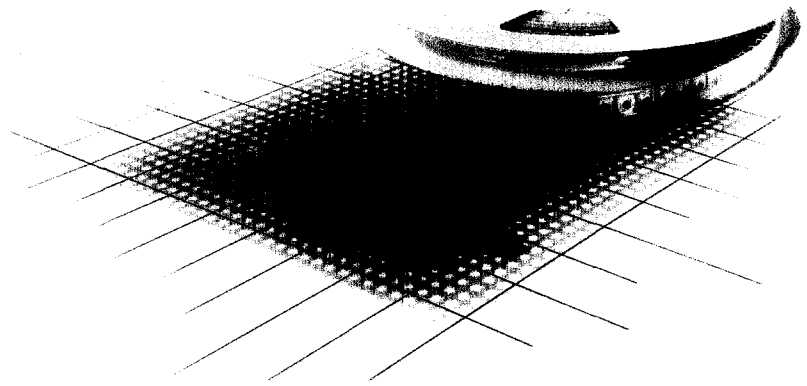


KSC Miniature Tact Switch for SMT



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

2 types of KSC4:

- standard with yellow actuator: 70 shore
- low force with red actuator: 50 shore

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 [.118 inch] to 0.75 mm [.295 inch]
- 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)
- Can be used in the major automatic insertion machines
- Delivered in thermoformed tape and reels of 2000 pieces, KSC4 of 1000 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 ⁹ Ω	≧ 10 ⁹ Ω
Bounce-time	≧ 1 ms	≧ 1 ms

Mechanical data

Total travel	See table next page
Max. operating force	40N [4000 grams]

Further data

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
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Infrared reflow soldering	Temperature: 200°C, with peak of 230°C during 10 to 15 seconds
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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.
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Ordering code: see page A-17.

Selection guide

	KSC1	KSC2	KSC3	KSC4
Actuator	without	short, soft	short, hard	long, soft
Actuator material	-	silicone	thermoplastic	silicone
Housing material	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 [.0984 inch]	3.5 mm [.138 inch]	3.5 mm [.138 inch]	5.2 mm [.205 inch]
EIA 448-2	YES	YES	YES	YES
Tightness/washability				
Gold: high temperature version	YES	YES	YES	YES
Terminal plating	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
Soldering process infrared/double wave/vapor phase max. 265°C/5 seconds	YES	YES	YES	YES

Operating force / operating life / travel table

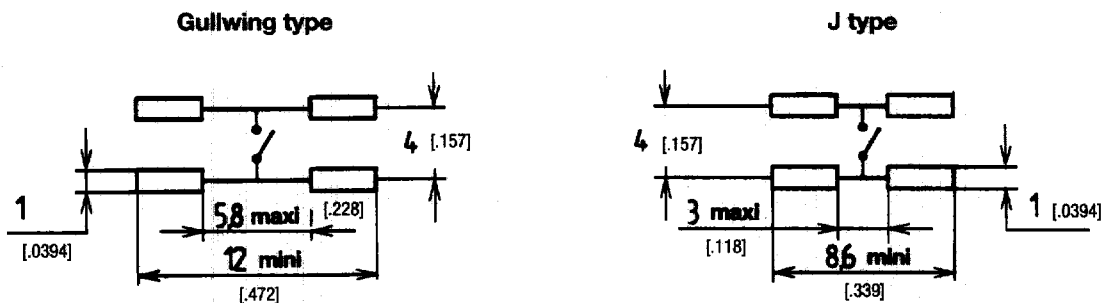
Type ¹⁾	Operating force FA ²⁾ N [grams]	Operating life k operations	Travel to make mm [inch]
KSC121	1.6 [160]	200	0.25 [.00984] ^{+0.4} ₋₀
KSC141	3.0 [300]	200	0.30 [.0118] ^{+0.4} ₋₀
KSC151	5.5 [550]	100	0.30 [.0118] ^{+0.4} ₋₀
KSC221	2.0 [200]	500	0.35 [.0138] ^{+0.3} _{-0.1}
KSC241	3.5 [350]	300	0.40 [.0157] ^{+0.4} _{-0.1}
KSC321	1.6 [160]	500	0.20 [.00787] ^{+0.3} ₋₀
KSC341	3.0 [300]	300	0.20 [.00787] ^{+0.3} ₋₀
KSC351	5.5 [550]	100	0.25 [.00984] ^{+0.3} ₋₀
KSC401 (50 shore)	1.1 [110]	5000	0.50 [.0197] ^{+0.25} _{-0.25}
KSC411	1.4 [140]	1000	0.35 [.0138] ^{+0.15} _{-0.15}
KSC421	1.7 [170]	1000	0.50 [.0197] ^{+0.25} _{-0.25}
KSC441	3.2 [320]	300	0.75 [.0295] ^{+0.25} _{-0.25}

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

²⁾ Tolerance of operating force FA is ± 25%; operating force values of gold contact types higher: + 0.3N [30 grams]

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

PCB layout



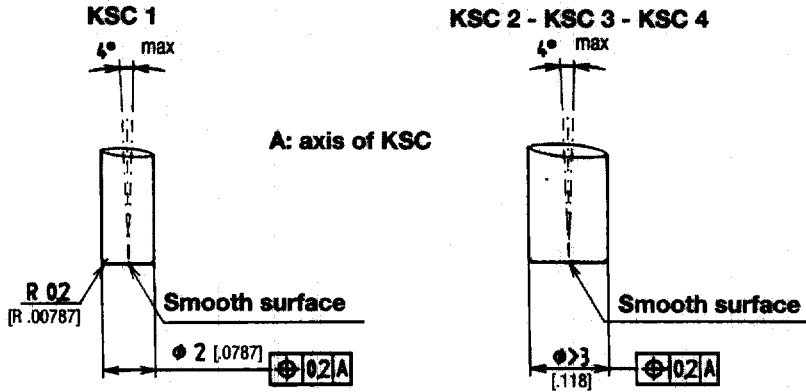
KSC Miniature Tact Switch for SMT

Dimensional Drawings · Dimensions in mm [inch]

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

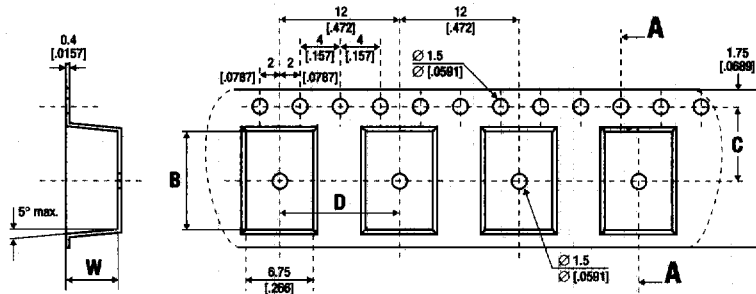
Dimensional Drawings Actuator - Dimensions in mm [inch]

Recommended dimensions

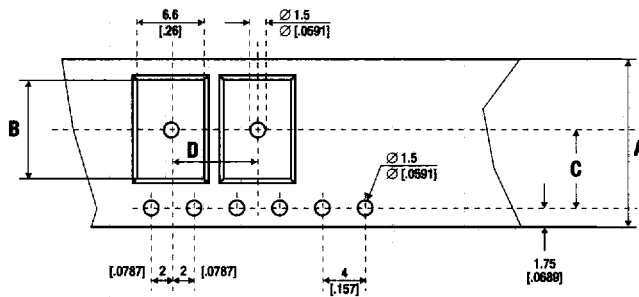


Dimensional Drawings Packaging - Dimensions in mm [inch]

KSC4



KSC1, KSC2, KSC3



	W
KSC1	2.9 mm [.114 inch]
KSC2	3.7 mm [.146 inch]
KSC3	3.7 mm [.146 inch]
KSC4	5.5 mm [.217 inch]

		A	B	C	D
KSC1, KSC2, KSC3	G type	16 [.630]	10.4 [.409]	7.5 [.295]	8 [.315]
	J type	12 [.472]	7.2 [.283]	5.5 [.217]	8 [.315]
KSC4	G type	16 [.630]	10.5 [.413]	7.5 [.295]	12 [.472]
	J type	16 [.630]	7.3 [.287]	7.5 [.295]	12 [.472]

Ordering code

		1	2	3	4	5	6	7
	Example:	KS	C	4	2	1	J	B
1	Designation: KS	→						
2	Type: C (for SMT)		→					
3	Actuator: 1 = hard actuator; 2 = short, soft actuator; 3 = short, hard actuator; 4 = long, soft actuator			→				
4	Operating force and operating life: 0, 1, 2, 4, 5 see table page A-15: operating force				→			
5	Ambient temperature: 1 = -40°C to +85°C (low, silver contacts), 3 = -40°C to +125°C (high, gold contacts)					→		
6	Terminals: J = J type, G = gullwing						→	
7	Housing material: B = Thermoplastic							→