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# Series 223H

## 4.7x3.5mm Compact Tactile Switch

- Surface mount gull-wing and J bend terminal configurations
- Compatible with IR reflow and manual soldering



### Ordering Information

| Series   | Terminal Type                              | Actuating Direction | Actuator Height "L" | Actuator Force & Travel | Packaging               | Boss | Ground Terminal      |   |  |      |       |   |      |  |  |      |       |   |       |  |  |      |       |   |                                |   |                               |   |  |      |       |   |                          |       |                        |  |  |      |       |   |                       |   |  |      |       |   |  |       |                    |
|--|--|---------------------|---------------------|-------------------------|-------------------------|------|----------------------|---|--|------|-------|---|------|--|--|------|-------|---|-------|--|--|------|-------|---|--------------------------------|---|-------------------------------|---|--|------|-------|---|--------------------------|-------|------------------------|--|--|------|-------|---|-----------------------|---|--|------|-------|---|--|-------|--------------------|
| 223H   | M  | S                   | A                   | A                       | R                       | B    | G                    |   |  |      |       |   |      |  |  |      |       |   |       |  |  |      |       |   |                                |   |                               |   |  |      |       |   |                          |       |                        |  |  |      |       |   |                       |   |  |      |       |   |  |       |                    |
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| M  | Surface mount gull wing                    |                     |                     |                         |                         |      |                      |   |  |      |       |   |      |  |  |      |       |   |       |  |  |      |       |   |                                |   |                               |   |  |      |       |   |                          |       |                        |  |  |      |       |   |                       |   |  |      |       |   |  |       |                    |
| J  | Surface mount J bend                       |                     |                     |                         |                         |      |                      |   |  |      |       |   |      |  |  |      |       |   |       |  |  |      |       |   |                                |   |                               |   |  |      |       |   |                          |       |                        |  |  |      |       |   |                       |   |  |      |       |   |  |       |                    |
| Code   | Spec.                                      |                     |                     |                         |                         |      |                      |   |  |      |       |   |      |  |  |      |       |   |       |  |  |      |       |   |                                |   |                               |   |  |      |       |   |                          |       |                        |  |  |      |       |   |                       |   |  |      |       |   |  |       |                    |
| S  | Side                                       |                     |                     |                         |                         |      |                      |   |  |      |       |   |      |  |  |      |       |   |       |  |  |      |       |   |                                |   |                               |   |  |      |       |   |                          |       |                        |  |  |      |       |   |                       |   |  |      |       |   |  |       |                    |
| Code   | Spec.                                      |                     |                     |                         |                         |      |                      |   |  |      |       |   |      |  |  |      |       |   |       |  |  |      |       |   |                                |   |                               |   |  |      |       |   |                          |       |                        |  |  |      |       |   |                       |   |  |      |       |   |  |       |                    |
| A  | 4.5mm                                      |                     |                     |                         |                         |      |                      |   |  |      |       |   |      |  |  |      |       |   |       |  |  |      |       |   |                                |   |                               |   |  |      |       |   |                          |       |                        |  |  |      |       |   |                       |   |  |      |       |   |  |       |                    |
| Code   | Spec.                                      |                     |                     |                         |                         |      |                      |   |  |      |       |   |      |  |  |      |       |   |       |  |  |      |       |   |                                |   |                               |   |  |      |       |   |                          |       |                        |  |  |      |       |   |                       |   |  |      |       |   |  |       |                    |
| A  | 160 gf, 0.25mm, white actuator             |                     |                     |                         |                         |      |                      |   |  |      |       |   |      |  |  |      |       |   |       |  |  |      |       |   |                                |   |                               |   |  |      |       |   |                          |       |                        |  |  |      |       |   |                       |   |  |      |       |   |  |       |                    |
| B  | 220 gf, 0.3mm, black actuator              |                     |                     |                         |                         |      |                      |   |  |      |       |   |      |  |  |      |       |   |       |  |  |      |       |   |                                |   |                               |   |  |      |       |   |                          |       |                        |  |  |      |       |   |                       |   |  |      |       |   |  |       |                    |
| Code   | Spec.                                      |                     |                     |                         |                         |      |                      |   |  |      |       |   |      |  |  |      |       |   |       |  |  |      |       |   |                                |   |                               |   |  |      |       |   |                          |       |                        |  |  |      |       |   |                       |   |  |      |       |   |  |       |                    |
| B  | With boss, black housing                   |                     |                     |                         |                         |      |                      |   |  |      |       |   |      |  |  |      |       |   |       |  |  |      |       |   |                                |   |                               |   |  |      |       |   |                          |       |                        |  |  |      |       |   |                       |   |  |      |       |   |  |       |                    |
| Blank  | No boss, white housing                     |                     |                     |                         |                         |      |                      |   |  |      |       |   |      |  |  |      |       |   |       |  |  |      |       |   |                                |   |                               |   |  |      |       |   |                          |       |                        |  |  |      |       |   |                       |   |  |      |       |   |  |       |                    |
| Code   | Spec.                                      |                     |                     |                         |                         |      |                      |   |  |      |       |   |      |  |  |      |       |   |       |  |  |      |       |   |                                |   |                               |   |  |      |       |   |                          |       |                        |  |  |      |       |   |                       |   |  |      |       |   |  |       |                    |
| R  | Tape & reel packaging                      |                     |                     |                         |                         |      |                      |   |  |      |       |   |      |  |  |      |       |   |       |  |  |      |       |   |                                |   |                               |   |  |      |       |   |                          |       |                        |  |  |      |       |   |                       |   |  |      |       |   |  |       |                    |
| Code   | Spec.                                      |                     |                     |                         |                         |      |                      |   |  |      |       |   |      |  |  |      |       |   |       |  |  |      |       |   |                                |   |                               |   |  |      |       |   |                          |       |                        |  |  |      |       |   |                       |   |  |      |       |   |  |       |                    |
| G  | With ground terminal, only for boss option |                     |                     |                         |                         |      |                      |   |  |      |       |   |      |  |  |      |       |   |       |  |  |      |       |   |                                |   |                               |   |  |      |       |   |                          |       |                        |  |  |      |       |   |                       |   |  |      |       |   |  |       |                    |
| Blank  | No ground terminal                         |                     |                     |                         |                         |      |                      |   |  |      |       |   |      |  |  |      |       |   |       |  |  |      |       |   |                                |   |                               |   |  |      |       |   |                          |       |                        |  |  |      |       |   |                       |   |  |      |       |   |  |       |                    |

Notes: Contact CTS for other common features not listed.



## Electrical Specifications

| Parameter             | Conditions & Remarks               | Min | Max                | Unit            |
|-----------------------|------------------------------------|-----|--------------------|-----------------|
| Contact Resistance    |                                    |     | 100                | milliohms       |
| Insulation Resistance | Between insulated terminals        | 100 |                    | Megohms         |
| Dielectric Strength   | 1 minute between adjacent switches |     | 250                | VAC             |
| Actuation Life        | 160 gf<br>220 gf                   |     | 200,000<br>100,000 | cycles          |
| Nonswitching Rating   |                                    |     | 50<br>or<br>12     | mA<br>or<br>VDC |

## Mechanical and Environmental

|                             |  |
|-----------------------------|--|
| Soldering                   | Maximum reflow temperature, 260°C for 5 seconds<br>Maximum manual temperature, 350°C for 3 seconds |
| RoHS                        | Lead-Free. Fully compliant to RoHS Directive 2011/65/EU  |
| Operating Force             | 160, 220 gf  |
| Actuator Strength           | 3 Kgf maximum  |
| Travel                      | 0.25, 0.3 mm   |
| Packaging                   | Standard tape and reel packaging   |
| Operating Temperature Range | -40°C to +85°C   |
| Storage Temperature Range   | -40°C to +85°C   |



Figure 3 –223HJ... Surface Mount J Bend, Without Ground Terminal

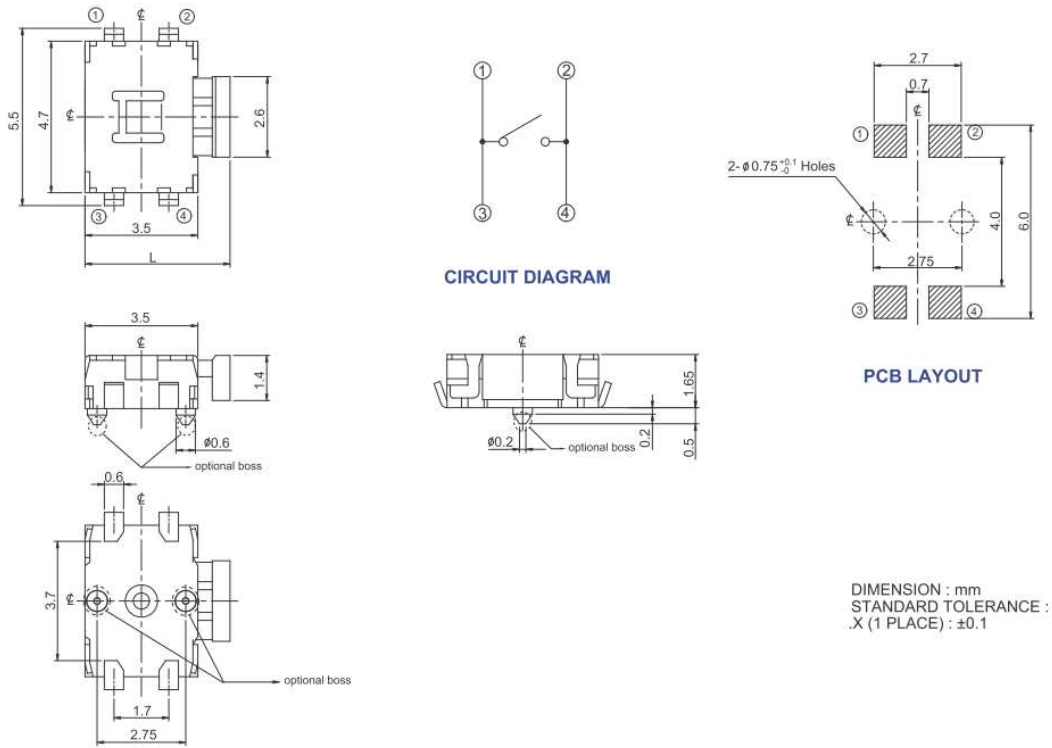
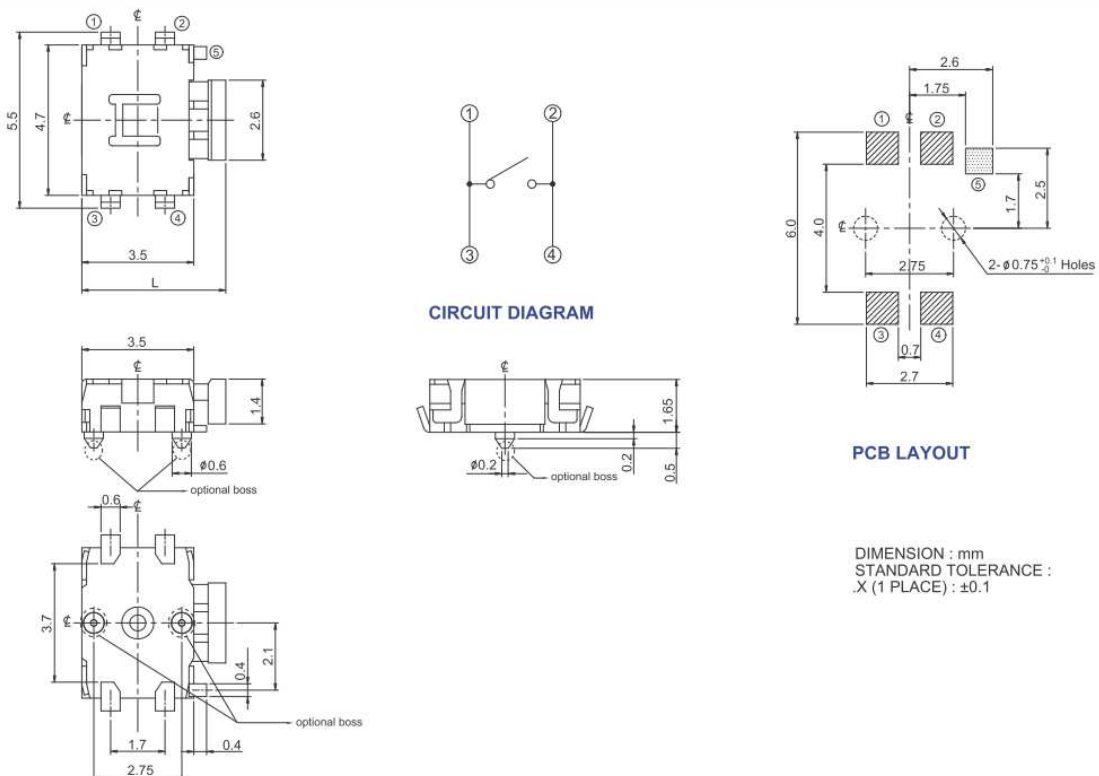


Figure 4 –223HJ...G Surface Mount J Bend, With Ground Terminal

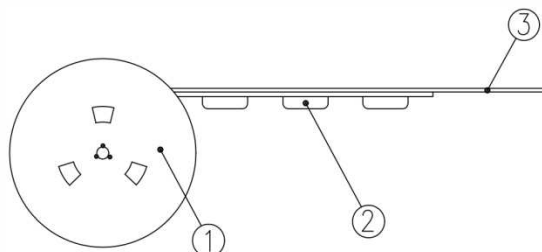


### Packing: Tape and Reel

#### Surface Mount Gull Wing/J Bend

The packing specifications :

Structure and materials :



|     |              |             |
|-----|--------------|-------------|
| ③   | COVER TAPE   | POLYESTER   |
| ②   | CARRIER TAPE | POLYSTYRENE |
| ①   | REEL         | POLYSTYRENE |
| NO. | PARTS NAME   | MATERIALS   |

1. Packing quantity : 3,300 pcs/reel
2. More than 10 empty pockets should remain at each end of the carrier tape for each reel.
3. Shortage less than 10 pcs a reel is acceptable but no more than 3 consecutive empty pockets are allowed.
4. Stripping strength of cover tape is between 10 gf to 70 gf and stripping angle should be within 165°~180°.
5. The product in the pocket of carrier tape should be placed in a specified correct position.
6. Tape and reel per EIA-481
7. Dimensions :

