## Carling Technologies ${ }^{\circ}$ <br> III NOW PART OF <br> Litelelfuse

# 3S-Series 

Miniature Pushbutton Switches

PRODUCT WEBPAGE
request sample, configure part

The 3S family of sub-miniature pushbutton switches is composed of three switch series; the 3Sl-Series subminiature pushbutton switch, the 3SS-Series sealed sub-miniature pushbutton switch, and the 3SM-Series surface mount sealed sub-miniature pushbutton switch. All switches are available with a variety of rating, termination and actuator choices, and will withstand temperatures from $-30^{\circ} \mathrm{C}$ to $+85^{\circ} \mathrm{C}$.

## 1-2 <br> Poles <br>  <br> 125,250 <br> 28 <br> VDC

## Typical Applications

- Instrumentation
- Telecommunications
- Networking
- Performance Audio
- Computers
- Low Power On/Off Designs


## Tech Specs

3SS-Series
Sealed
Sub-Miniature
Pushbutton Switch

## Electrical

| Contact Rating | refer to ordering scheme |
| :--- | :--- |
| Electrical Life | 50,000 make \& break cycles @ <br> full load |
| Contact Resistance | $20 \mathrm{~m} \Omega$ max. initial @ 2-4 VDC <br> 100 mA for both silver \& gold <br> plated contacts |
| Insulation Resistance | $1000 \mathrm{M} \Omega$ min. |
| Dielectric Strength | 1500 Volts RMS @ sea level |

## Physical

| Operating Temperature | $-30^{\circ} \mathrm{C}$ to $+85^{\circ} \mathrm{C}$ |
| :--- | :--- |
| Index of Protection | $3 S S \& 3 S M-$ Series: IP67 |
| Solder Heat Resistance | MIL-STD-202, Method 210 |

## Material

| Case | all UL94 V-0 <br> 3S1-Series: Dially phthalate (DAP) <br> 3SS-Series: Glass filled nylon <br> 6/6,flame retardant, heat stabilized <br> 3SM-Series: Glass filled nylon <br> 4/6,flame retardant, heat stabilized |
| :---: | :---: |
| Plunger | 3S1-Series:Thermoplastic polyester, black 3SS-Series: Thermoplastic polyester (UL 94V-0), with internal o-ring 3SM-Series: Glass filled nylon 4/6,flame retardant, heat stabilized |
| Bushing | 3SI-Series: Brass, nickel plated 3SS-Series: Glass filled nylon 6/6,flame retardant, heat stabilized (UL 94V-0) <br> 3SM-Series: Glass filled nylon 4/6,flame retardant, heat stabilized (UL 94V-0) |
| Housing | Stainless Steel |
| Switch Support | Brass, tin plated |
| Terminal Seal | Epoxy |

## Ordering Scheme $\substack{\text { sampiner } \\ \text { sememen }} \frac{\text { WSP }}{1}-\frac{9}{3}-\frac{R}{5} \frac{E}{6}$

1. SERIES

| 3SS |
| :--- |
| Sealed Sub-Miniature Pushbutton Switch |


| 2. POLES |
| :--- | :--- |


| WSP | Single pole - uses terminals $1,2 \& 3$ <br> WDP <br> Double pole - uses terminals $1,2,3,4,5 \& 6$ |
| :--- | :--- |


| 3. CIRCUIT |  |  |
| :---: | :---: | :---: |
| ( ) - momentary |  |  |
| Switching Position: | 1 | 2 |
|  | 2-3, 5-6 | 2-1, 5-4 |
| 8 | ON | (ON) |
| 9 | OFF | (ON) |
| Note: Plunger at rest in Position 1. Plunger depressed in Position 2. |  |  |


| 5. CONTACTS | TERMINALS |  |  |
| :---: | :---: | :---: | :---: |
| Contact Material | Terminal Plating | Rating Approv |  |
| G silver ${ }^{1}$ | gold over silver | 1A 125VAC or 28VDC | IP67 |
| K gold ${ }^{2}$ | tin 3,4 | 0.4 VA max 20 V max (AC/DC) | IP67 |
| P silver ${ }^{1}$ | tin 3,4 | 1 l 125 VAC or 28 VDC | IP67 |
| R gold ${ }^{2}$ | gold ${ }^{2}$ | 0.4 VA max 20 V max (AC/DC) | IP67 |

8. EPOXY SEAL

E Epoxy Seal 0 without Epoxy Seal

## Notes:

Movable contact \& terminal platings: silver over copper alloy
2 Movable contact \& terminal platings: gold over nickel over copper alloy
3 Terminal platings: tin over nickel over copper alloy
4 Tin option available with PC terminations only.
Configure Complete Part Number >
\$ Browse Standard Parts >
VS21 Snap-In, U bracket

## Ordering Schemes



## 5. TERMINATION

| M1 | Solder Lug | M6 PC Mount, $90^{\circ}$ horizontal |
| :--- | :--- | :--- |
| M7 | PC Mount, $90^{\circ}$ vertical | VS2 PC Mount, U bracket |
| M2 | PCB M71, | M61 Snap-In, $90^{\circ}$ horizontal |
|  | Snap-In, $90^{\circ}$ vertical | VS21 Snap-In, U bracket |

## 6. CONTACTS / TERMINALS

| Contact Material | Terminal Plating | Rating |
| :---: | :---: | :---: |
| G silver ${ }^{3}$ | gold over silver | 1A@125VAC or 28VDC |
| K gold 4,7 | tin 6 | 0.4 VA max @ 20V max (AC/DC) |
| P silver 3,8 | tin ${ }^{6}$ | 1A@125VAC or 28VDC |
| Q silver ${ }^{3}$ | silver ${ }^{3}$ | 1A@125VAC or 28VDC |
| R gold ${ }^{4}$ | gold ${ }^{5}$ | 0.4VA max @ 20V max (AC/DC) |
| 7. EPOXY SEAL |  |  |
| E Epoxy Seal |  | 0 without Epoxy Seal |

Notes:
Hardware includes (2) 2Ml-HDW21 nuts, and (1) 2MI-HDW22 washer
2 Hardware includes (2) 2M1-HDW2 nuts, (1) 2Ml-HDW11 washer,
and (1) 2M1-HDW16 locking ring
Movable contact and terminal platings: silver over copper alloy
4 Movable contact and terminal platings: gold over nickel over copper alloy
Terminal platings: gold over nickel over copper alloy
Terminal platings: gold over nickel over
Terminal contact platings: Gold over nickel alloy
8 Terminal contact platings: silver over nickel alloy


## 1. SERIES

3MS Sealed Snap-Action Miniature Pushbutton Switch

## 2. POLES

SP $\quad$ Single pole - uses terminals $1,2 \& 3$

## 3. CIRCUIT

( ) - momentary

| Switching Position: | $\mathbf{1}$ | $\mathbf{2}$ |
| :--- | :--- | :--- |
| $2-3,5-6$ | $2-1,5-4$ |  |
| 7 | ON | (ON) |

Note: Plunger at rest in Position 1. Plunger depressed in Position 2.

## 4. TERMINATION

K6 Surface Mount, horizontal . 433 [ 11.00 mm ]
M6 Surface Mount, $90^{\circ}$ flat . 286 [ 7.26 mm ]
M7 Surface Mount, $90^{\circ}$ right angle
S6 Surface Mount, $90^{\circ}$ horizontal .353 [ 8.97 mm ]

## 5. CONTACTS/TERMINALS

| Contact Material Terminal Plating Rating |  |  |  |  |
| :--- | :--- | :--- | :--- | ---: |$\quad$ Approvals

## 6. EPOXY SEAL

E Epoxy Seal $0 \quad$ without Epoxy Seal

## 7. PACKAGING

T/R tape reel - 500 pieces per reel
Switches are bulk packed, unless $T / R$ is specified at the end of the part number.

## Notes:

Movable contact and terminals platings: silver over copper alloy
Movable contact platings: gold over nickel over copper alloy
Terminal platings: gold over nickel over copper alloy
Terminal platings: gold over nickel over c
Terminal contact platings: gold over nickel alloy
6 Terminal contact platings: silver over nickel alloy

## Configure Complete Part Number > <br> 宛 Browse Standard Parts >

## 35-Series Accessories

To order accessories assembled on a switch, specify the switch number followed by the accessory part number and the word "assembled". Ex: 3S1-SP9-B6-M7-RE-C23 ASSEMBLED. To order accessories in bulk, specify the Series, followed by the accessory. Ex: 3S1-Cl3.

## Optional Cap

## 1. SERIES

3S1 Fits 3SS, 3SI or 3MS

## 2. TOGGLE CAP SIZE

C1 $.158^{\prime \prime}[4.01 \mathrm{~mm}$ ] height C2 . $138^{\prime \prime}[35.05 \mathrm{~mm}]$ height


## 3. CAP COLOR

| $\mathbf{1}$ | White | $\mathbf{5}$ | Yellow |
| :--- | :--- | :--- | :--- |
| $\mathbf{2}$ | Black | $\mathbf{6}$ | Green |
| $\mathbf{3}$ | Red | $\mathbf{7}$ | Blue |
| $\mathbf{4}$ | Orange |  |  |

## Dimensional Specs

inches [millimeters]



## Double Pole



* Double Thrown Shown. Single Throw uses two outer terminals only.



## Dimensional Specs

inches [millimeters]

## Termination Options

VS2 Single Pole


VS2 Double Pole


Snap-In Termination Options

M61


M71



VS21


* PC Mounting for M61, M71, VS21 refer to M6, M7, VS2 respectively.

5. 

## Dimensional Specs

inches [millimeters]


## Termination Options



M2

6.

## Dimensional Specs

inches [millimeters]
Termination Options
M6 Single Pole


M7 Single Pole


* Double Thrown Shown.

Single Throw uses two outer terminals only.

## VS2 Single Pole


P.C.MOUNTING


* Double Thrown Shown. Single Throw uses outer terminals only.

* PC Mounting for M61, M71, VS21 refer to M6, M7, VS2 respectively.


## Dimensional Specs

inches [millimeters]


* Double Thrown Shown. Single Throw uses two outer terminals only.

Cl


## C2



* MATERIAL: ABS.

| CAP COLORS |  |  |  |
| :---: | :---: | :---: | :---: |
| 1 | White | 6 | Green |
| 2 | Black | 7 | Blue |
| 3 | Red | 8 | Brown |
| 4 | Orange | 9 | Gray |
| 5 | Yellow |  |  |

8. 

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