



PRODUCT SPECIFICATION

October 2012

KMT 0 NG LHS / NGJ LHS

rev. K

KMT 0 NGJ LHS ULC

Ref. / PS-KMT-281

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Approvals:

Laurent Kubat Engineering Manager	Date
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Revision record:

Revision	Date	Comments
-	March 22 nd 2010	Creation
rev. A	May 28 th , 2010	Update : (According to ECR N°5437) <ul style="list-style-type: none">• 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 : (According to ECR N°5857) <ul style="list-style-type: none">• Electrical data : contact resistance (150 mΩ instead of 300 mΩ)
rev. C	February 7 th , 2011	Update : (According to ECR N°6361) <ul style="list-style-type: none">• IP code
rev. D	January 5 th , 2012	Update : (According to ECR N°7252) <ul style="list-style-type: none">• KMT switch integration recommendation (§10)
rev. E	April 12 th , 2012	Update : (According to ECR N°7772 & 7840) <ul style="list-style-type: none">• ULC versions added• Packaging: 5000 p/reel instead of 4000 p/reel
rev. F	June 7 th , 2012	Update : (According to ECR N°8211) <ul style="list-style-type: none">• KMT 011 NG LHS OT1 versions added
rev. G	July 13 th , 2012	Update : (According to ECR N°8385) <ul style="list-style-type: none">• § main features : note about switch height updated
rev. H	October 3 rd 2012	Update : (according to ECR 8541) <ul style="list-style-type: none">• Electrical data updated : max power & max current
Rev. J	July 3 rd 2013	Update : (according to ECR 9985) <ul style="list-style-type: none">• KMT Switch integration recommendation (§10): Key size
Rev. K	July 5 th 2013	Update : (according to ECR 9985) <ul style="list-style-type: none">• Packaging (§7): quantity per reel



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Summary:

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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.

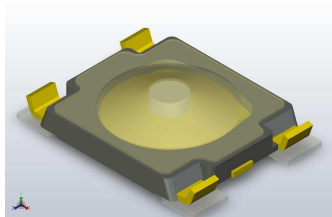
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1 - Description



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	<ul style="list-style-type: none"> • Std versions : 1 mA – 25 mA • ULC versions: 1 μA – 25 mA
Dielectric strength	≥ 250 Vrms (1 mm)
Contact resistance	≤ 150 mΩ
Insulation resistance	≥ 50 MΩ
Bounce time	≤ 6 ms

4 - Mechanical data

Operating force (Fa)	<ul style="list-style-type: none"> • KMT 011 NG LHS : Fa = 1.0 N ± 25% • KMT 011 NG LHS OT1 : Fa = 1.0 N ± 25% • KMT 011 NGJ LHS: Fa = 1.0 N ± 25% • KMT 021 NGJ LHS: Fa = 1.6 N ± 25% • KMT 031 NGJ LHS: Fa = 3.4 N ± 25% • KMT 071 NGJ LHS: Fa = 2.3 N ± 25% • KMT 011 NGJ LHS ULC: Fa = 1.0 N ± 25% • KMT 031 NGJ LHS ULC: Fa = 3.4 N ± 25%
Tactile feeling (Δ%)	<ul style="list-style-type: none"> • KMT 011 versions: Δ ≥ 10% • KMT 021 versions: Δ ≥ 30% • KMT 031 versions: Δ ≥ 30% • KMT 071 versions: Δ ≥ 30% <p>(Δ% after 2 reflow cycles)</p>

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

5 - Physical data

Dimensions & layout	<p>According to drawings:</p> <ul style="list-style-type: none"> • 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 ± 0.01

6 - Operating environment

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

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Operating life	≥ 300 000 cycles <i>Contact resistance after life test : ≤ 5 Ω</i>
Vibrations	10-500 Hz / 10 g / 3 axis No discontinuity > 1μs According to NF EN 60068-2-6
Mechanical shocks	½ sinusoidal / 50 g / 11 ms 3 shocks in each direction of the 3 axis No discontinuity > 1μs 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> - <i>KMT 011 NG LHS : 1000</i> - <i>Other versions : 5000</i> 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 :</i> <i>100 μm ± 20 μm</i>
Re-work process by iron soldering	N.A.
Washing process	NA
Sealing	IP 68
Chemical agent	NA
Shear test (switch/PCB)	> 30 N
9 - <u>Applicable norms</u>	
Testing procedure (C&K spec)	Proc-essai 16
Legal norm (EHS)	C&K procedure
10 - <u>KMT Switch integration recommendation</u>	
According to page 5	

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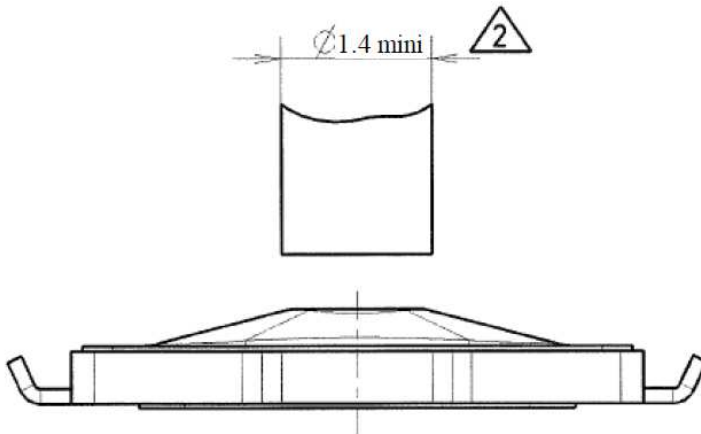
10. KMT Switch integration recommendation**1. KMT extreme area for actuation**

This area illustrates the optimal actuation surface.
Application key or button has to remain inside $\text{Ø}1.8\text{mm}$.

Outside this recommended area, KMT will not perform properly.

2. Key size

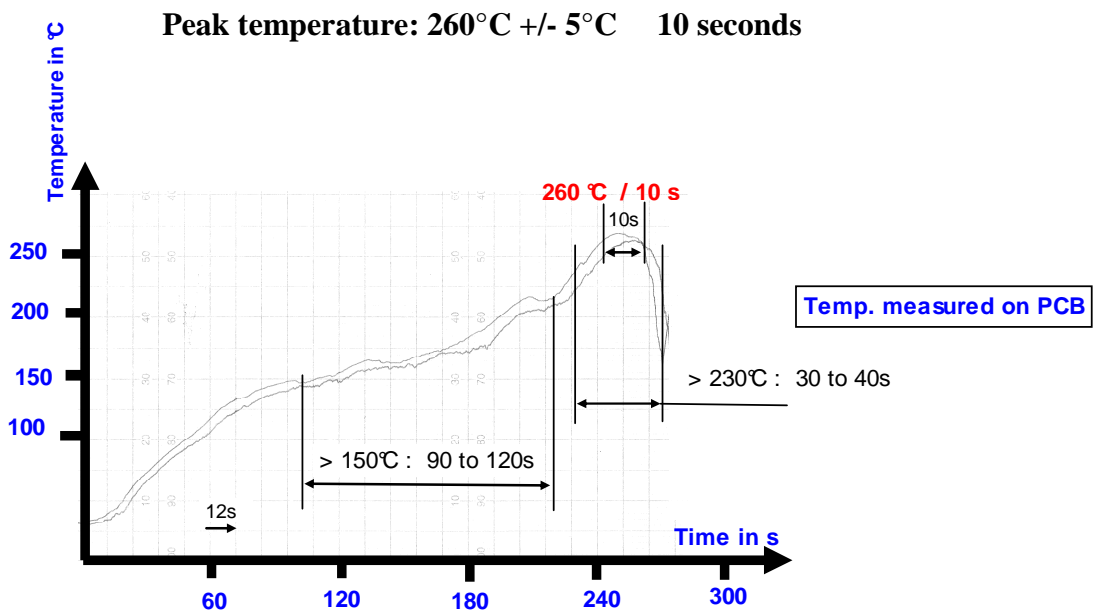
Key size should be over (or equal) to $\text{Ø}1.4\text{ mm}$. We recommend 0.2mm off-centred max.
Optimal solution would be to have a full flat key.

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

According to CK procedure: RU-KMT-006.

Appendix 1

Reflow profile test characteristics



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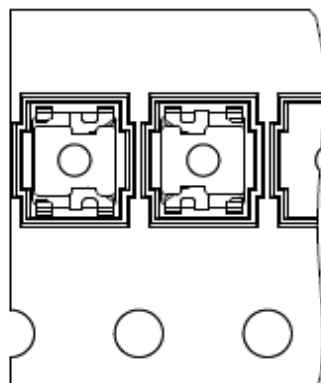
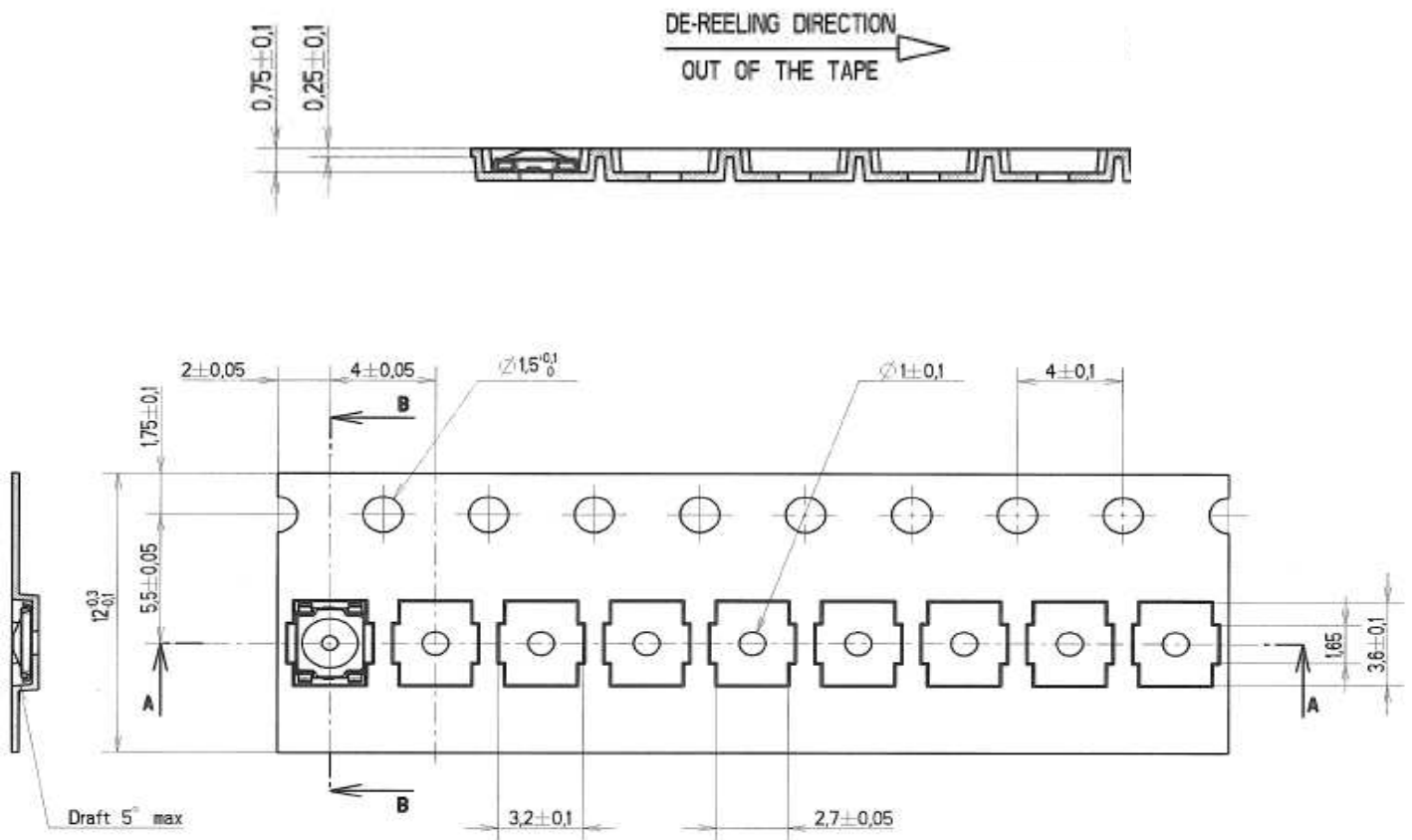
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Appendix 2

Packaging (1/2)



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

Be careful! Bottom view

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Appendix 2

Packaging (2/2)

