

# Body Height 1.6mm, Compact-sized Multifunction Type Tactile Switches

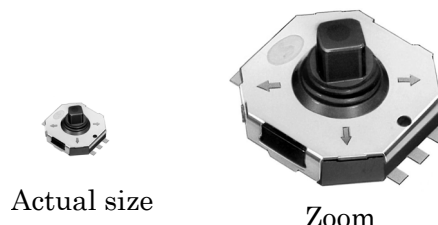
## TSW-10 / -10A / -10C Series

### Features

- ◇ With 7.6x7.8mm dimension and 1.6mm height, surface-mounting type switches are ideal for high-density mounting.
- ◇ Low profile design with stem height 4.5mm(4-direction+Center push type), 4.0mm(4-direction type).
- ◇ A sharp click feeling of key touch is provided utilizing the tactile feedback characteristic.
- ◇ J-bent terminal and straight terminal are standardized. Permits reflow soldering.
- ◇ With solderable metal covered ground terminal effective for electrostatic discharge.
- ◇ Switches are packaged in 16mm wide embossed taping.

### Applications

- ◇ Digital still camera and digital video camera
- ◇ Portable audio devices, Car navigation system
- ◇ Cellular phone, Personal digital assistance



### Products Line

- ◇ 4-direction+Center push Type (TSW-10)

No	Products No.	Operating force		Travel		Terminal style	Variety	Qty/reel ( pcs. )
		4- direction	Center push	4- direction	Center push			
1	TSW-10-11-T15	1.6N	3.2N	5 degree	0.15mm	J-bent	Without guide bosses	1,500 (Minimum packing unit)
2	TSW-10-1-11-T15					Straight		
1	TSW-10-11B-T15					J-bent	With guide bosses	
2	TSW-10-1-11B-T15					Straight		

- ◇ 4-direction Type ( TSW-10A )

No	Products No.	Operating force		Travel		Terminal style	Variety	Qty/reel ( pcs. )
		4- direction	Center push	4- direction	Center push			
3	TSW-10A-01-T15	1.6N	_____	5 degree	_____	J-bent	Without guide bosses	1,500 (Minimum packing unit)
4	TSW-10A-1-01-T15					Straight		
3	TSW-10A-01B-T15					J-bent	With guide bosses	
4	TSW-10A-1-01B-T15					Straight		

- ◇ 4-direction+Center push , Long-button Type (TSW-10C)

No	Products No.	Operating force		Travel		Terminal style	Variety	Qty/reel ( pcs. )
		4- direction	Center push	4- direction	Center push			
5	TSW-10C-11-T10	1.0N	3.2N	5 degree	0.15mm	J-bent	Without guide bosses	1,000 (Minimum packing unit)
6	TSW-10C-1-11-T10					Straight		
5	TSW-10C-11B-T10					J-bent	With guide bosses	
6	TSW-10C-1-11B-T10					Straight		

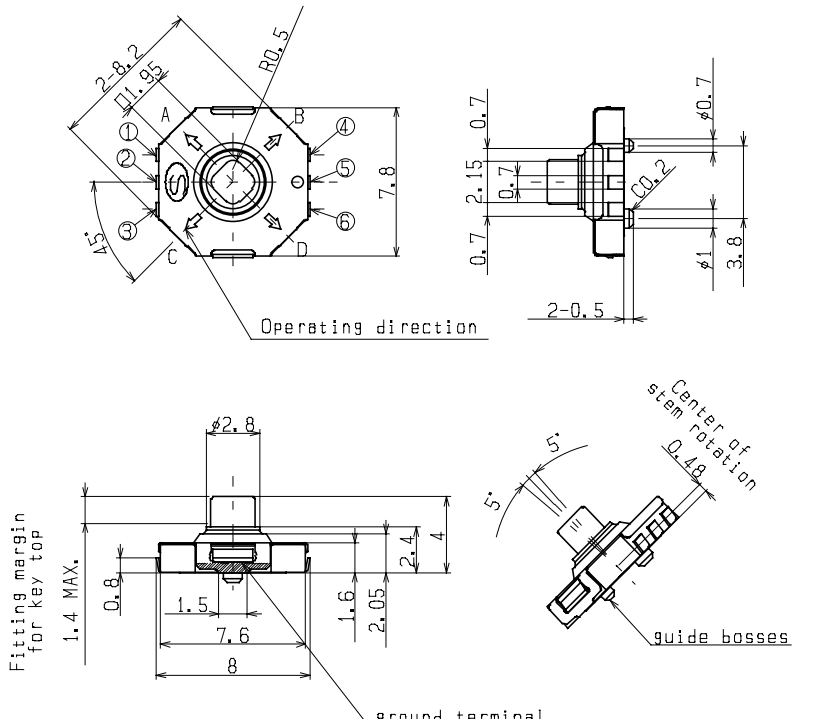
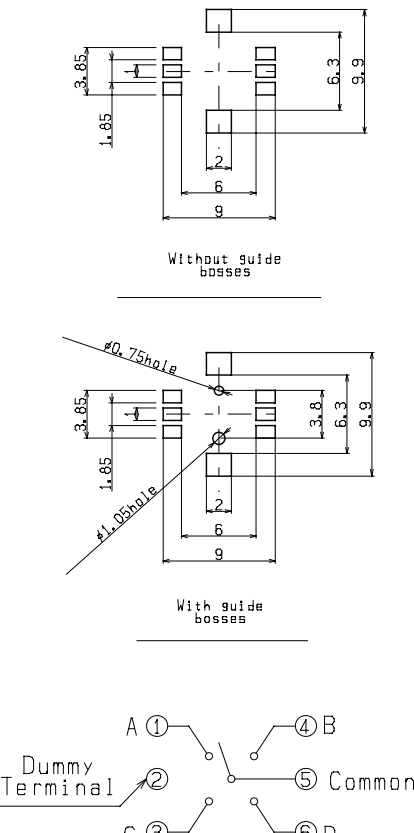
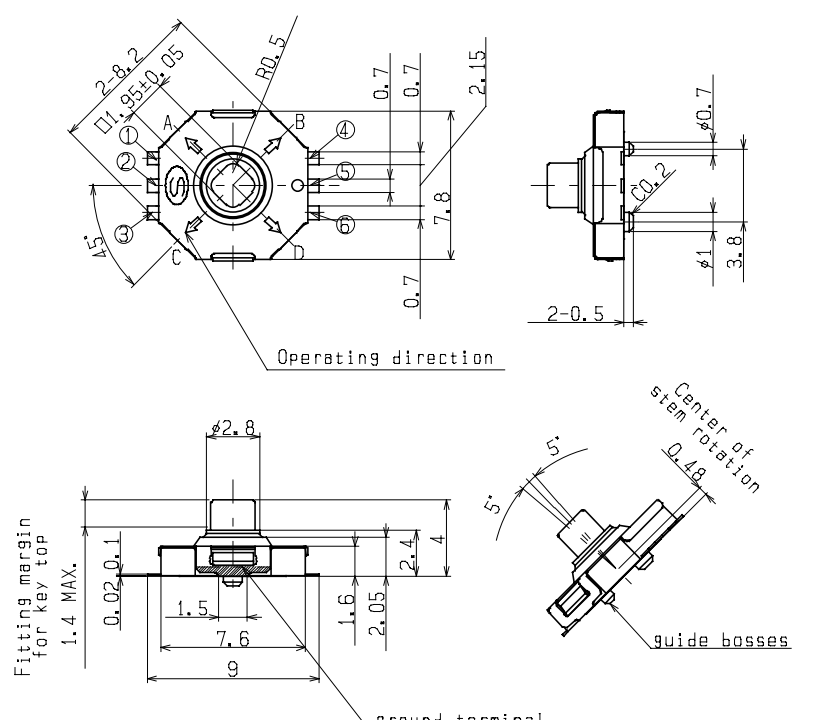
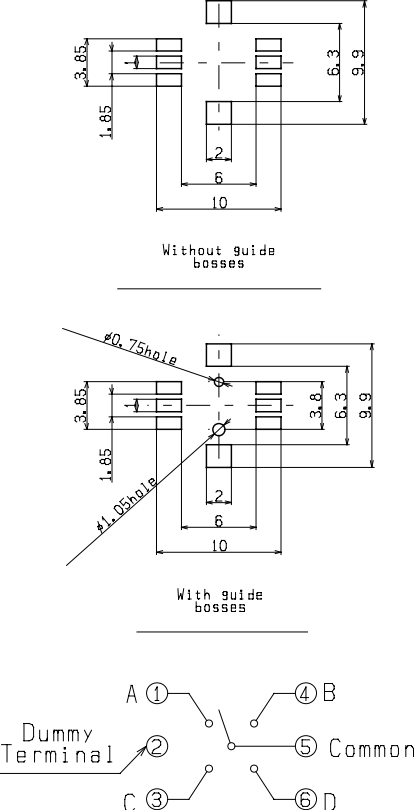
Dimensions

Unit : mm

No	Style	P.C.B reference Land Dimensions Circuit Diagram (TOP VIEW)
1	<p>4-direction+Center push Type , J-bent terminal TSW-10-11-T15, TSW-10-11B-T15</p> <p>Above is the drawing of TSW-10 with guide bosses.</p>	<p>Without guide bosses</p> <p>With guide bosses</p> <p>CENTER PUSH</p> <p>A ① B ④ ② ⑤ COMMON C ③ D ⑥</p>
2	<p>4-direction+Center push Type , Straight terminal TSW-10-1-11-T15, TSW-10-1-11B-T15</p> <p>Above is the drawing of TSW-10 with guide bosses.</p>	<p>Without guide bosses</p> <p>With guide bosses</p> <p>CENTER PUSH</p> <p>A ① B ④ ② ⑤ COMMON C ③ D ⑥</p>

Dimensions

Unit : mm

No	Style	P.C.B reference Land Dimensions Circuit Diagram (TOP VIEW)
3	<p>4-direction type , J-bent terminal TSW-10A-01-T15, TSW-10A-01B-T15</p>  <p>Above is the drawing of TSW-10A with guide bosses.</p>	
4	<p>4-direction type , Straight terminal TSW-10A-1-01-T15, TSW-10A-1-01B-T15</p>  <p>Above is the drawing of TSW-10A with guide bosses.</p>	

Dimensions

Unit : mm

No	Style	P.C.B reference Land Dimensions Circuit Diagram (TOP VIEW)
5	<p>4-direction+Center push Type , J-bent terminal , Long-button TSW-10C-11-T10, TSW-10C-11B-T10</p>	<p>P.C.B reference Land Dimensions Circuit Diagram (TOP VIEW)</p>
<p>Above is the drawing of TSW-10C with guide bosses.</p>		
6	<p>4-direction+Center push type , Straight terminal , Long-button TSW-10C-1-11-T10, TSW-10C-1-11B-T10</p>	<p>P.C.B reference Land Dimensions Circuit Diagram (TOP VIEW)</p>
<p>Above is the drawing of TSW-10C with guide bosses.</p>		

## □ Typical Specifications

Item	Specifications
<b>Ratings (max.) (Resistive load)</b>	50mA 12V DC
<b>Contact resistance</b>	100 milliohm max. (Initial)
<b>Insulation resistance</b>	100 megohm min. 100V DC
<b>Withstanding voltage</b>	250V AC for 1min.
<b>Operating force</b>	4-direction : 1.6N or 1.0N , Center push : 3.2N
<b>Operating life</b>	100,000 cycles
<b>Operating temperature range</b>	-20 to +70 degree Celsius
<b>Storage temperature range</b>	-40 to +85 degree Celsius (except carrier tape)

## □ Notes

1. The appearance and specifications of the product may be modified to improve its performance without prior notice.
2. This catalog shows only outline specifications. When using the product, please obtain formal specifications.
3. Please see appendix [Cautions in Using Switches].
4. The operation force other than the above list is also available and please contact us for the details.
5. The minimum packing unit for taping specification is shown above. It is requested that the quantity of the order shall be an integer multiple of the minimum packing units.
6. Please set the reflow soldering condition confirming under the actual condition of mass-production.
7. Characteristics of switch may change due to the warping of the circuit writing board. Consideration should be given to the pattern design and layout.
8. This push switch is not washable.
9. This push switch permits reflow soldering and the switch has the possibility to be mounted on the edge of the PC board. But auto-dip shall not be done after the mounting of the switch, because of the big possibility of the penetration of the soldering flux into the inside of the switch.
10. Larger stress than specified and/ or shock shall not be applied during switch operation. Pressure to the push button shall be applied to the whole surface equally and avoid the pressure to the specific one portion.
11. In manual soldering, consider that the abnormal pressure of the soldering iron shall not be applied to the tip of the terminal as well do not apply any pressure for more than 1 minute after soldering.
12. Care shall be taken so that the flux shall not penetrate into the terminal portion.
13. The operating characteristic may change if force is exerted to the top of the cover.

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