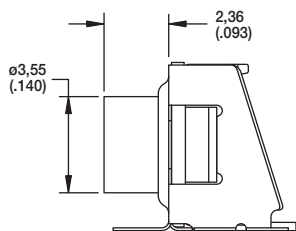
### B1 SOFT, 0,64 mm\*



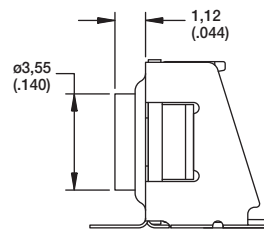
### B2 SOFT, 2,24 mm\*



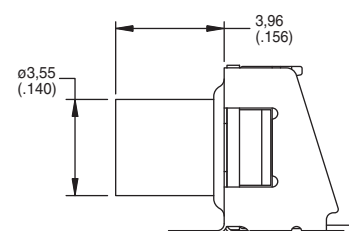
### P2 HARD, 2,36 mm



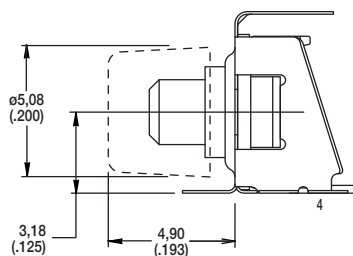
### P3 HARD, 1,12 mm



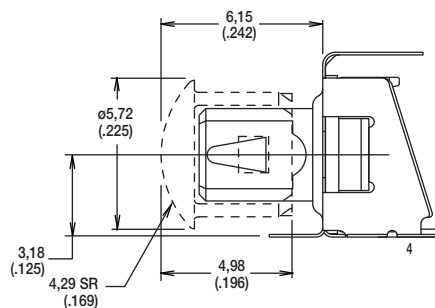
### P4 HARD, 3,96 mm\*\*



### S1 $\phi 0,1''$ FOR PRESS FIT CAPS\*\*\*



### S2 $\phi 0,14''$ FOR SNAP FIT CAPS\*\*\*



\* B0, B1 & B2 available with A, A1 & A3 mounting bracket only.

\*\* P2, P3, P4 actuators suitable with A1 & A2 mounting bracket only.

\*\*\* S1 & S2 available with A1 & A2 mounting bracket only.

\*\*\*\* JM available with B0, B1, B2, P2, P3, P4 without mounting bracket.



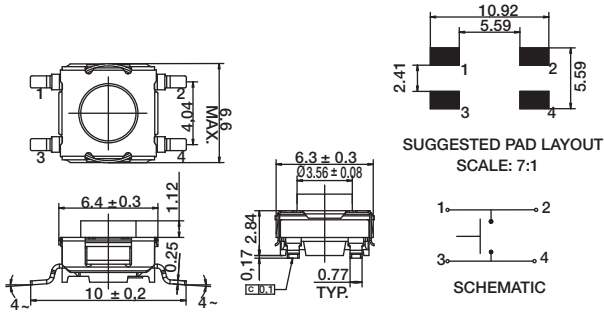
Dimensions are shown: mm (inches)  
Specifications and dimensions subject to change

# KT Series Full SMT Top & Side Actuated Sealed Tact Switch

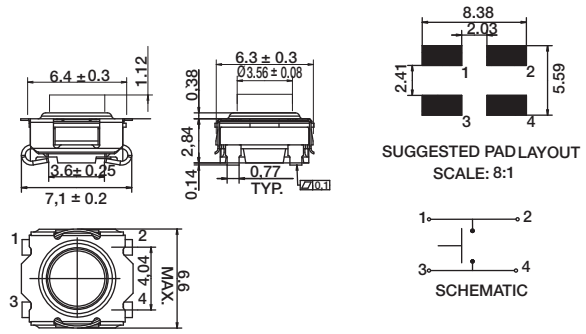
## ORIENTATION & MOUNTING STYLE

Tactile Switches

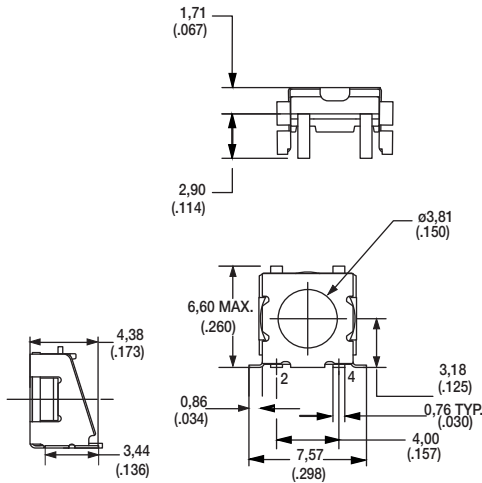
### SM TOP GULLWING



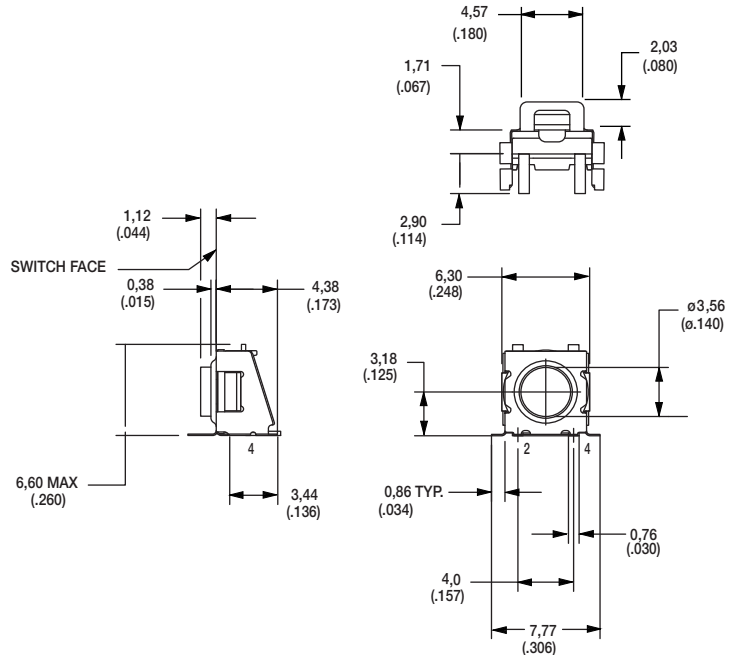
### JM TOP J BEND



### SAM RIGHT ANGLE



### SA1M RIGHT ANGLE WITH FRONT SOLDER PAD



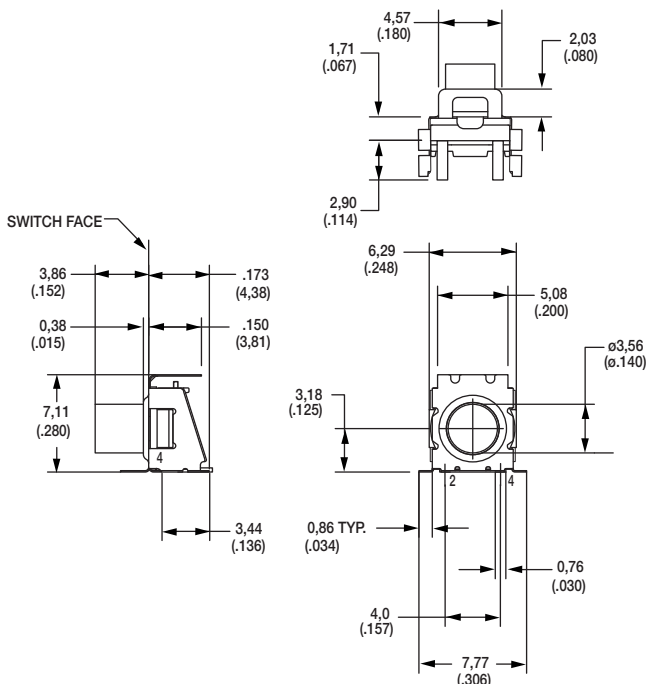
Dimensions are shown: mm (inches)  
Specifications and dimensions subject to change



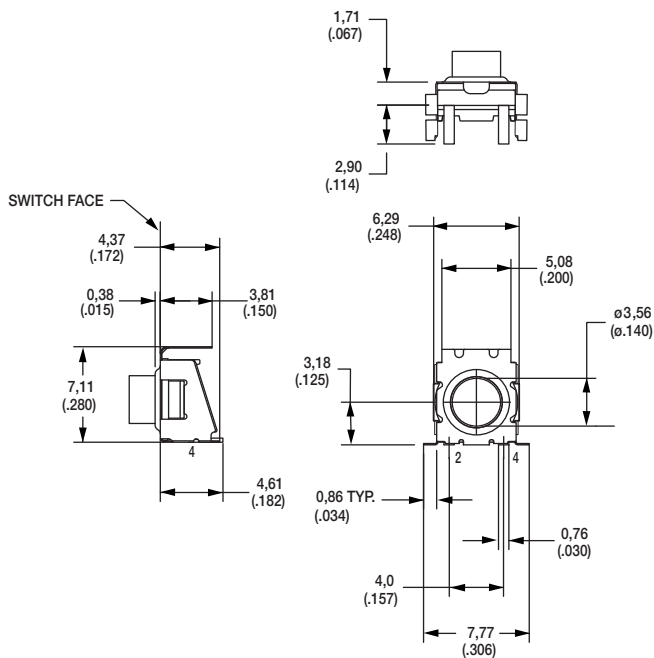
# KT Series

## Full SMT Top & Side Actuated Sealed Tact Switch

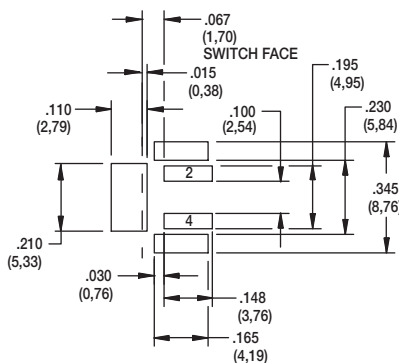
**SA2M** RIGHT ANGLE WITH FRONT SOLDER PAD AND PICK & PLACE TAB



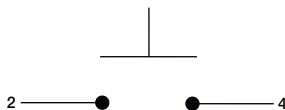
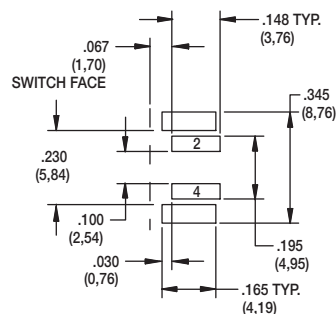
**SA3M** RIGHT ANGLE WITH PICK & PLACE TAB



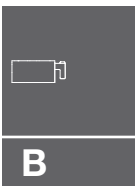
**PAD LAYOUT**  
SA1M & SA2M MOUNTING BRACKET



**PAD LAYOUT**  
SAM & SA3M MOUNTING BRACKET



**SCHEMATIC**



**Tactile Switches**



Dimensions are shown: mm (inches)  
Specifications and dimensions subject to change

# KT Series Full SMT Top & Side Actuated Sealed Tact Switch

## BUTTON

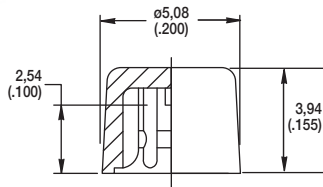
### BUTTON

To order buttons in bulk

#### 02 PRESS FIT

| PART NUMBER           | Internal Part Number | Button Color    |
|-----------------------|----------------------|-----------------|
| <b>BTN KT11 02 80</b> | 5081 01000           | Ivory (Natural) |
| <b>BTN KT11 02 90</b> | 5081 02000           | Black           |
| <b>BTN KT11 02 40</b> | 5081 03000           | Red             |

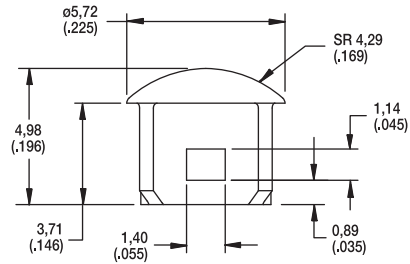
Materials: Nylon  
Finish: Gloss



#### 03 SNAP FIT, HIGH TEMPERATURE

| PART NUMBER           | Internal Part Number | Button Color    |
|-----------------------|----------------------|-----------------|
| <b>BTN KT11 03 80</b> | 685B 01000           | Ivory (Natural) |
| <b>BTN KT11 03 90</b> | 685B 02000           | Black           |

Materials: Nylon  
Finish: Gloss



# K5AT Illuminated SMT Tact Switch

## Features

- High bright LED's
- Gold plated dome contact offering superior contact reliability in time
- Excellent ergonomics: sharp tactile feel and audible click
- Reduced space usage on board "2 in 1"
- 40 N overload
- Tape and reel
- RoHS compliant and compatible

## Typical Applications

- Application requiring illumination
- Server, storage
- Network infrastructure
- Telecom
- Medical



B

Tactile Switches

## Specification

FUNCTION: momentary action  
 CONTACT ARRANGEMENT: Normally Open  
 TERMINALS: SMT with positioning pegs;  
 SMT without positioning pegs is available, contact Customer Service

## Mechanical

| Type         | Operating force<br>FA <sup>1</sup> Newtons<br>(grams) | Operating life<br>(operations) | Travel (total travel)<br>mm(mm) |
|--------------|---|--------------------------------|---------------------------------|
| K5AT WH 43GP | 4.0 (400)   | 100,000                        | 0,5 (0.8)                       |

<sup>1</sup> Tolerances of operating force FA is ± 25%.

## Packaging

Standard: 900 pcs per reel; Reel diameter 380 mm  
 Reduced: 180 pcs per reel; Reel diameter 180 mm

## Electrical

POWER MIN/MAX: 0.02VA / 1.0VA  
 VOLTAGE MIN/MAX: 20mVdc – 32 Vdc  
 CURRENT MIN/MAX: 0.1mA – 100mA  
 CONTACT RESISTANCE: <100m Ω  
 INSULATION RESISTANCE: >1G Ω initial, >10M Ω after damp heat  
 BOUNCE TIME: <10ms

## Environmental

OPERATING TEMPERATURE: -40°C to 125°C  
 STORAGE TEMPERATURE: -55°C to 125°C  
 RELATIVE HUMIDITY: 90 to 96% according to NF EN 60068-2-30  
 PROTECTION: dust protection and flux tight (IP 40)  
 OVERLOAD: 40N min

## Process

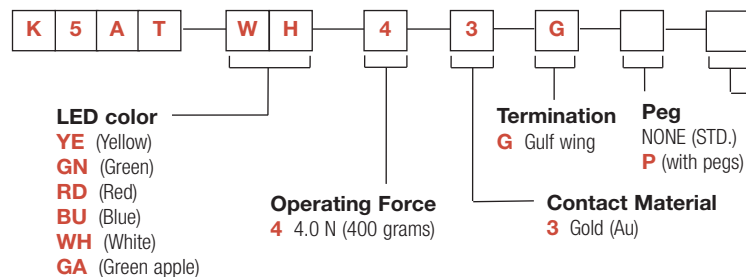
SOLDERING: Compatible with the lead free soldering profile.  
 No washing

## Materials

CONTACTS: Au over Ni  
 SOLDERING: Au over Ni  
 HOUSING: Thermoplastic UL94 V0

## How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.



## Packaging

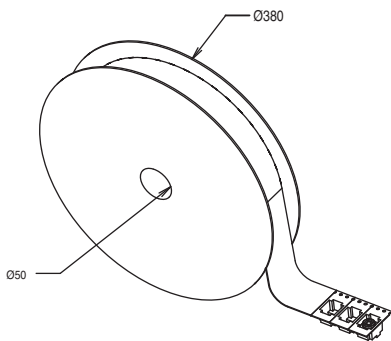
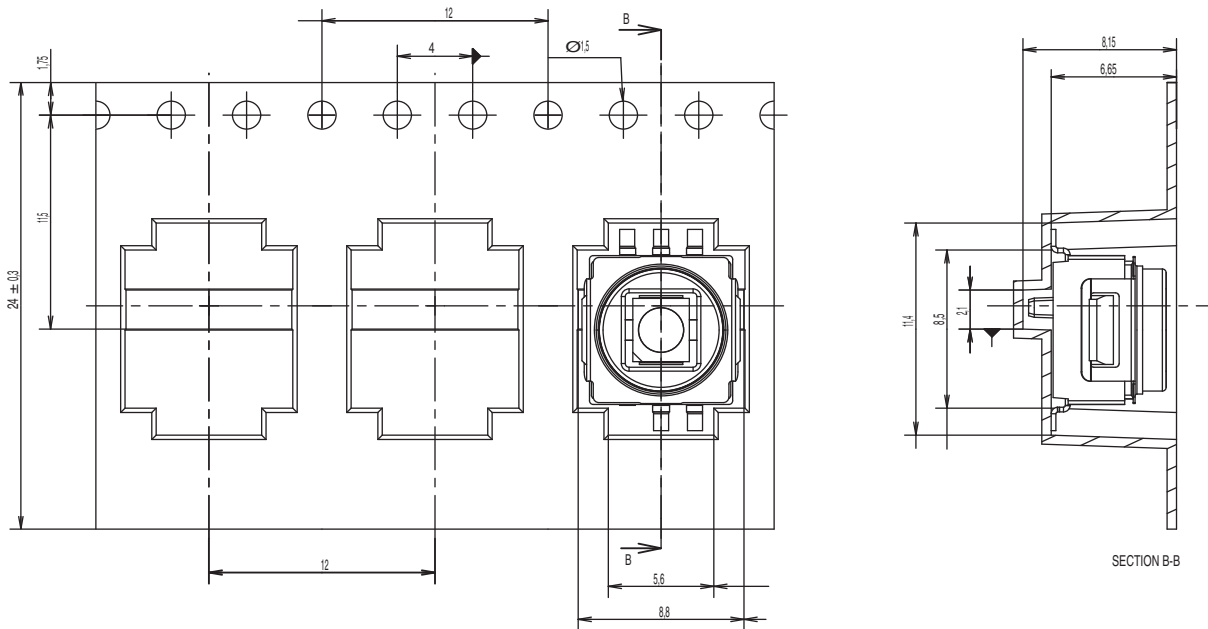
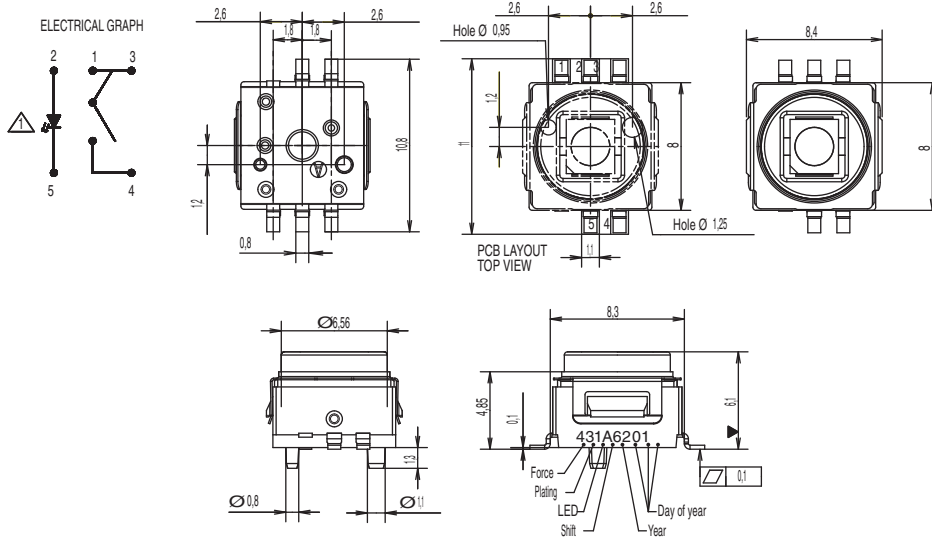
NONE (900 pieces per reel)  
 R (reduced packaging 180 pieces per reel)

# K5AT Illuminated SMT Tact Switch

K5AT

Tactile Switches

B



Dimensions are shown: mm  
Specifications and dimensions subject to change



# Lighted SMT Tact Switch with Rugged LED Mounting Process

## Features

- LED assembly without soldering
- Various LED options
- No light perturbation
- Sound haptic
- Various climatic classes

## Typical Applications

- Automotive
- Network equipment
- Telecommunications
- Medical equipment
- Industrial controls



B

Tactile Switches

## Specification

FUNCTION: momentary action  
 CONTACT ARRANGEMENT: 1 make control = SPST, N.O.  
 TERMINALS: Gullwing type for SMT, peg as option, 2 terminals for LED

## Mechanical

| Type        | Actuation Force (N) | Operating Life (operations) | Total Travel (mm) |
|-------------|---------------------|-----------------------------|-------------------|
| K8xx41G LFS | 4.0                 | 300,000                     | 0.45±0.15         |

Tolerances on actuation force is ± 0.25%.  
 SEALING LEVEL: IP40

## Illumination Colors

White, blue, pure green, orange, super red  
 LED technical information available on product specification.  
 For any extra color, please contact your sales representative.

## Packaging

In reels of 900 pieces under sealed foil.  
 Dimensions of reels according to EIA RS481 or IEC 2863.  
 External diameter 380 mm.

## Electrical

|   | Silver              | Gold   |
|---|---------------------|--------|
| MAXIMUM POWER:                                | 1.0 VA              | 0.2 VA |
| MAXIMUM VOLTAGE:                              | 32 VDC              | 32 VDC |
| MINIMUM VOLTAGE:                              | 20 mV               | 20 mV  |
| MAXIMUM CURRENT:                              | 50 mA               | 10 mA  |
| MINIMUM CURRENT:                              | 1 mA                | 0.1 mA |
| DIELECTRIC STRENGTH: (50 Hz, 1 min.)          | ≥ 250 Vrms          |        |
| CONTACT RESISTANCE:                           | < 100mΩ             |        |
| INSULATION RESISTANCE: (100 V, initial stage) | > 10 <sup>9</sup> Ω |        |
| BOUNCE TIME:                                  | < 10 ms             |        |

## Environmental

OPERATING TEMPERATURE: -40°C to +85°C (Silver)  
 -40°C to +125°C (Gold)

STORAGE TEMPERATURE: -55°C to +85°C (Silver)  
 -40°C to +125°C (Gold)

## Process

SOLDERING: Compatible with the lead free soldering profile.  
 No washing  
 MSL level: 5

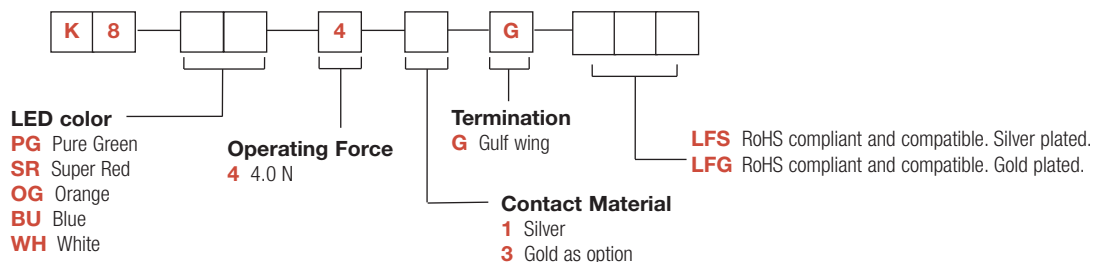
## NOTE:

The specifications show in the datasheet are for reference only and are not valid for design-in work. Please contact your sales representative to request drawings and product specifications.

For systems where reliability and safety are required, please contact your sales representative to secure product integration and function to secure usage.

## How To Order

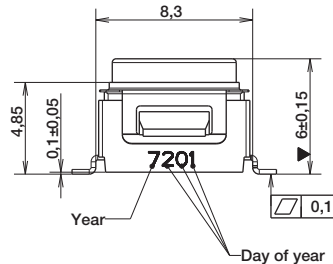
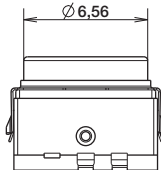
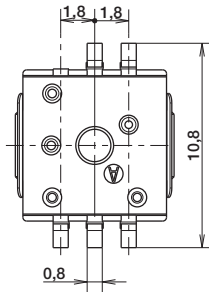
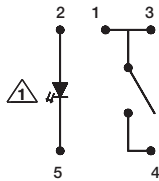
Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and and place it in the appropriate box.



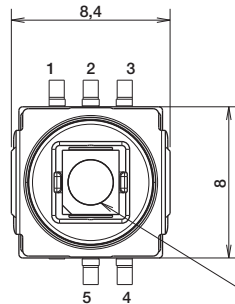
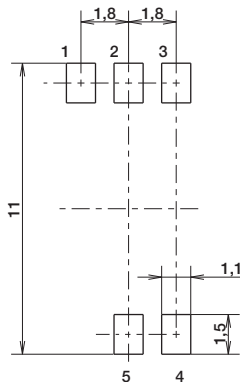
# K8 Lighted SMT Tact Switch with Rugged LED Mounting Process

| PART NUMBER | REF LED           | EMITTED COLOR | LUMINOUS INTENSITY (mcd) $I_f = 20 \text{ mA}$ |     | CHROMATICITY COORDINATES OR PEAK WAVE LENGTH (typ) $I_f = 20 \text{ mA}$ |      | FORWARD VOLTAGE V $I_f = 20 \text{ MA}$ |      |
|-------------|-------------------|---------------|--|-----|--|------|---|------|
|             |                   |               | min  | typ | X  | Y    | min                                     | max  |
| K8WH41G     | LW T67C-S2U1-5K8L | WHITE         | 224  | 560 | 0,33   | 0,33 | 3                                       | 4.1  |
| K8BU41G     | LB T67C-P2R1-35   | BLUE          | 56   | 140 | 465 nm   |      | 3                                       | 4.1  |
| K8PG41G     | LP T676-L1M2-25   | PURE GREEN    | 11.2   | 28  | 562 nm   |      | 1.8                                     | 2.4  |
| K8SR41G     | LP T676-Q1R2-1    | SUPER RED     | 71   | 180 | 645 nm   |      | 1.8                                     | 2.3  |
| K8OG41G     | LO T676-R1S2-24   | ORANGE        | 112  | 280 | 610 nm   |      | 1.85                                    | 2.35 |

ELECTRICAL GRAPH



PCB LAYOUT TOP VIEW



pick and place area :  
top of LED  $\varnothing 2.5 \text{ max}$

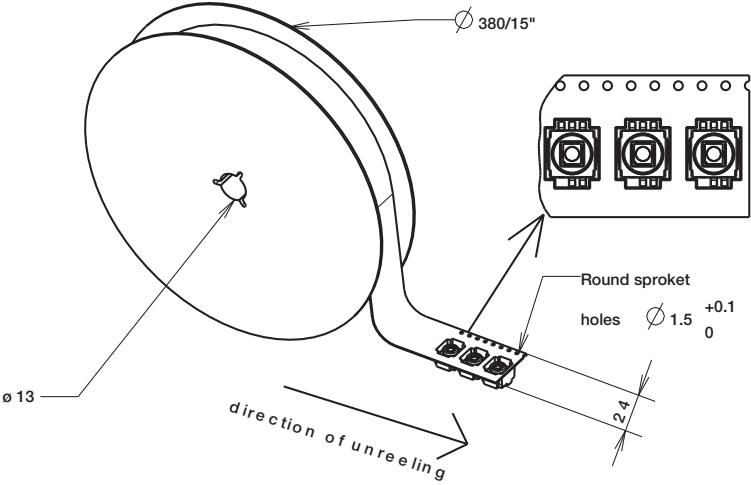


First Angle  
Projection

Dimensions are shown: mm  
Specifications and dimensions subject to change

# Lighted SMT Tact Switch with Rugged LED Mounting Process

TAPE & REEL



B

Tactile Switches

# K5V Illuminated Tact Switch



## Features

- Gold plated dome contact SPST/SPDT
- Excellent ergonomics
- High bright leds
- Reduced space usage on board
- 40 N overload
- Tape and reel
- RoHS compliant and compatible

## Typical Applications

- When backlighting and switch are required to be a "2 in 1" component
- The dome contact secures a superior contact reliability in time
- The ergonomics of K5V provides a long travel, a sharp tactile feel and an audible click
- Server, storage, automotive, network infrastructure, medical

## Specification

FUNCTION: momentary action  
 CONTACT ARRANGEMENT: Normally Open + Normally Closed  
 TERMINALS:  
 THT: Through hole terminals with positioning pegs  
 SMT: Surface mount terminals with positioning pegs  
 PM: Panel mount solder terminals with wire hole

## Electrical

POWER MIN/MAX: 0.02VA / 1.0VA  
 VOLTAGE MIN/MAX: 20mVdc – 32 Vdc  
 CURRENT MIN/MAX: 0.1mA – 100mA  
 CONTACT RESISTANCE: <150m Ω  
 INSULATION RESISTANCE: >1G Ω initial, >10M Ω after damp heat  
 BOUNCE TIME: <5ms

## Mechanical

| Version      | Operating force FA <sup>1</sup> Newtons (grams) | Operating life (operations) | Travel (total travel) mm(mm) |
|--------------|---|-----------------------------|------------------------------|
| THT, SMT, PM | 4.0 (400)                                       | 25,000                      | 1.2 (2.4)                    |

<sup>1</sup> Tolerances of operating force FA is ± 25%.

## Environmental

OPERATING TEMPERATURE: -40°C to 85°C  
 STORAGE TEMPERATURE: -50°C to 85°C  
 RELATIVE HUMIDITY: 90 to 96% according to NF EN 60068-2-30  
 PROTECTION: dust protection and flux tight  
 OVERLOAD: 40N min

## Packaging

THT:  
 60 pieces per tray; 1800 pieces per box  
 SMT:  
 330 pieces per reel (reel ø 360mm); 1320 pieces per box  
 PM:  
 60 pieces per tray; 2100 pieces per box

## Process

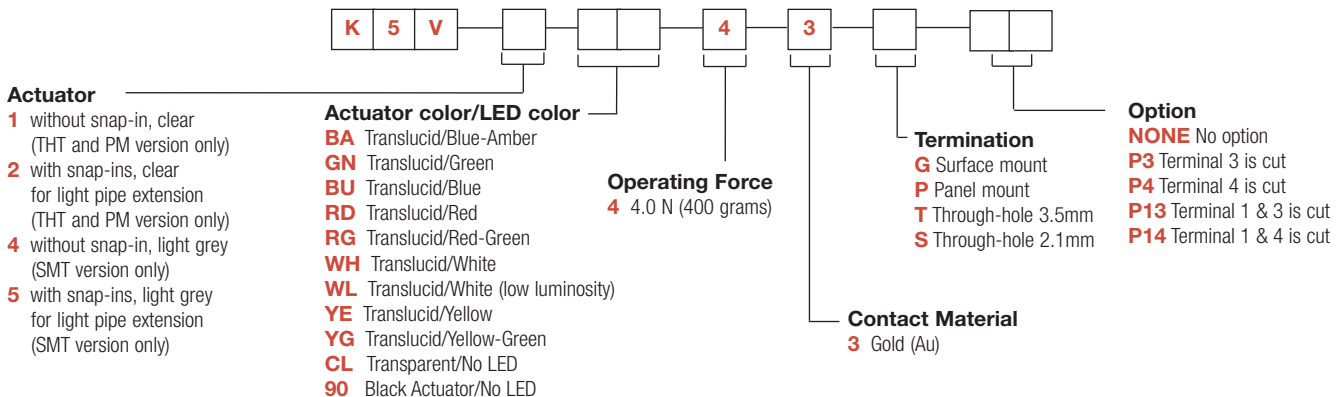
SMT  
 Soldering: Compatible with the lead free soldering profile  
 No washing  
 THT  
 Soldering: Compatible with the lead free soldering profile  
 No washing  
 PM  
 Soldering: Low wattage soldering iron (25-50 watts max).  
 Solder time 3 seconds max. No washing

## Materials

LEAD FREE  
 CONTACTS: Au over Ni  
 SOLDERING: Au over Ni  
 HOUSING: Thermoplastic UL94 V0

## How To Order

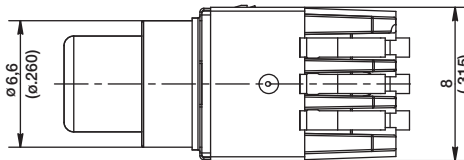
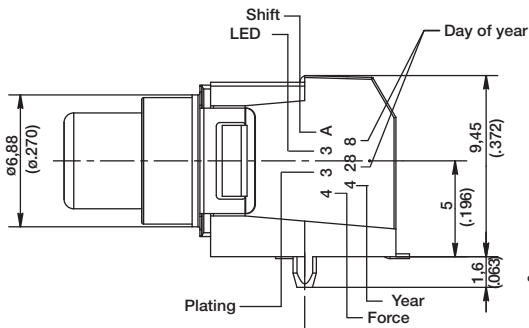
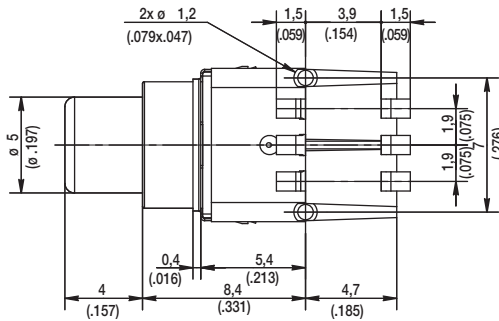
Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.



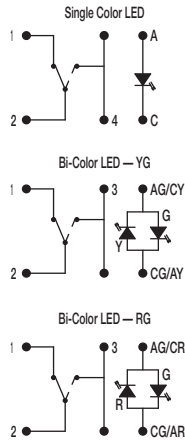


# K5V Illuminated Tact Switch

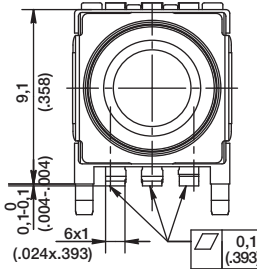
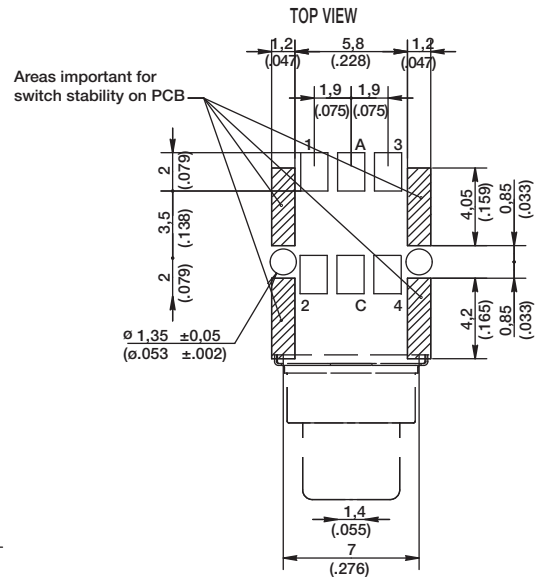
## K5V SMT



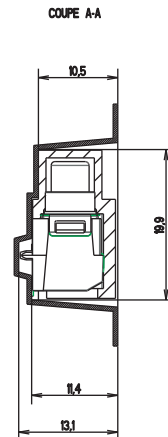
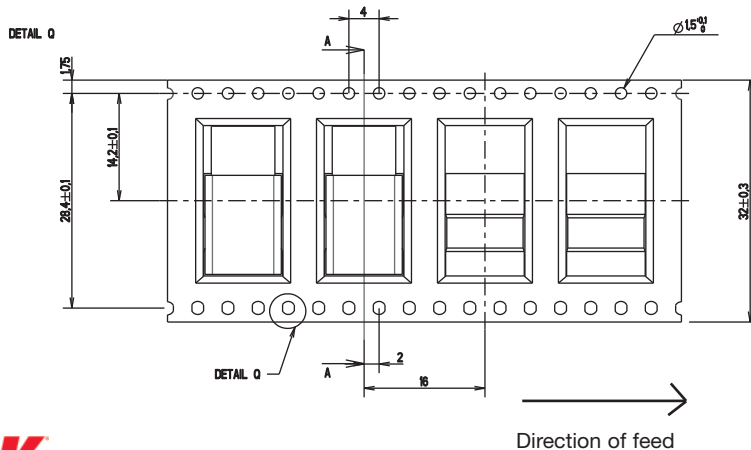
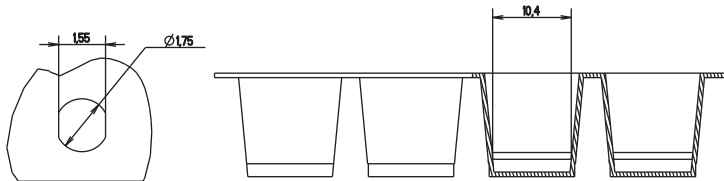
## ELECTRICAL DIAGRAM



## RECOMMENDED PCB LAYOUT ( WITH HOLES )



## TAPE & REEL



Dimensions are shown: mm (inches)  
Specifications and dimensions subject to change

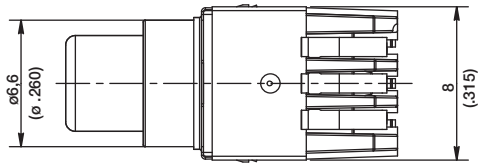
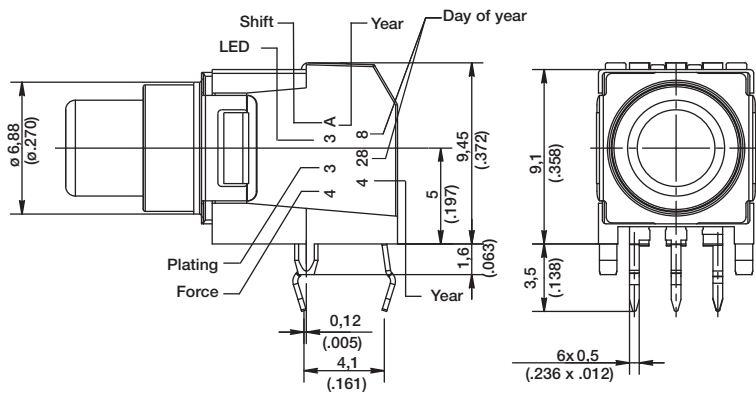
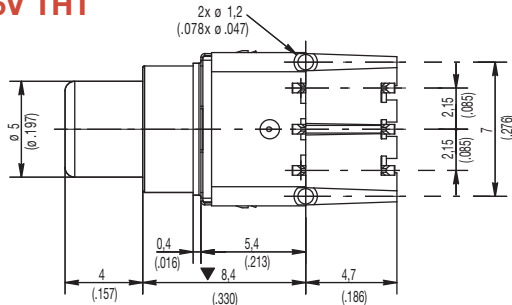


# K5V Illuminated Tact Switch

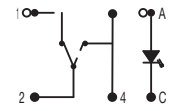
B

Tactile Switches

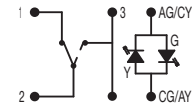
## K5V THT



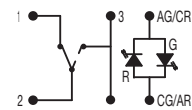
## ELECTRICAL DIAGRAM



Bi-Color LED — YG

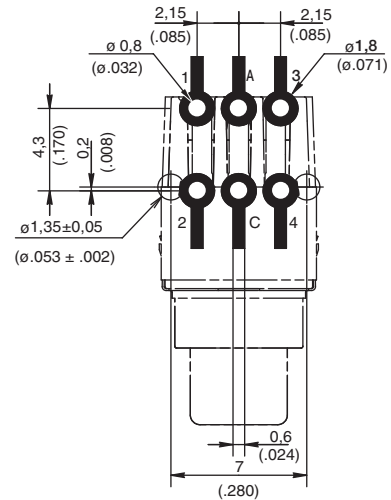


Bi-Color LED — RG

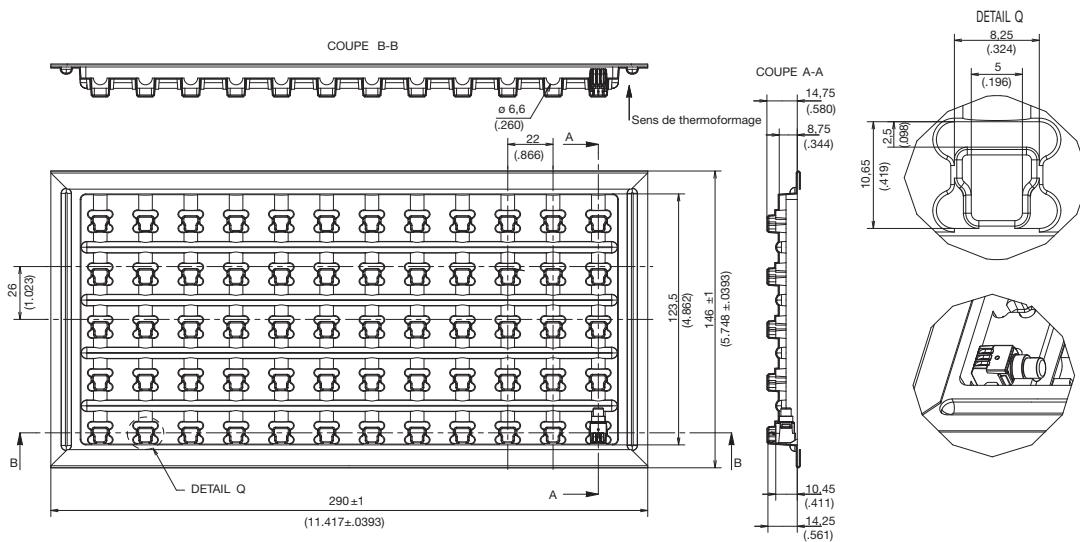


## RECOMMENDED PCB LAYOUT (WITH HOLES)

### TOP VIEW



## TRAY

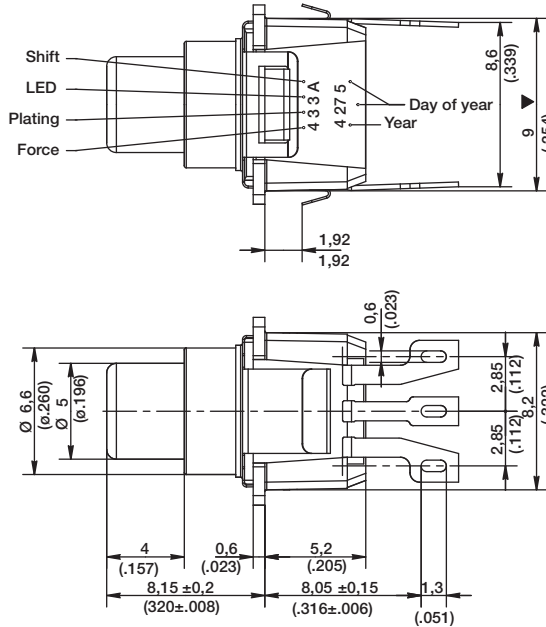


Dimensions are shown: mm (inches)  
Specifications and dimensions subject to change

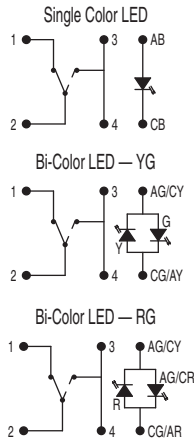
# K5V Illuminated Tact Switch

## K5V PM

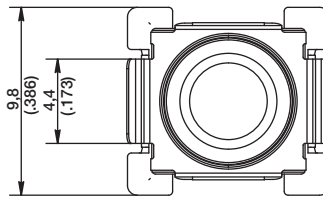
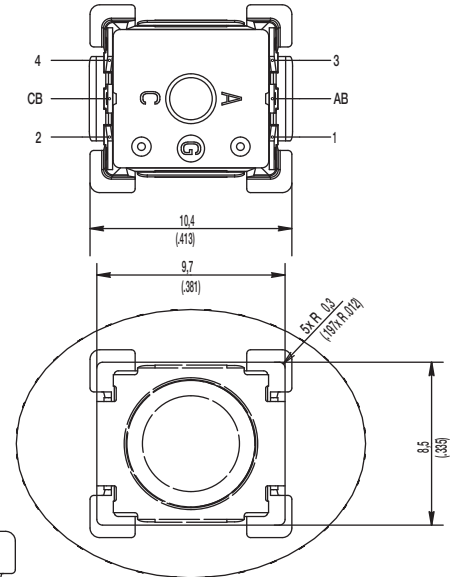
### PRODUCT IDENTIFICATION AND DATE CODES



### ELECTRICAL DIAGRAM



### TERMINAL REFERENCES

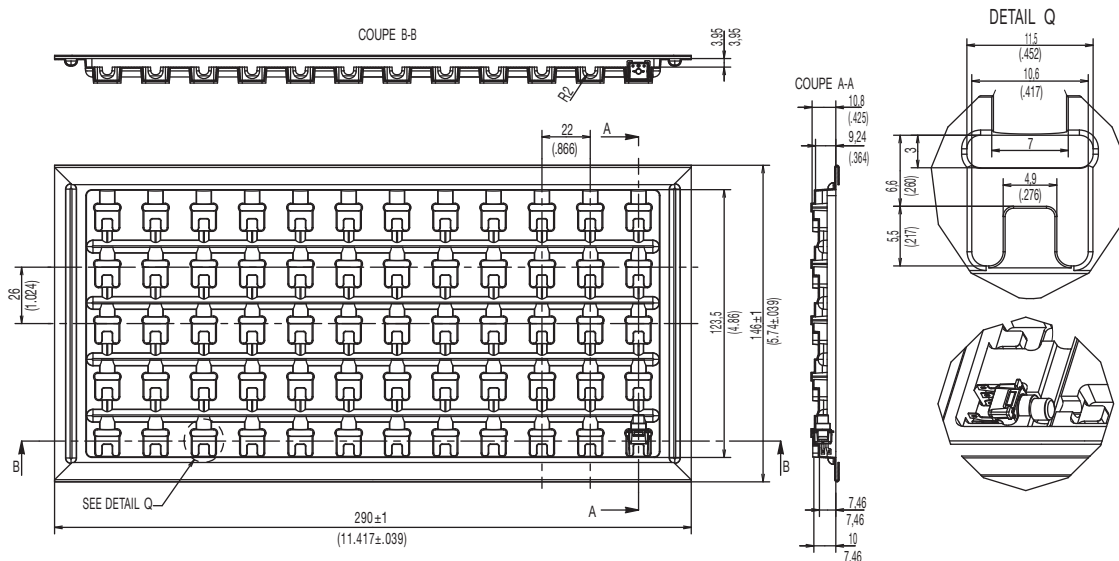


B

Tactile Switches

## TRAY

SUITABLE FOR PANEL THICKNESS OF 1.8MM MAX



Dimensions are shown: mm (inches)  
Specifications and dimensions subject to change

# KSF & KSFI Series Soft Actuated Tact Switch



## Features/Benefits

- Soft actuated switch
- Sealed front end
- Top and side actuated

## Typical Applications

- Low profile keyboards
- Automotive interfaces
- Industrial control

B

Tactile Switches

## Specification

FUNCTION: momentary action  
CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.  
TERMINALS: THT pins

## Mechanical

| Type              | Force (N)  | Operating life (operations) | Travel (mm) |
|-------------------|------------|-----------------------------|-------------|
| KSF0M211LFT       | 1.5 ± 0.5  | 100,000                     | 0.25 ± 0.1  |
| KSF0M311LFT       | 1.9 ± 0.5  | 100,000                     | 0.25 ± 0.1  |
| KSF0M411LFT       | 3.0 ± 0.75 | 100,000                     | 0.25 ± 0.1  |
| KSF0M511LFT       | 5.2 ± 1.0  | 100,000                     | 0.25 ± 0.1  |
| KSFI0V91170SH LFT | 3.4 ± 1.5  | 100,000                     | 0.65 ± 0.25 |
| KSF0M212 LFT      | 1.6 ± 0.4  | 300,000                     | 0.25 ± 0.1  |
| KSFI0M412 70SHLFT | 3.2 ± 0.8  | 100,000                     | 0.75 ± 0.25 |

Overload resistance: 40N, 1 time  
Sealing: IP60 or IP67

**NOTE:** Other configurations of haptics and terminals are available upon demand. Please also refer to KSF and KSFI Mk2 catalogues pages for other options.

This product is designed and manufactured for general electronic devices. For systems where reliability and safety are required, please contact your sales representative to secure product integration and function to secure usage.

## Electrical

|   | Silver | Gold   |
|---|--------|--------|
| MAXIMUM POWER:  | 1 VA   | 0.2 VA |
| MAXIMUM VOLTAGE:  | 32 VDC | 32 VDC |
| MINIMUM VOLTAGE:  | 20 mV  | 20 mV  |
| MAXIMUM CURRENT:  | 50 mA  | 10 mA  |
| MINIMUM CURRENT:  | 1 mA   | 1 mA   |
| DIELECTRIC STRENGTH (50 Hz, 1 min.): > 250 Vrms                   |        |        |
| CONTACT RESISTANCE: < 100 m Ω                                     |        |        |
| INSULATION RESISTANCE (100 V, initial stage): > 10 <sup>9</sup> Ω |        |        |
| BOUNCE TIME: < 1 ms   |        |        |

## Environmental

|                        | Silver        | Gold           |
|------------------------|---------------|----------------|
| OPERATING TEMPERATURE: | -40°C to 85°C | -40°C to 125°C |
| STORAGE TEMPERATURE:   | -55°C to 85°C | -40°C to 125°C |

## Process

SOLDERING

## Packaging

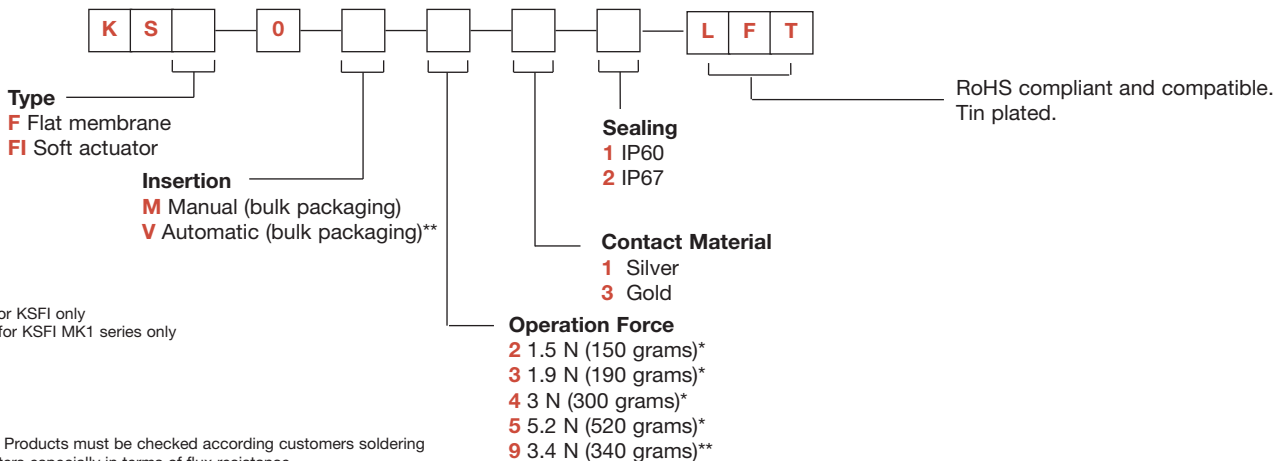
In boxes of 250 pieces (V type) or 500 pieces (M type).

## How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

**However, please note that all the combinations of these options are not feasible.**

**For any part number different from those listed above, please consult your local representative.**

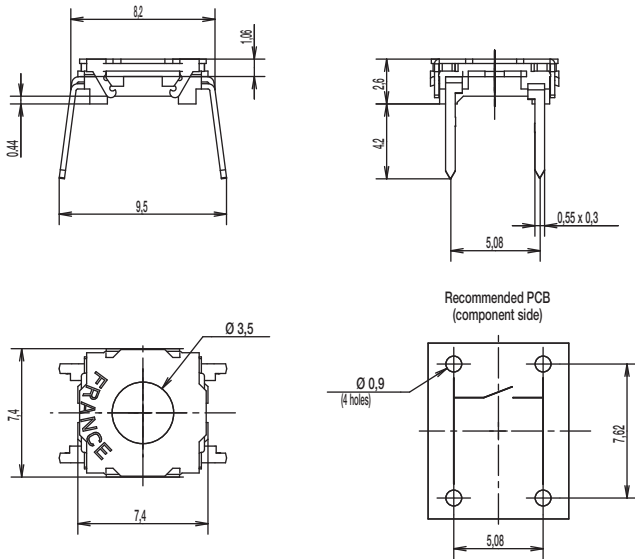


\* valid for KSFI only  
\*\* valid for KSFI MK1 series only

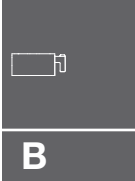
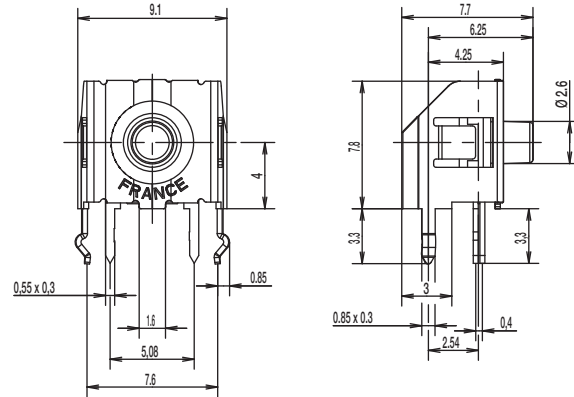
**\*NOTE:** Products must be checked according customers soldering parameters especially in terms of flux resistance.

# KSF & KSFI Series Soft Actuated Tact Switch

## KSF



## KSFI 0V



B

Tactile Switches

# KSA & KSL Series Sealed Tact Switch



## Features/Benefits

- Designed for automatic or manual insertion
- Cambered terminals to ensure self retention
- Top or side actuated
- Large choice of caps
- RoHS compliant and compatible

## Typical Applications

- Automotive
- Industrial
- Telecommunication networks

B

Tactile Switches

## Specification

CONTACT ARRANGEMENT: SPST, N.O.  
 DOUBLE OVERMOLDING ON TERMINAL  
 SEALING: IP60  
 TERMINALS: PC pins, ground pin optional

## Mechanical

| Type     | Actuation force N | Operating life (operations) | Travel to make |
|----------|-------------------|-----------------------------|----------------|
| KSA0M211 | 1,4 ± 0,4         | 100,000                     | 0,5 ± 0,2      |
| KSA0M311 | 1,4 ± 0,4         | 1,000,000                   | 0,5 ± 0,2      |
| KSA0M411 | 3 ± 0,75          | 100,000                     | 0,6 ± 0,2      |
| KSA0M511 | 5 ± 1,5           | 100,000                     | 0,7 ± 0,2      |
| KSA0M911 | 3 ± 0,75          | 500,000                     | 0,6 ± 0,2      |
| KSL0M211 | 1,4 ± 0,4         | 100,000                     | 0,5 ± 0,2      |
| KSL0M311 | 1,4 ± 0,4         | 1,000,000                   | 0,5 ± 0,2      |
| KSL0M411 | 3 ± 0,75          | 100,000                     | 0,6 ± 0,2      |
| KSL0M511 | 5 ± 1,5           | 100,000                     | 0,7 ± 0,2      |
| KSL0M911 | 3 ± 0,75          | 500,000                     | 0,6 ± 0,2      |

**NOTE:** Other versions in terms of force, termination length and corrosion protection available. Please contact your sales representative.  
 This data sheet does not provide enough information for applications which require a certain level of quality or safety such as automotive, medical systems, safety equipment. Please contact your sales representative to get contractual specification package.

## Electrical

|  | Silver | Gold   |
|--|--------|--------|
| MAXIMUM POWER:                                     | 1 VA   | 0.2 VA |
| MAXIMUM VOLTAGE:                                   | 32 VDC | 32 VDC |
| MINIMUM VOLTAGE:                                   | 20 mV  | 20 mV  |
| MAXIMUM CURRENT:                                   | 50 mA  | 10 mA  |
| MINIMUM CURRENT:                                   | 1 mA   | 1 mA   |
| DIELECTRIC STRENGTH: 250 Vrms                      |        |        |
| CONTACT RESISTANCE: ≤ 100m Ω                       |        |        |
| INSULATION RESISTANCE (100 V): ≥ 10 <sup>9</sup> Ω |        |        |
| BOUNCE TIME: ≤ 1 ms                                |        |        |

## Environmental

|                        | Silver        | Gold           |
|------------------------|---------------|----------------|
| OPERATING TEMPERATURE: | -40°C to 85°C | -40°C to 125°C |
| STORAGE TEMPERATURE:   | -40°C to 85°C | -55°C to 125°C |

## Process

Wave soldering compatible with lead free soldering profile.

## Packaging

Can be delivered in tubes of 65 pieces for automatic insertion or in boxes of 500 pieces for manual insertion (250 pieces for KSL, KSLV, KSAV).

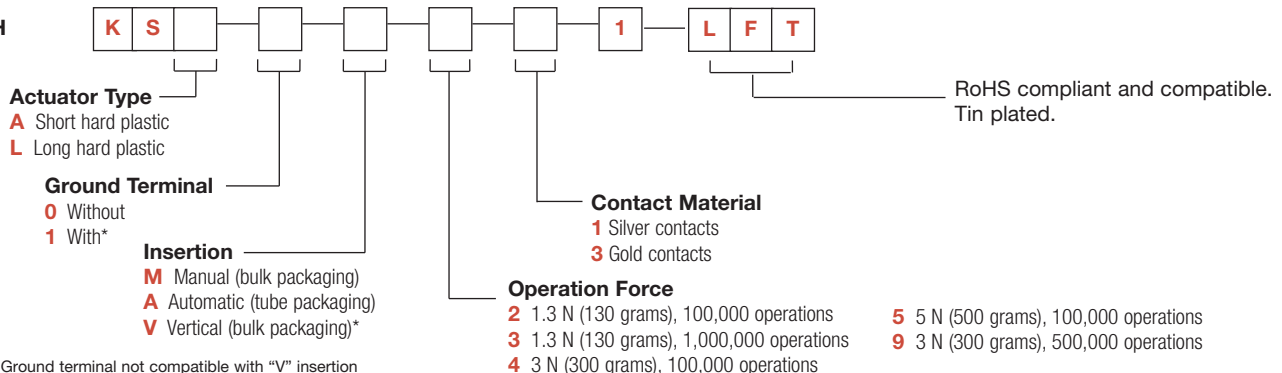
## How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

However, please note that all the combinations of these options are not feasible.

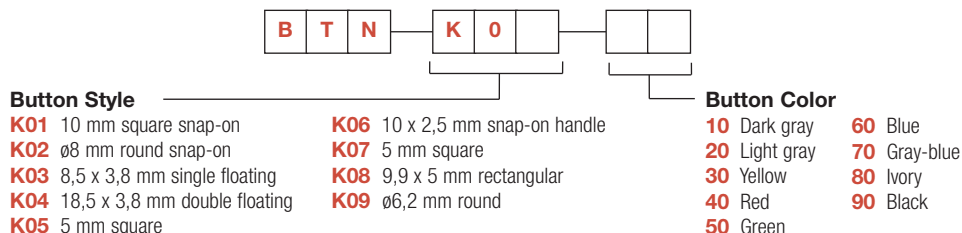
For any part number different from those listed above, please consult your local representative.

## SWITCH



## BUTTONS

Buttons must be ordered separately and will be supplied in bulk.



\*NOTE: Please note that all buttons are not RoHS compliant. Please check the compliance with your C&K sales representative.

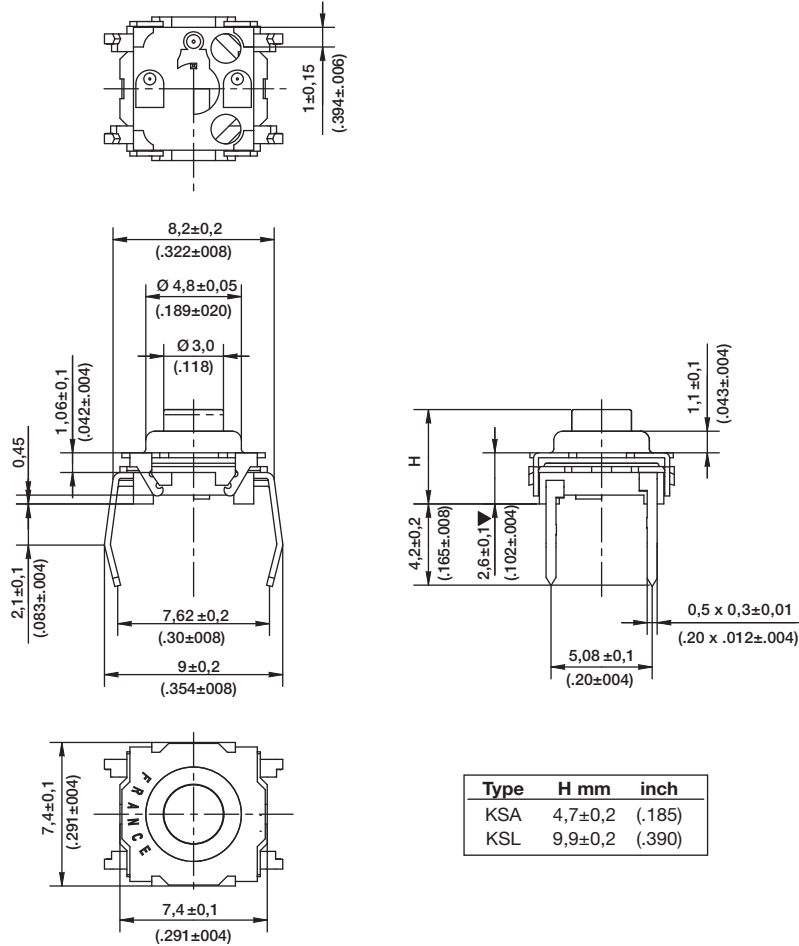


Dimensions are shown: mm (inches)  
 Specifications and dimensions subject to change

# KSA & KSL Series Sealed Tact Switch

ACTUATOR TYPE

## KSA & KSL

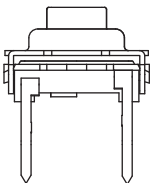


B

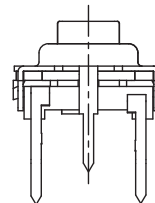
Tactile Switches

GROUND TERMINAL

0 WITHOUT



1\* WITH



\*Not compatible with "V" insertion



First Angle  
Projection

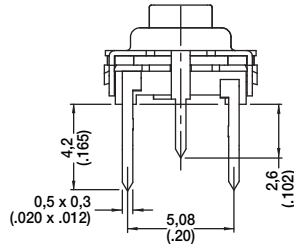
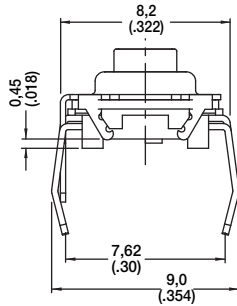
Dimensions are shown: mm (inches)  
Specifications and dimensions subject to change

# KSA & KSL Series Sealed Tact Switch

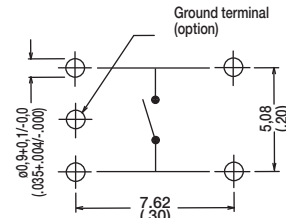
## INSERTION

Tactile Switches

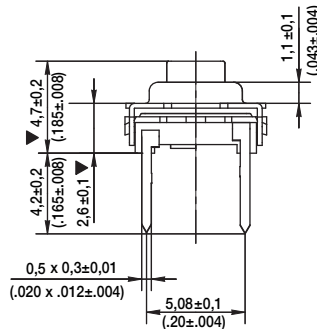
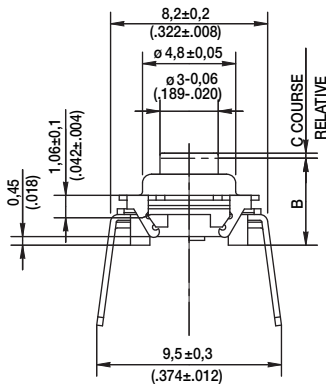
### M MANUAL (BULK PACKAGING)



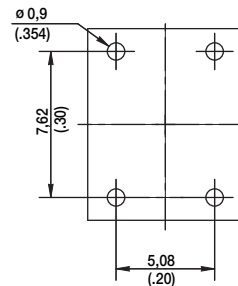
### PCB LAYOUT



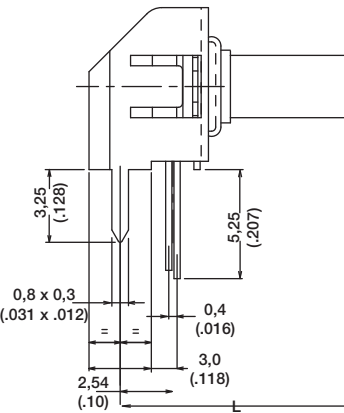
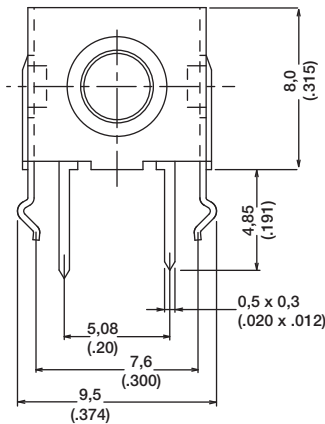
### A AUTOMATIC (TUBE PACKAGING, 65 PIECES PER TUBE)



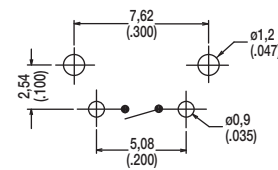
### PCB LAYOUT



### V VERTICAL



### PCB LAYOUT



### DIMENSION L

| Type  | L mm | inch |
|-------|------|------|
| KSA0V | 5,8  | .228 |
| KSL0V | 11,1 | .437 |

## OPERATING FORCE

| OPTION CODE | OPERATING FORCE                           |
|-------------|---|
| <b>2</b>    | 1.3 N (130 grams)<br>100,000 operations   |
| <b>3</b>    | 1.3 N (130 grams)<br>1,000,000 operations |
| <b>4</b>    | 3.0 N (300 grams)<br>100,000 operations   |
| <b>5</b>    | 5.0 N (500 grams)<br>100,000 operations   |
| <b>9</b>    | 3.0 N (300 grams)<br>500,000 operations   |



First Angle  
Projection

Dimensions are shown: mm (inches)

Specifications and dimensions subject to change





# KSA & KSL Series Sealed Tact Switch

## CONTACT MATERIAL

| OPTION CODE | CONTACT MATERIAL |
|-------------|------------------|
| <b>1</b>    | Silver contacts  |
| <b>3</b>    | Gold contacts    |

## SEALING

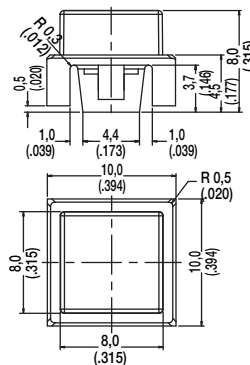
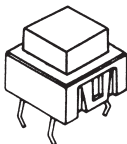
| OPTION CODE | SEALING            |
|-------------|--------------------|
| <b>1</b>    | Sealing level IP60 |

## BUTTONS

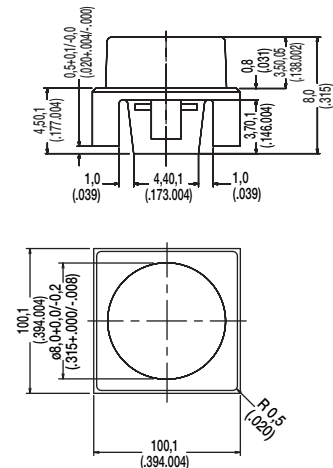
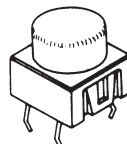
Buttons must be ordered separately and will be supplied in bulk.

| BUTTON TYPE | KSA | KSL | KSAV | KSLV |
|-------------|-----|-----|------|------|
| <b>K01</b>  | X   |     |      |      |
| <b>K02</b>  | X   |     |      |      |
| <b>K03</b>  | X   | X   | X    | X    |
| <b>K04</b>  | X   | X   | X    | X    |
| <b>K05</b>  |     | X   |      | X    |
| <b>K06</b>  | X   |     |      |      |
| <b>K07</b>  |     | X   |      | X    |
| <b>K08</b>  |     | X   |      | X    |
| <b>K09</b>  |     | X   |      | X    |

**K01**



**K02**



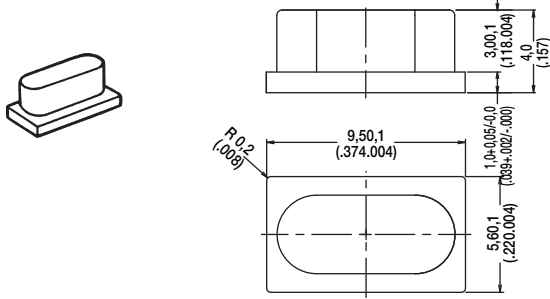
Dimensions are shown: mm (inches)  
Specifications and dimensions subject to change

# KSA & KSL Series Sealed Tact Switch

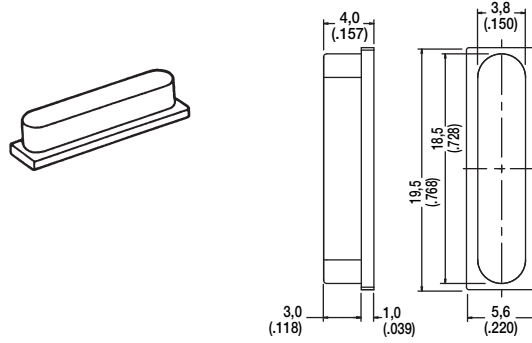
B

Tactile Switches

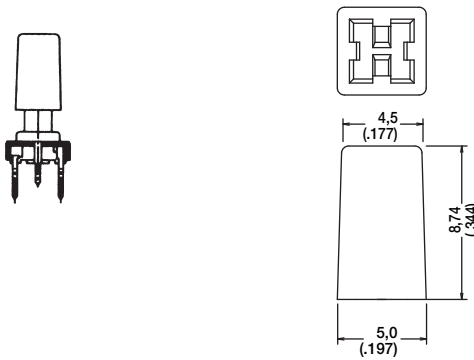
**K03**



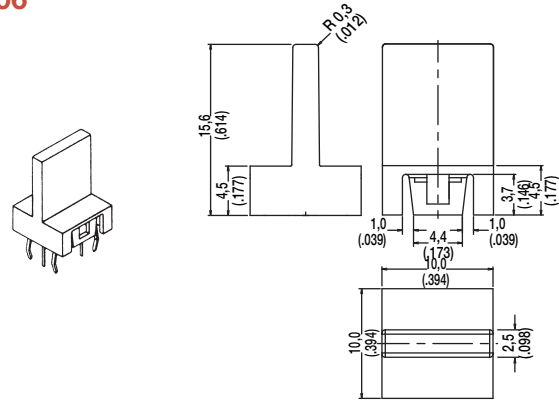
**K04**



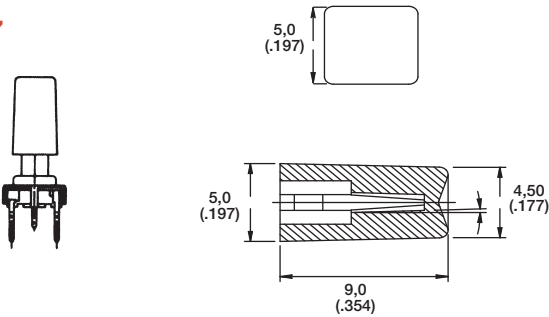
**K05**



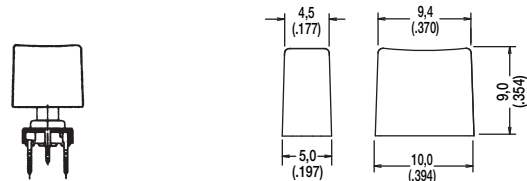
**K06**



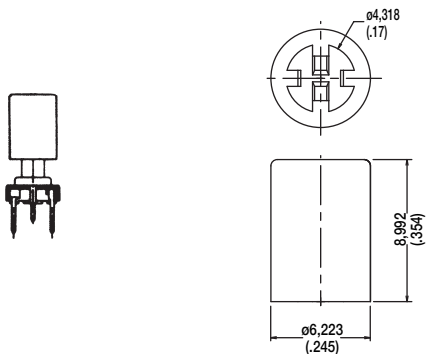
**K07**



**K08**



**K09**



First Angle  
Projection

Dimensions are shown: mm (inches)  
Specifications and dimensions subject to change

# KSA & KSL MKII Series High Performance Sealed Tact Switch

## Features/Benefits

- Highest tact switch sealing performance
- Improved sealing through a modification of the crimping technique and to a double overmolding of the terminal
- Totally sealed
- Up to 1M operations
- RoHS compliant and compatible

## Typical Applications

- Automotive
- Industrial
- Telecommunication networks
- Household appliances
- Heating control systems



B

Tactile Switches

## Specification

CONTACT ARRANGEMENT: SPST, N.O.  
TERMINALS: PC pins  
SEALING: IP65  
Double overmold on terminals

## Mechanical

| Type     | Actuation force<br>N (grams) | Operating life<br>(operations) | Travel to<br>make |
|----------|------------------------------|--------------------------------|-------------------|
| KSA0M212 | 1,3 ± 0,3                    | 100,000                        | 0,5 ± 0,15        |
| KSA0M312 | 1,3 ± 0,3                    | 1,000,000                      | 0,5 ± 0,15        |
| KSA0M412 | 3,25 ± 0,5                   | 100,000                        | 0,6 ± 0,25        |
| KSA0M512 | 5 ± 1,25                     | 100,000                        | 0,7 ± 0,25        |

## Packaging

Delivered in boxes of 500 pieces (250 pieces for KSL)

**NOTE:** Specifications listed above are for switches with standard options.  
For information on specific and custom switches, consult Customer Service Center.

Other versions in terms of force, termination length and corrosion protection available.  
Please contact your sales representative.

This data sheet does not provide enough information for applications which require a certain level of quality or safety such as automotive, medical systems, safety equipment.  
Please contact your sales representative to get contractual specification package.

## Electrical

|                                | Silver              | Gold   |
|--------------------------------|---------------------|--------|
| MAXIMUM POWER:                 | 1 VA                | 0.2 VA |
| MAXIMUM VOLTAGE:               | 32 VDC              | 32 VDC |
| MINIMUM VOLTAGE:               | 20 mV               | 20 mV  |
| MAXIMUM CURRENT:               | 50 mA               | 10 mA  |
| MINIMUM CURRENT:               | 1 mA                | 1 mA   |
| DIELECTRIC STRENGTH:           | ≥ 250 Vrms          |        |
| CONTACT RESISTANCE:            | ≤ 100m Ω            |        |
| INSULATION RESISTANCE (100 V): | ≥ 10 <sup>9</sup> Ω |        |
| BOUNCE TIME:                   | ≤ 1 ms              |        |

## Environmental

|                        | Silver        | Gold           |
|------------------------|---------------|----------------|
| OPERATING TEMPERATURE: | -40°C to 85°C | -40°C to 125°C |
| STORAGE TEMPERATURE:   | -40°C to 85°C | -55°C to 125°C |

## Process

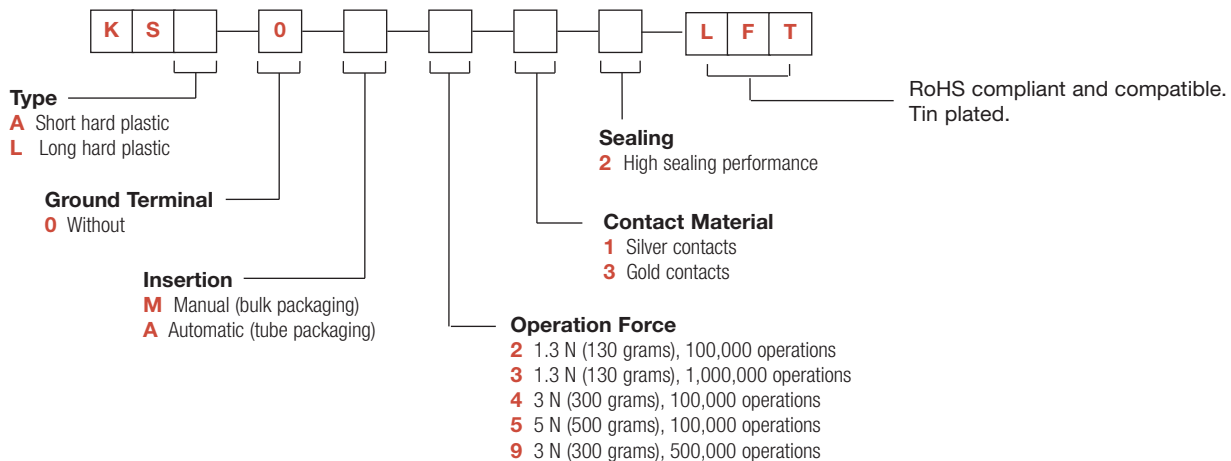
Wave soldering compatible with lead free soldering profile.

## How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

**However, please note that all the combinations of these options are not feasible.**

**For any part number different from those listed above, please consult your local representative.**

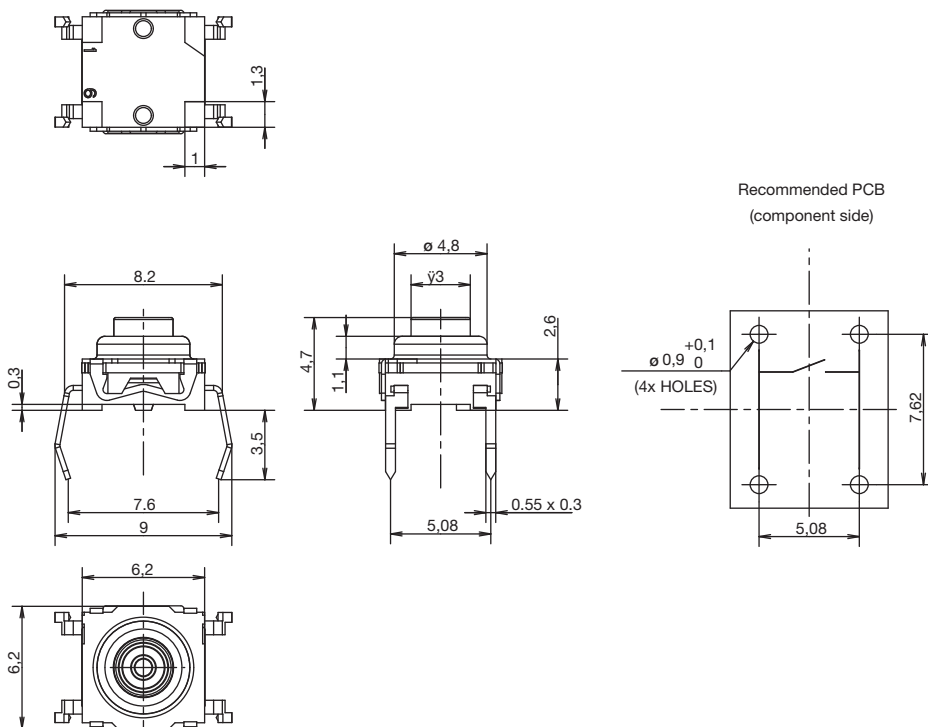


# KSA & KSL MKII Series High Performance Sealed Tact Switch

TYPE

**KSA & KSL**

**MANUAL INSERTION**

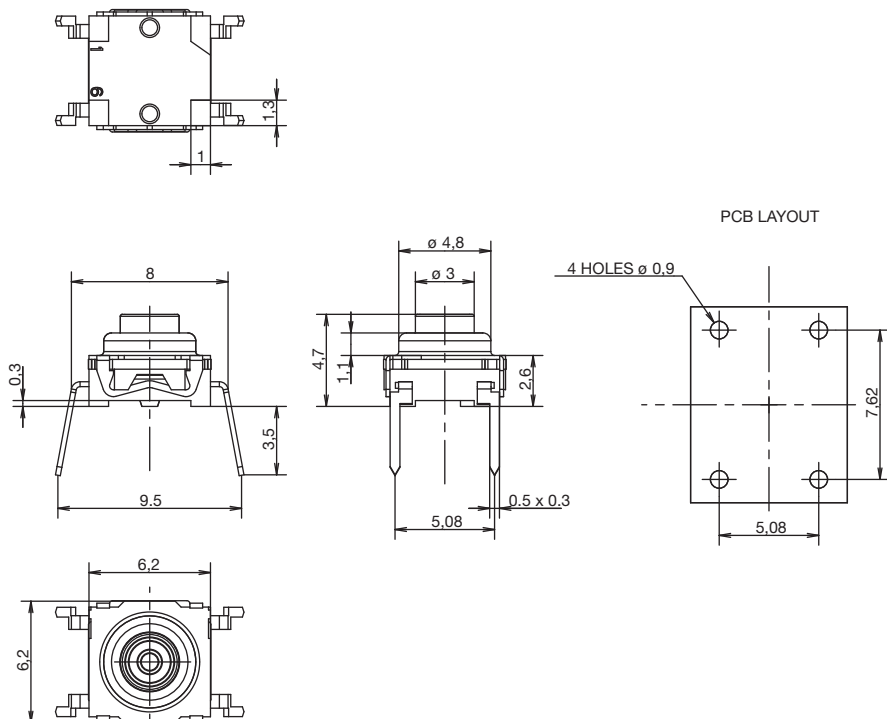


Tactile Switches

B

**KSA & KSL**

**AUTOMATIC INSERTION**



Dimensions are shown: mm  
Specifications and dimensions subject to change

# KSJ Series Spherical Actuator Tact Switches

## Features/Benefits

- Spherical actuator allows actuation force off center  $\pm 30^\circ$  with regard to vertical
- RoHS compliant and compatible
- Designed for mechanisms
- Compliant side actuation

## Typical Applications

- Automotive
- Cranes, off road, railway
- Factory automation
- Security systems



B

Tactile Switches

## Specification

FUNCTION: Momentary action  
 CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.  
 DISTANCE BETWEEN BUTTON CENTERS (min.): 7.62 (0.300)  
 TERMINALS: PC pins  
 SEALING: IP60

## Environmental

|                        |               |                |
|------------------------|---------------|----------------|
|                        | Silver        | Gold           |
| OPERATING TEMPERATURE: | -40°C to 85°C | -40°C to 125°C |
| STORAGE TEMPERATURE:   | -40°C to 85°C | -55°C to 125°C |

## Packaging

Delivered in boxes of 250 pieces.

## Mechanical

| Type         | Actuation force<br>N (grams) | Operating life<br>(operations)<br>axial | Operating life<br>(operations)<br>radial | Travel to<br>make (mm) |
|--------------|------------------------------|---|--|------------------------|
| KSJ0M21160SH | 2 ± 0,5                      | 100,000                                 | 30,000                                   | 0,6 ± 0,3              |
| KSJ0M41180SH | 3,0 ± 0,8                    | 100,000                                 | 30,000                                   | 0,55 ± 0,25            |
| KSJ0M21180SH | 2 ± 0,5                      | 100,000                                 | 30,000                                   | 0,35 ± 0,2             |
| KSJ0M91180SH | 3,9 ± 0,8                    | 100,000                                 | 30,000                                   | 0,7 ± 0,25             |

## Electrical

|  |        |        |
|--|--------|--------|
|  | Silver | Gold   |
| MAXIMUM POWER:                                       | 1 VA   | 0.2 VA |
| MAXIMUM VOLTAGE:                                     | 32 VDC | 32 VDC |
| MINIMUM VOLTAGE:                                     | 20 mV  | 20 mV  |
| MAXIMUM CURRENT:                                     | 50 mA  | 10 mA  |
| MINIMUM CURRENT:                                     | 1 mA   | 1 mA   |
| DIELECTRIC STRENGTH (50 Hz, 1 min.): $\geq 250$ Vrms |        |        |
| CONTACT RESISTANCE: $\leq 100$ m $\Omega$            |        |        |
| INSULATION RESISTANCE (100V): $\geq 10^9$ ohms       |        |        |
| BOUNCE TIME: $\leq 1$ ms                             |        |        |

## Process

Wave soldering, compatible with lead free soldering profile.

**NOTE:** Specifications listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

This data sheet does not provide enough information for applications which require a certain level of quality or safety such as automotive, medical systems, safety equipment. Please contact your sales representative to get contractual specification package.

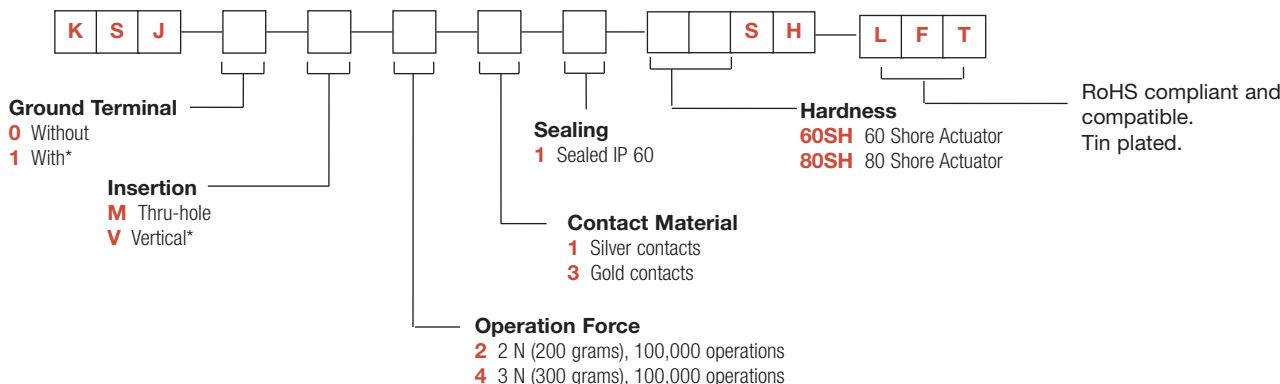
\* Please contact your C&K representative for any question regarding the product integration.

## How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

**However, please note that all the combinations of these options are not feasible.**

**For any part number different from those listed in the table above, please consult your local representative.**



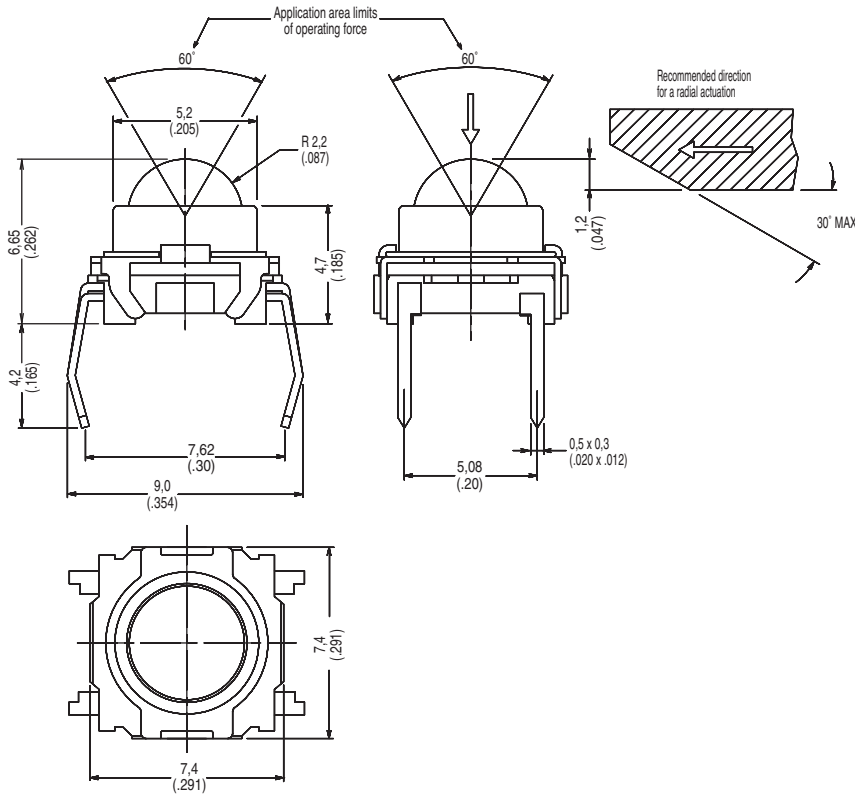
\*Note: "1" ground terminal option not available with "V" version. The bracket for the "V" version plays this role.



Dimensions are shown: mm (inches)  
 Specifications and dimensions subject to change

# KSJ Series Spherical Actuator Tact Switches

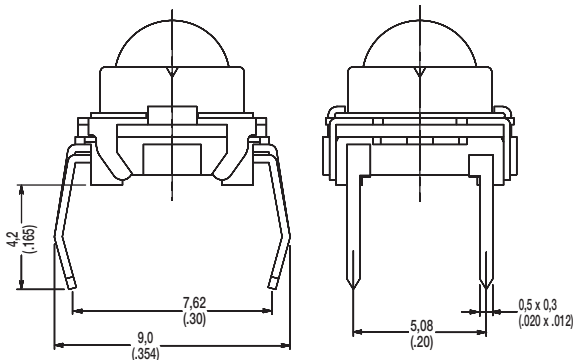
KSJ



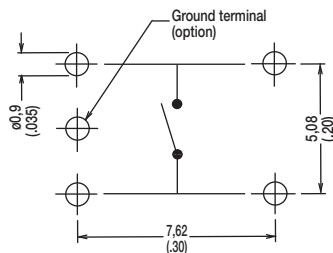
KSJ0M211

## INSERTION

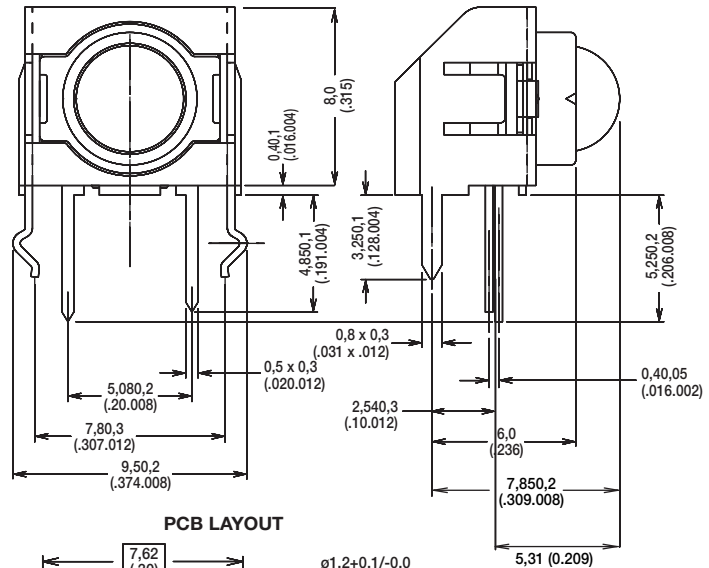
**M** THRU-HOLE



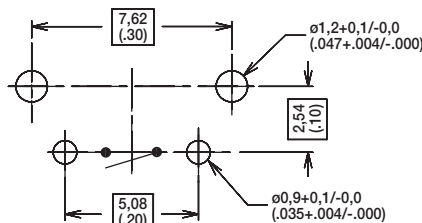
PCB LAYOUT



**V** VERTICAL



PCB LAYOUT



First Angle  
Projection

Dimensions are shown: mm (inches)  
Specifications and dimensions subject to change



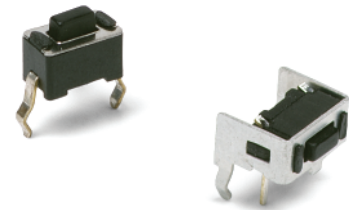
# PTS635 Series 3,5 mm Tact Switches

## Features/Benefits

- Compact size 6 x 3.5 mm
- Variety of switch heights
- Choice of actuation force
- RoHS compliant and compatible

## Typical Applications

- Consumer products
- Instrumentation
- Computer products
- Industrial



B

Tactile Switches

## Specification

FUNCTION: Momentary action  
CONTACT ARRANGEMENT: SPST, N.O.  
TERMINALS: PC pins

## Mechanical

ACTUATION FORCE: PTS635L models: 130 grams.  
PTS635H models: 200 grams.  
LIFE EXPECTANCY: 20,000 operations.

## Electrical

CONTACT RATING: 50 mA @ 12 V DC.  
DIELECTRIC STRENGTH: 250 V AC min.  
CONTACT RESISTANCE: 100 mΩ max. initial.  
INSULATION RESISTANCE: 10<sup>11</sup>Ω min.

## Environmental

OPERATING TEMPERATURE: -40°C to 60°C

**NOTE:** Specifications listed above are for switches with standard options.  
For information on specific and custom switches, consult Customer Service Center.

## Process

SOLDERING: Preheating to 100°C for 45 sec. max. Keep flux flush with top surface of PCB; do not apply to component side of PCB and area where terminals are located. Soldering to 255°C for 5 sec. max. Clean by brushing on solder surface. Do not clean switch with solvents.

## Materials

BASE: 6/6 nylon or glass filled polyester (PBT) (UL 94V-0).  
ACTUATOR: 6/6 nylon or polyacetal (UL 94HB).  
COVER PLATE: PTS635S and PTS635V models: Tin plated stainless steel  
DOME CONTACTS: Phosphor bronze, silver clad.  
STATIONARY CONTACTS: Brass, silver plated.  
TERMINALS: Brass, silver plated. Insert molded.

## Packaging

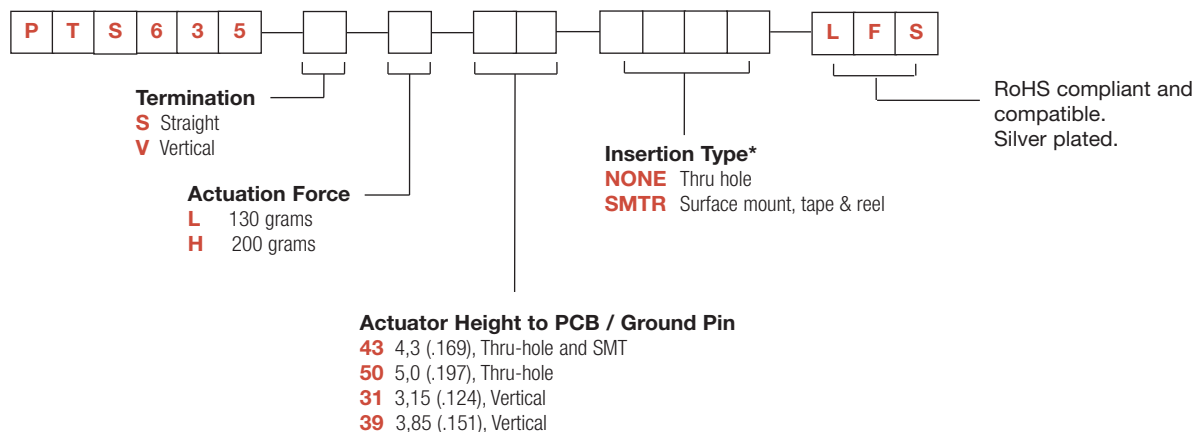
Bulk packaging.

## Tape & reel for:

PTS635Sx43SMTR, 1700 pcs per reel

## How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

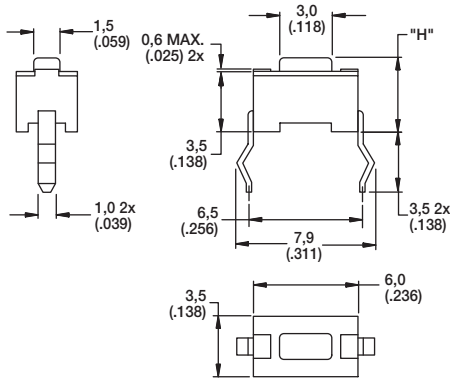


\* SMTR only available with PTS635 43 Actuator Height options.

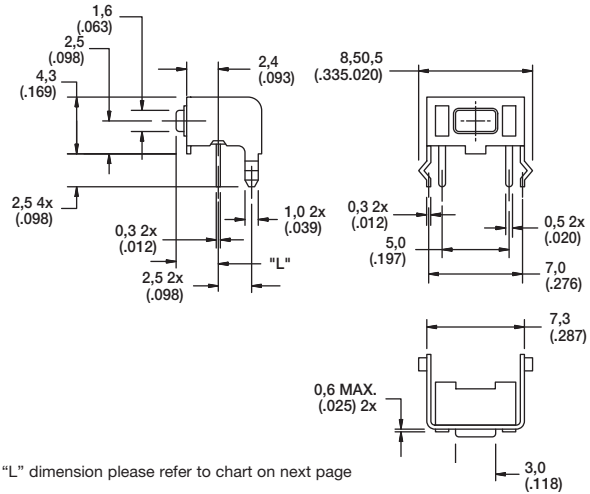
# PTS635 Series 3,5 mm Tact Switches

SERIES

## PTS635



For "H" dimension please refer to chart on next page



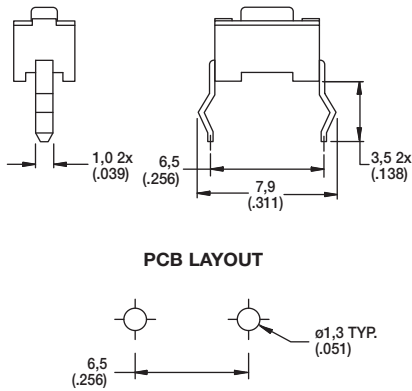
For "L" dimension please refer to chart on next page

Tactile Switches

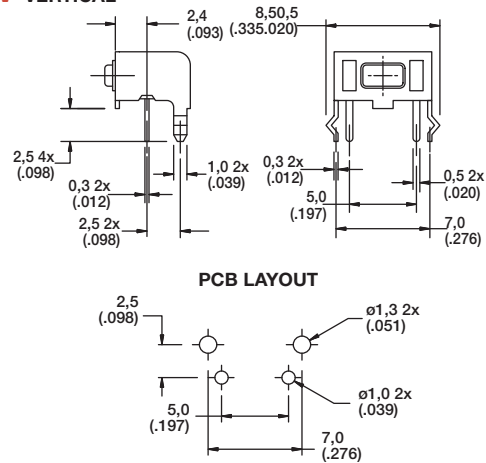
B

TERMINATION

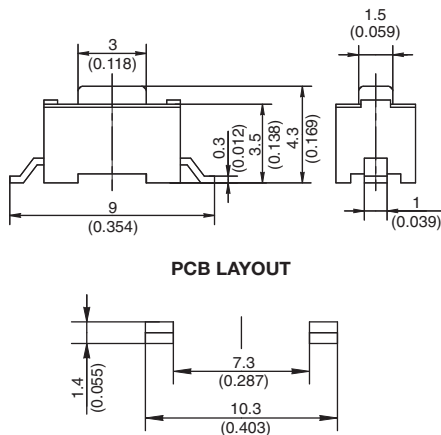
## S STRAIGHT



## V VERTICAL



## SMT 43



Dimensions are shown: mm (inches)  
Specifications and dimensions subject to change



# PTS635 Series 3,5 mm Tact Switches

## ACTUATION FORCE



| OPTION CODE | FORCE     |
|-------------|-----------|
| L           | 130 grams |
| H           | 200 grams |

## ACTUATOR HEIGHT

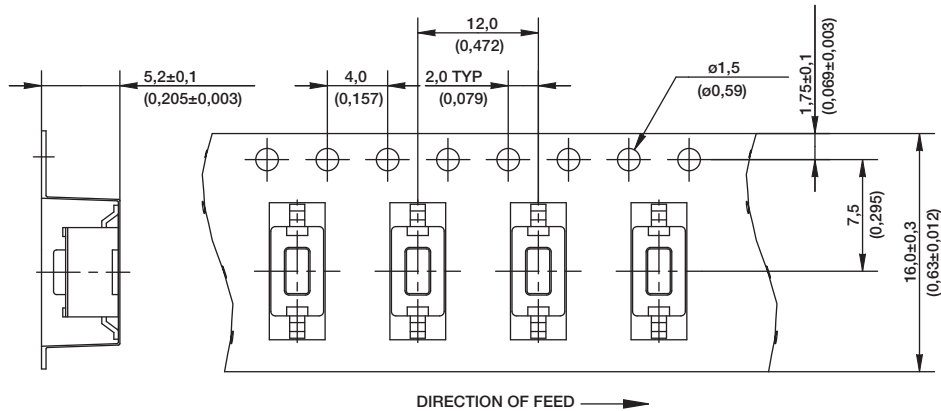


| OPTION CODE | HEIGHT "H" or LENGTH "L" | TERMINATION     | SCHEMATIC |
|-------------|--------------------------|-----------------|-----------|
| 43          | 4,3 (.169)               | Thru-hole & SMT | 1  2      |
| 50          | 5,0 (.197)               | Thru-hole       | 1  2      |
| 31          | 3,15 (.124)              | Vertical        | 1  2      |
| 39          | 3,85 (.151)              | Vertical        | 3  4      |

## INSERTION TYPE



SMTR 43



# PTS641 Series SMT Top Actuated Switches



## Features/Benefits

- 6.3 x 6.3 mm footprint
- Multiple heights
- Ground pin option

## Typical Applications

- Metering
- White goods
- Home and garden equipment

B

Tactile Switches

### Specification

FUNCTION: Momentary action  
CONTACT ARRANGEMENT: 1 make contact = SPST N.O.  
TERMINALS: G type for SMT

### Mechanical

TRAVEL:  
0.20 mm ±0.15 mm for 160 & 250 gf  
0.30 mm ±0.15 mm for 320 gf  
OPERATING LIFE: 100,000 cycles  
OPERATION FORCE:  
160 gf ±50 gf blue actuator  
250 gf ±50 gf red actuator  
320 gf ±80 gf black actuator

### Packaging

Switches in reels of 1,500 pieces.  
Dimensions of reels according to EIA 481B  
External diameter 330 mm

### Electrical

MAXIMUM VOLTAGE: 12 VDC  
MAXIMUM CURRENT DC: 50 mA  
DIELECTRIC STRENGTH: 250 VA C (1mm)  
CONTACT RESISTANCE: 100 m Ω  
INSULATION RESISTANCE: ≥ 100 M Ω  
BOUNCE TIME: < 5 ms

### Environmental

OPERATING TEMPERATURE: -20°C to 85°C

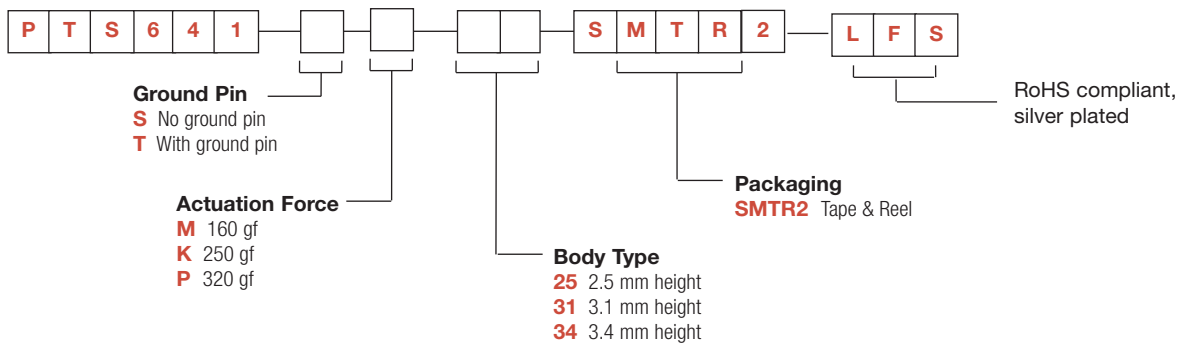
### Process

SOLDERING: This component is suited to the following methods:  
Infrared Reflow Soldering in accordance with IEC61760-1

**NOTE:** Specifications listed above are for switches with standard options.  
For information on specific and custom switches, consult Customer Service Center.

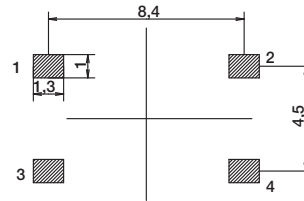
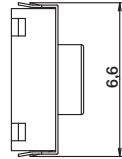
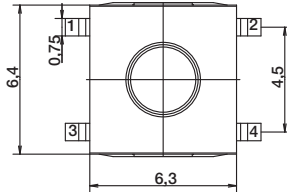
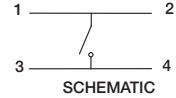
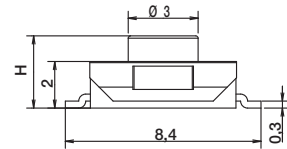
## How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.



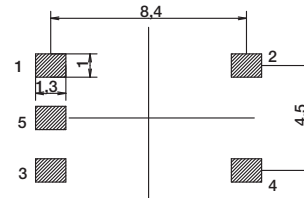
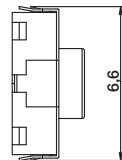
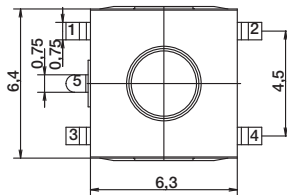
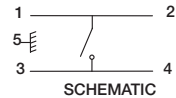
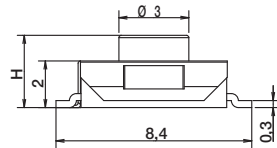
# PTS641 Series SMT Top Actuated Switches

**NO GROUND PIN** H = 2.5, 3.1, or 3.4 mm



RECOMMENDED PCB LAYOUT

**GROUND PIN** H = 2.5, 3.1, or 3.4 mm

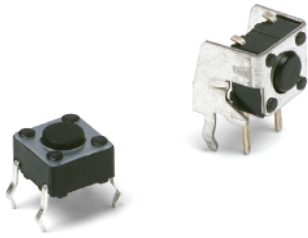


RECOMMENDED PCB LAYOUT



**B**  
Tactile Switches

# PTS645 Series 6 mm Tact Switches



## Features/Benefits

- Compact size 6 x 6 mm
- Variety of actuator lengths
- Choice of actuation force
- RoHS compliant and compatible

## Typical Applications

- Consumer products
- Instrumentation
- Computer products
- Industrial

B

Tactile Switches

### Specification

FUNCTION: Momentary action  
CONTACT ARRANGEMENT: SPST, N.O.  
TERMINALS: PC pins

### Mechanical

ACTUATION FORCE: 130 grams, 160 grams, 200 grams, 260 grams  
LIFE EXPECTANCY: 100,000 operations.

### Electrical

CONTACT RATING: 50 mA @ 12 V DC.  
DIELECTRIC STRENGTH: 250 V AC min.  
CONTACT RESISTANCE: 100 mΩ max. initial.  
INSULATION RESISTANCE: 10<sup>11</sup> Ω min.

### Environmental

OPERATING TEMPERATURE: -20°C to 60°C

### Process

SOLDERING: Preheating to 100°C for 45 sec. max. Keep flux flush with top surface of PCB; do not apply to component side of PCB and area where terminals are located. Soldering to 255°C for 5 sec. max. Clean by brushing on solder surface. Do not clean switch with solvents.

### Packaging

Bulk packaging.

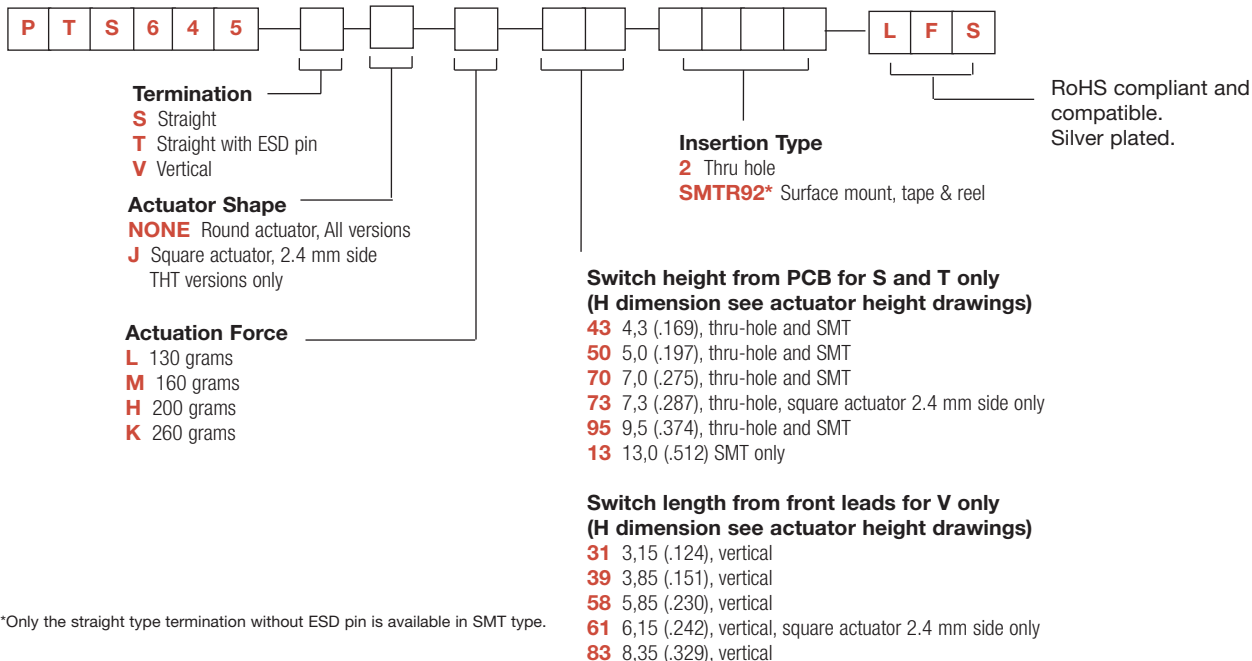
#### Tape & reel for the SMT type:

Reels of 1,000 pieces for 4,3 and 5,0 mm height  
Reels of 700 pieces for 7,0 mm height  
Reels of 500 pieces for 9,5 mm height  
Reels of 400 pieces for 13,0 mm height

**NOTE:** Specifications listed above are for switches with standard options.  
For information on specific and custom switches, consult Customer Service Center.

## How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.



\*Only the straight type termination without ESD pin is available in SMT type.

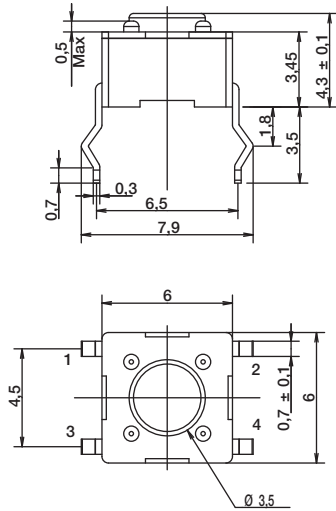


Dimensions are shown: mm  
Specifications and dimensions subject to change

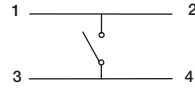
# PTS645 Series 6 mm Tact Switches

## TERMINATION

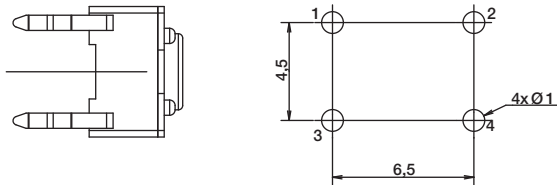
### S STRAIGHT



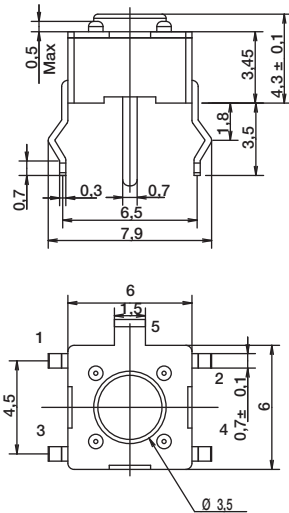
SCHEMATIC



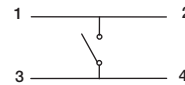
PCB LAYOUT



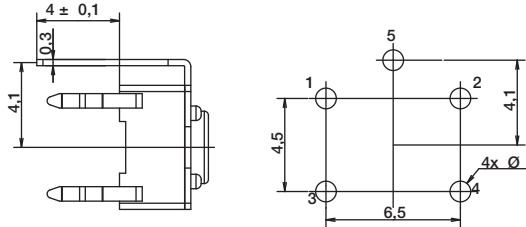
### T STRAIGHT WITH ESD PIN



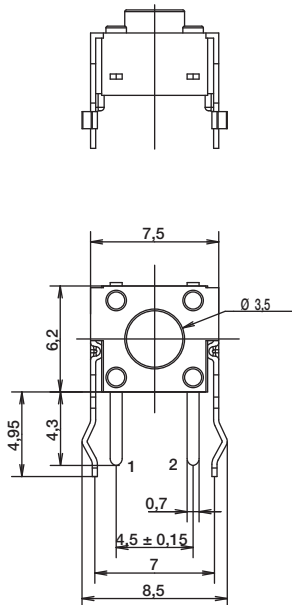
SCHEMATIC



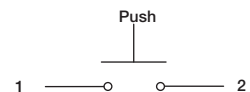
PCB LAYOUT



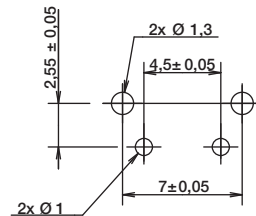
### V VERTICAL



SCHEMATIC



PCB LAYOUT



Dimensions are shown: mm  
Specifications and dimensions subject to change

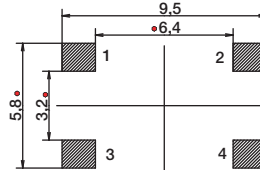
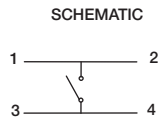
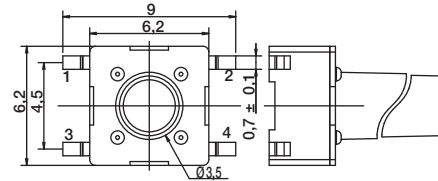
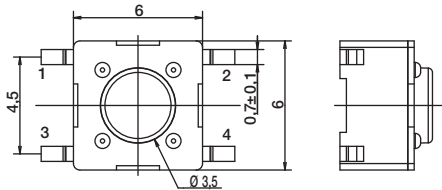
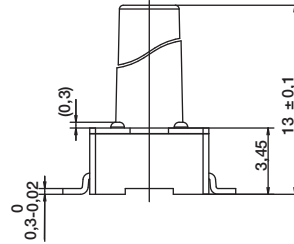
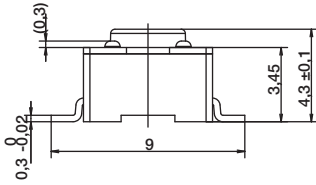
# PTS645 Series 6 mm Tact Switches

## TERMINATION

### SMT

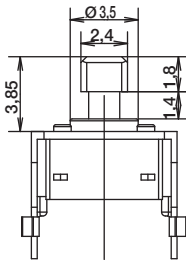
FOR 4.3, 5.0, 7.0, 9.5 MM HEIGHT

13.0 MM HEIGHT ONLY

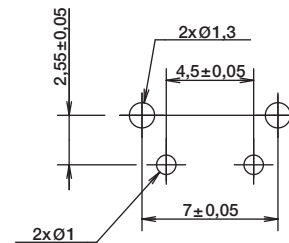
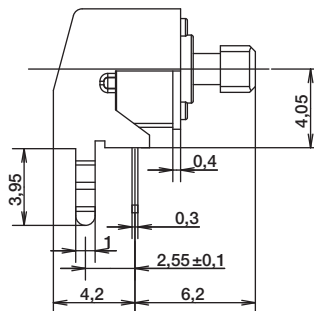
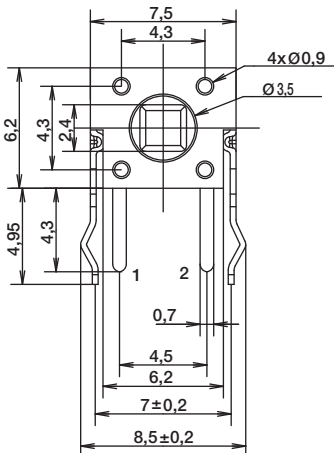
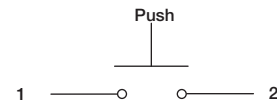


PCB LAYOUT

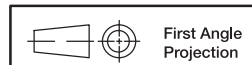
## ACTUATOR SHAPE



SCHEMATIC



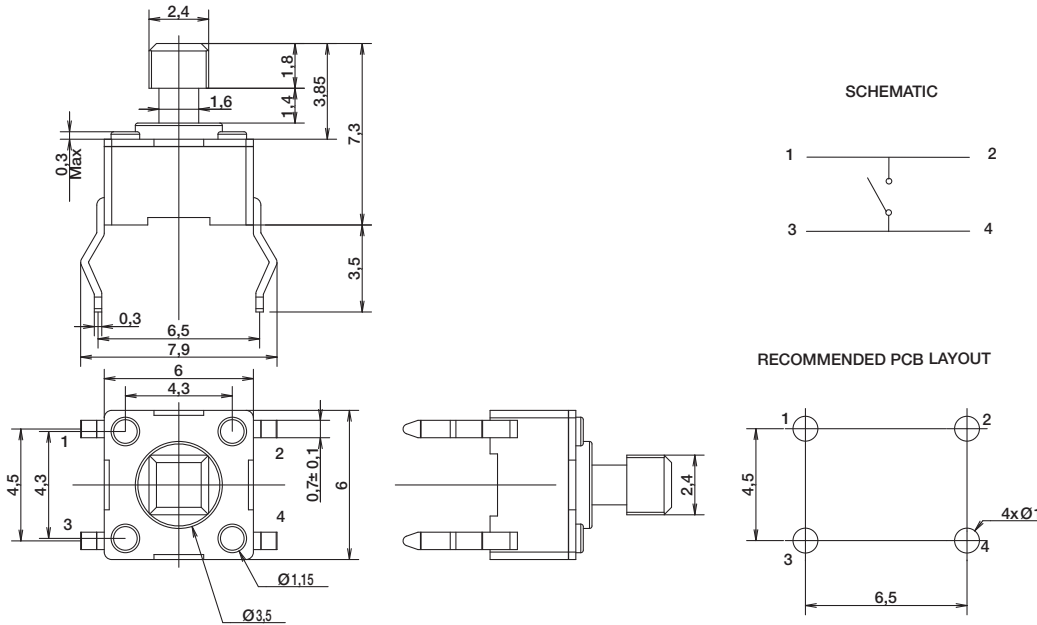
RECOMMENDED PCB LAYOUT



Dimensions are shown: mm  
Specifications and dimensions subject to change

# PTS645 Series 6 mm Tact Switches

## ACTUATOR SHAPE



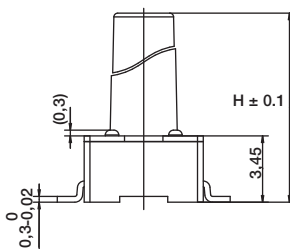
B

Tactile Switches

## ACTUATION FORCE

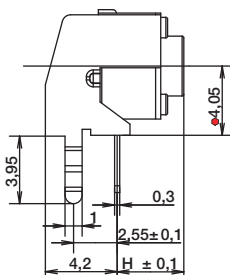
| OPTION CODE | FORCE           |
|-------------|-----------------|
| <b>L</b>    | 130 grams Black |
| <b>M</b>    | 160 grams Blue  |
| <b>H</b>    | 200 grams Gray  |
| <b>K</b>    | 260 grams Red   |

## ACTUATOR HEIGHT



### Switch height from PCB for S and T only

| OPTION CODE | DIMENSION H | TERMINATION       | SCHEMATIC       |              |
|-------------|-------------|-------------------|-----------------|--------------|
|             |             |                   | Without EMC pin | With EMC pin |
| <b>43</b>   | 4,3 (.169)  | Thru-hole and SMT |                 |              |
| <b>50</b>   | 5,0 (.197)  | Thru-hole and SMT |                 |              |
| <b>70</b>   | 7,0 (.275)  | Thru-hole and SMT |                 |              |
| <b>95</b>   | 9,5 (.374)  | Thru-hole and SMT |                 |              |
| <b>13</b>   | 13,0 (.512) | SMT               |                 |              |

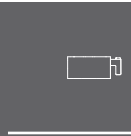


### Switch length from front leads for V only

| OPTION CODE | DIMENSION H | TERMINATION | SCHEMATIC       |              |
|-------------|-------------|-------------|-----------------|--------------|
|             |             |             | Without EMC pin | With EMC pin |
| <b>31</b>   | 3,15 (.124) | Vertical    |                 |              |
| <b>39</b>   | 3,85 (.151) | Vertical    |                 |              |
| <b>58</b>   | 5,85 (.230) | Vertical    |                 |              |
| <b>83</b>   | 8,35 (.329) | Vertical    |                 |              |

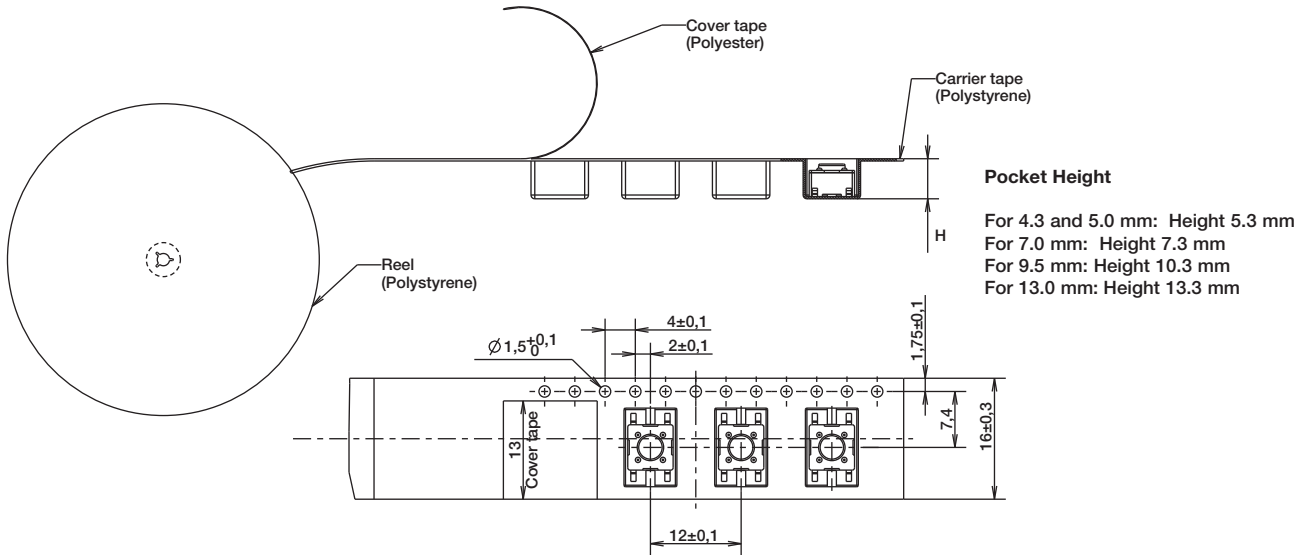
# PTS645 Series 6 mm Tact Switches

## TAPE & REEL



B

Tactile Switches





# PTS645 V SMT Series 6 mm SMT Side Actuated Tact Switch

## Features/Benefits

- Full SMT processing
- Strong PCB soldering pads
- Compact 6 x 6 mm design

## Typical Applications

- Consumer Products
- Set Top and Access Boxes
- Instrumentation
- Home and Garden Equipment



## Specification

FUNCTION: Momentary action  
 CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.  
 TERMINALS: G type for SMT  
 TRAVEL: 0.25 mm +0.2/-0.1 mm  
 OPERATING LIFE: 100,000 cycles

## Mechanical

| Part Number            | Operating Force (gf) | Actuator Color |
|------------------------|----------------------|----------------|
| PTS645 VN13 SMTR92 LFS | 100 ± 30             | Dark grey      |
| PTS645 VM13 SMTR92 LFS | 160 ± 50             | Yellow green   |

## Electrical

MAXIMUM VOLTAGE: 12 V DC  
 MAXIMUM CURRENT: 50 mA  
 DIELECTRIC STRENGTH: 100 V AC (1mn)  
 CONTACT RESISTANCE: ≤ 100 mΩ  
 INSULATION RESISTANCE: ≥ 100 MΩ  
 BOUNCE TIME: ≤ 10 ms

## Environmental

OPERATING TEMPERATURE: -20°C to 70°C  
 STORAGE TEMPERATURE: -30°C to 80°C

## Process

SOLDERING: This component is suited to the following methods:  
 Infrared Reflow Soldering in accordance with IEC61760-1

Recommended solder paste thickness is ≥ 15µm

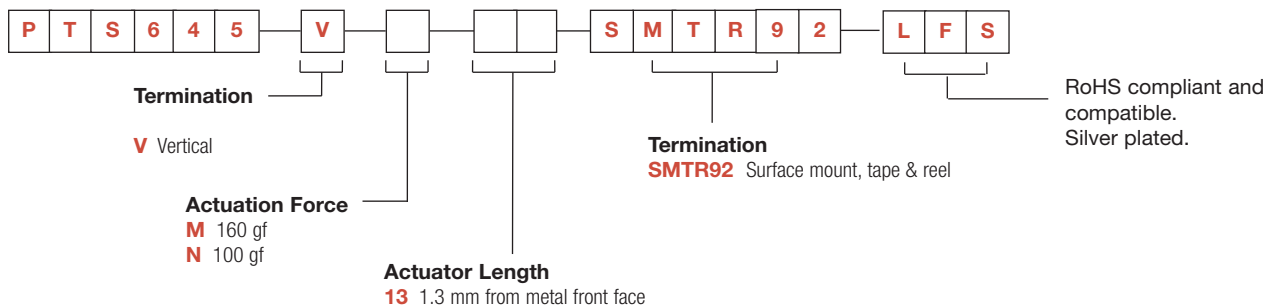
## Packaging

In reels of 650 pieces  
 Dimensions of reels according to EIA 481B  
 External diameter 330 mm

**NOTE:** Specifications listed above are for switches with standard options.  
 For information on specific and custom switches, consult Customer Service Center.

## How To Order

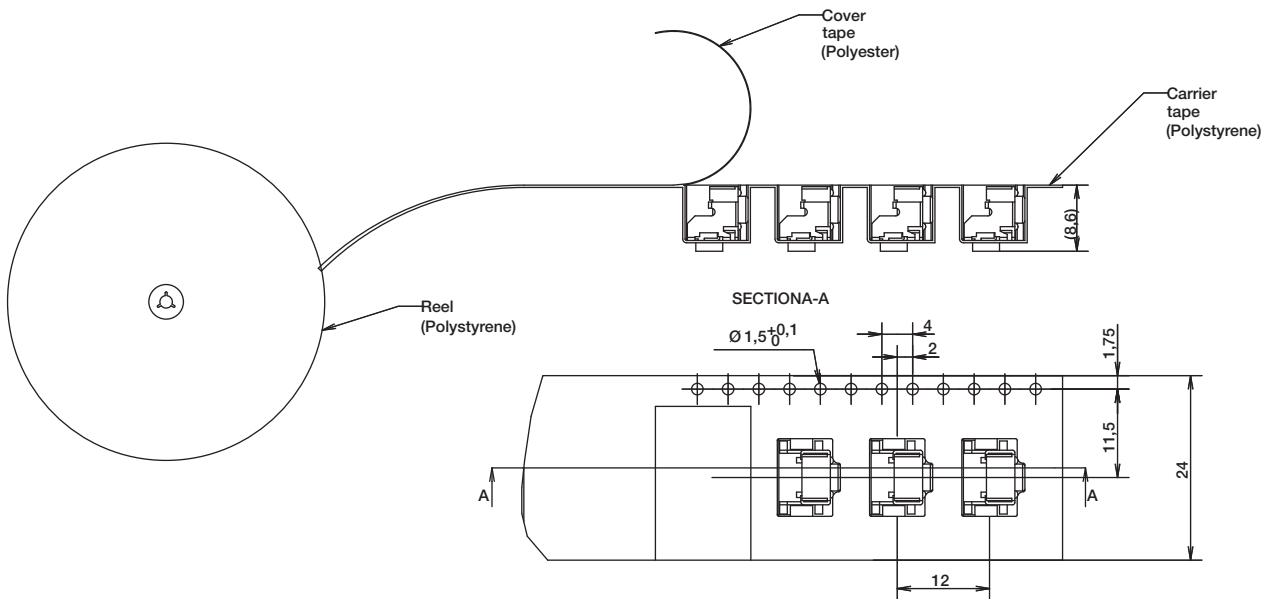
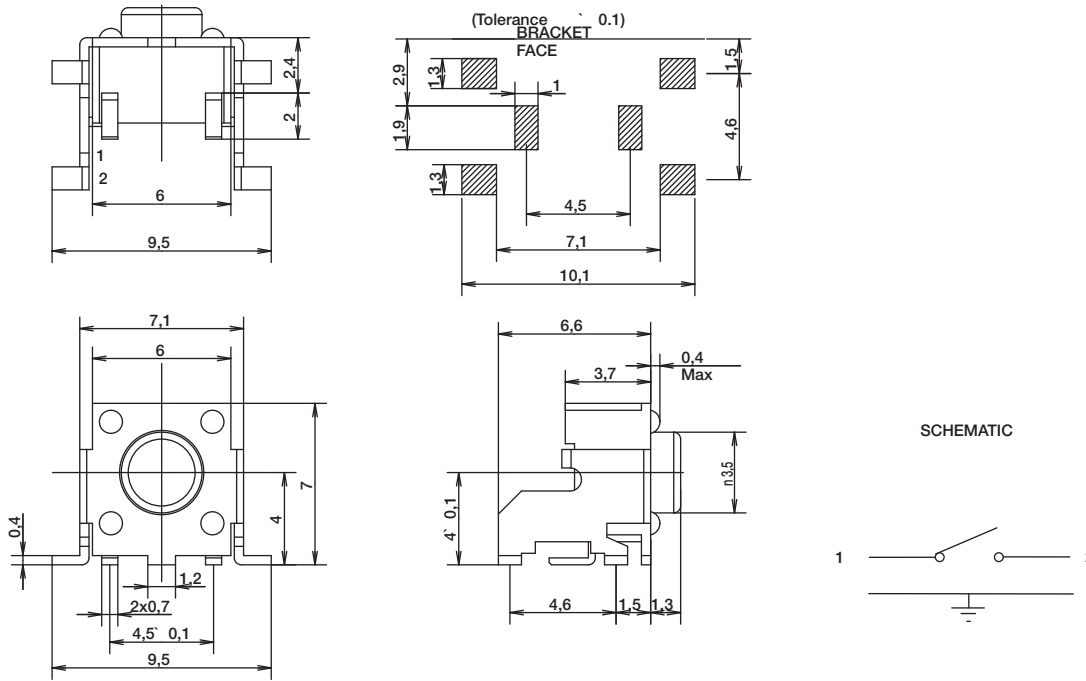
Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.



# PTS645 V SMT Series

## 6 mm SMT Side Actuated Tact Switch

RECOMMENDED PCB LAYOUT



# PTS125 Series 12 mm Tact Switches



## Features/Benefits

- THT and SMT terminations
- Various heights
- Snap fit actuator option

## Typical Applications

- Consumer products
- Instrumentation
- Computer products
- Industrial



B

Tactile Switches

## Specification

FUNCTION: Momentary action  
CONTACT ARRANGEMENT: 1 make contact SPST, N.O.  
TERMINALS: PC pins for THT and G type for SMT  
TRAVEL: 0.30 mm ± 0.15 mm

## Mechanical

OPERATING LIFE: 200,000 cycles  
OPERATING FORCE: 180 gf ± 50  
250 gf ± 50

## Electrical

MAX VOLTAGE: 12 VDC  
MAX CURRENT: 50 mA  
DIELECTRIC STRENGTH: 250 V AC (1mn)  
CONTACT RESISTANCE: <100 mΩ  
INSULATION RESISTANCE: >100MΩ  
BOUNCE TIME: < 5 ms

**NOTE:** Specifications listed above are for switches with standard options.  
For information on specific and custom switches, consult Customer Service Center.

## Environmental

OPERATING TEMPERATURE: -20°C to 70°C

## Process

SOLDERING: This component is suited to the following methods:  
Infrared reflow soldering in accordance with IEC 61760-1 for SMT version  
Wave soldering compatible with lead free soldering profile

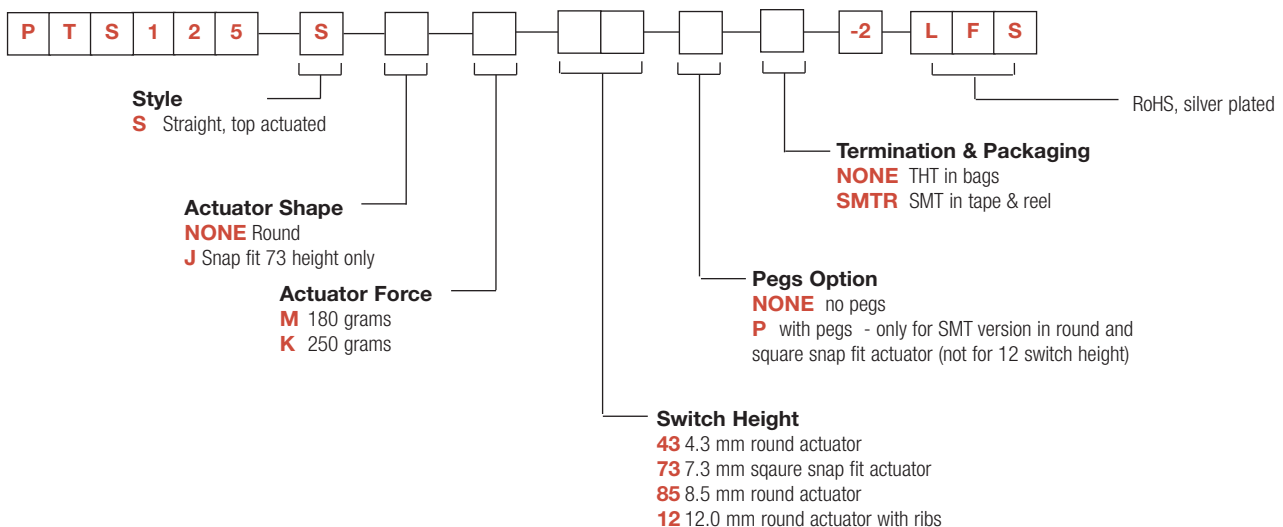
## Packaging

| Soldering Style | Height           | Packaging   | Parts per Packaging |
|-----------------|------------------|-------------|---------------------|
| THT             | All heights      | Plastic bag | 500                 |
| SMT             | 4.3 mm           | tape & reel | 900                 |
| SMT             | 4.3 mm with pegs | tape & reel | 600                 |
| SMT             | 7.3 mm           | tape & reel | 500                 |
| SMT             | 7.3 mm with pegs | tape & reel | 500                 |
| SMT             | 8.5 mm           | tape & reel | 500                 |
| SMT             | 8.5 mm with pegs | tape & reel | 400                 |
| SMT             | 12 mm            | tape & reel | 250                 |

Dimensions of reels according to EIA 481B. External diameter 330 mm.

## How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.



Other heights with the round actuator are available upon request. Different minimum order quantities than the stand may apply.



Dimensions are shown: mm  
Specifications and dimensions subject to change

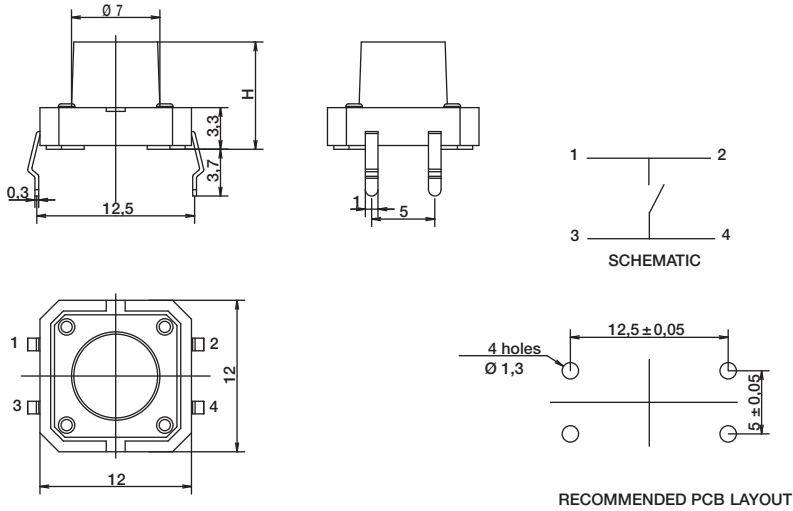
# PTS125 Series

## 12 mm Tact Switches

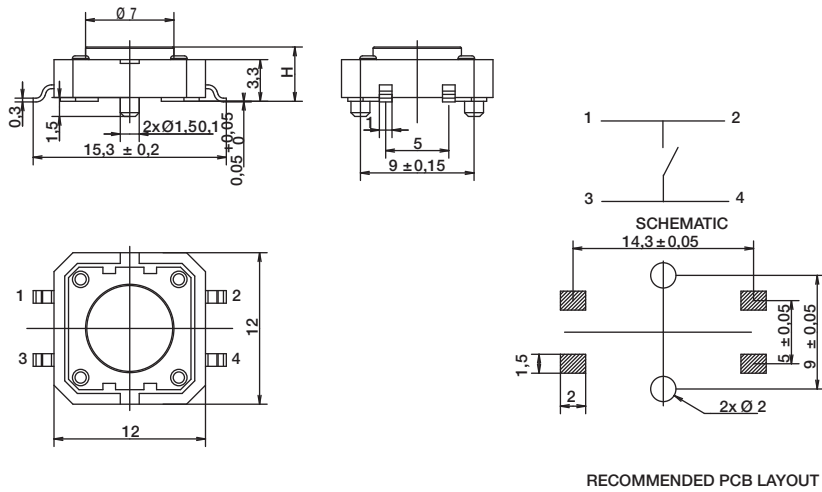
**THT** VERSION WITH ROUND ACTUATOR H= 4.3 & 8.5 MM (other height upon request)

B

Tactile Switches

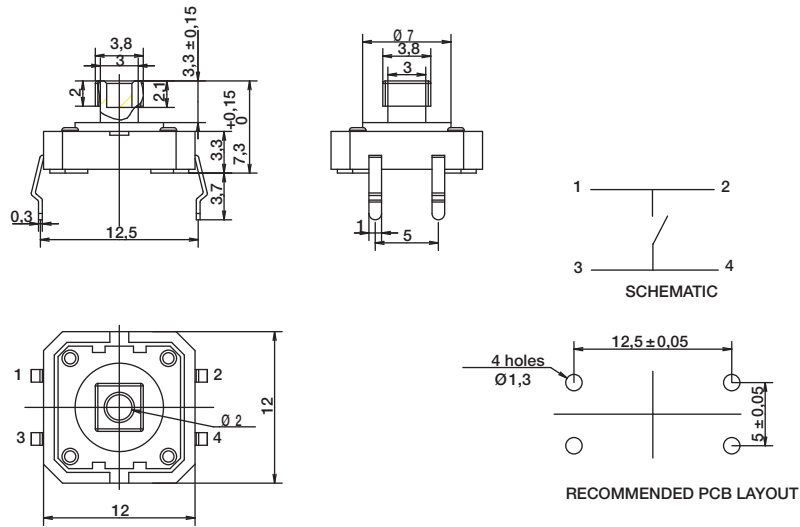


**SMT** VERSION WITH ROUND ACTUATOR AND PEGS H= 4.3 & 8.5 MM (other height upon request)

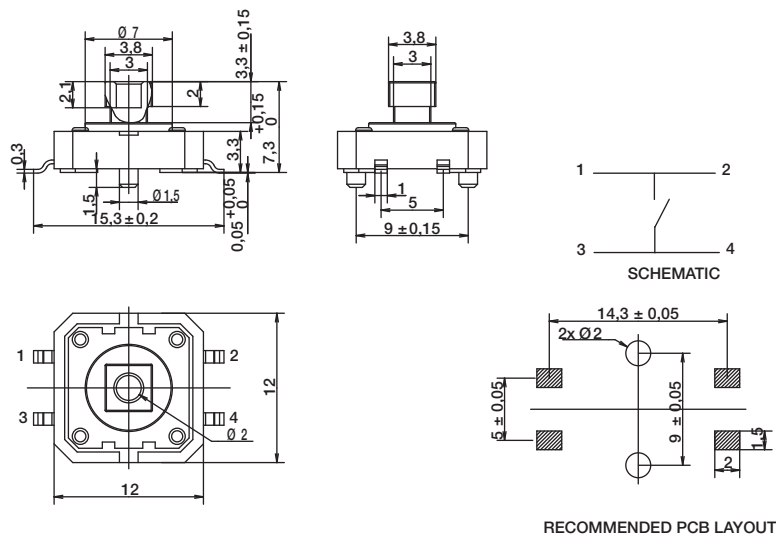


# PTS125 Series 12 mm Tact Switches

## THT VERSION WITH SQUARE SNAP FIT ACTUATOR H= 7.3 MM



## SMT VERSION WITH SQUARE SNAP FIT ACTUATOR AND PEGS H= 7.3 MM



B

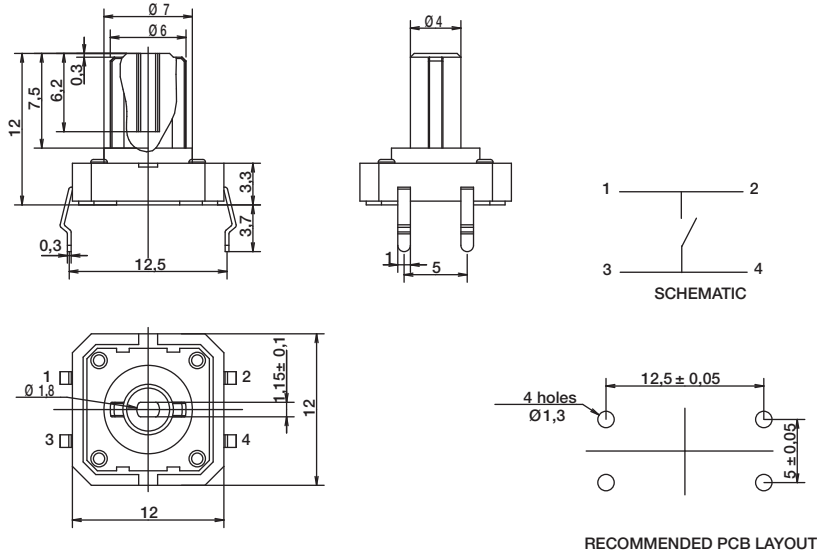
Tactile Switches

# PTS125 Series 12 mm Tact Switches

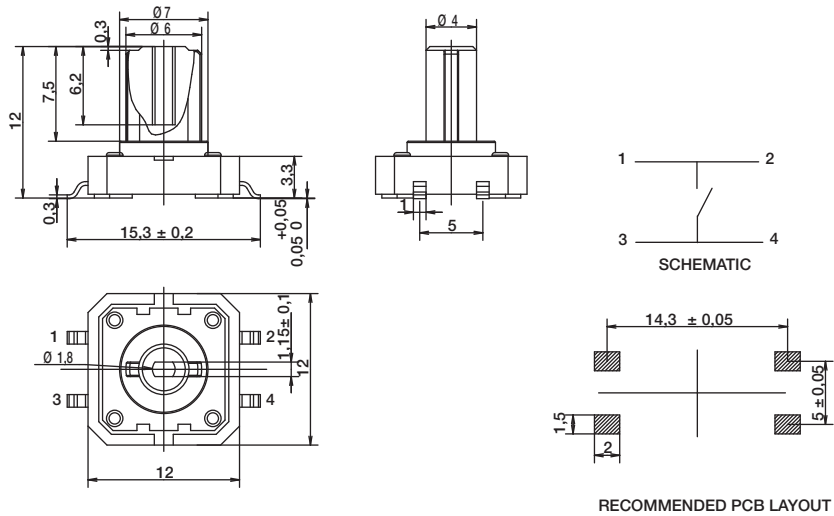
**THT** VERSION WITH ROUND RIBBED ACTUATOR H= 12.0 MM

Tactile Switches

B



**SMT** VERSION WITH ROUND RIBBED ACTUATOR H= 12.0 MM



# ITS Series Illuminated Tact Switch

## Features/Benefits

- Vertical and right angle SMT models
- Vertical and right angle thru-hole models
- Multiple caps and legends
- Several LED colors and bi-color options
- RoHS compliant /compatible

## Typical Applications

- Consumer electronics
- Server/storage
- Medical devices
- Test/Measurement/Instrumentation
- Audio/Video
- Computers/Peripherals
- Security

NEW  
Right  
Angle  
SMT



B

Tactile Switches

## Specification

FUNCTION: N.O. momentary action  
TERMINALS: SMT with positioning pegs, Thru-hole

## Mechanical

OPERATING FORCE: 160gf for V1; V2; V3; R1; R2 models  
220gf ± 50 gf for R3 model  
OPERATING LIFE: 50,000 cycles (250m Ω max)  
RECOMMENDED OPERATING STROKE: 0.25mm ± 0.1mm

## Electrical

RATING: 50mA @ 12VDC  
CONTACT RESISTANCE: <100m Ω (initial)  
DIELECTRIC WITHSTANDING VOLTAGE:  
>250VAC (50-60 Hz) between terminals - 1 min.Ω  
INSULATION RESISTANCE: >100M Ω  
BOUNCE TIME: <10ms

## Packaging

Thru-hole: 200 pieces per tray  
SMT: tape & reel (see V2 or V3 mounting style drawings)

## Environmental

OPERATING TEMPERATURE: -25°C to +70°C  
STORAGE TEMPERATURE: -25°C to +80°C

## Process

SOLDERABILITY: Thru-hole - wave compatible  
SMT - convection or IR reflow compatible

## Materials

CONTACTS/TERMINALS: Base metal; brass  
Plating; Ag  
DOME: Base metal: Phosphor bronze  
Plating; Ag

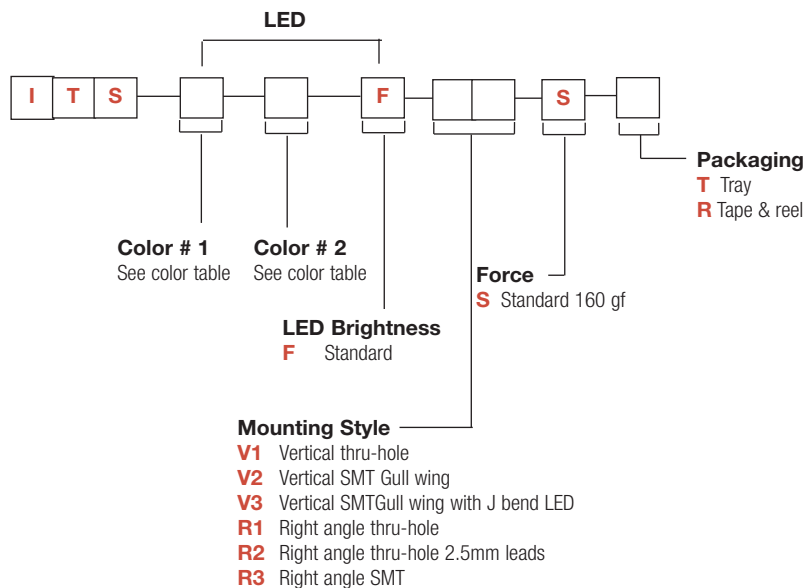
BASE: PA  
ACTUATOR: PA  
COVER: PA

## Caps

Caps are ordered separately and shipped bulk. Thru-hole versions available with caps assembled under custom part number. Contact customer service for details.

## How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.



| LED Color |              |
|-----------|--------------|
| 00        | No light     |
| 10        | Red          |
| 12        | Red/Yellow   |
| 13        | Red/Green    |
| 14        | Red/Blue     |
| 20        | Yellow       |
| 21        | Yellow/Red   |
| 23        | Yellow/Green |
| 30        | Green        |
| 31        | Green/Red    |
| 32        | Green/Yellow |
| 40        | Blue         |
| 41        | Blue/Red     |
| 50        | White        |
| 60        | True green   |

\* Other colors available by request

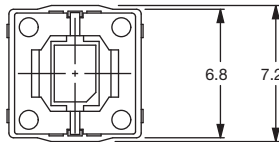
# ITS Series Illuminated Tact Switch

## LED COLOR / BRIGHTNESS

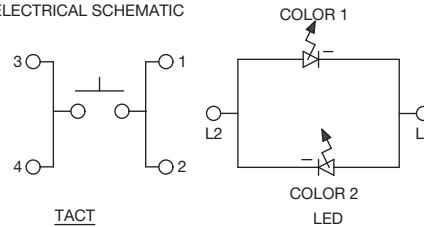
| LED Characteristic                     | units     | Standard LED Color Options |                 |                 |                 |   |                 |
|--|-----------|----------------------------|-----------------|-----------------|-----------------|---|-----------------|
|  |           | Red (1)                    | Yellow (2)      | Green (3)       | Blue (4)        | White (5)   | True Green (6)  |
| Recommended Operating                  | mA @ 5VDC | 20mA                       | 20mA            | 20mA            | 20mA            | 20mA  | 20mA            |
| Forward Current                        | mA        | 30 mA                      | 30 mA           | 30 mA           | 30 mA           | 30 mA   | 30 mA           |
| Peak Pulsing Current (1/8 duty @ 1kHz) | mA        | 125 mA                     | 125 mA          | 125 mA          | 125 mA          | 125 mA  | 125 mA          |
| Power Dissipation                      | mW        | 75 mW                      | 75 mW           | 75 mW           | 108 mW          | 114 mW  | 108 mW          |
| Forward Voltage @ 20mA                 | Volts     | 2.5 Volts Max.             | 2.5 Volts Max.  | 2.5 Volts Max.  | 3.6 Volts Max.  | 3.6 Volts Max.                                      | 3.6 Volts Max.  |
| Dominant Wavelength @ 20mA             | nm        | 637nm (Typical)            | 590nm (Typical) | 570nm (Typical) | 465nm (Typical) | CIE Coordinates<br>X= 0.25 ~ 0.33<br>Y= 0.24 ~ 0.34 | 522nm (Typical) |
| Wavelength at Peak Emission @ 20mA     | nm        | 645nm (Typical)            | 590nm (Typical) | 573nm (Typical) | 460nm (Typical) |   | 515nm (Typical) |
| Spectral Half Bandwidth @ 20mA         | nm        | 20nm (Typical)             | 20nm (Typical)  | 17nm (Typical)  | 25nm (Typical)  |   | 33nm (Typical)  |
| Luminous Intensity @ 20mA              | mcd       | 50mcd Minimum              | 125mcd Minimum  | 40mcd Minimum   | 100mcd Minimum  | 250mcd Minimum                                      | 500mcd Minimum  |
| Viewing Angle at 50% LV (@10mA)        | degrees   | 150° Typical               | 120° Typical    | 120° Typical    | 120° Typical    | 150° Typical  | 120° Typical    |

## MOUNTING STYLES

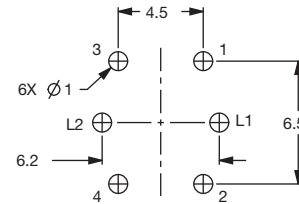
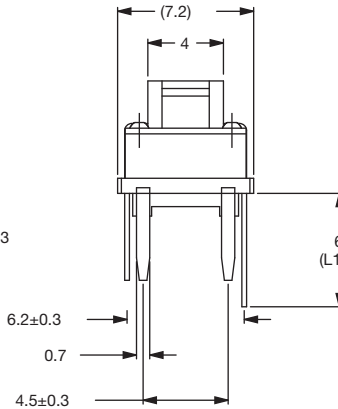
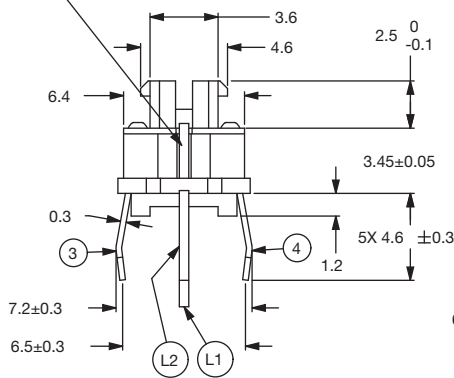
### V1 - Vertical Thru-hole



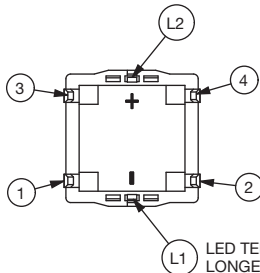
ELECTRICAL SCHEMATIC



DOT SHOWING LED COLOR IS MARKED FOR MINUS POLE SEE SCHEMATIC



P.C.B. LAYOUT



LED TERMINAL L1 IS TRIMMED LONGER THAN TERMINAL L2

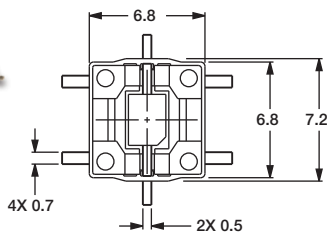
TRAY PACKAGING: 200 PIECES



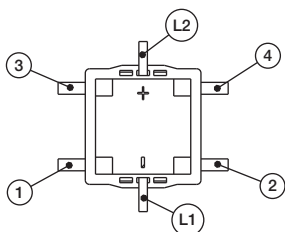
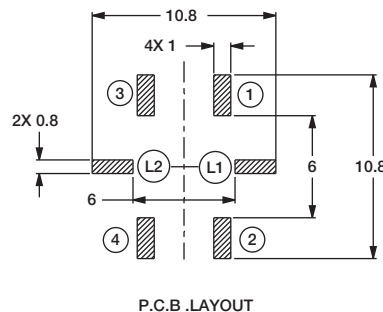
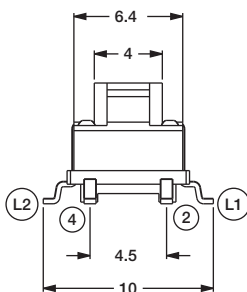
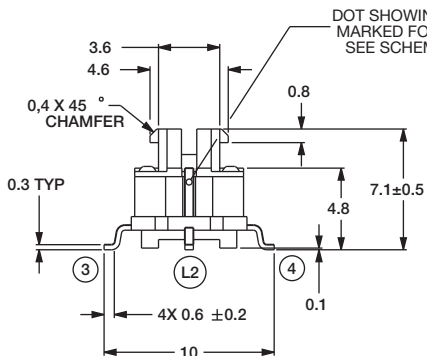
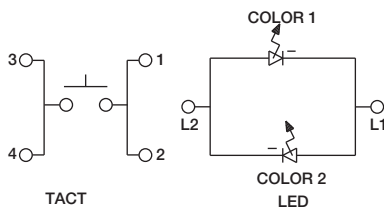
# ITS Series Illuminated Tact Switch

## MOUNTING STYLES

### V2 - Vertical SMT; Gullwing

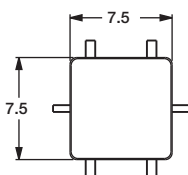


ELECTRICAL SCHEMATIC

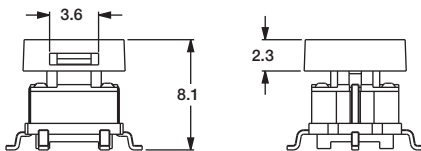


B

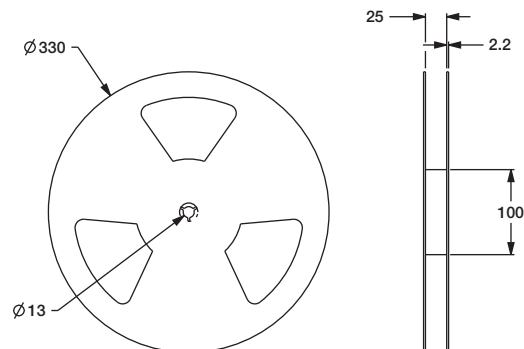
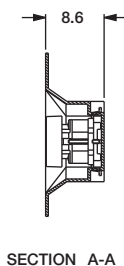
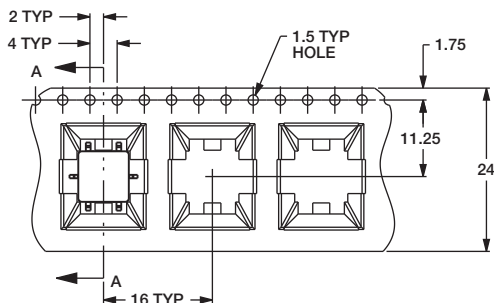
Tactile Switches



TAPE & REEL: 500 PIECES



NOTES:  
1. SWITCH WITH TEMPORARY PICK AND PLACE CAP.



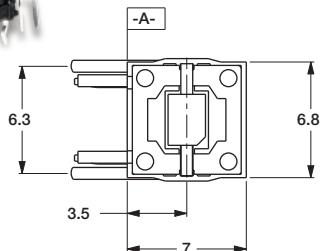
Dimensions are shown: mm  
Specifications and dimensions subject to change



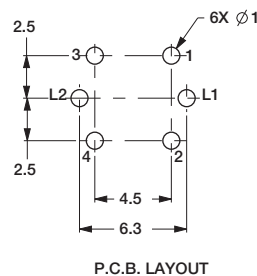
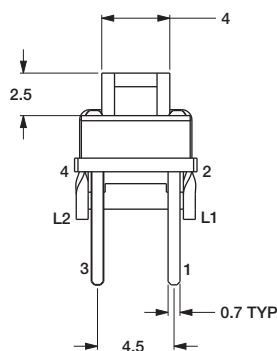
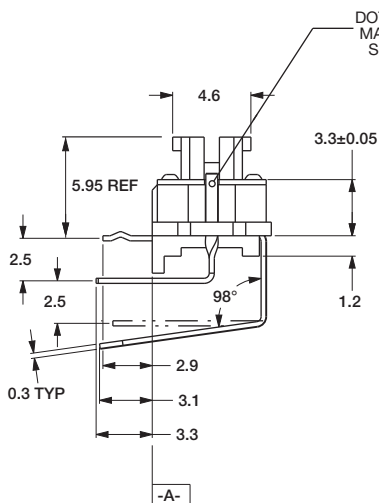
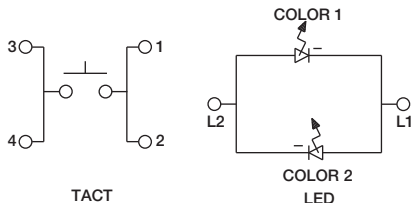
# ITS Series Illuminated Tact Switch

## MOUNTING STYLES

### R1 - Right Angle; Thru-hole

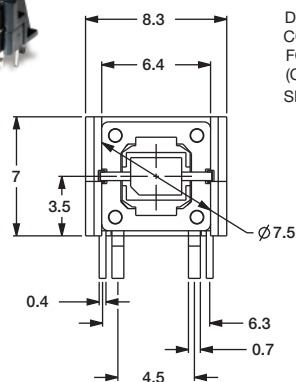


ELECTRICAL SCHEMATIC

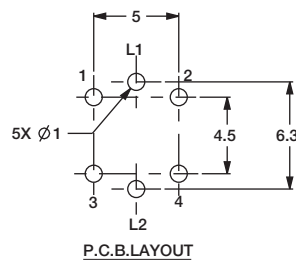
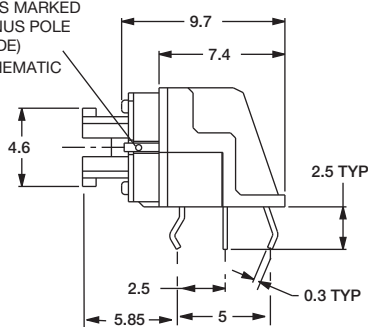


TRAY PACKAGING: 200 PIECES

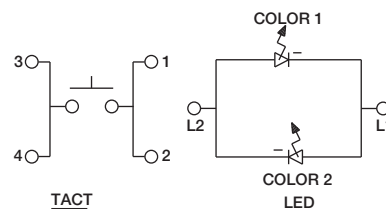
### R2 - Right Angle; Thru-hole 2.5mm leads



DOT SHOWING LED COLOR IS MARKED FOR MINUS POLE (CATHODE) SEE SCHEMATIC



ELECTRICAL SCHEMATIC



TRAY PACKAGING: 200 PIECES



Dimensions are shown: mm  
Specifications and dimensions subject to change

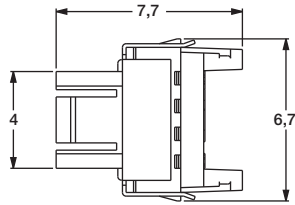
# ITS Series Illuminated Tact Switch

## MOUNTING STYLES

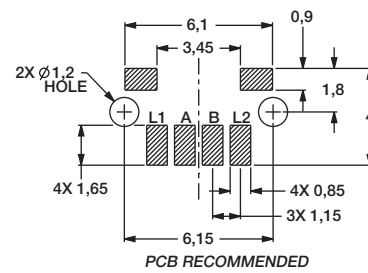
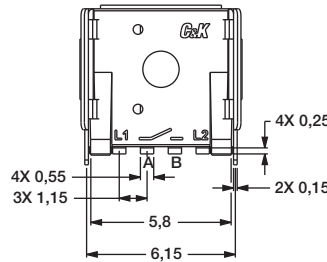
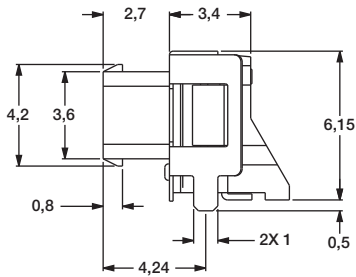
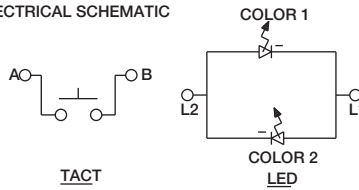
### R3 - Right Angle, SMT

B

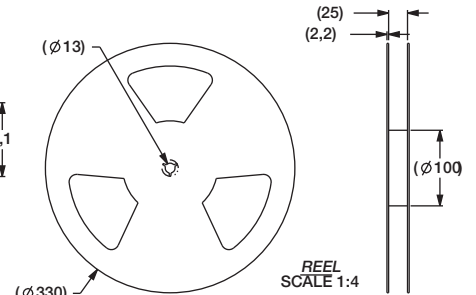
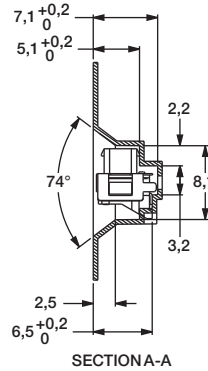
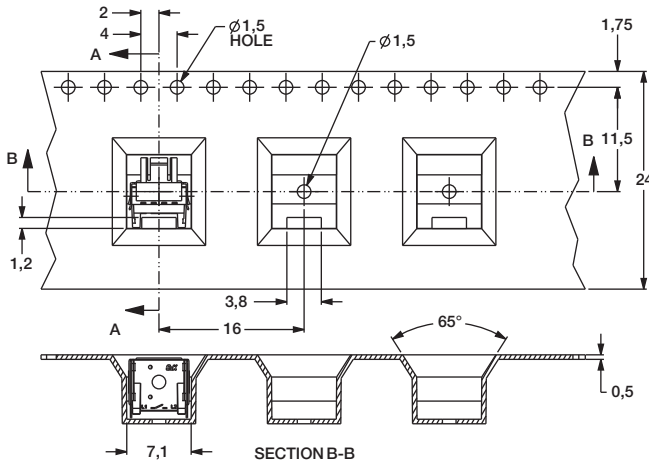
Tactile Switches



ELECTRICAL SCHEMATIC



TAPE & REEL: 540 PIECES



# ITS Series Illuminated Tact Switch

## FORCE

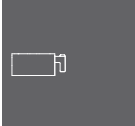
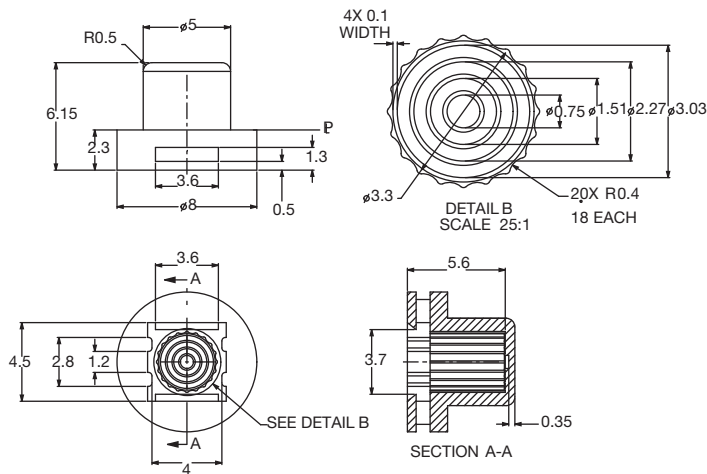
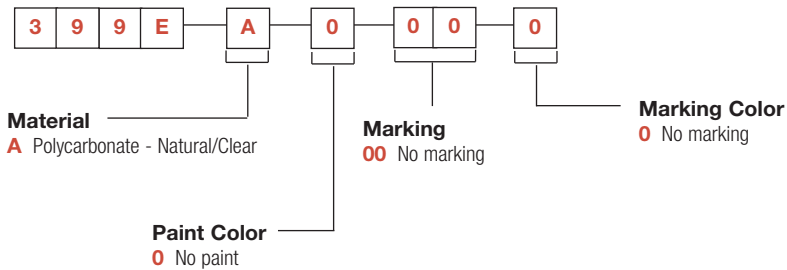
| OPTION CODE | FORCE           |
|-------------|-----------------|
| <b>S</b>    | Standard 160 gf |

## CAPS

Use the individual ordering code for each cap



**399EA0000**  
Round cap, clear



**B**

Tactile Switches

# ITS Series Illuminated Tact Switch

## CAPS



**400EA0000**

Natural/clear



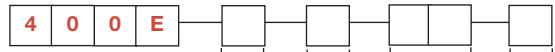
**400EB0000**

Translucent white, flat edge



**400ECA01E**

Matte silver paint laser etch, flat edge



**Material**

- A** Natural/Clear - polycarbonate
- B** Translucent white - polycarbonate
- C** Silver paint laser etch - polycarbonate

**Paint Color**

- 0** No paint
- A** Matte silver

**Laser Etch Marking**

- 00** No marking
- 01** Power On/Off
- 04** Arrow right
- 05** Arrow left
- 06** Arrow up
- 07** Arrow down
- 09** Power
- 33** Arrow up (fill)
- 34** Arrow down (fill)
- 97** I/O



**Marking Color**

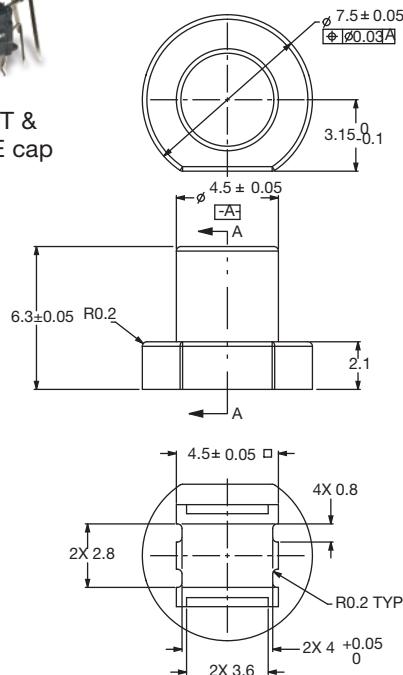
- 0** No marking
- E** Laser etch (painted caps only)

Tactile Switches

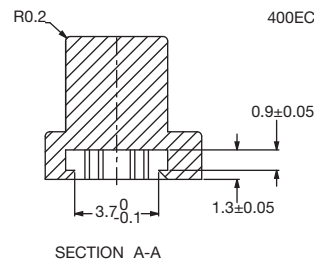
**B**



ITSXXFR1ST &  
400ECA01E cap



400ECA01E SHOWN



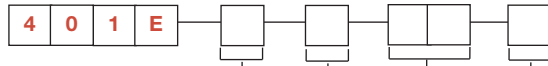
# ITS Series Illuminated Tact Switch

## CAPS



**401ECA06E**

Matte silver paint, laser etch,  
tall oval



**Material**

- A** Natural/clear - polycarbonate
- B** Translucent white - polycarbonate
- C** Paint laser etch - polycarbonate

**Paint Color**

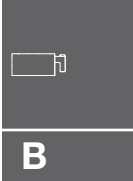
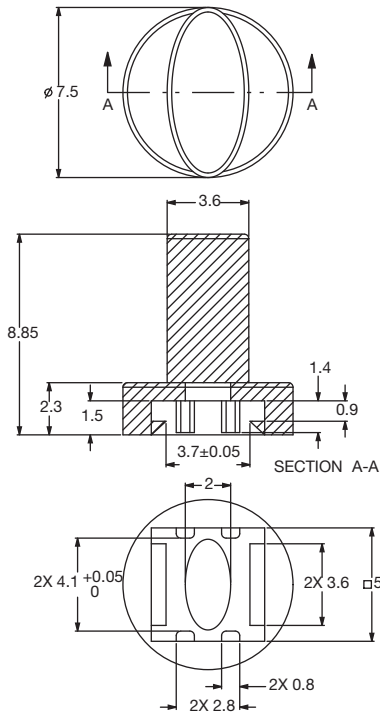
- 0** No paint
- A** Matte silver

**Laser Etch  
Marking**

- 00** No marking
- 06** Arrow up
- 07** Arrow down
- 33** Arrow up (fill)
- 34** Arrow down (fill)

**Marking Color**

- 0** No marking
- E** Laser etch (painted caps only)



**B**

Tactile Switches

# KSH Series

## Soft Feeling High Tactile SMT Top Actuated

### Features/Benefits

- 6.3 x 6.3 x 5.0 mm footprint
- Low contact resistance
- High number of cycles
- 2 or 4 pin PCB layout

### Typical Applications

- Automotive Interior
- Car AV equipment
- Electronic musical instrument



### Specifications

FUNCTION: momentary action  
 CONTACT ARRANGEMENT: 1 make contact = SPST N.O.  
 TERMINALS: J type for SMT  
 TRAVEL: 1.3 ± 0.2 mm

### Mechanical

| Part Number     | Operating Force (N) | Operating Life (operations) |
|-----------------|---------------------|-----------------------------|
| KSH X11J 50 LFS | 1.6 ± 0.5           | 200,000                     |
| KSH X21J 50 LFS | 2.0 ± 0.6           | 200,000                     |
| KSH X31J 50 LFS | 2.5 ± 0.8           | 200,000                     |
| KSH X41J 50 LFS | 3.0 ± 1.0           | 200,000                     |
| KSH X51J 50 LFS | 3.5 ± 1.2           | 100,000                     |

### Electrical

MAXIMUM / MINIMUM VOLTAGE: 12 VDC / 2 VDC  
 MAXIMUM / MINIMUM CURRENT DC: 50 mA / 10 µA  
 DIELECTRIC STRENGTH: 250 VA C (1mn)  
 CONTACT RESISTANCE: ≤ 100 mΩ  
 INSULATION RESISTANCE: ≥ 100 MΩ  
 BOUNCE TIME: ≤ 10 ms

### Environmental

OPERATING TEMPERATURE: -40°C to 90°C

### Process

SOLDERING: This component is suited to the following methods:  
 Infrared Reflow Soldering in accordance with IEC61760-1

### Packaging

In reels of 1,000 pieces  
 Dimensions of reels according to EIA 481B  
 External diameter 330 mm

**NOTE:** Specifications listed above are for switches with standard options.  
 For information on specific and custom switches, consult Customer Service Center.

### How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

**For any part number different from those listed above, please consult your local representative.**

