



PRODUCT SPECIFICATION

October 2012

KMT 0 NG LHS / NGJ LHS

rev. K

KMT 0 NGJ LHS ULC

Ref. / PS-KMT-281

Page 1 of 8

Approvals:

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Engineering Manager

Date

Revision record:

Revision	Date	Comments
-	March 22 nd 2010	Creation
rev. A	May 28 th , 2010	Update : <i>(According to ECR N°5437)</i> • KMT 011 NG LHS version added • Product height (KMT 071 version) : § Main features • KMT switch integration recommendation : note in §2 added
rev. B	September 30 th , 2010	Update : <i>(According to ECR N°5857)</i> • Electrical data : contact resistance (150 mΩ instead of 300 mΩ)
rev. C	February 7 th , 2011	Update : <i>(According to ECR N°6361)</i> • IP code
rev. D	January 5 th , 2012	Update : <i>(According to ECR N°7252)</i> • KMT switch integration recommendation (§10)
rev. E	April 12 th , 2012	Update : <i>(According to ECR N°7772 & 7840)</i> • ULC versions added • Packaging: 5000 p/reel instead of 4000 p/reel
rev. F	June 7 th , 2012	Update : <i>(According to ECR N°8211)</i> • KMT 011 NG LHS OT1 versions added
rev. G	July 13 th , 2012	Update : <i>(According to ECR N°8385)</i> • § main features : note about switch height updated
rev. H	October 3 rd 2012	Update : <i>(according to ECR 8541)</i> • Electrical data updated : max power & max current
Rev. J	July 3 rd 2013	Update : <i>(according to ECR 9985)</i> • KMT Switch integration recommendation (§10): Key size
Rev. K	July 5 th 2013	Update : <i>(according to ECR 9985)</i> • Packaging (§7): quantity per reel

KMT 0 NG LHS / NGJ LHS

rev. K

KMT 0 NGJ LHS ULC**Ref. / PS-KMT-281**

Page 2 of 8

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
10. KMT Switch integration recommendation

Appendix:

- 1: Reflow profile characteristics
- 2: Packaging

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

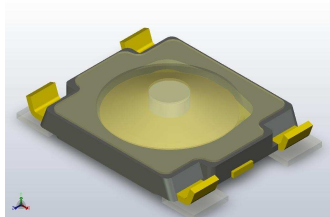
KMT 0 NG LHS / NGJ LHS KMT 0 NGJ LHS ULC

rev. K

Ref. / PS-KMT-281

Page 3 of 8

1 - Description



The KMT0 NG LHS / NGJ LHS / NGJ LHS ULC is a Halogen Free, ultra-low profile tact switch, single pole, normally open, momentary action designed for SMT mounting.

Main Features

- Height with actuator between 0.63 and 0.65 mm according to each reference drawing
- 3.6 x 2.6 mm footprint
- Without ground
- Good tactile feed-back
- Terminal plating : LFS (Lead Free Silver)
- **ROHS compliance**
- **Halogen Free** compliance
 - Bromine (Br) ≤ 900 ppm
 - Chlorine (Cl) ≤ 900 ppm
 - Total concentration of Br & Cl ≤ 1500 ppm
- Compatible with lead free reflow soldering process
- Delivered on plastic reels
- Compatible with Pick & Place machines

2 - Construction

Function	Momentary action
Contact type	Normally Open
Terminals	SMT

3 - Electrical data

	Contact plating : Ag
Maximum power	0.3 VA
Min/max voltage	20 mV – 32 Vdc
Min/max current	• Std versions : 1 mA – 25 mA • ULC versions: 1 μA – 25 mA
Dielectric strength	≥ 250 Vrms (1 mn)
Contact resistance	≤ 150 m Ω
Insulation resistance	≥ 50 M Ω
Bounce time	≤ 6 ms

4 - Mechanical data

Operating force (Fa)	• KMT 011 NG LHS : Fa = 1.0 N $\pm$ 25% • KMT 011 NG LHS OT1 : Fa = 1.0 N $\pm$ 25% • KMT 011 NGJ LHS: Fa = 1.0 N $\pm$ 25% • KMT 021 NGJ LHS: Fa = 1.6 N $\pm$ 25% • KMT 031 NGJ LHS: Fa = 3.4 N $\pm$ 25% • KMT 071 NGJ LHS: Fa = 2.3 N $\pm$ 25% • KMT 011 NGJ LHS ULC: Fa = 1.0 N $\pm$ 25% • KMT 031 NGJ LHS ULC: Fa = 3.4 N $\pm$ 25%
Tactile feeling ($\Delta\%$)	• KMT 011 versions: $\Delta \geq 10\%$ • KMT 021 versions: $\Delta \geq 30\%$ • KMT 031 versions: $\Delta \geq 30\%$ • KMT 071 versions: $\Delta \geq 30\%$ ($\Delta\%$ after 2 reflow cycles)

Return force (Frr)	Frr ≥ 0.25 N
Electrical travel (Te)	Te = 0.15 mm $\pm$ 0.1
Mechanical travel (Tm)	Tm = 0.15 mm $\pm$ 0.1
Simultaneity	≤ 0.05 mm
Actuation condition limits	According to § 10

5 - Physical data

	According to drawings:
Dimensions & layout	• KMT 011 NG LHS : CU34H01124FP • KMT 011 NG LHS OT1 : CU34H01520FP • KMT 0 NGJ LHS : CU34MH2005FP • KMT 0 NGJ LHS ULC : CU34MH20100P
Mass	0.02 g $\pm$ 0.01

6 - Operating environment

Operating temperatures	- 40 °C / + 85 °C
Relative humidity	90 to 96 % According to IEC 60068-2-78

KMT 0 NG LHS / NGJ LHS**rev. K****KMT 0 NGJ LHS ULC****Ref. / PS-KMT-281****Page 4 of 8**

Operating life	$\geq 300\,000$ cycles <i>Contact resistance after life test : $\leq 5\,\Omega$</i>
Vibrations	10-500 Hz / 10 g / 3 axis No discontinuity $> 1\mu\text{s}$ 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 $> 1\mu\text{s}$ According to NF EN 60068-2-27
Overload	Static Overload : 30 N Overload life test : 10 N – 1000 cycles
7 - <u>Additional data : storage and handling environment</u>	
Packaging conditions	According to drawings in appendix 2 Tape and reel per EIA 481-B. <i>Number of pieces per reel:</i> - KMT 011 NG LHS : 1000 - Other versions : 5000 Dry pack with desiccant. Once dry pack is opened and a part of the reel unused for more one week, baking, prior to SMT 4 hour/60°C is recommended.
Transport conditions	According to specification NF H00-060
Storage temperatures	- 55 °C (10 days)/+85°C (10 days)
8 - <u>Additional data : process environment</u>	
Lead free reflow soldering process	According to C&K Procedure : PS-LF-001 (reflow profile characteristics described in appendix 1) <i>Recommendation for solder paste thickness : $100\,\mu\text{m} \pm 20\,\mu\text{m}$</i>
Re-work process by iron soldering	N.A.
Washing process	NA
Sealing	IP 68
Chemical agent	NA
Shear test (switch/PCB)	$> 30\,\text{N}$
9 – <u>Applicable norms</u>	
Testing procedure (C&K spec)	Proc-essai 16
Legal norm (EHS)	C&K procedure
<u>10 – KMT Switch integration recommendation</u>	
According to page 5	

**KMT 0 NG LHS / NGJ LHS
KMT 0 NGJ LHS ULC**

rev. K

Ref. / PS-KMT-281

Page 5 of 8

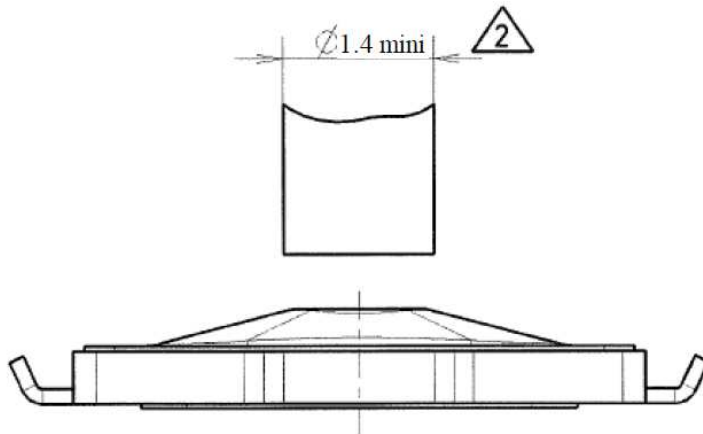
10. KMT Switch integration recommendation**1. KMT extreme area for actuation**

This area illustrates the optimal actuation surface.
Application key or button has to remain inside Ø1.8mm.

Outside this recommended area, KMT will not perform properly.

2. Key size

Key size should be over (or equal) to Ø1.4 mm. We recommend 0.2mm off-centred max.
Optimal solution would be to have a full flat key.

**3. PCB pad and stencil definition – P&P setup**

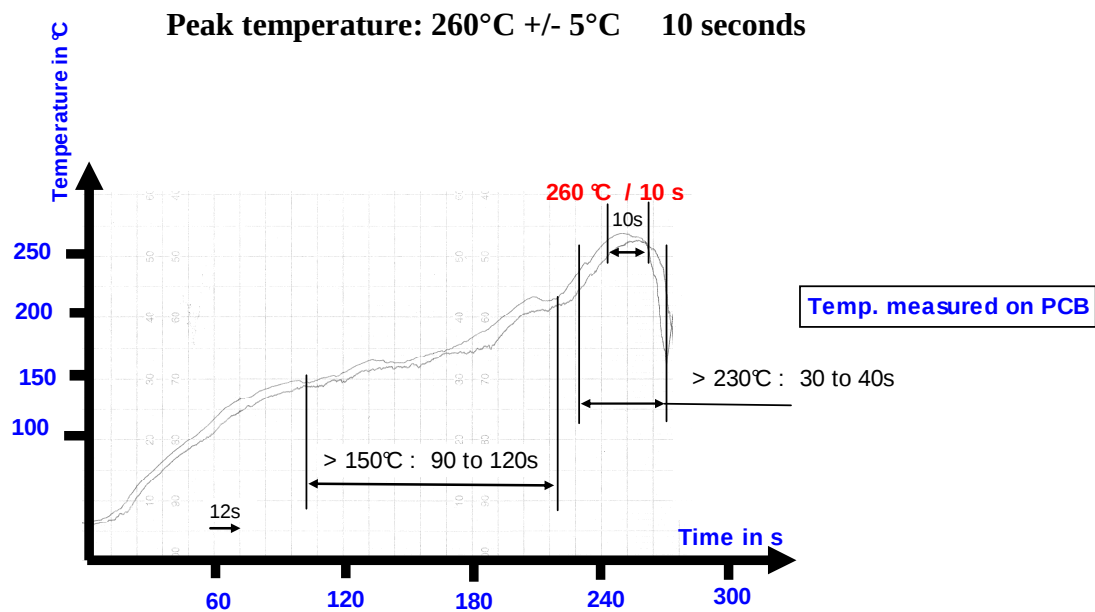
According to CK procedure: RU-KMT-006.

KMT 0 NG LHS / NGJ LHS

rev. K

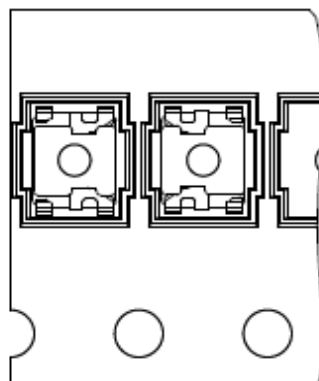
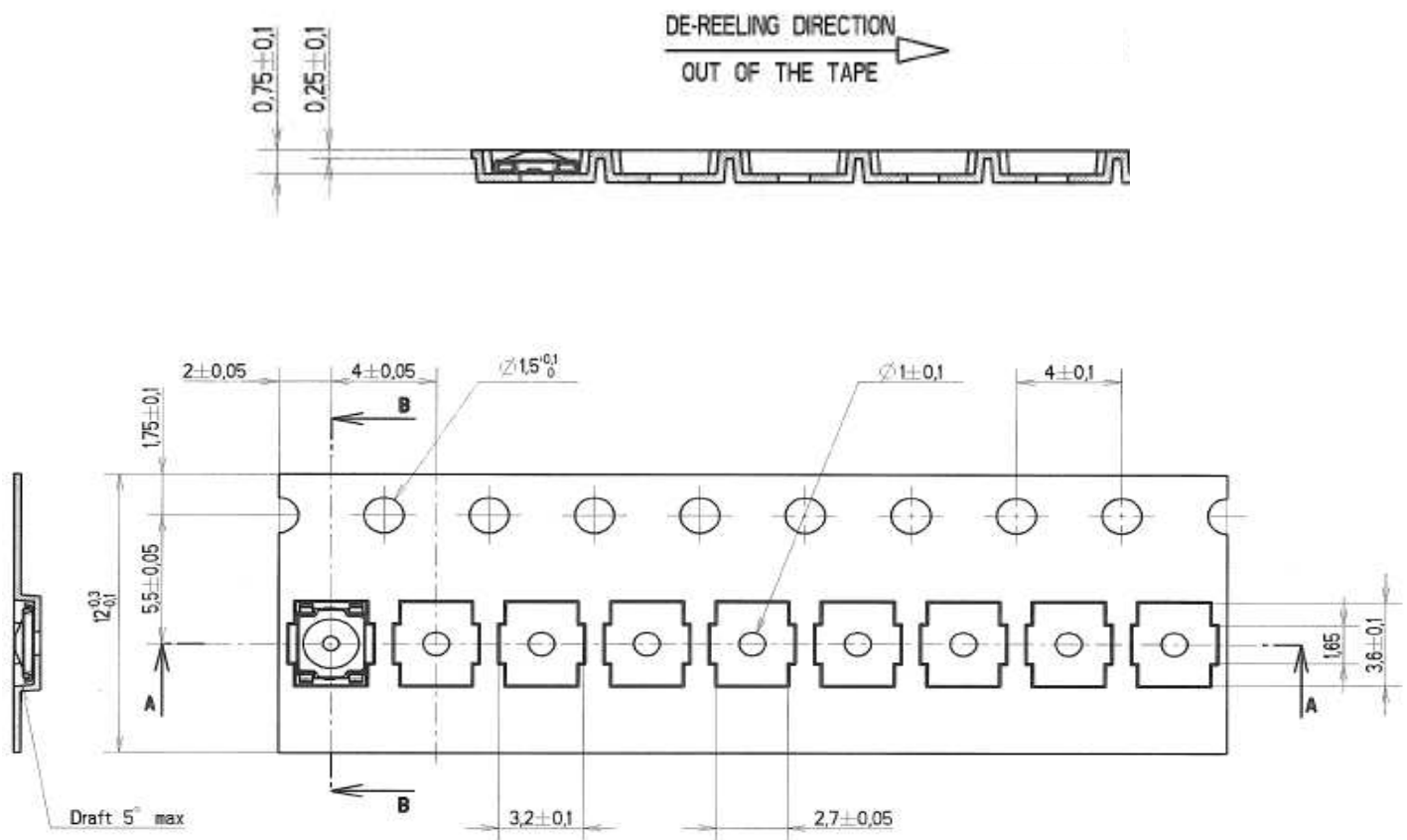
KMT 0 NGJ LHS ULC**Ref. / PS-KMT-281**

Page 6 of 8

Appendix 1**Reflow profile test characteristics**

Appendix 2

Packaging (1/2)



Product are symmetrical
but can be presented
in any 180° direction
as shown on the left

Be careful! Bottom view

KMT 0 NG LHS / NGJ LHS

rev. K

KMT 0 NGJ LHS ULC**Ref. / PS-KMT-281**

Page 8 of 8

Appendix 2**Packaging (2/2)**