



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

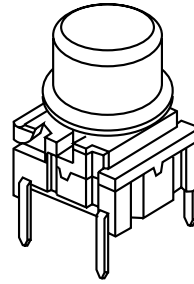
Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

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Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



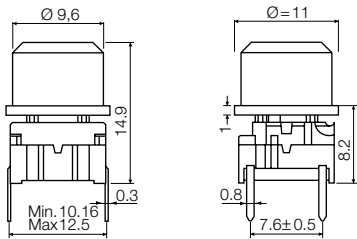
multimec® 3F + 1D/1E/1F



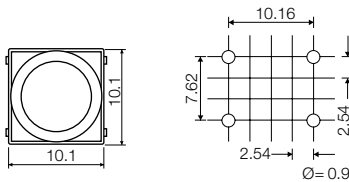
Technical Data:

- through-hole or SMD
- 50mA/24VDC
- single pole/momentary
- 10.000.000 operations life time
- IP67 sealing
- temperature range:
low temp: -40/+115°C
high temp: -40/+160°C

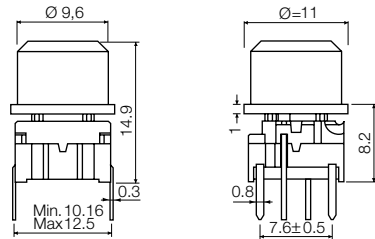
Dimensions (through-hole)



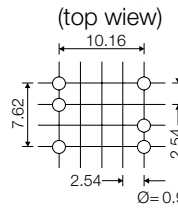
PCB layout



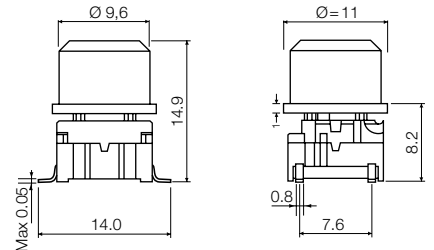
Dimensions (w/LED)



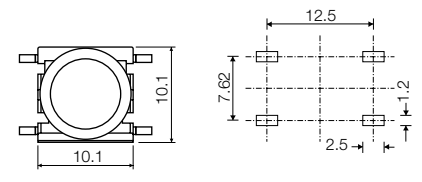
PCB layout




Dimensions (SMD)



PCB layout






HOW TO ORDER

| | | | | | | | | |
|---------------|--------------------------|--------------------------|----------|---|------------------|--------------------------|----------------------------|--------------------------|
| 3 F | <input type="checkbox"/> | <input type="checkbox"/> | + | <input type="checkbox"/> | 1 D | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Switch | Mounting | L 6 low temp. | | Cap | 00 blue | 30 ultra blue | 50 metal dark blue | |
| | T through-hole | H 9 high temp. | |  | 02 green | 40 dusty blue | 53 metal light grey | |
| | S surface mount | | | | 03 grey | 42 aqua blue | 57 metal dark grey | |
| | | | | | 04 yellow | 32 mint green | 58 metal bordeaux | |
| | | | | | 06 white | 33 tele grey | | |
| | | | | | 08 red | 34 melon | | |
| | | | | | 09 black | 38 noble red | | |

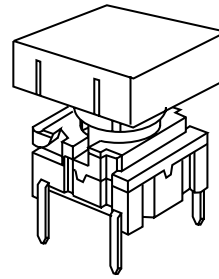
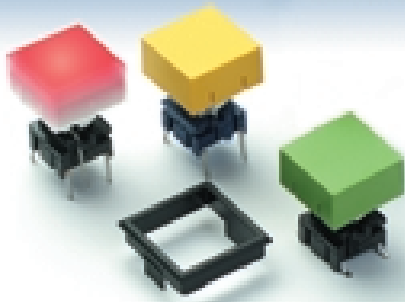
Standard versions:

3FTL6
3FTH9
3FSH9
3FSH9R

| | | | | | | | |
|---------------|-----------------------|--------------------------|--------------------------|--------------------------|--|------------------|--------------------------|
| 3 F | T | <input type="checkbox"/> | <input type="checkbox"/> | + | <input type="checkbox"/> | 1 1 | <input type="checkbox"/> |
| Switch | Mounting | L 6 low temp. | | LED | Cap 1D | transparent | Lens |
| | T through-hole | H 9 high temp. | | 00 blue |  | | |
| | | | | 20 green | Cap 1E | 00 blue | 1 transparent |
| | | | | 40 yellow |  | 02 green | 2 green |
| | | | | 80 red | Cap 1F | 03 grey | 4 yellow |
| | | | | 2040 green/yellow |  | 04 yellow | 8 red |
| | | | | 8020 red/green | | 06 white | |
| | | | | 8040 red/yellow | | 08 red | |
| | | | | | | 09 black | |

Ordering example: 3FTL620 + 1E032

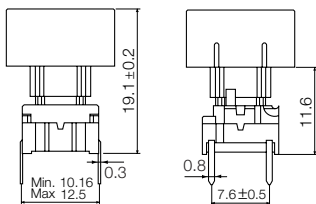
multimec® 3F + 1K + 2K



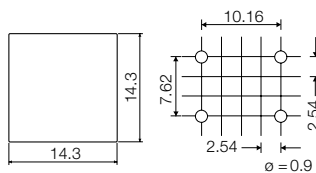
Technical Data:

- through-hole or SMD
- 50mA/24VDC
- single pole/momentary
- 10.000.000 operations life time
- IP67 sealing
- temperature range:
low temp: -40/+115°C
high temp: -40/+160°C

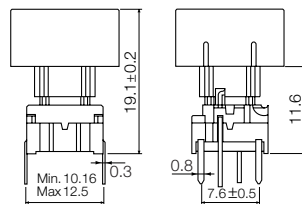
Dimensions (through-hole)



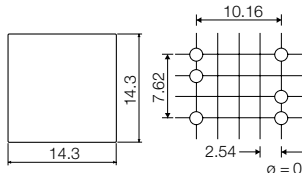
PCB layout



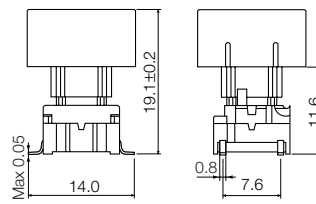
Dimensions (w/LED)



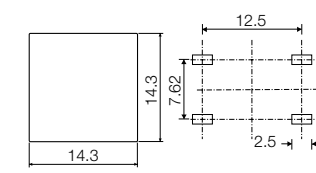
PCB layout (top view)



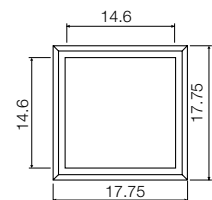
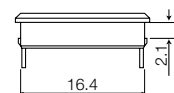
Dimensions (SMD)





PCB layout



Dimensions (Bezel) (Optional)





HOW TO ORDER

| | | | | | | | | |
|---------------|--------------------------|--------------------------|---|--|------------------|---|---|--------------------------|
| 3 F | <input type="checkbox"/> | <input type="checkbox"/> | + | 1 K | 1 6 | + | 2 K | <input type="checkbox"/> |
| Switch | Mounting | L 6 low temp. | | Cap | 00 blue | | Bezel | 03 grey |
| | T through-hole | H 9 high temp. | |  | 02 green | |  | 06 white |
| | S surface mount | | | | 03 grey | | | 08 red |
| | | | | | 04 yellow | | | 09 black |
| | | | | | 06 white | | | |
| | | | | | 08 red | | | |
| | | | | | 09 black | | | |

Standard versions:

- 3FTL6
- 3FTH9
- 3FSH9
- 3FSH9R

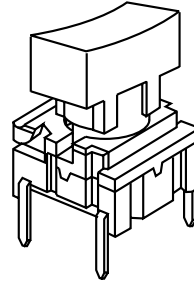
| | | | | | | | |
|---------------|-----------------------|--------------------------|---|--|---|---|--------------------------|
| 3 F | T | <input type="checkbox"/> | + | 1 K 1 1 1 6 | + | 2 K | <input type="checkbox"/> |
| Switch | Mounting | L 6 low temp. | | Cap transparent | | Bezel | 03 grey |
| | T through-hole | H 9 high temp. | |  | |  | 06 white |
| | | | | | | | 08 red |
| | | | | | | | 09 black |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Standard versions:

- 3FTL622
- 3FTL644
- 3FTL688

Ordering example: 3FTL688 + 1K1116

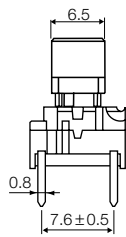
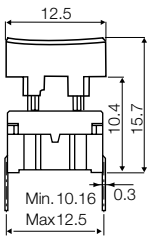
multimec® 3F + 1P/1Q/1R



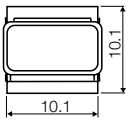
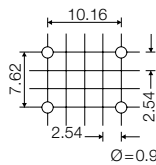
Technical Data:

- through-hole or SMD
- 50mA/24VDC
- single pole/momentary
- 10.000.000 operations life time
- IP67 sealing
- temperature range:
low temp: -40/+115°C
high temp: -40/+160°C

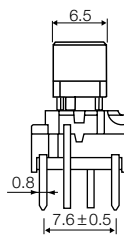
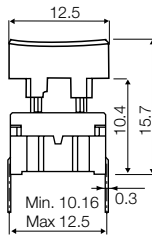
Dimensions (through-hole)



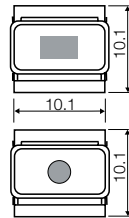
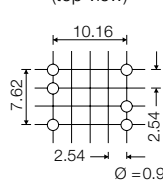
PCB layout



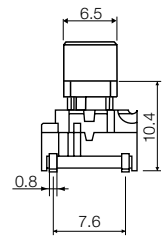
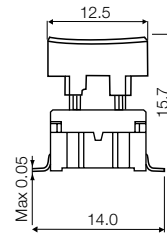
Dimensions (w/LED)



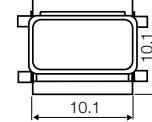
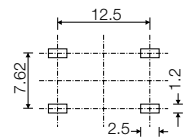
PCB layout (top view)



Dimensions (SMD)



PCB layout



How to order

3 F

Switch



Mounting

T through-hole

S surface mount



L 6 low temp.
H 9 high temp.

+

1 P

Cap



00 blue
02 green
03 grey
04 yellow
06 white
08 red
09 black

Standard versions:

3FTL6
3FTH9
3FSH9
3FSH9R

3 F

Switch

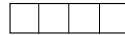


Mounting

T through-hole



L 6 low temp.
H 9 high temp.



LED

00 blue
20 green
40 yellow
80 red
2040 green/yellow
8020 red/green
8040 red/yellow

+



1Q



00 blue
03 grey
08 red
09 black

1

Lens

1 transparent

Standard versions:

3FTL600
3FTL620
3FTL640
3FTL680
3FTL62040
3FTL68020
3FTL68040

1R

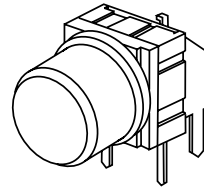


Ordering example: 3 FTL680 + 1Q091

multimec® RAS + 1D/1K/1P/1S

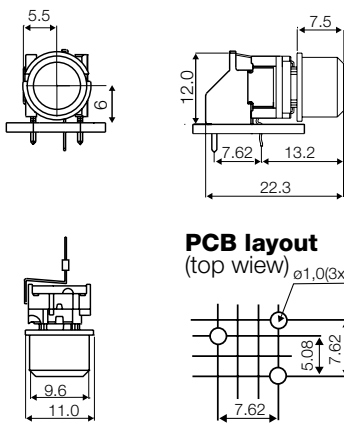


Technical Data:

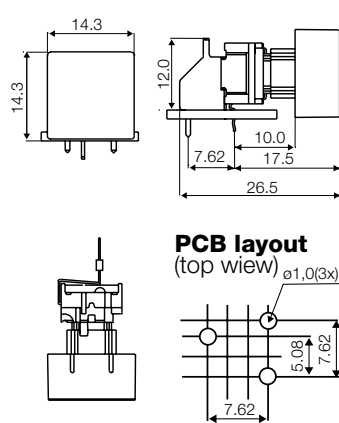


- through-hole only
- 50mA/24VDC
- single pole/momentary
- 10.000.000 operations life time
- IP67 sealing
- temperature range:
low temp: -40/+115°C

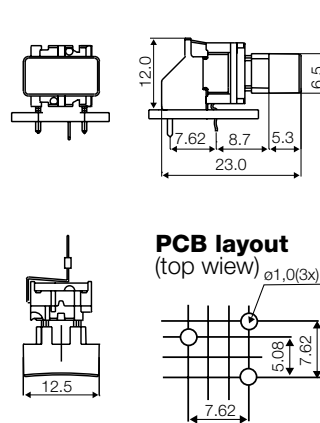
Dimensions 1D



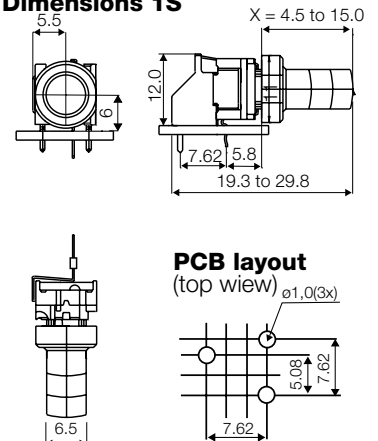
Dimensions 1K






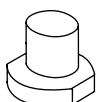
Dimensions 1P



Dimensions 1S



HOW TO ORDER

| | | | | | | | | |
|---------------|-----------------------------------|----------------------|----------------------------|---|---|------------------|----------------------|----------------------------|
| 3 F | T | L 6 | R A S | + | 1 D | | | |
| Switch | Mounting T through-hole | L 6 low temp. | Right angle support | | Cap | 00 blue | 30 ultra blue | 50 metal dark blue |
| | | | | |  | 02 green | 40 dusty blue | 53 metal light grey |
| | | | | | | 03 grey | 42 aqua blue | 57 metal dark grey |
| | | | | | | 04 yellow | 32 mint green | 58 metal bordeaux |
| | | | | | | 06 white | 33 tele grey | |
| | | | | | | 08 red | 34 melon | |
| | | | | | | 09 black | 38 noble red | |
| | | | | | 1 P | 00 blue | | |
| | | | | |  | 03 grey | | |
| | | | | | | 08 red | | |
| | | | | | | 09 black | | |
| | | | | | 1 K | 1 6 | + | 2 K |
| | | | | |  | Cap | 00 blue | Bezel |
| | | | | | | 02 green | 03 grey | 03 grey |
| | | | | | | 03 grey | 08 red | 06 white |
| | | | | | | 04 yellow | 09 black | 08 red |
| | | | | | | 06 white | | 09 black |
| | | | | | | 08 red | | |
| | | | | | | 09 black | | |
| | | | | | 1 S 0 9 | Cap black | H | X * |
| | | | | |  | | 16.0 | 8.5 |
| | | | | | | | 19.0 | 11.5 |
| | | | | | | | 22.5 | 15.0 |

Standard versions:
3FTL6RAS, 3CTL6RAS,

*Any cap height X from 8.5 to 15.0 mm is available. Please order 1S09-H, where H = X+7.5 mm
Min. order Qty for custom heights is 2.000 pcs. A start-up charge will apply.
3CTL6 also available as right angle switch 3CTL6RAS. Please see multimec basic switch modules.

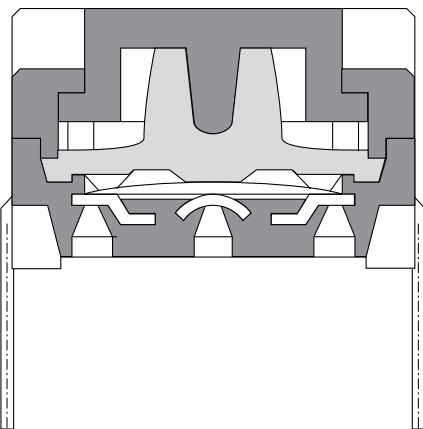
Ordering example: 3FTL6RAS + 1K0016 + 2K03

| Through-hole Version | | | | | | |
|--|------------------|----------------------|----------------------|--|-------------------------------------|---------------------------|
| 3A | 3C | 3E | 3F | 3F | 3F | 3F |
| For 1A/1B/1M | w/LED for 1C/1H | | | For 1D/1K/1N/1P/1S/1T/ 1U/1V/1X/1GA/1GC | w/LED for 1E/1F/1N/1Q/1R/1S/1X | w/LED for 1K1116/1T/1U/1V |
| | | | | | | |
| Standard Versions | | | | | | |
| 3ATL6 3ATH9 | 3ATL600/20/40/80 | 3CTL6/3CTL9 3CTH9 | 3ETL9-H* 3ETH9-H* | 3FTL6 3FTH9 | 3FTL600/20/40/80/ 2040/8020/8040 | 3FTL623/44/88 |
| * 3E available in 6 standard heights: 08.0, 09.5, 10.4, 11.0, 12.0, 15.0 mm Other heights between 08.0 and 15.0 mm are available upon request | | | | | | |
| Specials: Gold contacts, quiet version and actuation force other than 3.0N | | | | | | |

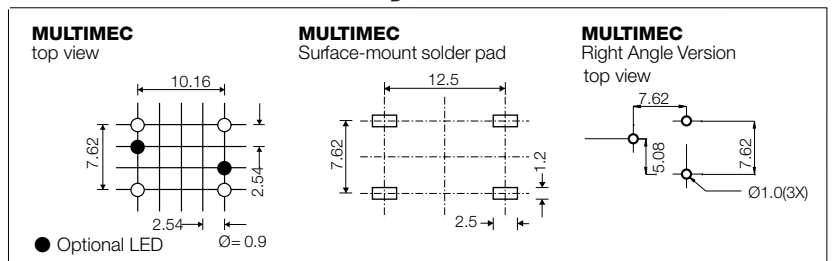
| Surface Mount Versions | | | |
|------------------------|--------------|--------------|--|
| 3A | 3C | 3E | 3F |
| | | | |
| 3ASH9/3ASH9R | 3CSH9/3CSH9R | 3ESH9/3ESH9R | 3FSH9 / 3FSH9R |
| For 1A/1B/1M | | | For 1D/1K/1N/1P/1S/1T/ 1U/1V/1X/1GA/1GC |

| Right Angle Versions | |
|----------------------|-----------------|
| 3C | 3F |
| | |
| 3CTL6RAS | 3FTL6RAS |
| | For 1D/1K/1P/1S |

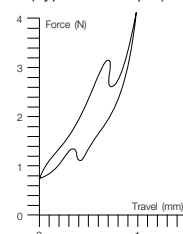
multimec® Cross Section



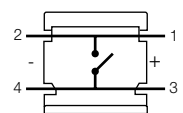
Recommended PCB layout



Operating Force
(Typical example)



Circuit diagram



DIMENSIONS (mm) Unless otherwise specified, all tolerances ± 0.2

| | Low Temperature Versions | | High Temperature Versions | |
|--|---|-------------------------------|--|-------------------------------|
| | Silver | Gold | Silver | Gold |
| Electrical Specifications | | | | |
| Contact resistance | <30 mΩ - typically 10mΩ | | | |
| Insulation resistance | >10M Ω | | | |
| Recommended load | 0.5-50mA 24VDC | 0.5μ-50mA 24VDC | 0.5-50mA 24VDC | 0.5μ-50mA 24VDC |
| Contact bounce | <2mS - typically 0.5mS | | | |
| Mechanical Specifications | | | | |
| Standard actuation force (switch) | 3.0N typ. | | | |
| Max. actuation force without cap | 100N for 10 sec. | | | |
| Key travel (switch) | 1 mm | | | |
| Life time (switch) | >10.000.000 cycles | | | |
| Temperature Range | | | | |
| Working temperature | Min. -40°C Max. +115°C | | Min. -40°C Max. +160°C | |
| Storage temperature | Min. -40°C Max. +115°C | | Min. -40°C Max. +160°C | |
| Soldering IEC 68-2-20 | Wave -max. 260°C for max. 10 sec., please refer to usage guidelines | | Infrared, vapour phase, wave - max. 260°C for max. 30 sec. | |
| | Soldering iron - max. 350°C for max. 3 sec. Flux tight. | | Soldering iron - max. 350°C for max. 3 sec. Flux tight. | |
| Environmental Endurance IEC-68-2-3 | | | | |
| Temperature | +40°C | | | |
| Humidity | 93% RH | | | |
| Duration | 56 Days | | | |
| Temperature Cycling IEC 68-2-14 | | | | |
| Temperature limit | Min. -55°C - Max. +85°C | | | |
| Number of cycles | 200 | | | |
| Exposure time at each temperature | 10 min. | | | |
| Recovery time before measurements | 16 hrs. | | | |
| Sealing IEC 529 | IP-67 | | | |
| Cleaning | Standard methods such as freon and water | | | |
| Material Specifications - Switches | | | | |
| Housing | PBT UL94VO | | PPS UL94VO | |
| Actuator | PBT UL94VO | | PPS UL94VO | |
| Sealing + spring | Silicone rubber | | | |
| Contact spring | Stainless steel + 3μAg | Stainless steel + 3μAg + 1μAu | Stainless steel + 3μAg | Stainless steel + 3μAg + 1μAu |
| Fixed Contacts | SnCu + 2μNi + 3μAg | SnCu + 2μNi + 3μAg + 1μAu | SnCu + 2μNi + 3μAg | SnCu + 2μNi + 3μAg + 1μAu |
| Terminals | SnCu + 2μNi + 3μSnPb | SnCu + 2μNi + 3μSnPb | SnCu + 2μNi + 3μSnPb | SnCu + 2μNi + 3μSnPb |
| Material Specifications - Caps & Bezels | | | | |
| Material | Parts | Temp limit | UL rating | |
| ABS Standard | Standard parts except the below mentioned | Max 65°C | UL94HB | |
| Polycarbonate | All lenses | Max. 85°C | UL94V1 | |
| LCP | Actuator of 3E | Max. 160°C | UL94VO | |
| PPS | 1S, 2S | Max. 160°C | UL94VO | |
| Polyamide | Actuator of Varimec , 1GA/ 1GC | Max. 160°C | UL94VO | |
| Legends Adhesion | ISO Class.: 1/ ASTM Class.: 4B DIN EN ISO 2409 | | | |

Specifications are subject to change without notice