

# KSC Tact Switch for SMT



## KSC

Miniature tact switch designed to be surface mounted (SMT) on PCB, single pole, normally open contact.

Available in 4 versions:

- KSC1: without actuator
- KSC2: with short soft actuator
- KSC3: with short hard actuator
- KSC4: with long soft actuator
- KSC5: with rocker option
- See page A-25
- KSC6: with long, soft actuation

## Main features

- With or without actuator
- Positive tactile feedback
- Operating force from 1.1N (110 grams) to 5.5N (550 grams)
- Typical travel from 0.3 mm (0.118) to 0.75 mm (0.295)
- Tin plated terminals for easy soldering
- Gullwing or J-type terminals
- Adapted to the main soldering methods of surface mounted components (SMT)
- This product is totally washable and sealed according to EIA – RS-448-2 test and IP 67 (dust tight, protected against the effects of immersion in water)
- Compatible with the major pick-and-place machines
- Delivered in thermoformed tape and reels of 2000 pieces, KSC4 of 1000 pieces, KSC5 of 1000 pieces and KSC6 of 750 pieces

## Note: Identification

- The 4th and 5th digits of KSC code are stamped on the metallic top plate
- The other characteristics of the code can actually be seen on the product.

Example



2 = 1.6N (160 grams)  
and 200 k operations

1 = temperature – 40°C to + 85°C

## Construction

Function	Momentary action
Contact arrangement	1 make contact = SPST, NO
Terminals	PC pins: J-type or gullwing-type
Mounting	SMT (surface mount technology)

## Electrical data

	S = silver	G = gold
Switching power min./max.	1 VA	0.2 VA
Switching voltage min./max.	20 mV/50 V	20 mV/50 V
Switching current min./max.	1 mA/50 mA	1 mA/10 mA
Dielectric strength (50 Hz, 1 Min.)	≧ 250 V	≧ 250 V
Operating life with max. switching power	See table next page	
Contact resistance, initial	≧ 100 mΩ	≧ 100 mΩ
Insulation resistance (100 V)	≧ 10 <sup>9</sup> Ω	≧ 10 <sup>9</sup> Ω
Bounce-time	≧ 1 ms	≧ 1 ms

## Mechanical data

Total travel	See table next page
Max. operating force	40N (4000 grams)

## Further data

	Silver	Gold
Contact material	Silver	Gold
Insulation material	See table next page	
Operating temperature	– 40°C to + 85°C	– 40°C to + 125°C
Storage temperature	– 55°C to + 85°C	– 55°C to + 125°C

Packaging:

KSC1, KSC2 and KSC3 are delivered on continuous tape in reels of 2000 pieces, KSC4 in reels of 1000 pieces. Dimensions of reels according to EIA RS481 or IEC 2863. External diameter 330 mm ± 2 mm.

Soldering:

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

Flow soldering

- The KSC terminals being SnPb plated over a Nickel barrier, the use of slightly activated flux is suitable.
- Soldering on double wave machine. The bath temperature is generally 255°C ± 5°C and soldering time < 5 sec.
- Cleaning according to usual washing processes.

Vapor phase reflow soldering	Temperature: 215°C; Duration: up to 60 seconds
Infrared reflow soldering	Temperature: 200°C, with peak of 230°C during 10 to 15 seconds

Conductive inks  
Silver based inks can be used for the connection of KSC on PC board. Curing conditions depend on the type of conductive ink.

Ordering code: see page A-24.

# KSC Tact Switch for SMT

Selection guide					
	KSC1	KSC2	KSC3	KSC4	KSC6
Actuator	without	short, soft	short, hard	long, soft	long, soft
Actuator material	–	silicone	thermoplastic	silicone	thermoplastic
Housing material	thermoplastic	thermoplastic	thermoplastic	thermoplastic	thermoplastic
Operating force (Newton)	See table below.				
Travel min./max. mm (inch)					
Life expectancy (k operations)					
Total height above P.C.B	2.5 mm (0.0984 inch)	3.5 mm (0.138 inch)	3.5 mm (0.138 inch)	5.2 mm (0.205 inch)	7.7 mm
EIA 448-2 Tightness/washability	YES	YES	YES	YES	YES
Gold: high temperature version	YES	YES	YES	YES	YES
Terminal plating	tin plated	tin plated	tin plated	tin plated	tin plated
Terminal type: G (gullwing), J (J type)	G or J	G or J	G or J	G or J	G or J
Soldering process infrared/double wave/vapor phase max. 265°C/5 seconds	YES	YES	YES	YES	YES

## Operating force / operating life / travel table

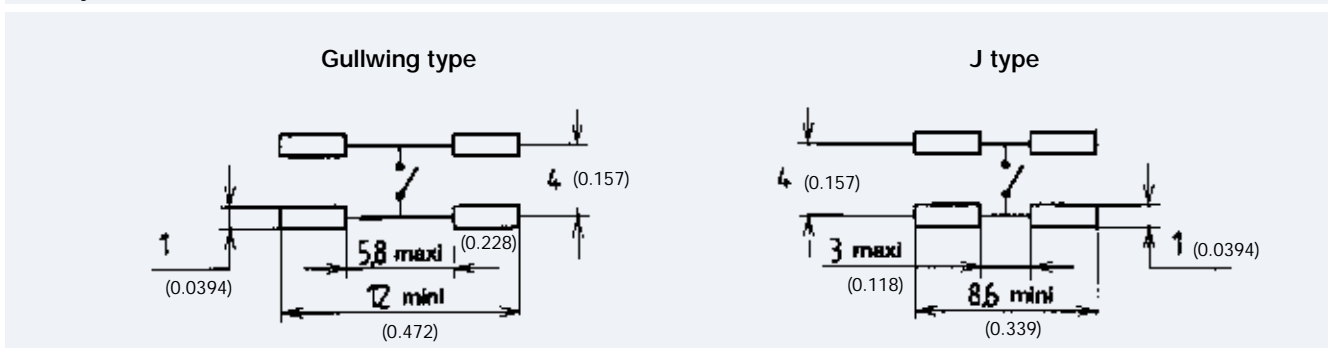
Type <sup>1)</sup>	Operating force FA <sup>2)</sup> N (grams)	Operating life k operations	Travel to make mm (inch)
KSC121	1.6 (160)	200	0.25 (0.00984) <sup>+0.4</sup> <sub>-0</sub>
KSC141	3.0 (300)	200	0.30 (0.0118) <sup>+0.4</sup> <sub>-0</sub>
KSC151	5.5 (5500)	100	0.30 (0.0118) <sup>+0.4</sup> <sub>-0</sub>
KSC221	2.0 (200)	500	0.35 (0.0138) <sup>+0.3</sup> <sub>-0.1</sub>
KSC241	3.5 (350)	300	0.40 (0.0157) <sup>+0.4</sup> <sub>-0.1</sub>
KSC321	1.6 (160)	500	0.20 (0.00787) <sup>+0.3</sup> <sub>-0</sub>
KSC341	3.0 (300)	300	0.20 (0.00787) <sup>+0.3</sup> <sub>-0</sub>
KSC351	5.5 (550)	100	0.25 (0.00984) <sup>+0.3</sup> <sub>-0</sub>
KSC401 (50 shore)	1.1 (110)	5000	0.50 (0.0197) <sup>+0.25</sup> <sub>-0.25</sub>
KSC411	1.4 (140)	1000	0.35 (0.0138) <sup>+0.15</sup> <sub>-0.15</sub>
KSC421	1.7 (170)	1000	0.50 (0.0197) <sup>+0.25</sup> <sub>-0.25</sub>
KSC441	3.2 (320)	300	0.75 (0.0295) <sup>+0.25</sup> <sub>-0.25</sub>
KSC621	1.6 (160)	500	0.20 (0.00787) <sup>+0.35</sup> <sub>-0</sub>
KSC641	3.0 (300)	300	0.20 (0.00787) <sup>+0.3</sup> <sub>-0</sub>

1) Last digit: 1 = silver contacts, 3 = gold contacts

2) Tolerance of operating force FA is ± 25%

**Note:** Operating life is given for tested forces corresponding to the actuator force value × 2.

## PCB layout



# KSC Tact Switch for SMT

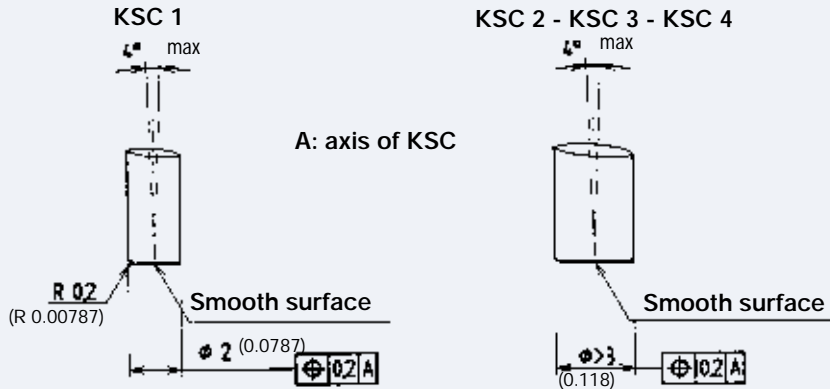
## Dimensional Drawings

	J type: internal bending	Gullwing type: external bending
KSC1		
KSC2		
KSC3		
KSC4		
KSC6		

# KSC Tact Switch for SMT

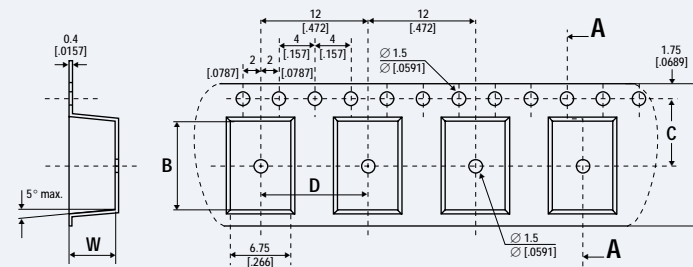
## Dimensional Drawings Actuator

Recommended dimensions



## Dimensional Drawings Packaging

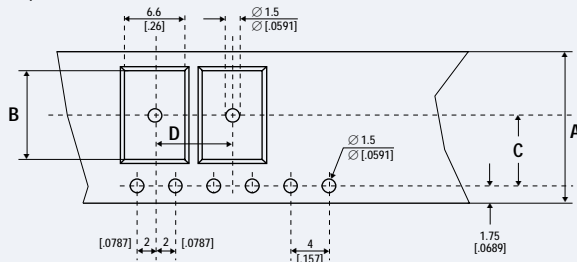
KSC4



KSC6



KSC1, KSC2, KSC3



	W
KSC1	2.9 mm (0.114 inch)
KSC2	3.7 mm (0.146 inch)
KSC3	3.7 mm (0.146 inch)
KSC4	5.5 mm (0.217 inch)
KSC6	7.7 mm (0.303 inch)

		A	B	C	D
KSC1, KSC2, KSC3	G type	16 (0.630)	10.4 (0.409)	7.5 (0.295)	8 (0.315)
	J type	12 (0.472)	7.2 (0.283)	5.5 (0.217)	8 (0.315)
KSC4	G type	16 (0.630)	10.5 (0.413)	7.5 (0.295)	12 (0.472)
	J type	16 (0.630)	7.3 (0.287)	7.5 (0.295)	12 (0.472)
KSC6	G & J	16 (0.630)	10.5 (0.413)	7.5 (0.295)	12 (0.472)

# KSC5 Tact Switch with Rocker Option for SMT

**NEW**



The KSC5, normally opened miniature Tact switch, is an extension of the broad KSC SMT series.

The KSC5 is based on the same external dimensions as the standard version and can be actuated either from the top or from the side. This eliminates the need for a right angle mechanism or an additional PCB.



## Main Features

- 2 actuation modes: axial and lateral
- Tin plated terminals for an easy and reliable soldering
- Gullwing or J-Type terminals
- Totally adapted to the main soldering methods of Surface Mounted Components
- This product is totally washable and sealed according to EIA-RS-448-2 test and IP 67 (dust tight, protected against the effects of immersion in water)
- Compatible with the major automatic insertion machines
- Delivered in thermoformed tape and reels of 1,000 pieces

## Applications

- Applications with:
  - Rocking actuations
  - Rotating actuations
  - Side actuations
- Applications where the PCB is perpendicular to the front panel

Construction	
Function	Momentary
Contact arrangement	1 make contact = SPST, NO
Terminals	J-type or Gullwing-type
Mounting	SMT (surface mount technology)

Electrical data	Silver plating	Gold plating
Switching power min./max.	1 VA	0.2 VA
Switching voltage min./max.	20 mV/50 V	20 mV/50V
Switching current min./max	1mA/50mA	1mA/10mA
Dielectric strength (50Hz, 1 Min.)	> 250 V	> 250 V
Operating life with max. switching power	See table below	
Contact resistance, initial	< 100 mΩ	< 100 mΩ
Insulation resistance (100V)	> 10 <sup>9</sup> Ω	> 10 <sup>9</sup> Ω
Bounce time	< 1 ms	< 1 ms

Mechanical data	
Operating force and travel	See table below
Maximum applied force	40 N (axial)      10 N (lateral)

Further data	Silver plating	Gold plating
Contact material	Silver plating	Gold plating
Operating temperature	- 40°C to + 85°C	- 40°C to + 85°C
Storage temperature	- 55°C to + 85°C	- 55°C to + 85°C
Solderability	Vapor phase reflow, infrared reflow, Double wave	

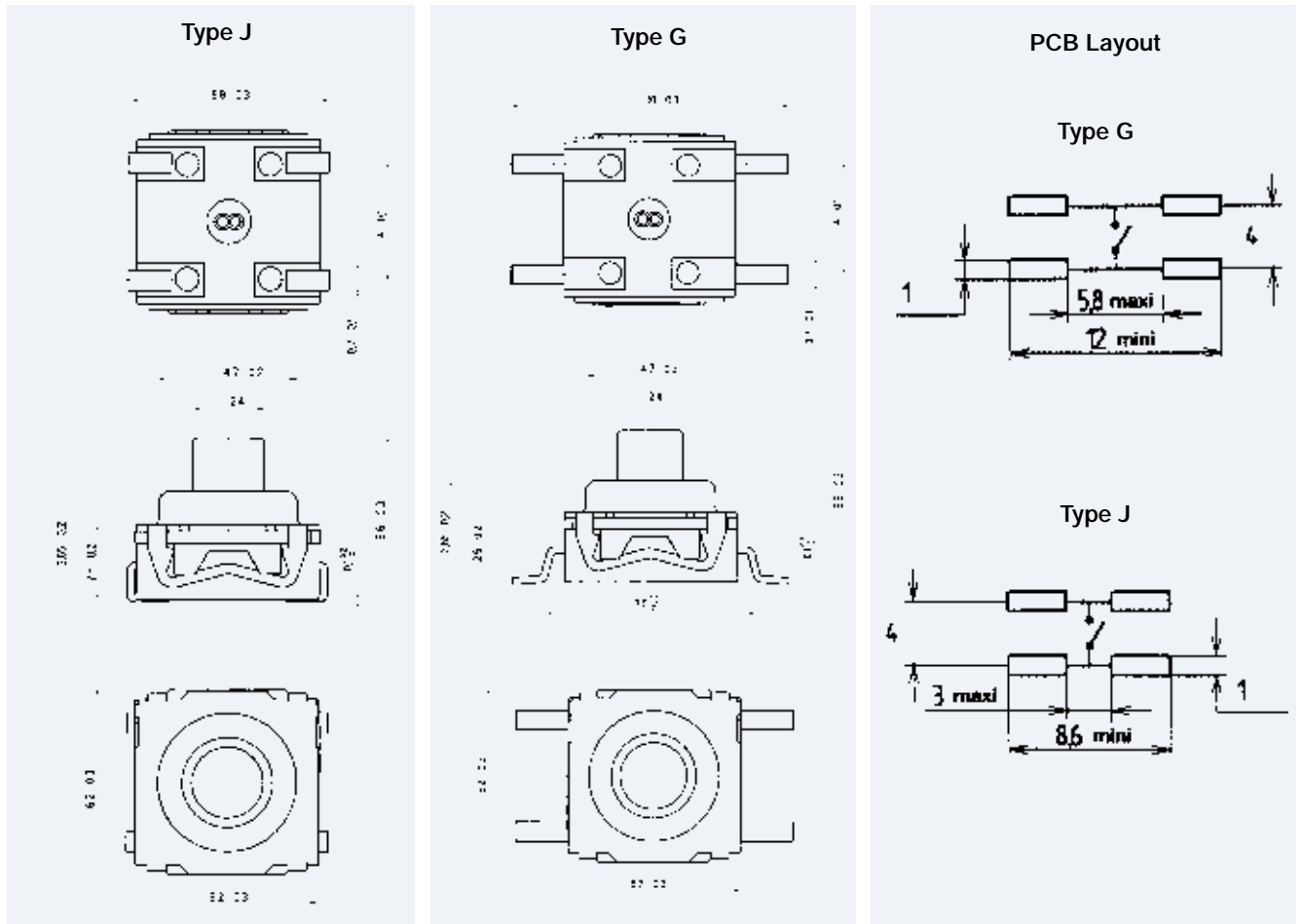
**Packaging**  
The KSC5 is delivered on continuous tape in reels of 1000 pieces, 16 mm width, 330 mm external diameter. Other dimensions according to EIA-RS-481 Standard.

Operating force / Operating life / Travel table		KSC521G	KSC541G
Operating force	Axial FA N (grams) ± 25%	2.0 (200)	3.5 (300)
	Lateral FL N (grams) ± 30%	2.0 (200)	3.0 (300)
	Travel to make mm		
Axial mm		0.3 ± 0.15	0.3 ± 0.15
	Lateral mm	0.5 ± 0.25	0.5 ± 0.25
Life expectancy, K cycles	Axiale	100,000	100,000
	Lateral		10,000
			10,000

Ordering code		1	2	3	4	5	6
	Example:	KS	C	5	2	1	G
1	Designation: KS	→	→	→	→	→	→
2	Type: C	→	→	→	→	→	→
3	Actuator: 5 = actuator with rocking option	→	→	→	→	→	→
4	Operating force: 2 = 2N; 4 = 3N	→	→	→	→	→	→
5	Operating temperature: 1 = 40°C to +85°C 3 = 40°C to +125°C	→	→	→	→	→	→
6	Terminals: J = J type, G = gullwing	→	→	→	→	→	→

# KSC5 Tact Switch with Rocker Option for SMT

## Dimensional Drawings



## Embossed tape

