

# K12

## High Performance Key Switches

### Features/Benefits

- **Excellent tactile feel**
- **Wide choice of LED colors, travel and actuator forces**
- **High reliability / long life**
- **Sealed version available**
- **Designed for low-level switching**
- **Double stroke version available**
- **Detector version available**

### Typical Applications

- **Automotive**
- **Off-road transportation**
- **Industrial electronics**
- **Computers & network equipment**
- **Joysticks**



### Construction:

FUNCTION: momentary

DISTANCE BETWEEN BUTTON CENTERS:

min. 11 (0.433) K12C = 13 (0.512)

TERMINALS: PC pins, tinned

MOUNTING: Locating pins; K12G and K12P additionally with snap-in housing

### Mechanical

TOTAL TRAVEL: 1 mm, 1,5 mm, 2 mm

SWITCHING TRAVEL: 0,6 mm\*

OPERATING FORCE: 1.5 N OD without snap-point as detector switch, 2.5 N, 3.5 N, 5 N, 3.5/7 N, 6/12 N. Additional operating force 7N, 9N and 20N, available on request.

PROTECTION CLASS: K12C IP 67 (dust tight, protected against the effects of immersion in water; other versions IP 40)

\* Additional switching travel (with pre-travel) available by request.

### Packaging

Bulk in boxes of 250 pieces (version C or GO) or 300 pieces (version A, AL, P or PL)

### Electrical

SWITCHING POWER MIN./MAX.: 0.02mW/3 W

SWITCHING VOLTAGE MIN./MAX.: 2 V DC / 30 V DC

SWITCHING CURRENT MIN./MAX.: 10 mA /100 mA

DIELECTRIC STRENGTH (50 Hz, 1 min):  $\geq 500$  V

OPERATING LIFE with max. switching power:  $\geq 10^6$  operations  
K12G & K12GO; operating life of second switch  $5 \times 10^4$  operations, operating life K12C and version with more than 6N (7N, 9N 20N) please consult factory.

CONTACT RESISTANCE: Initial  $\leq 50$  m $\Omega$

INSULATION RESISTANCE:  $\geq 10^{10}$   $\Omega$

BOUNCE TIME:  $\leq 1$  ms

Operating speed 100 mm/s (3.94/s)

### Environmental

OPERATING TEMPERATURE: -40°C to 85°C.

STORAGE TEMPERATURE: -40°C to 95°C.

### Process

SOLDERABILITY:

Wave soldering, compatible with lead free soldering profile  
Hand soldering, 350°C

### How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

Note: Some of the configurations may not be available or could require some development.

| Series   | LED Color          | Standard LED Code   | Cap Color                               | Travel*                   | Operating Force***                      | Contact Arrangement                 |
|----------|--------------------|---------------------|-----------------------------------------|---------------------------|-----------------------------------------|-------------------------------------|
| <b>K</b> | <b>NONE</b> No LED | <b>NONE</b> No LED  | <b>NONE</b> version with LED, version C | <b>1</b> 1 mm (0.039)     | <b>1.5N OD</b> 1.5 N without snap-point | <b>NONE</b> SPST NO (STD)           |
| <b>1</b> | <b>GN</b> Green    | <b>LV306</b> Green  | <b>BK</b> Black cap - No LED            | <b>1.5</b> 1.5 mm (0.059) | <b>2.5N</b> 2.5 N                       | <b>1R</b> SPST NC (Special request) |
| <b>2</b> | <b>YE</b> Yellow   | <b>LV327</b> Yellow | <b>YE</b> Yellow cap - No LED           | <b>2</b> 2 mm (0.079)     | <b>3.5N</b> 3.5 N                       |                                     |
|          | <b>OG</b> Orange   | <b>LV315</b> Orange | <b>RD</b> Red cap - No LED              |                           | <b>5N</b> 5 N                           |                                     |
|          | <b>RD</b> Red      | <b>LV352</b> Red    | <b>GY</b> Gray cap - No LED             |                           | <b>3.5/7N</b> 3.5/7 N**                 |                                     |
|          | <b>WH</b> White    | <b>LV302</b> White  |                                         |                           | <b>6/12N</b> 6/12 N**                   |                                     |
|          | <b>BU</b> Blue     | <b>LV328</b> Blue   |                                         |                           |                                         |                                     |

\* K12C - 1mm MAX

K12 with LED - 1.5 mm MAX

\*\* K12G & K12GO version only

\*\*\* Additional operating force: 7N, 9N available on request



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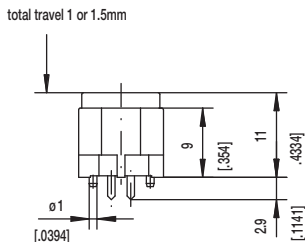
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Key Switches

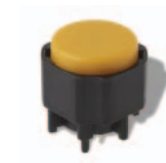
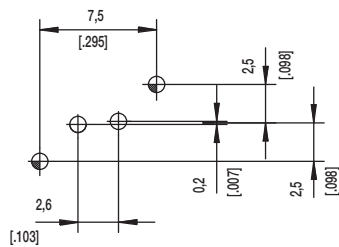
# K12

## High Performance Key Switches

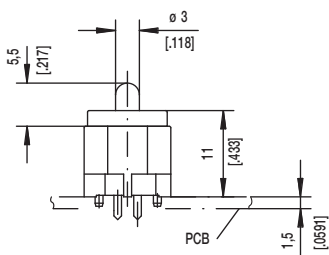
**K12A** without snap in



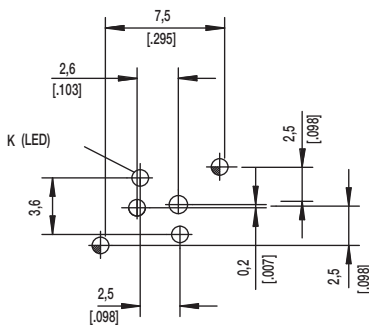
### PCB LAYOUT, MOUNTING SIDE



## K12AL



### PCB LAYOUT, MOUNTING SIDE



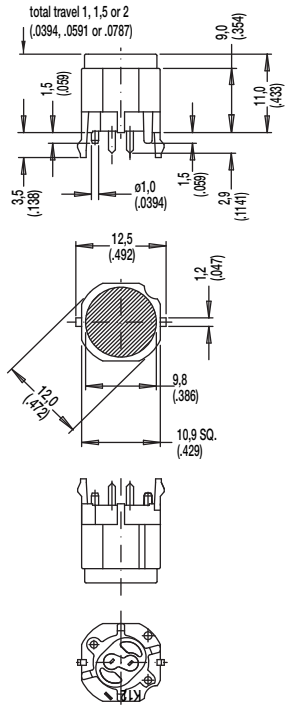
|                                                                                     |                      |         |          |             |                     |         |
|-------------------------------------------------------------------------------------|----------------------|---------|----------|-------------|---------------------|---------|
|  | 1,1 <sup>+0,05</sup> | 2x      | 2x       | center hole |                     |         |
|  | 0,9 ±0,05            |         | 2x       | LED         | ø0,5 (.020)         | Sn      |
|                                                                                     |                      | 2x      | 2x       | switch      | 0,7x0,2 (.028x.081) | Sn      |
| Hole                                                                                | ø                    | Without | with LED | Discription | Terminal Section    | Surface |



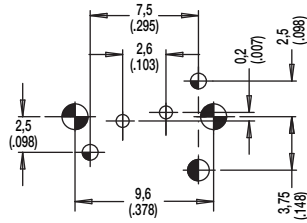
Dimensions are shown: mm  
Specifications and dimensions subject to change

# K12

**K12P** with snap in



### PCB LAYOUT, MOUNTING SIDE

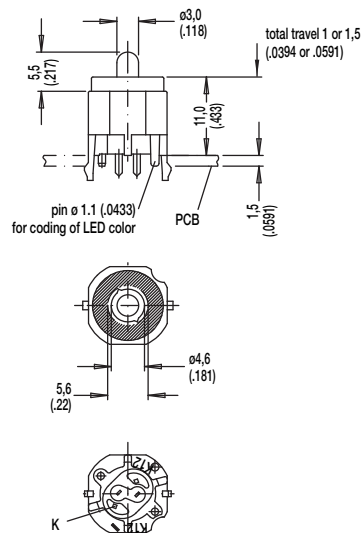


center of actuation area (notice LED)

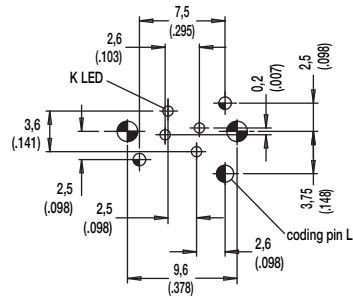


| Hole                                                                              | Ø          | Without LED | Description            | Terminal Section        | Surface |
|-----------------------------------------------------------------------------------|------------|-------------|------------------------|-------------------------|---------|
|  | 1,7 (.069) | 2x          | snap-in                |                         |         |
|  | 1,6 (.062) | 1x          | coding hole<br>(L,M,N) |                         |         |
|  | 1,1 (.043) | 2x          | center hole            |                         | Sn      |
|  | 0,9 (.035) | 2x          | switch                 | 0.7 x 0.2 (.028 x .081) | Sn      |

## K12PL



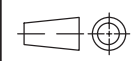
### PCB LAYOUT, MOUNTING SIDE



center of actuation area (notice LED)



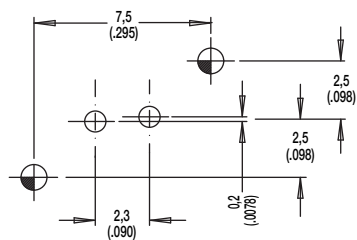
| Hole                                                                                | Ø          | Without LED | Description            | Terminal Section        | Surface |
|-------------------------------------------------------------------------------------|------------|-------------|------------------------|-------------------------|---------|
|  | 1,7 (.069) | 2x          | snap-in                |                         |         |
|  | 1,6 (.062) | 1x          | coding hole<br>(L,M,N) |                         |         |
|  | 1,1 (.043) | 2x          | center hole            |                         | Sn      |
|  | 0,9 (.035) | 2x          | LED                    | m0.5 (.020)             | Sn      |
|                                                                                     |            | 2x          | switch                 | 0.7 x 0.2 (.028 x .081) |         |



First Angle  
Projection

Dimensions are shown: mm  
Specifications and dimensions subject to change

**K12C** SEALED CONTACT WITH RUBBER CAP (IP 67)



| SCHEMATIC |   |
|-----------|---|
| A         | R |
|           |   |

| Hole                                                                                                                                                                       | Ø          | Without LED | Description | Terminal Section         | Surface |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------|-------------|--------------------------|---------|
| <br> | 1,1 (.043) | 2x          | center hole |                          |         |
|                                                                                                                                                                            | 0,9 (.035) | 2x          | switch      | 0.7 x 0.2(.0275 x .0787) | Sn      |



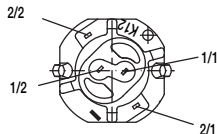
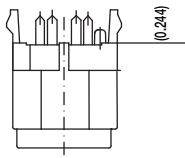
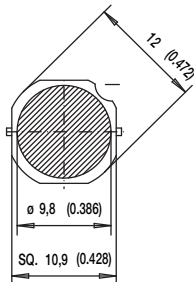
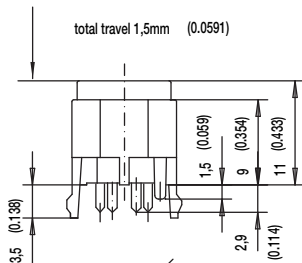
Dimensions are shown: mm  
Specifications and dimensions subject to change

# K12

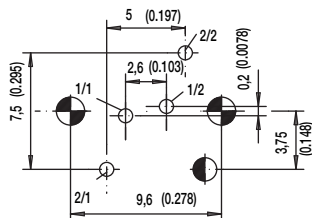
## High Performance Key Switches

SERIES 

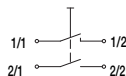
### K12GO



PCB LAYOUT, MOUNTING SIDE



SCHEMATIC K12G



| Hole | Ø             | Without LED | Description | Terminal Section        | Surface |
|------|---------------|-------------|-------------|-------------------------|---------|
|      | 1,7<br>(.069) | 2x          | snap-in     |                         |         |
|      | 1,6<br>(.062) | 1x          | code        |                         |         |
|      | 0,9<br>(.035) |             | LED         | m0.5 (.020)             | Sn      |
|      |               | 2x          | switch 2    | 0.7 x 0.3 (.028 x .012) | Sn      |
|      |               | 2x          | switch 1    | 0.7 x 0.2 (.028 x .081) | Sn      |



First Angle  
Projection

Dimensions are shown: mm  
Specifications and dimensions subject to change

# K12

[illegible]

| OPTION CODE | COLOR            |
|-------------|------------------|
| <b>NONE</b> | Version with LED |
| <b>BK</b>   | Black - no LED   |
| <b>YE</b>   | Yellow - no LED  |
| <b>RD</b>   | Red - no LED     |
| <b>GY</b>   | Gray - no LED    |

| OPTION CODE | COLOR              |
|-------------|--------------------|
| NONE        | Models without LED |
| GN          | Green              |
| YE          | Yellow             |
| OG          | Orange             |
| RD          | Red                |
| WH          | White              |
| BU          | Blue               |

| STANDARD LED CODE | COLOR              |
|-------------------|--------------------|
| NONE              | Models without LED |
| LV306             | Green              |
| LV327             | Yellow             |
| LV315             | Orange             |
| LV352             | Red                |
| LV302             | White              |
| LV328             | Blue               |

A diagram of a linked list with 6 nodes. The first three nodes are black, and the last three are white. The fourth node is highlighted with a red border.

**1** 1 mm  
**1.5** 1.5 mm  
**2** 2 mm



A diagram of a linked list with four nodes. The first three nodes are black, and the fourth is white. The white node has a pointer to a small white node, which is also white.

| OPTION CODE    | OPERATING FORCE                |
|----------------|--------------------------------|
| <b>1.5N OD</b> | 1.5 N, 150g without snap-point |
| <b>2.5N</b>    | 2.5 N, 250g                    |
| <b>3.5N</b>    | 3.5 N, 350g                    |
| <b>5N</b>      | 5 N, 500g                      |
| <b>3.5/7N</b>  | 3.5/7 N, 350/700g              |
| <b>6/12N</b>   | 6/12 N, 600-1200g              |

## CONTACT ARRANGEMENT OPTION

**1R** SPST NC (SPECIAL REQUEST FOR NORMALLY CLOSED OPTION)



Dimensions are shown: mm  
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