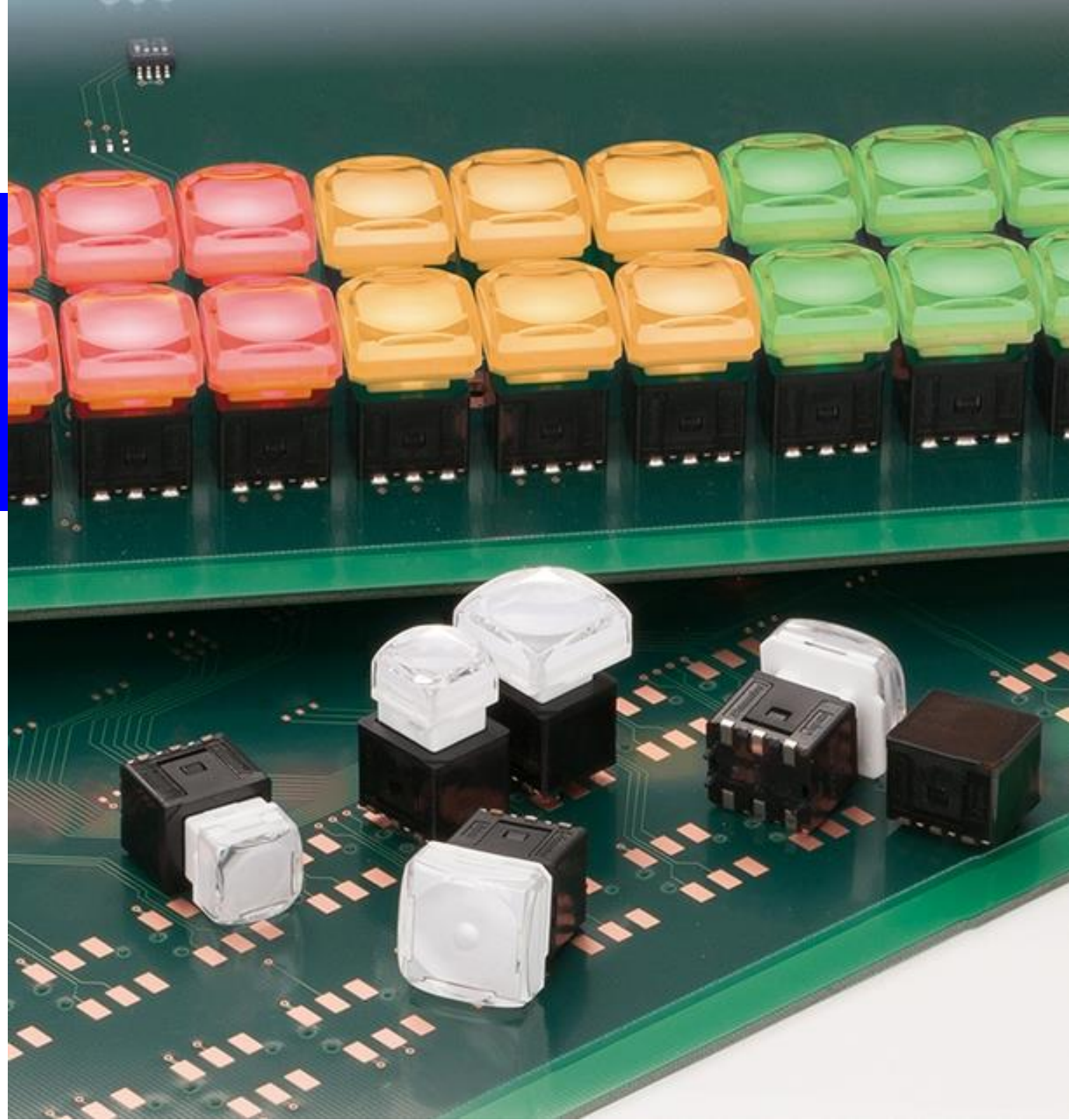
Sunmulon

A World First

SMT-compatible Switch

KA / K2 / K9 Series



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AGENDA

What is SMT-compatible switch?

* SMT : Surface Mount Technology

Difference in Mounting Method
between ‘Reflow’ and ‘Flow’ Soldering

Advantages compared with conventional switch

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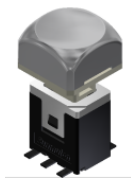
Positioning of SMT-compatible switch in Sunmulon products

Relationship between 「Mounting Method」 and 「Terminal Shape」

- PANEL mounting
  - #110 Tab / Soldering (Available for most models)
  - Socket (Available for CH, EH, EH-G, FH, VH, XH, and SP)
  - Connector (Available for CH, EH, and EH-G)
- BOARD mounting
  - PCB Terminal (DIP Terminal) (Available for CH, DH, EH, HH, KC, TH, VH and YH)
  - SMT Terminal

(KA)



(K2)

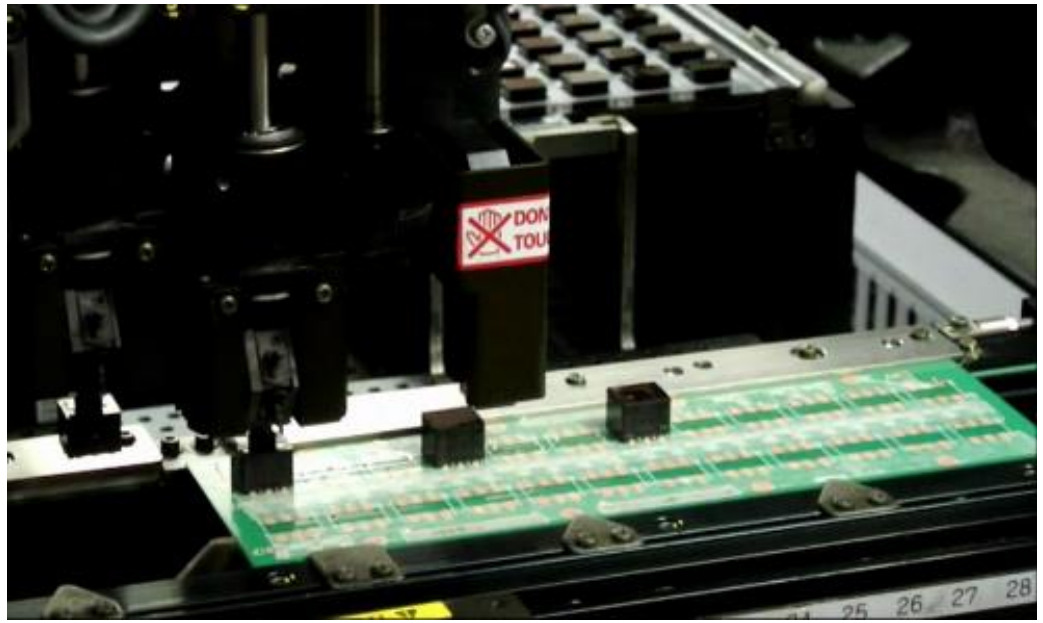
(K9)

KC HH

What is SMT-compatible Switch?

＊SMT : Surface Mount Technology

A SWITCH that can be mounted on the SURFACE of PCB and soldered by REFLOW process.



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Sunmulon succeeded **world-first** commercializing of SMT-compatible illuminating pushbutton switch.

Only Sunmulon mass-produce SMT-compatible illuminating pushbutton switch at this time.

(As at end of March 2019 researched by Sunmulon)

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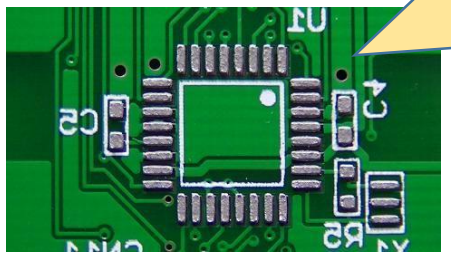
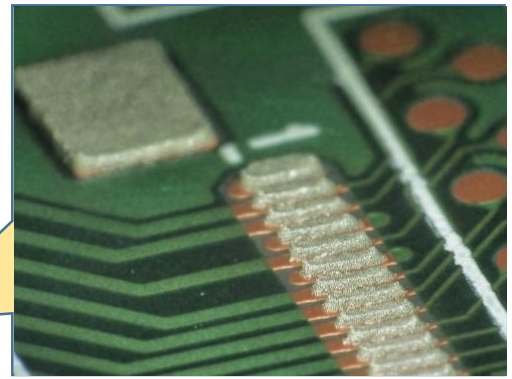
SMT Reflow Soldering Process

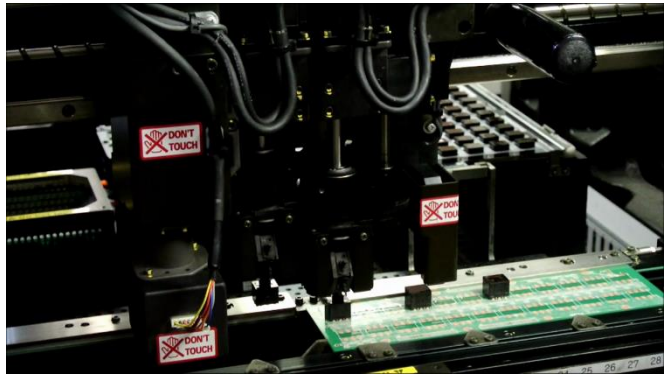
Cream solder



PCB after applying cream solder



Enlarged photo



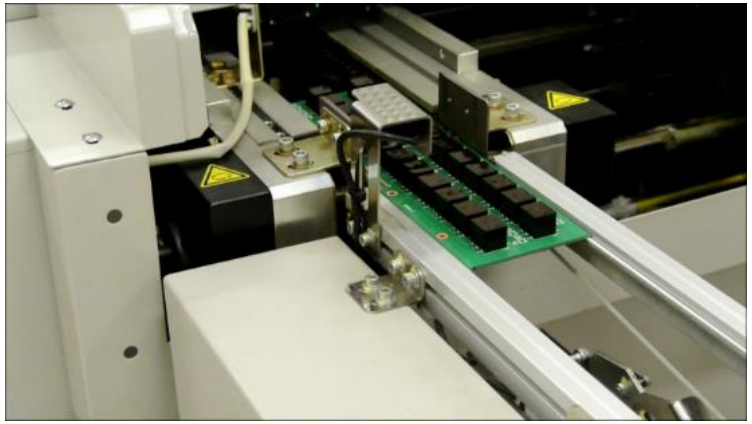
Mount the switch on PCB
with the mounting machine

To reflow furnace

Reflow furnace

Heat in a reflow furnace

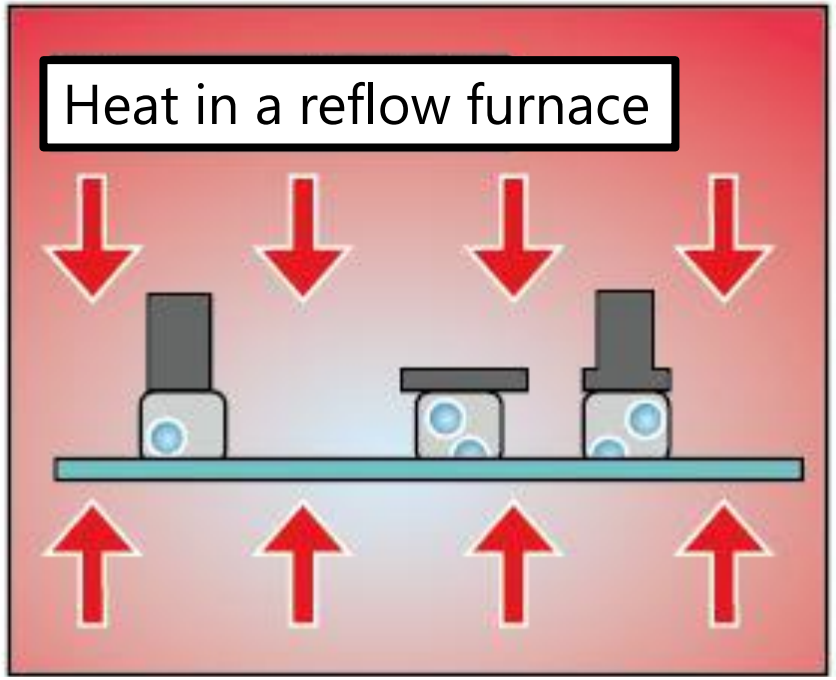
In a reflow furnace?



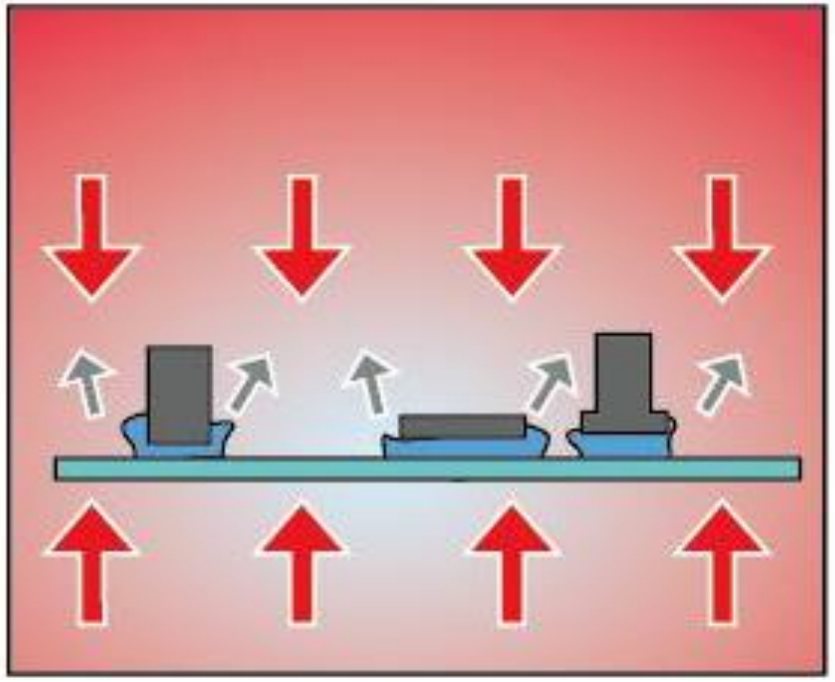
Soldering completed

Heating Mechanism in a Reflow Furnace

In a reflow furnace?



Right after entering the reflow furnace, the cream solder remains in particles and the chip parts are just on it, but not yet bonded.

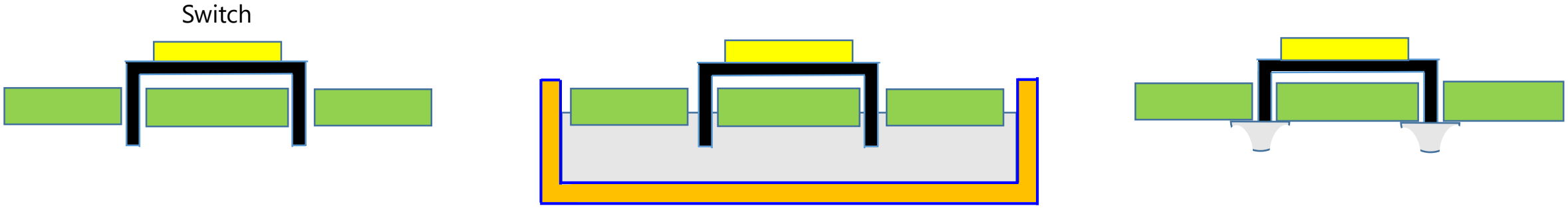


The flux evaporates and the cream solder particles melt and join.
The parts such as switches also “sink” into the liquid solder and are adhered to the solder.

Soldering completed

Flow Soldering Process

Flow



Insert into printed circuit board → Dip in melted solder bath → Melted solder joins with lead wire

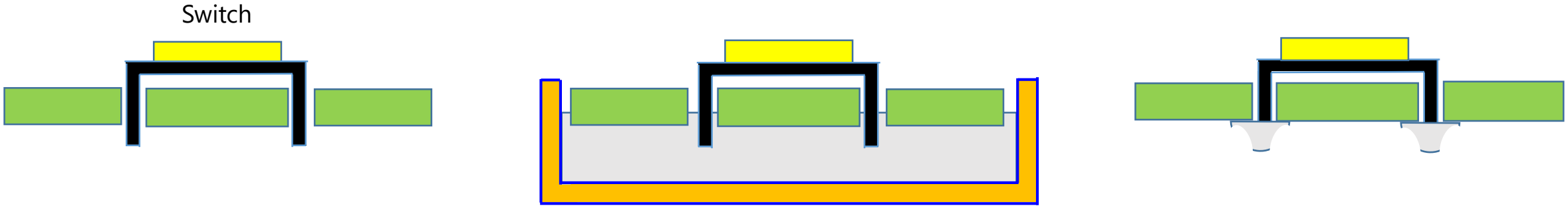
1 Mounting on PCB by hand

2 Pass PCB over the bath filled with melted solder, and it's joined by spouted solder.

3 Join by applying melted solder

Flow Soldering Process

Flow



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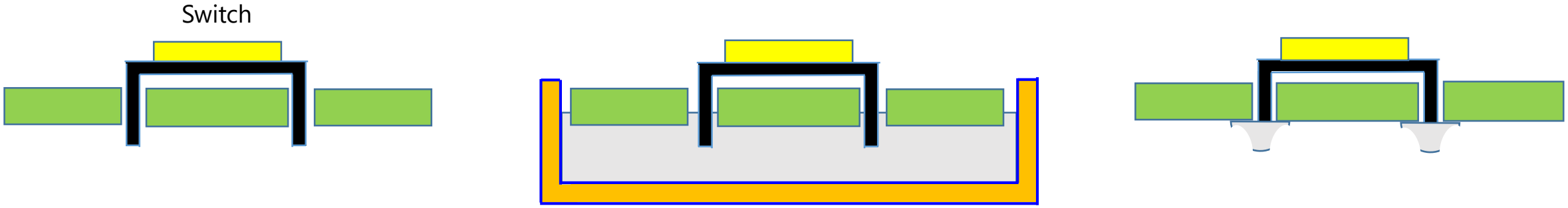

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Mounting on PCB by hand

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Advantages compared with conventional switch

Advantages of SMT-compatible switch ①

Enhance productivity

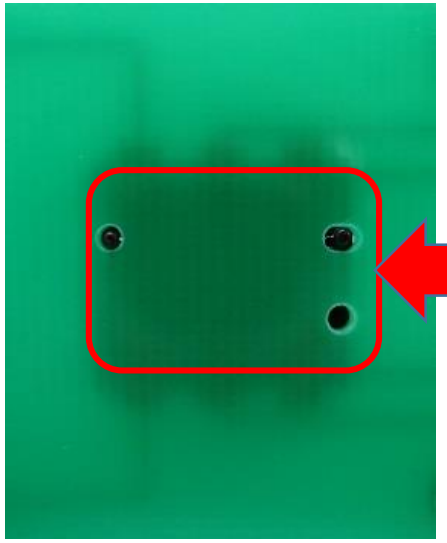
The difference can be seen clearly in the actual assembly board which is mixed surface mount parts such as semiconductor and switches.

	SMT	PCB Terminal
Image		
Mounting procedure	Mounted switch TOGETHER with other surface mount parts by chip mounter ↓ Soldering ・REFLOW ↓ Peal off heat-resistant stickers Assemble light cartridge (MANUAL)	Mounted surface mount parts by chip mounter ↓ Solder surface mount parts ・REFLOW ↓ Mounted switch manually into the through hole (MANUAL) ↓ Soldering ・FLOW ・OR MANUAL ↓ Correct position (MANUAL)
Efficiency of mounting time ※per 1pc using 48pcs	**15 seconds** Machine : 11.5 seconds Manual : 3.5 seconds	**40 seconds** Machine : 14 seconds Manual : 26 seconds (3 steps)

Advantages of SMT-compatible switch ②

REVERSE side of PCB

SMT



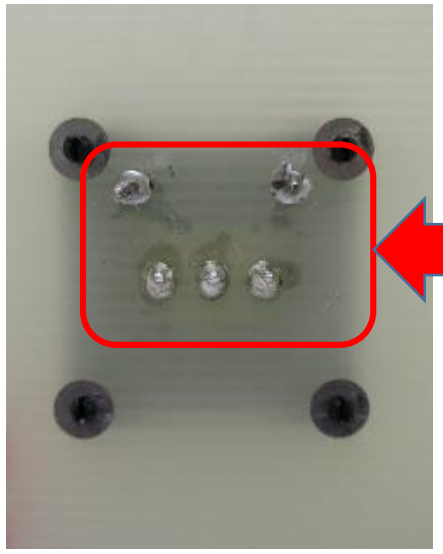
Higher design flexibility

○

PARTS and PATTERNS can be placed on the REVERSE side of PCB.

High-density mounting = Downsizing of machines

PCB Terminal



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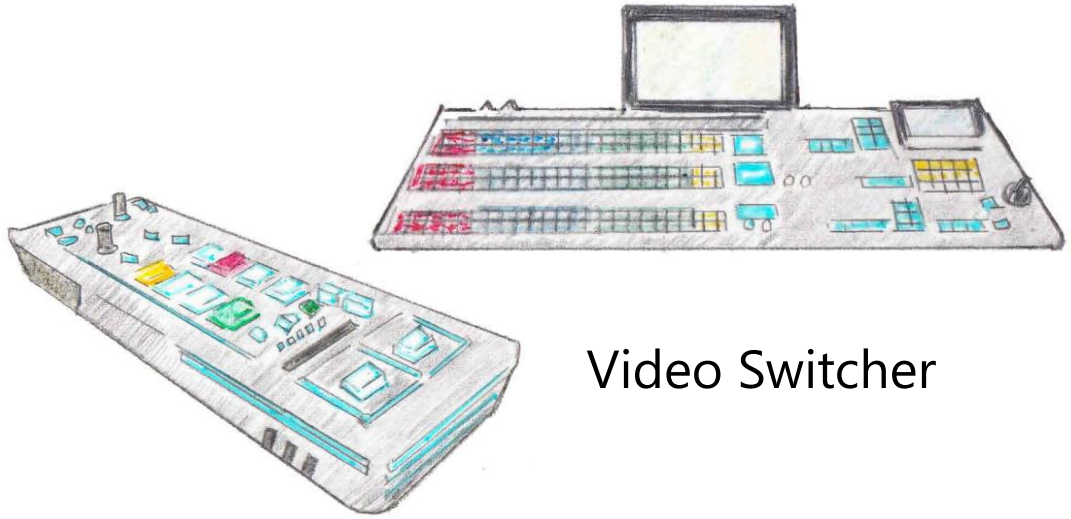
Applications benefited from SMT compatibility

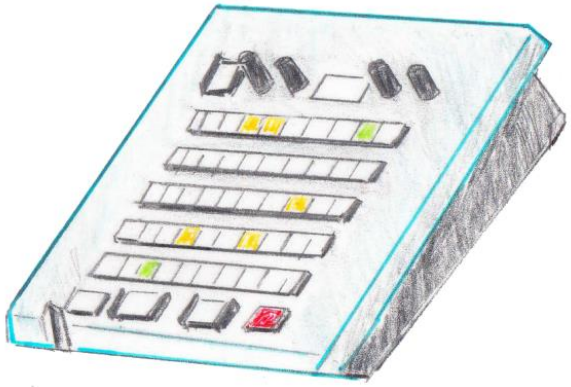
＝Most suited to multiple usages of switches

Contributes to
Production Cost Reduction
by shortening
switch mounting time

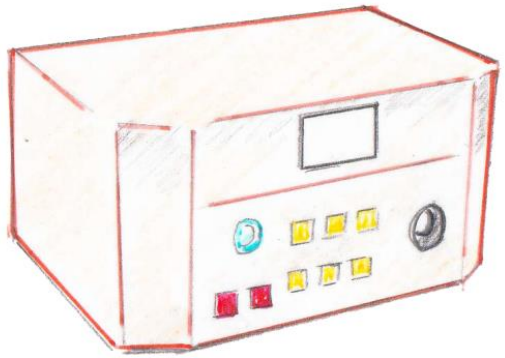
Contributes to
PCB & Device
Downsizing



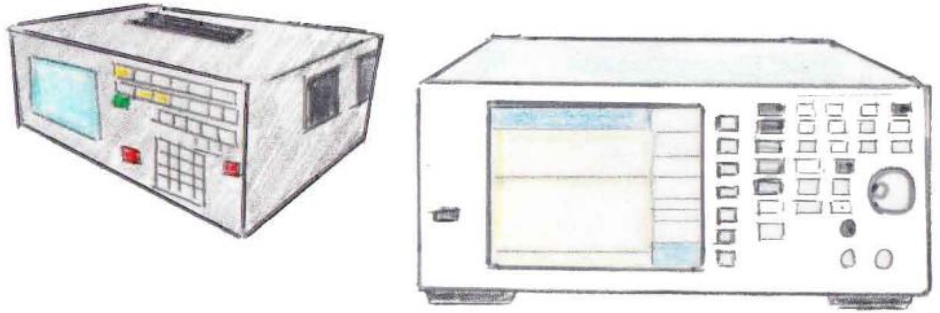
Video Switcher



Firefighting Command Device

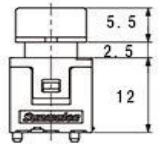
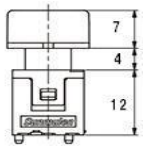
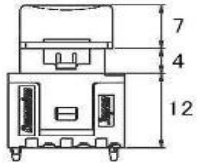
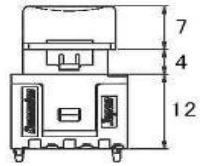


Potential Treatment Device



Signal Generator

SMT Product Line-up

K9	K2		KA	KA	
9mm square	12mm & 15mm square			17.4mm square	
Flat	Flat	Concave	Raise dot	Concave	Raise dot
					
					
					

K2、K9

Mono-Color （Red・Green・Yellow）
Dual-Color （Red・Green）

Dual-Color（Red・Super Green）

KA

Dual-Color
（Red・Green）

Dual-Color
（Red・Super Green）

Multicolored（256 colors）

Contact Information

Touch people. Touch the world.

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Our Agent list