

KSA LFT

rev. G

Ref. / PS-KSA-152

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Approvals:

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Date

Revision record:

Revision	Date	Comments
-	Dec. 4 th , 2006	Creation
A	April 19 th , 2007	Update : • Designation of the KSAOV711LFT without bracket • Mechanical data : - Comments on mechanical data.. - Err on KSAOV711LFT without bracket version. • Flowing mixed gas corrosion test only for Au version. (according to ECR N°1077)
B	Nov. 28 th , 2007	Update : • Logo C&K (according to ECR 1399) • Process environment : Washing process (according to ECR 1653)
C	May 7 th , 2008	Update : • KSA OV 211 LFT connexions 3.3 version added. (according to ECR 1941)
D	September 25 th , 2008	Update : • Mechanical data : switching force (according to ECR 2735) • UL data suppressed (according to ECR 2324)
E	March 18 th , 2008	Update : • Product N° & drawing N° of the KSA OV 511 LFT version updated. (according to ECR 3488) • KSA 1A 431 LFT version suppressed (according to ECR 517) • KSA OA 511 LFT 2 connexions at right angle version suppressed (according to ECR 1790)
F	August 17 th , 2010	Update : • Table pages 5 to 9 (according to ECR 2606, 3330) • KSA OV 611 LFT connexions 3.3 versions added (according to ECR 5848)
G	July 4 th , 2012	Update : • KSA OV 411 LFT connexions 3.3 without bracket version added (according to ECR 8294)

Summary:

1. Description / Main Features
2. Construction
3. Electrical data
4. Mechanical data
5. Physical data
6. Operating environment
7. Additional data : storage and handling environment
8. Additional data : process environment
9. Applicable norms

Note: This specification, attached documents and attached drawings cannot be communicated to anybody without written agreement of C&K.

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1 - Description



The KSA LFT (Lead Free Tact Switch) is a miniature tact switch with single pole, single throw and normally open contact designed for automatic or manual insertion.

Main Features

- Short, hard plastic actuator
- Good tactile feedback
- Terminal plating: LFT (lead free tin)
- ROHS Compliance
- Compatible with lead free process (wave or hand soldering only).
- Insertion:
 - M: manual
 - A : automatic
 - V : vertical
- Available with curved terminals to ensure self-retention on the printed circuit board in manual insertion (M version), or with straight terminals for use in automatic insertion machines (A version).
- Optional : ground terminal
- Marking :
 - On the packaging box :
 - Manufacturer's symbol
 - Component designation
 - EIA date code

2 - Construction

Function	Momentary action
Contact type	SPST, Normally Open
Terminals	Through hole

3 - Electrical data

	Contact plating : Ag or Au
Maximum power	▪ KSA Ag : 1.0 VA ▪ KSA Au : 0.2 VA
Min/max voltage	20 mVdc – 32 Vdc
Min/max current	▪ KSA Ag : 1.0 mA – 50 mA ▪ KSA Au : 1.0 mA – 10 mA
Dielectric strength	≥ 250 Vrms
Contact resistance	≤ 100 m Ω
Insulation resistance	Initial measurement : ≥ 1 G Ω After damp heat : ≥ 10 M Ω
Bounce time	≤ 1 ms

4 - Mechanical data (note: ▼ critical product characteristics)

Mechanical data of the product before soldering process. Variations of these characteristics can be observed after soldering process.

Switching force (Fa) ▼	See table pages 5 to 8
Tactile feeling ($\Delta\%$) ▼	See table pages 5 to 8
Return force (Frr) ▼	See table pages 5 to 8
Electrical travel (Te)	See table pages 5 to 8
Simultaneity	≤ 0.05 mm

5 - Physical data

Dimensions & layout	According to drawing (drawing N° on the table pages 5 to 8)
Mass	0.25 g $\pm$ 0.1

6 - Operating environment

Operating temperatures	- 40°C / + 85°C
Relative humidity	90 to 96 % According to NF EN 60068-2-30
Operating life	100 Kcycles min for all versions. <i>Some versions existing with extended life time.</i>
Vibrations	10-500 Hz / 10 g / 3 axis No discontinuity > 1 μ s According to NF EN 60068-2-6
Mechanical shocks	$\frac{1}{2}$ sinusoidal / 50 g / 11 ms 3 shocks in each direction of the 3 axis No discontinuity > 1 μ s According to NF EN 60068-2-27
Overload	40 N max

Flowing mixed gas corrosion test - only for gold version -	Gas composition :
	- H ₂ S : 0.01 ± 0.005 ppm
	- NO ₂ : 0.2 ± 0.02 ppm
	- Cl ₂ : 0.01 ± 0.005 ppm
	- SO ₂ : 0.2 ± 0.02 ppm
	Temperature: 25°C / HR: 75% / Duration: 10 days.
	According to NF EN 60068-2-60 method 4
7 - <u>Additional data : storage and handling environment</u>	
Packaging conditions	Delivered in packaging tubes of 65 pieces for automatic insertion or in packaging boxes of 500 pieces for manual insertion (250 for KSAV).
Transport conditions	According to specification NF H00-060
Storage temperatures	- 40°C (10 days) / + 85°C (4 days)
8 - <u>Additional data : process environment</u>	
Soldering process	Single or double wave soldering process According to lead free process (C&K Procedure : PS-LF-002)
Washing process	Compatible on terminations only
IP	IP 60
Shear test (switch/PCB)	10 N
9 - <u>Applicable norms</u>	
Testing procedure (C&K spec)	Proc-essai 16 <i>Except requirements included in this spec.</i>
Legal norm (EHS)	C&K procedure

PRODUCT SPECIFICATION

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Designation	Product N°	Drawing N°	Switching force Fa (N)	Tactile feeling (N)	Return force Frr (N)	Electrical travel Te (mm)	Contact plating
KSA OM LFT	KSA OM 211 LFT	Y 33 A21 115 FP LFT	1.00 N ≤ Fa ≤ 1.80 N	≥ 0.35	≥ 0.35	0.50 ± 0.20	Silver
	KSA OM 311 LFT	Y 33 A31 115 FP LFT	1.00 N ≤ Fa ≤ 1.80 N	≥ 0.35	≥ 0.35	0.50 ± 0.20	Silver
	KSA OM 331 LFT	Y 33 A33 115 FP LFT	1.0 N ≤ Fa ≤ 1.80 N	≥ 0.35	≥ 0.35	0.50 ± 0.20	Gold
	KSA OM 411 LFT	Y 33 A41 115 FP LFT	2.25 N ≤ Fa ≤ 3.75 N	≥ 0.80	≥ 0.5	0.60 ± 0.20	Silver
	KSA OM 431 LFT	Y 33 A43 115 FP LFT	2.25 N ≤ Fa ≤ 3.75 N	≥ 0.80	≥ 0.5	0.60 ± 0.20	Gold
	KSA OM 511 LFT	Y 33 A51 115 FP LFT	3.50 N ≤ Fa ≤ 6.50 N	≥ 1.50	≥ 1.2	0.70 ± 0.20	Silver
	KSA OM 531 LFT	Y 33 A53 115 FP LFT	3.50 N ≤ Fa ≤ 6.50 N	≥ 1.50	≥ 1.2	0.70 ± 0.20	Gold
	KSA OM 511 Fr ≥ 2N LFT	Y 33 A71 115 FP LFT	3.50 N ≤ Fa ≤ 6.50 N	≥ 1.50	≥ 2	0.70 ± 0.20	Silver
	KSA OM 911 LFT	Y 33 A91 115 FP LFT	2.25 N ≤ Fa ≤ 3.75 N	≥ 0.80	≥ 0.5	0.60 ± 0.20	Silver
	KSA OM 931 LFT	Y 33 A93 115 FP LFT	2.25 N ≤ Fa ≤ 3.75 N	≥ 0.80	≥ 0.5	0.60 ± 0.20	Gold
KSA OM LFT Actuator : 2.9	KSA OM 411 LFT Actuator : 2.9	Y 33 A41 105 FP LFT	2.25 N ≤ Fa ≤ 3.75 N	≥ 0.80	≥ 0.5	0.60 ± 0.20	Silver

Designation	Product N°	Drawing N°	Switching force Fa (N)	Tactile feeling (N)	Return force Frr (N)	Electrical travel Te (mm)	Contact plating
KSA 1M LFT	KSA 1M 211 LFT	CU 33 M01 016 FP	1.00 N ≤ Fa ≤ 1.80 N	≥ 0.35	≥ 0.35	0.50 ± 0.20	Silver
	KSA 1M 331 LFT		1.00 N ≤ Fa ≤ 1.80 N	≥ 0.35	≥ 0.35	0.50 ± 0.20	Gold
	KSA 1M 411 LFT		2.25 N ≤ Fa ≤ 3.75 N	≥ 0.80	≥ 0.5	0.60 ± 0.20	Silver
	KSA 1M 431 LFT		2.25 N ≤ Fa ≤ 3.75 N	≥ 0.80	≥ 0.5	0.60 ± 0.20	Gold
	KSA 1M 511 LFT		3.50 N ≤ Fa ≤ 6.50 N	≥ 1.50	≥ 1.2	0.70 ± 0.20	Silver
	KSA 1M 531 LFT		3.50 N ≤ Fa ≤ 6.50 N	≥ 1.50	≥ 1.2	0.70 ± 0.20	Gold
	KSA 1M 911 LFT		2.25 N ≤ Fa ≤ 3.75 N	≥ 0.80	≥ 0.5	0.60 ± 0.20	Silver
	KSA 1M 311 LFT		1.00 N ≤ Fa ≤ 1.80 N	≥ 0.35	≥ 0.35	0.50 ± 0.20	Silver
KSA 1M LFT Actuator : 2.9	KSA 1M 211 LFT Actuator : 2.9	CU 33 M01 014 FP	1.00 N ≤ Fa ≤ 1.80 N	≥ 0.35	≥ 0.35	0.50 ± 0.20	Silver
KSA OA LFT	KSA OA 211 LFT	CU 33 M01 112 FP	1.00 N ≤ Fa ≤ 1.80 N	≥ 0.35	≥ 0.35	0.50 ± 0.20	Silver
	KSA OA 331 LFT		1.00 N ≤ Fa ≤ 1.80 N	≥ 0.35	≥ 0.35	0.50 ± 0.20	Gold
	KSA OA 411 LFT		2.25 N ≤ Fa ≤ 3.75 N	≥ 0.80	≥ 0.5	0.60 ± 0.20	Silver
	KSA OA 431 LFT		2.25 N ≤ Fa ≤ 3.75 N	≥ 0.80	≥ 0.5	0.60 ± 0.20	Gold
	KSA OA 511 LFT		3.50 N ≤ Fa ≤ 6.50 N	≥ 1.50	≥ 1.2	0.70 ± 0.20	Silver
	KSA OA 531 LFT		3.50 N ≤ Fa ≤ 6.50 N	≥ 1.50	≥ 1.2	0.70 ± 0.20	Gold
KSA 1A LFT Actuator : 2.9	KSA OA 931 LFT	CU 33 M01 116 FP	2.25 N ≤ Fa ≤ 3.75 N	≥ 0.80	≥ 0.5	0.60 ± 0.20	Gold
	KSA 1A 211 LFT Actuator : 2.9		1.00 N ≤ Fa ≤ 1.80 N	≥ 0.35	≥ 0.35	0.50 ± 0.20	Silver

Designation	Product N°	Drawing N°	Switching force Fa (N)	Tactile feeling (N)	Return force Frr (N)	Electrical travel Te (mm)	Contact plating
KSA 1A LFT	KSA 1A 211 LFT	CU 33 M01 114 FP	1.00 N ≤ Fa ≤ 1.80 N	≥ 0.35	≥ 0.35	0.50 ± 0.20	Silver
	KSA 1A 331 LFT		1.0 N ≤ Fa ≤ 1.80 N	≥ 0.35	≥ 0.35	0.50 ± 0.20	Gold
	KSA 1A 511 LFT		3.50 N ≤ Fa ≤ 6.50 N	≥ 1.50	≥ 1.2	0.70 ± 0.20	Silver
	KSA 1A 531 LFT		3.50 N ≤ Fa ≤ 6.50 N	≥ 1.50	≥ 1.2	0.70 ± 0.20	Gold
KSA OV LFT	KSA OV 211 LFT	CU 33 M14 216 FP	1.00 N ≤ Fa ≤ 1.80 N	≥ 0.35	≥ 0.35	0.50 ± 0.20	Silver
	KSA OV 311 LFT		1.00 N ≤ Fa ≤ 1.80 N	≥ 0.35	≥ 0.35	0.50 ± 0.20	Silver
	KSA OV 331 LFT		1.00 N ≤ Fa ≤ 1.80 N	≥ 0.35	≥ 0.35	0.50 ± 0.20	Gold
	KSA OV 411 LFT		2.25 N ≤ Fa ≤ 3.75 N	≥ 0.80	≥ 0.5	0.60 ± 0.20	Silver
	KSA OV 431 LFT		2.25 N ≤ Fa ≤ 3.75 N	≥ 0.80	≥ 0.5	0.60 ± 0.20	Gold
	KSA OV 511 LFT		3.50 N ≤ Fa ≤ 6.50 N	≥ 1.50	≥ 1.2	0.70 ± 0.20	Silver
	KSA OV 531 LFT		3.50 N ≤ Fa ≤ 6.50 N	≥ 1.50	≥ 1.2	0.70 ± 0.20	Gold
	KSA OV 911 LFT		2.25 N ≤ Fa ≤ 3.75 N	≥ 0.80	≥ 0.5	0.60 ± 0.20	Silver
	KSA OV 931 LFT		2.25 N ≤ Fa ≤ 3.75 N	≥ 0.80	≥ 0.5	0.60 ± 0.20	Gold
	KSA OV 911 LFT Connexions : 2.7 bracket for PCB 1mm		2.25 N ≤ Fa ≤ 3.75 N	≥ 0.80	≥ 0.5	0.60 ± 0.20	Silver
KSA OV LFT Connexions : 3.3	KSA OV 211 LFT Connexions : 3.3	CU 33 M14 218 FP	1.00 N ≤ Fa ≤ 1.80 N	≥ 0.35	≥ 0.35	0.50 ± 0.20	Silver
	KSA OV 331 LFT Connexions : 3.3		N ≤ Fa ≤ 1.80 N	≥ 0.35	≥ 0.35	0.50 ± 0.20	Gold
	KSA OV 411 LFT Connexions : 3.3		2.25 N ≤ Fa ≤ 3.75 N	≥ 0.80	≥ 0.5	0.60 ± 0.20	Silver
	KSA OV 511 LFT Connexions : 3.3		3.50 N ≤ Fa ≤ 6.50 N	≥ 1.50	≥ 1.2	0.70 ± 0.20	Silver
	KSA OV 611 LFT Connexions : 3.3		4.20 N ≤ Fa ≤ 6.50 N	≥ 1.50	≥ 1.2	0.70 ± 0.20	Silver

Designation	Product N°	Drawing N°	Switching force Fa (N)	Tactile feeling (N)	Return force Frr (N)	Electrical travel Te (mm)	Contact plating
KSA OV LFT Actuator : 2.9	KSA OV 211 LFT Actuator : 2.9	CU 33 M14 219 FP	1.00 N ≤ Fa ≤ 1.80 N	≥ 0.35	≥ 0.35	0.50 ± 0.20	Silver
	KSA OV 331 LFT Actuator : 2.9		1.00N ≤ Fa ≤ 1.80 N	≥ 0.35	≥ 0.35	0.50 ± 0.20	Gold
KSA OV LFT Without bracket	KSA OV 211 LFT Without bracket	CU 33 M14 220 FP	1.00 N ≤ Fa ≤ 1.80 N	≥ 0.35	≥ 0.35	0.50 ± 0.20*	Silver
	KSA OV 311 LFT Without bracket		1.00 N ≤ Fa ≤ 1.80 N	≥ 0.35	≥ 0.35	0.50 ± 0.20*	Silver
	KSA OV 331 LFT Without bracket		1.00 N ≤ Fa ≤ 1.80 N	≥ 0.35	≥ 0.35	0.50 ± 0.20*	Gold
	KSA OV 411 LFT Without bracket		2.25 N ≤ Fa ≤ 3.75 N	≥ 0.80	≥ 0.5	0.60 ± 0.20*	Silver
	KSA OV 431 LFT Without bracket		2.25 N ≤ Fa ≤ 3.75 N	≥ 0.80	≥ 0.5	0.60 ± 0.20*	Gold
	KSA OV 711 LFT Without bracket Frr > 0.9		2.25 N ≤ Fa ≤ 3.75 N	≥ 0.80	≥ 0.9	0.60 ± 0.20*	Silver
KSA OV LFT Connexions : 3.3 Without bracket	KSA OV 911 LFT Without bracket	CU 33 A51 127 FP LFT	2.25 N ≤ Fa ≤ 3.75 N	≥ 0.80	≥ 0.5	0.60 ± 0.20*	Silver
	KSA OV 931 LFT Without bracket		2.25 N ≤ Fa ≤ 3.75 N	≥ 0.80	≥ 0.5	0.60 ± 0.20	Gold
	KSA OV 511 LFT Without bracket		3.50 N ≤ Fa ≤ 6.50 N	≥ 1.50	≥ 1.2	0.70 ± 0.20*	Silver
	KSA OV 411 LFT Connexions : 3.3, Without bracket		2.25 N ≤ Fa ≤ 3.75 N	≥ 0.80	≥ 0.5	0.60 ± 0.20*	Silver
KSA OV LFT Actuator : 2.9 Without bracket	KSA OV 511 LFT Connexions : 3.3, Without bracket	CU 33 M14 223 FP	3.50 N ≤ Fa ≤ 6.50 N	≥ 1.50	≥ 1.2	0.70 ± 0.20*	Silver
	KSA OV 611 LFT Connexions : 3.3, Without bracket		4.20 N ≤ Fa ≤ 6.50 N	≥ 1.50	≥ 1.2	0.70 ± 0.20*	Silver
	KSA OV 511 LFT Actuator : 2.9, Without bracket		3.50 N ≤ Fa ≤ 6.50 N	≥ 1.50	≥ 1.2	0.70 ± 0.20*	Silver

* Measurement on part without bracket: Electrical travel without any product deflexion.