



A

Pushbutton

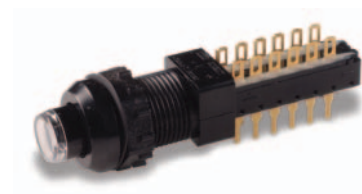
# F Series Pushbutton Switches

## Features/Benefits

- Up to 10 poles per module
- Various contact terminals
- Various mounting & switch ganging configurations
- Mechanical indicator buttons
- RoHS compliant

## Typical Applications

- Audio selection
- Digital equipment interface
- Medical equipment interface



## Specifications

SWITCHING POWER: F module max. AC/DC: Silver: 50 VA/15W, Gold: 1 VA/300 mW.

SWITCHING VOLTAGE: F module max. AC/DC: Silver: 125/30V, Gold: 50/30 V.

SWITCHING CURRENT: F module max. AC/DC: Silver: 0.5A/0.5A, Gold: 0.04A/0.01A.

CARRYING CURRENT: Max at du = 20C: Silver: < 2A, Gold: <0.5A.

DIELECTRIC STRENGTH (50 Hz, 1 min.): Chassis/contact: ^1500V  
Between contacts: ^1500V.

OPERATING LIFE "OA/EE" (24V/200mA): >10<sup>5</sup> operations  
"GR": >3.5 x 10<sup>4</sup> operations.

CONTACT RESISTANCE: Initial: Typical %10 mΩ, max. 20 mΩ  
After operating life: %100 mΩ

INSULATION RESISTANCE: ^10<sup>9</sup> Ω between open contacts,  
^10<sup>9</sup> Ω between chassis and contacts.

CAPACITANCE (at f = 10 kHz): %0.7 pF between 2 contacts.

TOTAL TRAVEL/LATCHING TRAVEL: 4.7mm/3.3mm (.185 inch/.130 inch).

All models and options are RoHS compliant and compatible.

**NOTE:** All models and options are RoHS compliant and compatible.

**NOTE:** Specifications and materials listed above are for switches with standard options.  
For information on specific and custom switches, consult Customer Service Center.

TYPICAL F OPERATING FORCE: 2U: 6.5N (650 grams); 4U: 6.5N (650 grams); 6U: 7.5N (750 grams); 8U: 9.0N (900 grams); 10U: 9.0N (900 grams).

EUROPEAN TYPICAL SF OPERATING FORCE:

2U: 3.5N±0.5N (350 grams±100 grams); 4U: 5N±1N (500 grams±100 grams); 6U: 6.5N±1N (650 grams±100 grams); 8U: 9.0N±1N (900 grams±100 grams).

OPERATING TEMPERATURE RANGE: -40°C to 70°C.

## Materials

HOUSING: Polycarbonate UL 94V-0 or polyester UL 94V-0.

ACTUATOR: Polyester UL 94V-0.

MOVABLE CONTACTS: Bimetal brass, silver plated, gold plate over nickel.

STATIONARY CONTACTS & TERMINALS: Brass, silver plated, gold plated.

TERMINAL BOARD: Polyester UL 94V-0.

RETURN SPRING: Music wire.

TERMINAL SEAL: RTV adhesive sealant.

CHASSIS: Steel.

LOCKOUT PIN: Steel.

BLOCKERS: Steel.

## Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-89 thru A-97. For additional options not shown in catalog, consult Customer Service Center.

If requesting only a switch, select either a North American or European switch as noted below. Chassis and buttons are sold separately. If multiple stations are selected, we will assume all switches are the same unless noted otherwise.

## North American Order Code - Switch Only

|                                                                                                                         |                                                                                                                                 |                                                                                                                                                                                                                                 |                                                                             |                                                                                                                                                                            |                                                                                                                     |                                                                             |                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <div>Designation</div> <div>F F Series</div> <div>FLT Light touch F series</div> <div>ZF Central mounted F series</div> | <div>Contact Arrangement</div> <div>2U 2PDT</div> <div>4U 4PDT</div> <div>6U 6PDT</div> <div>8U SPDT</div> <div>10U 10PDT</div> | <div>Mechanical Function</div> <div>OA Momentary</div> <div>EE Alternate (push-push)</div> <div>GR Interlock</div> <div>AOR Central release</div> <div>OASP Momentary with lockout</div> <div>GRSP Interlock with lockout</div> | <div>Terminal Sealing</div> <div>(NONE) None</div> <div>TB Top/bottom</div> | <div>Terminal Style</div> <div>(NONE) Solder lugs &amp; PC pins</div> <div>01A Cut solder lugs</div> <div>01B Cut PC pins, for other configurations, consult factory</div> | <div>Electrical Function</div> <div>(NONE) BBM Break-Before-Make</div> <div>M MBB (special) Make-Before-Break</div> | <div>Contact Material</div> <div>(NONE) Silver, AG</div> <div>AU Gold</div> | <div>Dress nut*</div> <div>*Central mounted F series only</div> <div>(NONE) No dress nut</div> <div>B Black</div> <div>C Chrome</div> |
|-------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|



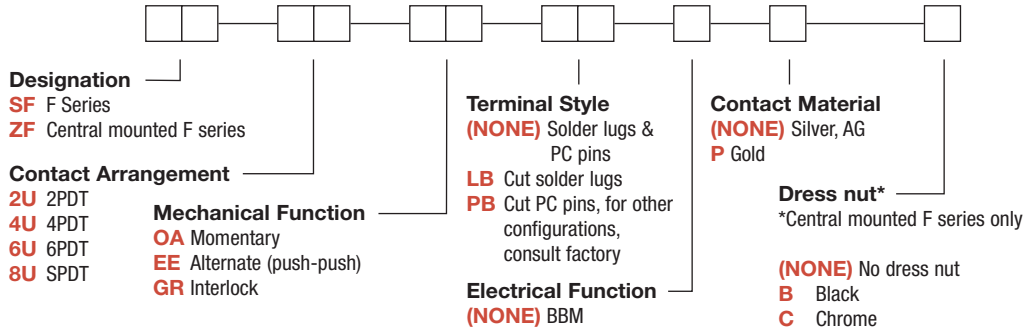
Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

# F Series Pushbutton Switches



Pushbutton

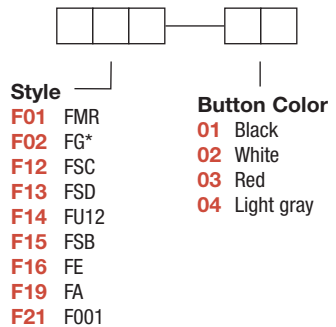
## European Order Code - Switch Only



\*Minimum order quantities apply.

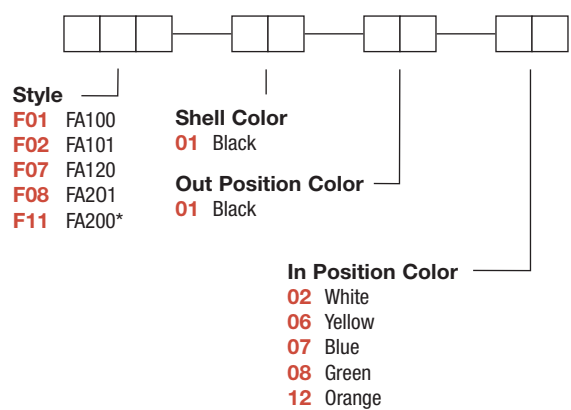
## Order Code - Buttons

### Solid Buttons



\*Button options for central mounting configurations, use 'FG' for central mount with chrome dress nut, use 'FA200' for central mount with black dress nut.

### Mechanical Indicator Buttons



## BUTTON REMOVAL

A button of a push-push switch should only be removed in the "OFF" non-latching position.



Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change



A

Pushbutton

# F Series Pushbutton Switches

## Order Code - Chassis

To order a switch with chassis, create the switch part number listed above and add the Chassis part number configurator information at the end of the part number.

Note: We do not guarantee or recommend interlocking beyond 10 stations.



### No. of Stations

01 thru 23

Comes with standard  
.094 (2,4mm) mounting holes  
Note: Single station chassis  
available with special mounting  
configurations, consult factory.

### Spacing between Stations

00 Single station  
10 10mm  
12.5 12.5mm  
15 15mm  
17.5 17.5mm  
20 20mm

### Special Acknowledgements

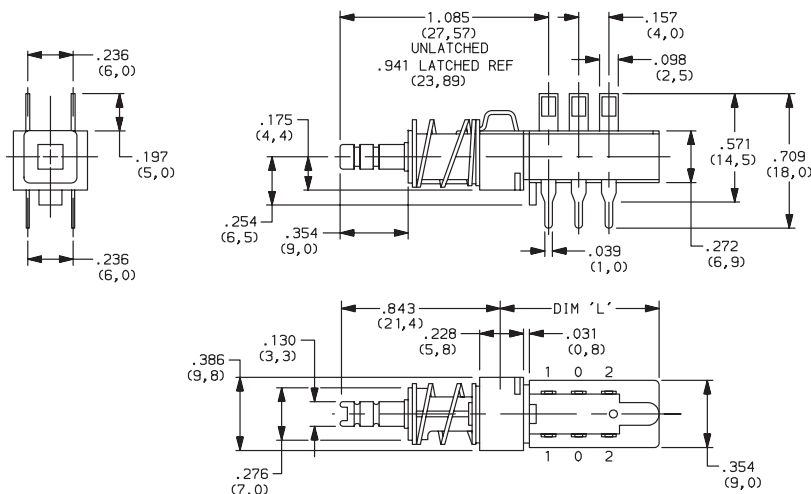
See note

\*Minimum order quantities apply.

## SWITCHES WITH STANDARD OPTIONS

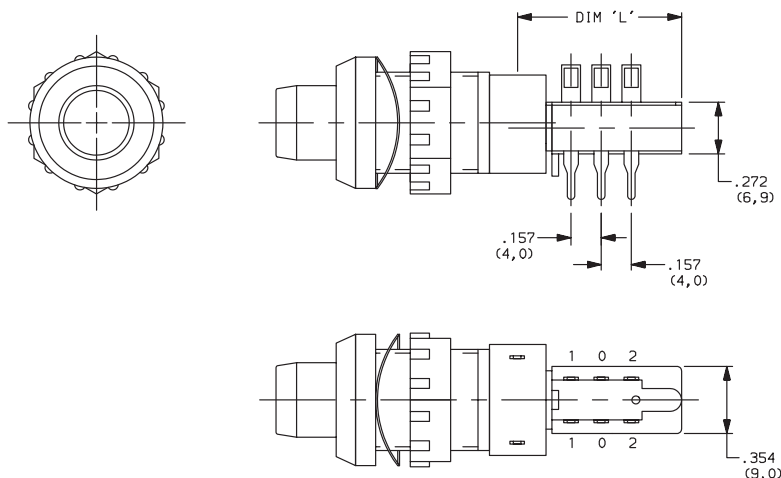
### F2UEE

| CONTACT ARRANGEMENT | LENGTH DIM 'L' |
|---------------------|----------------|
| 2U                  | 0.827 (21,00)  |
| 4U                  | 1.300 (33,00)  |
| 6U                  | 1.770 (45,00)  |
| 8U                  | 2.240 (57,00)  |
| 10U                 | 2.720 (69,00)  |



### ZF2UEEBF11010108

| CONTACT ARRANGEMENT | LENGTH DIM 'L' |
|---------------------|----------------|
| 2U                  | 0.827 (21,00)  |
| 4U                  | 1.300 (33,00)  |
| 6U                  | 1.770 (45,00)  |
| 8U                  | 2.240 (57,00)  |
| 10U                 | 2.720 (69,00)  |



Third Angle  
Projection



Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

F Series  
Pushbutton Switches



A

Pushbutton

DESIGNATION



Designation, North America

- F** F Series
- FLT** Light touch F series
- ZF** Central mounted F series

Designation, Europe

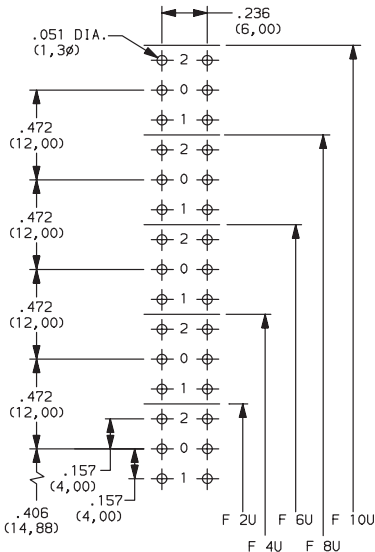
- SF** F Series
- ZF** Central mounted F series

CONTACT ARRANGEMENT



| OPTION CODE | NO. OF POLES | SCHEMATIC |
|-------------|--------------|-----------|
| 2U          | 2PDT         |           |
| 4U          | 4PDT         | 2X        |
| 6U          | 6PDT         | 3X        |
| 8U          | 8PDT         | 4X        |
| 10U         | 10PDT        | 5X        |

PC MOUNTING



MECHANICAL FUNCTION



North America

| OPTION CODE | FUNCTION               |
|-------------|------------------------|
| OA          | Momentary              |
| EE          | Alternate (push-push)  |
| GR          | Interlock              |
| AOR         | Central release        |
| OASP        | Momentary with lockout |
| GRSP        | Interlock with lockout |

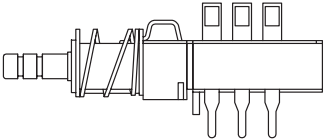
Europe

| OPTION CODE | FUNCTION              |
|-------------|-----------------------|
| OA          | Momentary             |
| EE          | Alternate (push-push) |
| GR          | Interlock             |

TERMINAL SEALING

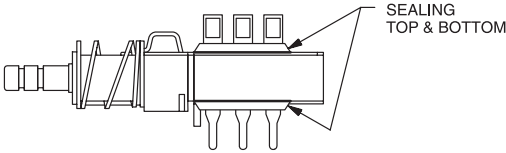


(NONE) NO SEAL

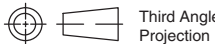


F2UEE shown in example above.

TB TOP & BOTTOM



NOTE: Available for North America only



Third Angle  
Projection



Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

www.ck-components.com



A

Pushbutton

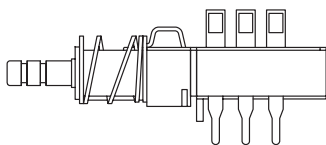
# F Series Pushbutton Switches

## TERMINAL STYLE



(NONE)

SOLDER LUGS & PC PINS

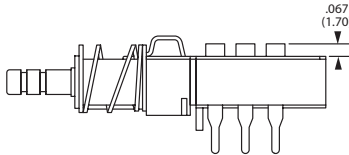


01A

CUT SOLDER LUGS (North America)

LB

CUT SOLDER LUGS (Europe)

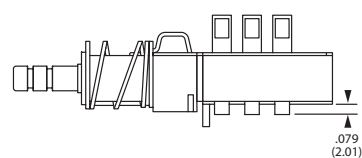


01B

CUT PC PINS (North America)

PB

CUT PC PINS (Europe)



## ELECTRICAL FUNCTION



| OPTION CODE | FUNCTION                          |
|-------------|-----------------------------------|
| (NONE)      | BBM Non-shorting                  |
| M           | MBB Shorting (North America only) |

## CONTACT MATERIAL



| NORTH AMERICA<br>OPTION CODE | EUROPE<br>OPTION CODE | RoHS<br>COMPLIANT * | RoHS<br>COMPATIBLE * | MATERIAL   | RATING                             |
|------------------------------|-----------------------|---------------------|----------------------|------------|------------------------------------|
| (NONE)                       | (NONE)                | YES                 | YES                  | SILVER, AG | 50 VA/15 W; 125/30 V; 0.5/0.5 A    |
| AU                           | P                     | YES                 | YES                  | GOLD       | 1 VA/300mW; 50/30 V; 0.04 A/0.01 A |

\* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

## DRESS NUT

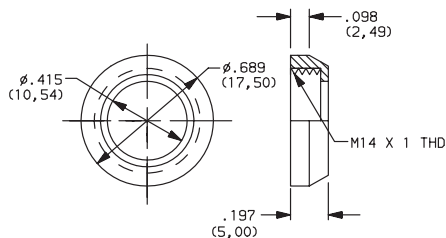


(NONE)

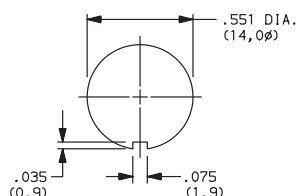
NO DRESS NUT FOR F & F/LT  
DESIGNATIONS

B

BLACK



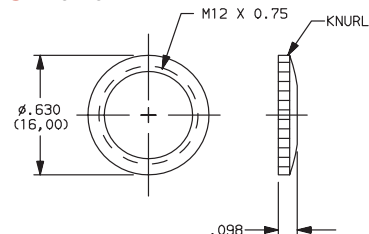
### PANEL CUTOUT



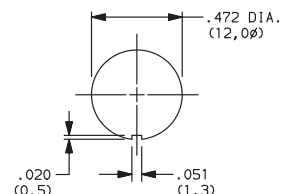
NOTE: Available with ZF designation and FA200 buttons.

C

CHROME



### PANEL CUTOUT



NOTE: Available with ZF designation and  
FG button.



Third Angle  
Projection

Dimensions are shown: Inches (mm)  
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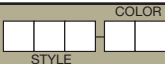
F Series  
Pushbutton Switches



A

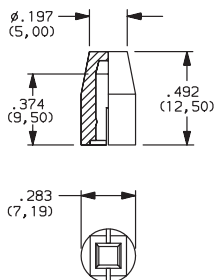
Pushbutton

SOLID BUTTON

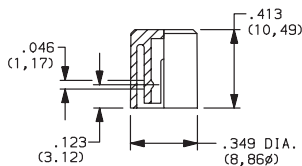
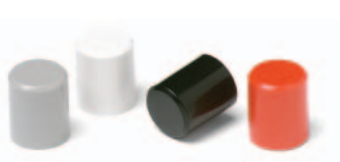


STYLE

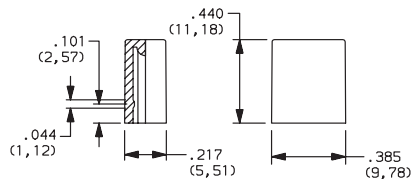
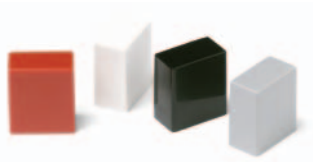
F01 FMR



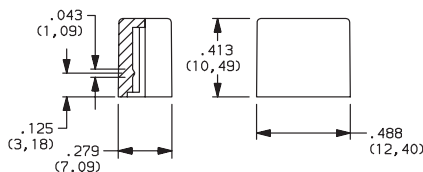
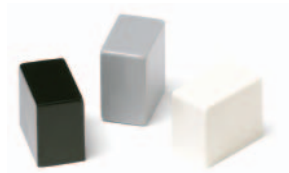
F02 FG



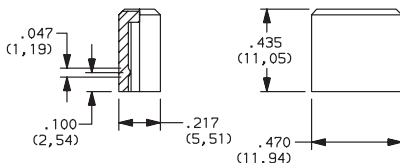
F12 FSC



F13 FSD



F14 FU12



| OPTION CODE | COLOR    |
|-------------|----------|
| 01          | BLACK    |
| 02          | WHITE    |
| 03          | RED      |
| 04          | LT. GRAY |



# F Series Pushbutton Switches

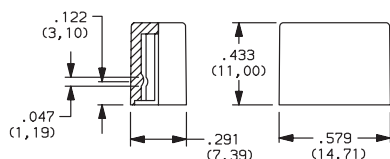
Pushbutton  
A

## SOLID BUTTON

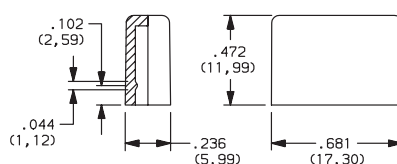


### STYLE

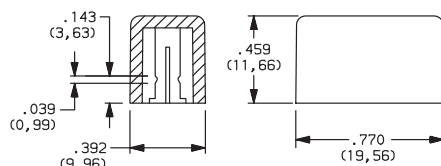
#### F15 FSB



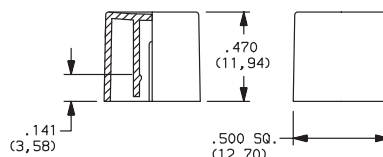
#### F16 FE



#### F19 FA



#### F21 F001



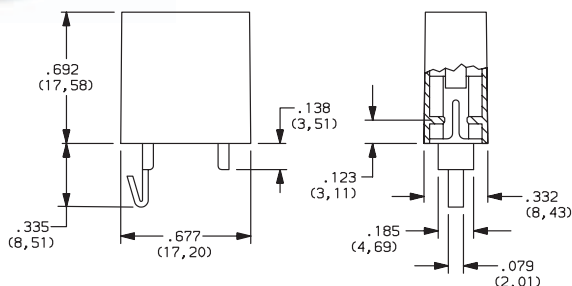
| OPTION CODE | COLOR    |
|-------------|----------|
| 01          | BLACK    |
| 02          | WHITE    |
| 03          | RED      |
| 04          | LT. GRAY |

## MECHANICAL BUTTON

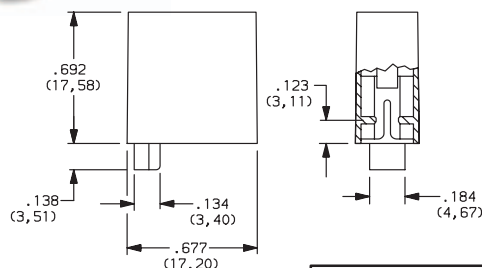


### STYLE

#### F01 FA100



#### F02 FA101



Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change



# F Series Pushbutton Switches



MECHANICAL BUTTON

SHELL COLOR

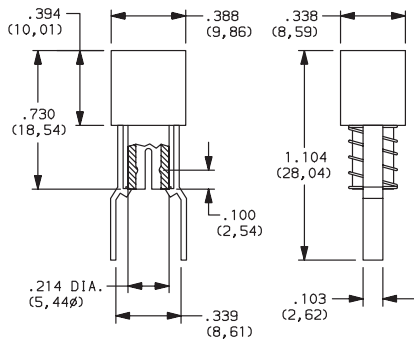
IN POSITION COLOR

STYLE

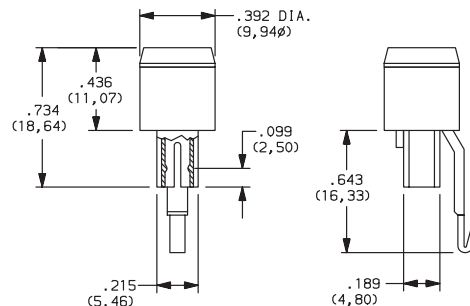
OUT POSITION COLOR

## STYLE

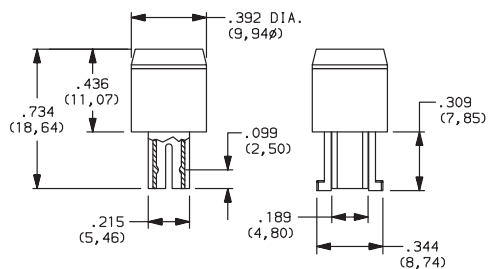
**F07** FA120



**F08** FA201



**F11** FA200



## SHELL COLOR

**01** BLACK

## OUT POSITION COLOR

**01** BLACK

## IN POSITION COLOR

| OPTION CODE | COLOR  |
|-------------|--------|
| <b>02</b>   | WHITE  |
| <b>06</b>   | YELLOW |
| <b>07</b>   | BLUE   |
| <b>08</b>   | GREEN  |
| <b>12</b>   | ORANGE |



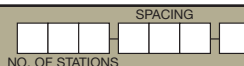
Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change





# F Series Pushbutton Switches

## CHASSIS



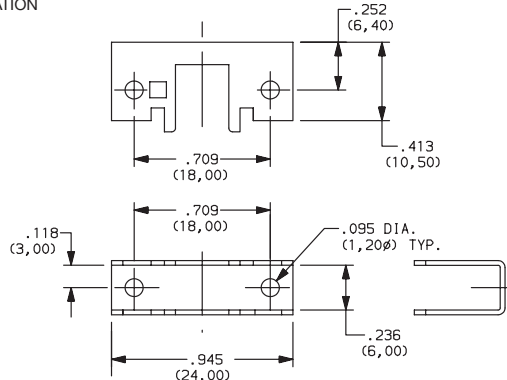
## NUMBER OF STATIONS

**C00 Thru C10** Comes with standard 0.094 (2,44mm) mounting holes

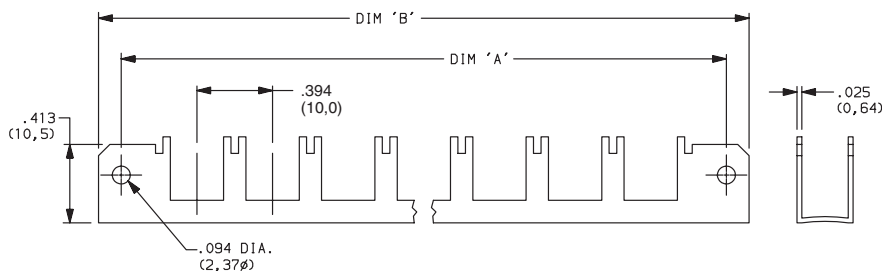
**NOTE:** Single station chassis available with mounting configurations, consult factory.

## SPACING

**00** SINGLE STATION

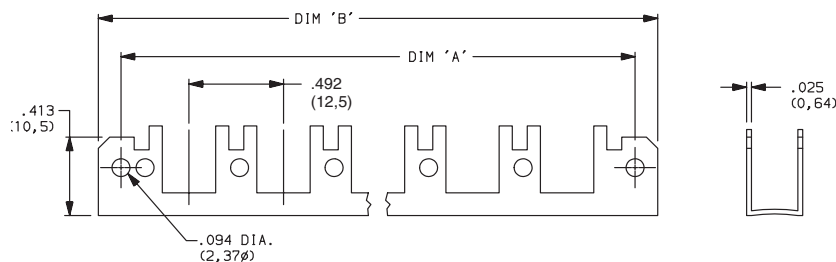


**10** 10mm

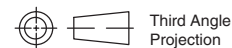


| No. of Stations | Dim. 'A'          | Dim. 'B'          | Tolerance |
|-----------------|-------------------|-------------------|-----------|
| 2               | 1.182<br>(30,02)  | 1.418<br>(36,02)  | 0.005     |
| 3               | 1.575<br>(40,01)  | 1.811<br>(46,00)  | 0.010     |
| 4               | 1.969<br>(50,01)  | 2.205<br>(56,01)  | 0.010     |
| 5               | 2.363<br>(60,02)  | 2.599<br>(66,01)  | 0.010     |
| 6               | 2.757<br>(70,03)  | 2.993<br>(76,02)  | 0.015     |
| 7               | 3.150<br>(80,01)  | 3.386<br>(86,00)  | 0.015     |
| 8               | 3.544<br>(90,02)  | 3.780<br>(96,01)  | 0.015     |
| 9               | 3.938<br>(100,03) | 4.174<br>(106,02) | 0.015     |
| 10              | 4.331<br>(110,01) | 4.567<br>(116,00) | 0.015     |

**12.5** 12.5mm



| No. of Stations | Dim. 'A'          | Dim. 'B'          | Tolerance |
|-----------------|-------------------|-------------------|-----------|
| 2               | 1.200<br>(30,48)  | 1.436<br>(36,47)  | 0.005     |
| 3               | 1.692<br>(42,98)  | 1.928<br>(48,97)  | 0.010     |
| 4               | 2.184<br>(55,47)  | 2.420<br>(61,47)  | 0.010     |
| 5               | 2.676<br>(67,97)  | 2.912<br>(73,96)  | 0.010     |
| 6               | 3.169<br>(80,49)  | 3.405<br>(86,49)  | 0.015     |
| 7               | 3.661<br>(92,99)  | 3.897<br>(98,98)  | 0.015     |
| 8               | 4.153<br>(105,49) | 4.389<br>(111,48) | 0.015     |
| 9               | 4.645<br>(117,98) | 4.881<br>(123,98) | 0.015     |
| 10              | 5.137<br>(130,48) | 5.373<br>(136,47) | 0.015     |



Third Angle  
Projection

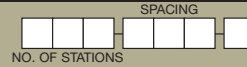
# F Series Pushbutton Switches



A

Pushbutton

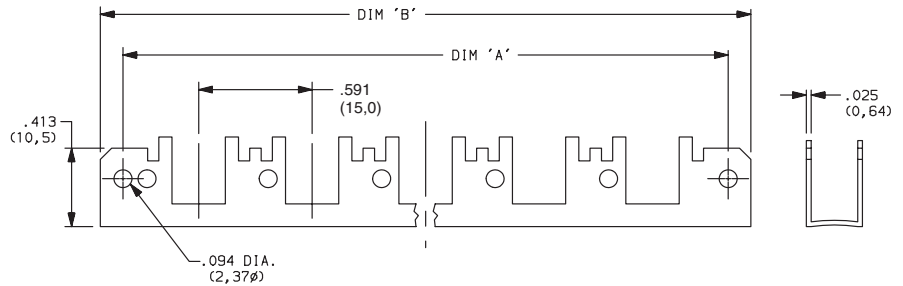
CHASSIS



## SPACING

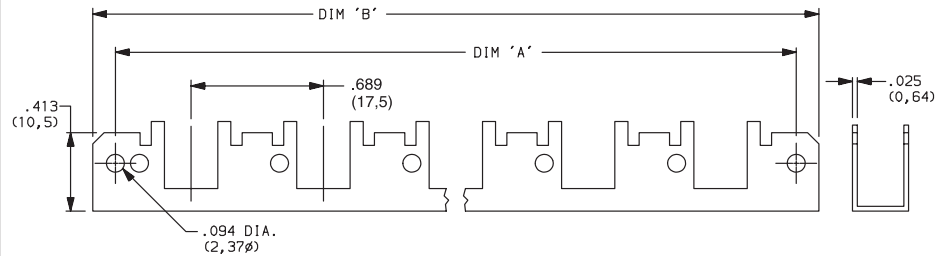
**15** 15mm

| No. of Stations | Dim. 'A'          | Dim. 'B'          | Tolerance |
|-----------------|-------------------|-------------------|-----------|
| 2               | 1.374<br>(34,90)  | 1.615<br>(41,02)  | 0.005     |
| 3               | 1.969<br>(50,01)  | 2.205<br>(56,01)  | 0.010     |
| 4               | 2.560<br>(65,02)  | 2.796<br>(71,02)  | 0.010     |
| 5               | 3.150<br>(80,01)  | 3.386<br>(86,00)  | 0.010     |
| 6               | 3.741<br>(95,02)  | 3.977<br>(101,02) | 0.015     |
| 7               | 4.332<br>(110,03) | 4.568<br>(116,03) | 0.015     |
| 8               | 4.922<br>(125,02) | 5.158<br>(131,01) | 0.015     |
| 9               | 5.513<br>(140,03) | 5.749<br>(146,02) | 0.015     |
| 10              | 6.103<br>(155,02) | 6.339<br>(161,01) | 0.015     |



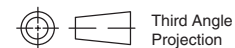
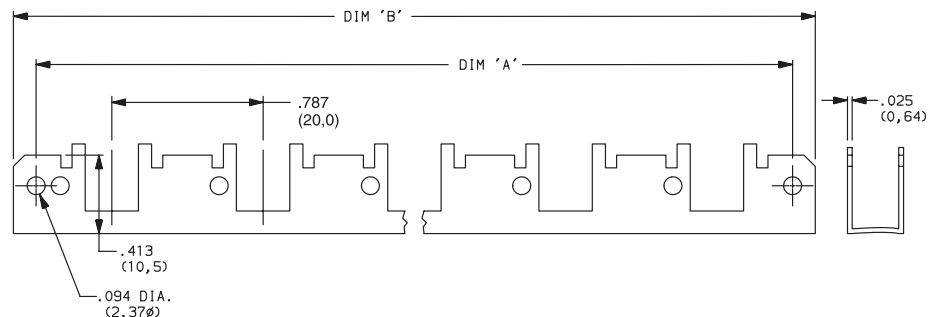
**17.5** 17.5mm

| No. of Stations | Dim. 'A'          | Dim. 'B'          | Tolerance |
|-----------------|-------------------|-------------------|-----------|
| 2               | 1.477<br>(37,52)  | 1.713<br>(43,51)  | 0.005     |
| 3               | 2.166<br>(55,02)  | 2.402<br>(61,01)  | 0.010     |
| 4               | 2.855<br>(75,52)  | 3.091<br>(78,51)  | 0.010     |
| 5               | 3.544<br>(90,02)  | 3.780<br>(96,01)  | 0.010     |
| 6               | 4.233<br>(107,52) | 4.469<br>(113,51) | 0.015     |
| 7               | 4.922<br>(125,02) | 5.158<br>(131,01) | 0.015     |
| 8               | 5.611<br>(142,52) | 5.847<br>(148,51) | 0.015     |
| 9               | 6.300<br>(160,02) | 6.536<br>(166,01) | 0.015     |
| 10              | 6.989<br>(177,52) | 7.225<br>(183,52) | 0.015     |



**20** 20mm

| No. of Stations | Dim. 'A'          | Dim. 'B'          | Tolerance |
|-----------------|-------------------|-------------------|-----------|
| 2               | 1.575<br>(40,01)  | 1.811<br>(46,00)  | 0.005     |
| 3               | 2.363<br>(60,02)  | 2.599<br>(66,01)  | 0.010     |
| 4               | 3.150<br>(80,01)  | 3.386<br>(86,00)  | 0.010     |
| 5               | 3.938<br>(100,03) | 4.174<br>(106,02) | 0.010     |
| 6               | 4.725<br>(120,02) | 4.961<br>(126,01) | 0.015     |
| 7               | 5.512<br>(140,00) | 5.748<br>(146,00) | 0.015     |
| 8               | 6.300<br>(160,02) | 6.536<br>(166,01) | 0.015     |
| 9               | 7.087<br>(180,01) | 7.323<br>(186,00) | 0.015     |
| 10              | 7.875<br>(200,03) | 8.111<br>(206,02) | 0.015     |



Third Angle  
Projection

**C&K**

Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

# Mouser Electronics

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