Approvals:

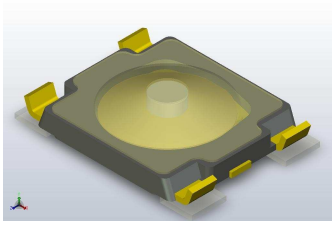
Laurent Kubat Engineering Manager	Date Laurent Kubat	2013.07.05 15:55:11 +02'00'

Revision record:

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

Summary:

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 mΩ
Insulation resistance	≥ 50 MΩ
Bounce time	≤ 6 ms
4 - Mechanical data	
Operating force (Fa)	• 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%)	• KMT 011 versions: Δ ≥ 10% • KMT 021 versions: Δ ≥ 30% • KMT 031 versions: Δ ≥ 30% • KMT 071 versions: Δ ≥ 30% *(Δ% after 2 reflow cycles)*
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	According to drawings: • 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

Operating life	≥ 300 000 cycles *Contact resistance after life test :* ≤ 5 Ω
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. *Number of pieces per reel:* - *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) *Recommendation for solder paste thickness* : *100 µm ± 20 µm*
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
<u>10 – KMT Switch integration recommendation</u>	
According to page 5	

10. KMT Switch integration recommendation

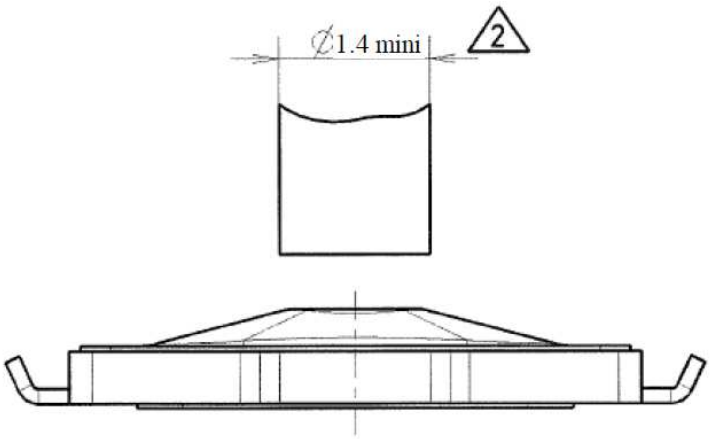
1. KMT extreme area for actuation

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.

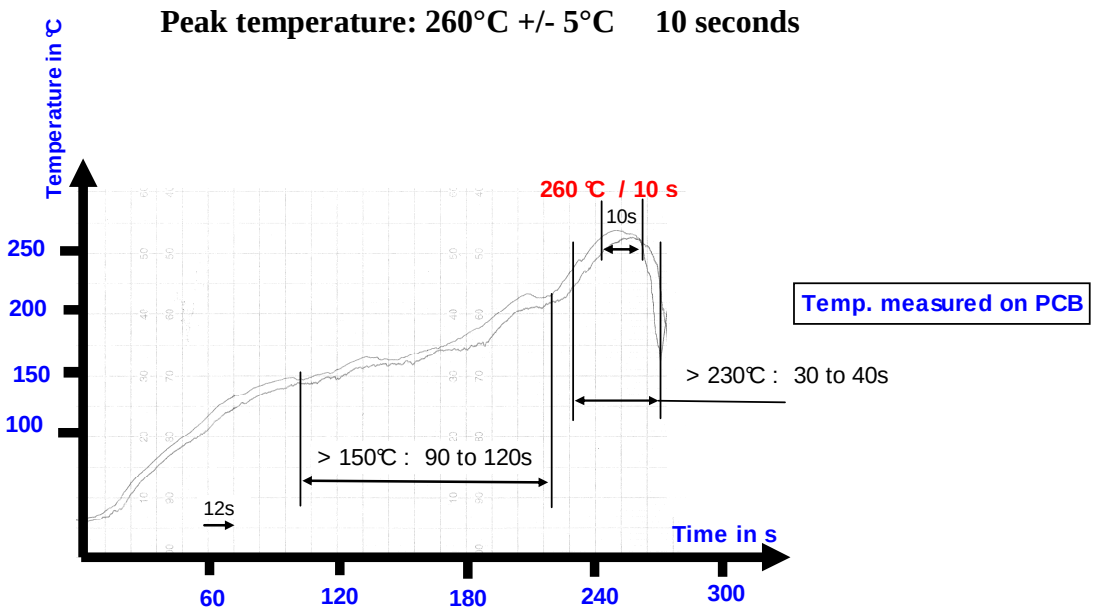


3. PCB pad and stencil definition – P&P setup

According to CK procedure: RU-KMT-006.

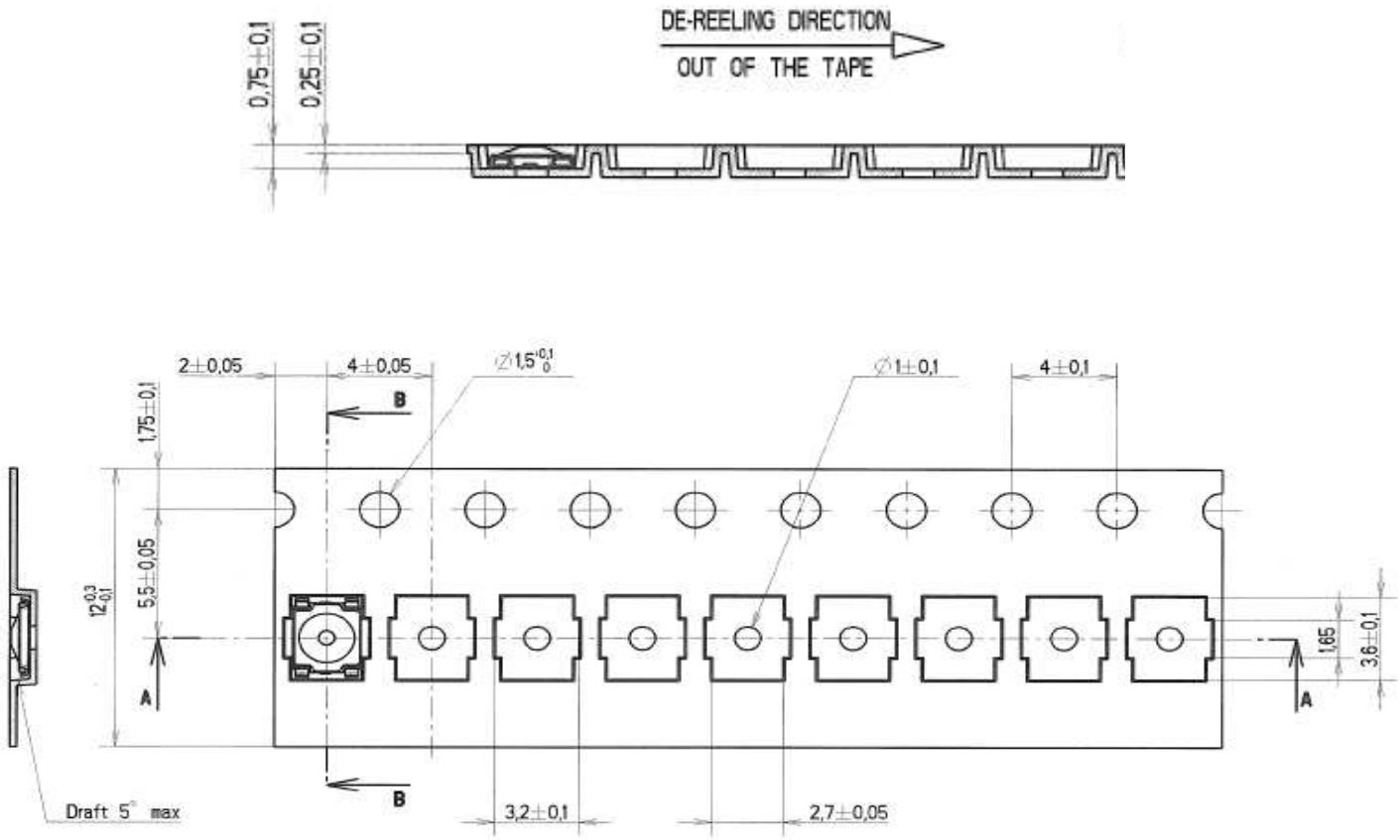
Appendix 1

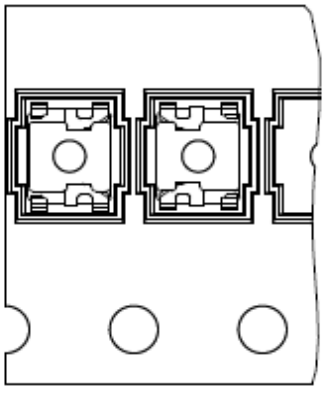
Reflow profile test characteristics



Appendix 2

Packaging (1/2)





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

Be careful! Bottom view

Appendix 2

Packaging (2/2)