TSU Series 6.1 × 3.7 SMD Tact Switch





Features

Highly reliable contacts sealed structure. Larger top surface of stem improves mounting speed. Reflow solderable. Packaged with a 16mm wide embossed taping.



Applications

Operating switches in all types of electronic equipment such as audio apparatus, office equipment, communiction apparatus, measuring instruments, TV sets, VCRs, etc.

Specification

Items		Standard	
Operating temperature range		- 20 to +70	
	Rating	50mA, 12V DC	
Electrical	Insulation resistance	100MΩ min. 100V DC	
performance	Dielectric strength	250V AC for 1 min.	
	Contact resistance	100mΩ max.	
Durability	Lifetime	50,000 Cycles, 100,000 Cycles	
Mechanical performance	Operating force	2:160 ± 50gf, 3:260 ± 70gf	
	Travel	0.25 ± 0.1mm	

Diagram



TSSURX Series 6.2 × 3.6 SMD Tact Switch



Features

act Switch

Compact, low-profile surface-mounting type keyboard switches ideal for high-density mounting. Contacts are comletelysealed, enhancing reliability. Reflow solderable. Available with ground terminal for electrostatic dischang.



Applications

Operating switches in all types of electronic equipment such as audio apparatus, office equipment, communiction apparatus, measuring instruments, TV sets, VCRs, etc.

How to order

Specification

Items		Standard
Operating temperature range		- 20 to +70
	Rating	50mA, 12V DC
Electrical	Insulation resistance	100MΩ min. 100V DC
performance	Dielectric strength	250V AC for 1 min.
	Contact resistance	100mΩ max.
Durability	Lifetime	50,000 Cycles, 100,000 Cycles
Mechanical performance	Operating force	2:160 ± 50gf, 3:260 ± 70gf
	Travel	0.40 ± 0.2mm

Diagram

	TSSURX
Dimensions	
Circuit Diagram	①——o ^{⊥⊥} o——② <u>Cirguit Diagram</u>
Pad Layout	8.0 5.0 ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■





Larger top surface of stem improves mounting speed. Reflow solderable. Packaged with a 16mm wide embossed taping.

Operating Force: $1=100\pm50gf$ 2=200±70gf

Applications

Operating switches in all types of electronic equipment such as audio apparatus, office equipment, communiction apparatus, measuring instruments, TV sets, VCRs, etc.

Specification

Items		Standard	
Operating temperature range		- 20 to +70	
	Rating	50mA, 12V DC	
Electrical	Insulation resistance	100MΩ min. 100V DC	
performance	Dielectric strength	250V AC for 1 min.	
	Contact resistance	100mΩ max.	
Durability	Lifetime	50,000 Cycles, 100,000 Cycles	
Mechanical performance	Operating force	1:100 ± 50gf, 2:200 ± 70gf	
	Travel	0.3 ± 0.15mm	

Diagram









Highly reliable contacts sealed structure. Larger top surface of stem improves mounting speed. Reflow solderable. Packaged with a 16mm wide embossed taping.





Applications

Operating switches in all types of electronic equipment such as audio apparatus, office equipment, communiction apparatus, measuring instruments, TV sets, VCRs, etc.

Specification

Items		Standard
Operating temperature range		- 20 to +70
	Rating	50mA, 12V DC
Electrical	Insulation resistance	100MΩ min. 100V DC
performance	Dielectric strength	250V AC for 1 min.
	Contact resistance	100mΩ max.
Durability Lifetime		50,000 Cycles, 100,000 Cycles
Mechanical performance	Operating force	3:250 ± 70gf
	Travel	0.25 ± 0.1mm

Diagram







Reflow solderable. Packaged with a 16mm wide embossed taping. Sharp "click" feel with a positive tactile feedback.



Applications

Operating switches in all types of electronic equipment such as audio apparatus, office equipment, communication apparatus, measuring instruments, TV sets, VCRs, etc.

How to order

Specification

Items		Standard	
Operating temperature range		- 20 to +70	
	Rating	50mA, 12V DC	
Electrical	Insulation resistance	100MΩ min. 100V DC	
performance	Dielectric strength	250V AC for 1 min.	
	Contact resistance	100mΩ max.	
Durability	Lifetime	30,000 Cycles, 50,000 Cycles	
Mechanical performance	Operating force	2:160 ± 50gf, 3:260 ± 70gf	
	Travel	0.25 ± 0.1mm	

Diagram

	TSH-J	TSH-G	TSH-P
Dimensions	N 0 N 0 N 0 N 0 N 0 N 0 N 0 N 0		28
Circuit Diagram	①───o [└] o───② <u>Cirguit Diagram</u>	①——— [↓] ——② <u>Cirguit Diagram</u>	ر)© <u>Cirguit Diagram</u>
Pad Layout	<u> </u>		



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Features

Reflow solderable.

Packaged with a 16mm wide embossed taping. Sharp "click" feel with a positive tactile feedback.



Applications

Operating switches in all types of electronic equipment such as audio apparatus, office equipment, communiction apparatus, measuring instruments, TV sets, VCRs, etc.

Specification

Items		Standard	
Operating temperature range		- 20 to +70	
	Rating	50mA, 12V DC	
Electrical	Insulation resistance	100MΩ min. 100V DC	
performance	Dielectric strength	250V AC for 1 min.	
	Contact resistance	100mΩ max.	
Durability	Lifetime	30,000 Cycles, 50,000 Cycles	
Mechanical performance	Operating force	2:160 ± 50gf, 3:260 ± 70gf	
	Travel	0.25 ± 0.1mm	

Diagram

	TSH-S	TSH	TSH-V
Dimensions	35 35 35 35		
Circuit Diagram	() Cirguit Diagram	① [⊥] ② <u>Cirguit Diagram</u>	①② ③④ <u>Cirguit Diagram</u>
Pad Layout		2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	

act Switch

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TSCF Series 4.7 × 3.5 Side Push Tact Switch





Features

Suitable for high-density mounting. Vertical type capable of vertical oeration to the PC board. Contacts are completely sealed, enhancing reliability. Packaged with a 12mm wide embossed taping.



Applications

Portable devices Mobile phones and personal digital assistants. Operation of variouw digital devices.

Specification

Items		Standard
Operating temperature range		- 20 to +70
	Rating	50mA, 12V DC
Electrical	Insulation resistance	100MΩ min. 100V DC
performance	Dielectric strength	250V AC for 1 min.
	Contact resistance	100mΩ max.
Durability	Lifetime	50,000 Cycles, 100,000 Cycles
Mechanical performance	Operating force	2:160 ± 50gf, 3:260 ± 70gf
	Travel	0.25 ± 0.1mm

Diagram

	TSCF-NS	TSCF-SS	TSCF-NJ	TSCF-SJ
Dimensions		6.4±0.1 4.7±0.1 10+0 2.6 10+0 2.6 10+0 2.75 0 2.75 0	5.5±0.1 10+91 30 10+91 2.6 10+91 2.6 10+91 2.6 10+91 2.6 10+91 10+9	5.5±0.1 4.7±0.1 0 0 0 0 0 0 0 0 0 0 0 0 0
Circuit Diagram	©© @@ Cirguit Diagram	Cirguit Diagram	©© ©© <u>Cirguit Diagram</u>	Cirguit Diagram
Pad Layout	<u>3.7±0.1</u> <u>6.8±0.1</u> <u>PCB Board</u>	3.7±0.1 6.8±0.1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	<u>3.7±0.1</u> <u>6.8±0.1</u> <u>PCB Board</u>	3.7±0.1 PCB Board

TS4V Series 4.6 × 3.35 Side Push Tact Switch



Features

act Switch (Side Push)

Vertical type capable of Vertical operation to the PC board. The switch is supplied in 12mm embossed taping system.

How to order



Applications

Portable devices

Mobile phones and personal digital assistants. Operation of variouw digital devices.

Specification

Items		Standard	
Operating temperature range		- 20 to +70	
	Rating	50mA, 12V DC	
Electrical	Insulation resistance	100MΩ min. 100V DC	
performance	Dielectric strength	250V AC for 1 min.	
	Contact resistance	100mΩ max.	
Durability	Lifetime	50,000 Cycles, 100,000 Cycles	
Mechanical performance	Operating force	2:160 ± 50gf, 3:260 ± 70gf	
	Travel	0.25 ± 0.1mm	

Diagram



TSSH-VS Series 4.6 × 1.8 Side Push Tact Switch





Features

Improve mounting density of components on PC board. Reflow solderable.

Contacts are completely sealed, enhancing reliability.

Packaged with a 12mm wide embossed taping.

Package: B=Bulk R=Reel RoHS & Lead Free Fix Boss: N=Without boss S=Fix boss Vertical type Operating Force: 2=160±50 gf 3=260±70 gf

Applications

For operating various mobile devices.

For operating various devices that require high density mounting such as mobile phones, communication devices, compact electronic devices.

Specification

Items		Standard	
Operating temperature range		- 20 to +70	
	Rating	50mA, 12V DC	
Electrical	Insulation resistance	100MΩ min. 100V DC	
performance	Dielectric strength	250V AC for 1 min.	
	Contact resistance	100mΩ max.	
Durability	Lifetime	30,000 Cycles, 50,000 Cycles	
Mechanical performance	Operating force	2:160 ± 50gf, 3:260 ± 70gf	
	Travel	0.25 ± 0.1mm	

Diagram

	TSSH-VS	TSSH-VN
D		
Dimensions		
Circuit	①——⊙ ② <u>Cirguit Diagram</u>	
Diagram	$\begin{array}{c c} 5.4 \\ \hline 4.2 \\ \hline 3.2 \\ \hline \end{array}$	
Pad Layout	$\begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} $	<u>PCB Board</u>

TSSH-V Series 4.6 × 1.8 Side Push Tact Switch





Features

Improve mounting density of components on PC board. Reflow solderable. Contacts are completely sealed, enhancing reliability.

Packaged with a 12mm wide embossed taping.





Applications

For operating various mobile devices.

For operating various devices that require high density mounting such as mobile phones, communication devices, compact electronic devices.

Specification

Items		Standard	
Operating temperature range		- 20 to +70	
	Rating	50mA, 12V DC	
Electrical	Insulation resistance	100MΩ min. 100V DC	
performance	Dielectric strength	250V AC for 1 min.	
	Contact resistance	100mΩ max.	
Durability	Lifetime	30,000 Cycles, 50,000 Cycles	
Mechanical performance	Operating force	2:160 ± 50gf, 3:260 ± 70gf	
	Travel	0.25 ± 0.1mm	

Diagram



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TS01 Series 6.0 × 6.0 SMD Tact Switch





Features

Improve mounting density of components on PC board. Reflow solderable. Contacts are completely sealed, enhancing reliability.

Packaged with a 12mm wide embossed taping.



Applications

For operating various mobile devices.

For operating various devices that require high density mounting such as mobile phones, communication devices, compact electronic devices.

Specification

Items		Standard	
Operating temperature range		- 20 to +70	
	Rating	50mA, 12V DC	
Electrical	Insulation resistance	100MΩ min. 100V DC	
performance	Dielectric strength	250V AC for 1 min.	
	Contact resistance	100mΩ max.	
Durability	Lifetime	30,000 Cycles, 50,000 Cycles	
Mechanical performance	Operating force	3:270 ± 70gf	
	Travel	0.30 ± 0.1mm	

Diagram







Improve mounting density of components on PC board. Reflow solderable.

Contacts are completely sealed, enhancing reliability.

Packaged with a 12mm wide embossed taping.





Applications

For operating various mobile devices.

For operating various devices that require high density mounting such as mobile phones, communication devices, compact electronic devices.

Specification

Items		Standard	
Operating temperature range		- 20 to +70	
	Rating	50mA, 12V DC	
Electrical	Insulation resistance	100MΩ min. 100V DC	
performance	Dielectric strength	250V AC for 1 min.	
	Contact resistance	100mΩ max.	
Durability	Lifetime	50,000 Cycles, 100,000 Cycles	
Mechanical performance	Operating force	1:100 ± 50gf, 2:160 ± 50gf, 3:260 ± 70gf	
	Travel	0.25 ± 0.1mm	

Diagram

	TSV-S
Dimensions	0.3 7.5±0.2 0.5max 4 0.5max 4 1.2 1.2 4.55 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2
Circuit Diagram	① [⊥] o② ③④ <u>_</u> <u>Cirguit Diagram</u>
Pad Layout	
	PCB Board

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TSH-VS Series 7.0 × 3.5 Side Push Tact Switch





the PC board. Reflow solderable. Packaged with a 16mm wide embossed taping.



Applications

Various portable electronic devices.

For operating various compact electronic devices such as mobile phones and communication devices, that require high density mounting. For operating various MP4, MP3.

Specification

Items		Standard	
Operating temperature range		- 20 to +70	
	Rating	50mA, 12V DC	
Electrical	Insulation resistance	100MΩ min. 100V DC	
performance	Dielectric strength	250V AC for 1 min.	
	Contact resistance	100mΩ max.	
Durability	Lifetime	30,000 Cycles, 50,000 Cycles	
Mechanical performance	Operating force	2:160 ± 50gf, 3:260 ± 70gf	
	Travel	0.25 ± 0.1mm	

Diagram

	TSH-VS	TSH-VN
Dimensions	7 1	$\begin{array}{c c} 7 \\ \hline \\$
Circuit Diagram	1)2 <u>Cirguit Diagram</u>	①② <u>Cirguit Diagram</u>
Pad Layout	e PCB Board	PCB Board





Snap-in type, which can be directly mounted on PC board. Some of output terminals can be also used as jumper leads, thus making circuit design easy. Available with anti-ESD grouond terminal. Standard knobs are available.





Applications

Operating switches in all types of electronic equipment such as audio devices, office devices, communication devices, measuring instruments, TVs, video recorders, automotive sets, etc.

Specification

Items		Standard	
Operating temperature range		- 20 to +70	
	Rating	50mA, 12V DC	
Electrical	Insulation resistance	100MΩ min. 100V DC	
performance	Dielectric strength	250V AC for 1 min.	
	Contact resistance	100mΩ max.	
Durability	Lifetime	50,000 Cycles, 100,000 Cycles	
Mechanical performance	Operating force	1:100 ± 50gf, 2:160 ± 50gf, 3:260 ± 70gf	
	Travel	0.25 ± 0.1mm	

Diagram

	TSVA~F	TSV-G	
Dimensions			
Circuit Diagram	$ \begin{array}{c} $	$ \begin{array}{c} $	
Pad Layout	<u>4.5±0.1</u> 7.0 <u>PCB Board</u>	4.5±0.1 7.0 PCB Board	

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Snap-in type, which can be directly mounted on PC board. Some of output terminals can be also used as jumper leads, thus making circuit design easy. Standard knobs are available. SMT Type Available.



Applications

Operating switches in all types of electronic equipment such as audio devices, office devices, communication devices, measuring instruments, TVs, video recorders, automotive sets, etc.

Specification

Items		Standard	
Operating temperature range		- 20 to +70	
	Rating	50mA, 12V DC	
Electrical	Insulation resistance	100MΩ min. 100V DC	
performance	Dielectric strength	250V AC for 1 min.	
	Contact resistance	100mΩ max.	
Durability	Lifetime	50,000 Cycles, 100,000 Cycles,	
Mechanical performance	Operating force	1:100 ± 50gf, 2:160 ± 50gf, 3:260 ± 70gf	
	Travel	0.30 ± 0.15mm	

Diagram

	TSQA	TSQB	TSQC
Dimensions	П	XW E0 12.5 12.5 14.1 0 0 0 0 0 0 0 0 0 0 0 0 0	
Circuit Diagram	©@ ©@ Cirguit Diagram	©© © Cirguit Diagram	©© ©© Cirguit Diagram
Pad Layout	DCB Board	PCB Board	PCP Roord
	PCB Board	PCB Board	PCB Board





Snap-in type, which can be directly mounted on PC board. Some of output terminals can be also used as jumper leads, thus making circuit design easy. Standard knobs are available. SMT Type Available.



Applications

Operating switches in all types of electronic equipment such as audio devices, office devices, communication devices, measuring instruments, TVs, video recorders, automotive sets, etc.

Specification

Items		Standard
Operating temperature range		- 20 to +70
	Rating	50mA, 12V DC
Electrical	Insulation resistance	100MΩ min. 100V DC
performance	Dielectric strength	250V AC for 1 min.
	Contact resistance	100mΩ max.
Durability	Lifetime	50,000 Cycles, 100,000 Cycles,
Mechanical performance	Operating force	1:100 ± 50gf, 2:160 ± 50gf, 3:260 ± 70gf
	Travel	0.30 ± 0.15mm

Diagram

	TSQG	TSQE	TSQF
Dimensions		$\begin{array}{c} 13.1 \\ \hline 0.120 \\ \hline 1.2 \\ \hline 1.3 \\ \hline 1.4 $	$\begin{array}{c} 13.1 \\ 12.0 \\ 1.7 \\ 1.7 \\ 1.7 \\ 1.2$
Circuit Diagram	©© ©© Cirguit Diagram	⊕o [⊥] o@ ③@ Cirguit Diagram	0∲@ ©@ <u>Cirguit Diagram</u>
Pad Layout	PCB Board	$\begin{array}{c} 13.0 \\ \hline 12.0 \\ \hline 2.8 \\$	130 130 130 130 130 130 130 130

* Please follow drawing of Approved Sheet that catalog drawing only for reference.

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Snap-in type, which can be directly mounted on PC board. Some of output terminals can be also used as jumper leads, thus making circuit design easy. Standard knobs are available.



Applications

Operating switches in all types of electronic equipment such as audio devices, office devices, communication devices, measuring instruments, TVs, video recorders, automotive sets, etc.

Specification

Items		Standard
Operating temperature range		- 20 to +70
	Rating	50mA, 12V DC
Electrical	Insulation resistance	100MΩ min. 100V DC
performance	Dielectric strength	250V AC for 1 min.
	Contact resistance	100mΩ max.
Durability	Lifetime	50,000 Cycles, 100,000 Cycles
Mechanical performance	Operating force	2:160 ± 50gf, 3:260 ± 70gf
	Travel	0.25 ± 0.1mm

Diagram

	TSX-G	TSX
Dimensions		
Circuit Diagram	ت مناطق المناطق المناطق المناطق المناطق ا	Cirguit Diagram 4-#1.0±0.05 hole
Pad Layout		



Package: B=Bulk RoHS & Lead Free

Operating Force: 2=160±50 gf 3=260±70 gf



Features

Some of output terminals can be also used as jumper leads, thus making circuit design easy. This switch is assembling from the P.C. board botton of surface

insert, the movement part in the frontage, which is suitable to switch's highly lowest environment.

Applications

Operating switches in all types of electronic equipment such as audio devices, office devices, communication devices, measuring instruments, TVs, video recorders, automotive sets, etc.

How to order

Λ

Specification

Items		Standard
Operating temperature range		- 20 to +70
	Rating	50mA, 12V DC
Electrical	Insulation resistance	100MΩ min. 100V DC
performance	Dielectric strength	250V AC for 1 min.
	Contact resistance	100mΩ max.
Durability	Lifetime	50,000 Cycles, 100,000 Cycles
Mechanical performance	Operating force	2:160 ± 50gf, 3:260 ± 70gf
	Travel	0.25 ± 0.1mm

Diagram

	TSAU	
Dimensions		
Circuit Diagram	Cirguit Diagram	
Pad Layout	PCB Board	





Reflow solderable. Packaged with a 16mm wide embossed taping.



Applications

Operating switches in all types of electronic equipment such as audio devices, office devices, communication devices, measuring instruments, TVs, video recorders, automotive sets, etc.

Specification

Items		Standard
Operating temperature range		- 20 to +70
	Rating	50mA, 12V DC
Electrical	Insulation resistance	100MΩ min. 100V DC
performance	Dielectric strength	250V AC for 1 min.
	Contact resistance	100mΩ max.
Durability	Lifetime	50,000 Cycles, 100,000 Cycles
Mechanical performance	Operating force	2:160 ± 50gf, 3:260 ± 70gf
	Travel	0.25 ± 0.1mm

Diagram

	TSSA~D&I	TSS-G
	6.2 + + + + + + + + + + + + + + + + + + +	6.2 10.0mm 0.0mm A 10 00 8.0 B 4.7 7.4 6.4 C 104 9.4 8.4 D 8.0 7.0 6.0
Dimensions	XVW SO #3.5 SO # # # # # # # # # # # # # # # # # # #	
Circuit Diagram	©© ©© Cirguit Diagram	©© © <u>Cirguit Diagram</u>
Pad Layout	5-etizassihole PCB Board	5-#itasshole <u>PCB Board</u>





Reflow solderable. Available with anti-ESD ground terminal. Packaged with a 16mm wide embossed taping.



Applications

Operating switches in all types of electronic equipment such as audio devices, office devices, communication devices, measuring instruments, TVs, video recorders, automotive sets, etc.

Specification

Items		Standard
Operating temperature range		- 20 to +70
Electrical performance	Rating	50mA, 12V DC
	Insulation resistance	100MΩ min. 100V DC
	Dielectric strength	250V AC for 1 min.
	Contact resistance	100mΩ max.
Durability	Lifetime	50,000 Cycles, 100,000 Cycles
Mechanical performance	Operating force	2:160 ± 50gf, 3:260 ± 70gf
	Travel	0.25 ± 0.1mm

Diagram



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