

# Xtra Long Life SPDT Switch

50Ω DC to 18 GHz 24 Volt

## Features

- low insertion loss, 0.2 dB typ.
- high isolation, 85 dB typ.
- high power handling, 10W
- ultra reliable
- break-before-make configuration
- absorptive failsafe switch
- protected by US Patents 5,272,458; 6,414,577; 6,650,210; 7,633,361; 7,843,289

## Applications

- (ATE) automatic test equipment
- reliable "sleep-time" switching
- redundancy switching for microwave radio

## MSP2TA-18XL+ MSP2TA-18-PM+ MSP2TA-18-BM+



MSP2TA-18XL+



MSP2TA-18-PM+  
Panel Mount



MSP2TA-18-BM+  
Base Mount

HT-Series  
Tight Spot  
SMA Wrench  
From \$24.95  
[Click Here](#)

| Model No.     | Connectors | Bracket Option | Case Style | Price    | Qty.  |
|---------------|------------|----------------|------------|----------|-------|
| MSP2TA-18XL+  | SMA        | —              | FP914      | \$189.95 | (1-9) |
| MSP2TA-18-PM+ | SMA        | Panel Mount    | FP914-PM   | \$192.95 | (1-9) |
| MSP2TA-18-BM+ | SMA        | Base Mount     | FP914-BM   | \$192.95 | (1-9) |

See Page 2 for Mounting Options Available  
Option must be specified when ordering

### +RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

## Electrical Specifications

| Parameter                            | Condition  | Min. | Typ. | Max. | Unit |
|--------------------------------------|------------|------|------|------|------|
| Frequency Range                      |            | DC   | —    | 18   | GHz  |
| Insertion Loss                       | DC - 1 GHz | —    | 0.10 | 0.15 | dB   |
|                                      | 1 - 8      | —    | 0.15 | 0.30 |      |
|                                      | 8 - 12     | —    | 0.25 | 0.40 |      |
|                                      | 12 - 18    | —    | 0.30 | 0.50 |      |
| Isolation                            | DC - 1 GHz | 85   | 100  | —    | dB   |
|                                      | 1 - 8      | 75   | 90   | —    |      |
|                                      | 8 - 12     | 70   | 80   | —    |      |
|                                      | 12 - 18    | 60   | 66   | —    |      |
| VSWR                                 | DC - 1 GHz | —    | 1.05 | 1.10 | :1   |
|                                      | 1 - 8      | —    | 1.20 | 1.30 |      |
|                                      | 8 - 12     | —    | 1.20 | 1.35 |      |
|                                      | 12 - 18    | —    | 1.15 | 1.40 |      |
| DC Current                           | at 24V     | —    | 175  | 215  | mA   |
| RF Power Cold Switching <sup>4</sup> |            | —    | —    | 10   | W    |
| RF Power Hot Switching               | Note 1     | —    | —    | 0.1  | W    |
|                                      | Note 2     | —    | —    | 1.0  |      |

## Additional Specifications

|                          |                          |
|--------------------------|--------------------------|
| Operating Voltage Range  | 24V (nom) ±1V            |
| Switching Time (Typ.)    | 20ms                     |
| Life <sup>3</sup> (Min.) | 1 year/10 million cycles |

### Notes

1. To achieve specified life, hot switching RF power must not exceed this level.
2. Degradation in life (min.) to typically 3 million switch cycles for hot switch at this RF power level.
3. Tested at 0 dBm RF power.
4. Power handling is specified with RF applied to the IN port and output load connected to either J1 or J2.

## Maximum Ratings

Operating Temperature -15°C to +45°C

Storage Temperature -15°C to +85°C

RF Power (at IN port) 10W

RF Power (at J1 and J2) 1W

Control Voltage 26VDC

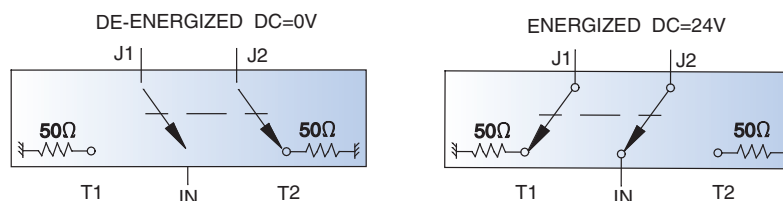
Permanent damage may occur if any of these limits are exceeded.

**10 YEAR EXTENDED  
WARRANTY**

10 Yr. 100 Million Cycles\*  
\$19.95/yr.  
for a total of  
\$199.50

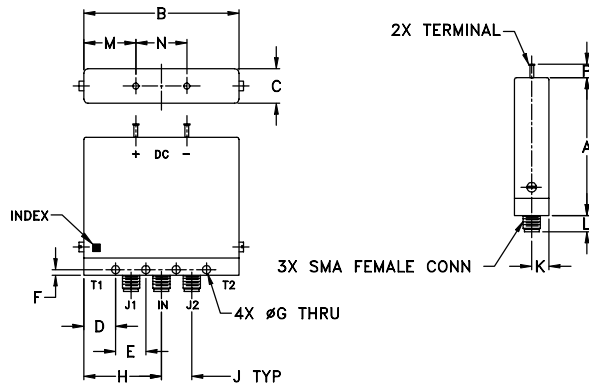
\*10 year agreement  
required  
[Click Here for details](#)

## Switching States



# MSP2TA-18XL+ MSP2TA-18-PM+ MSP2TA-18-BM+

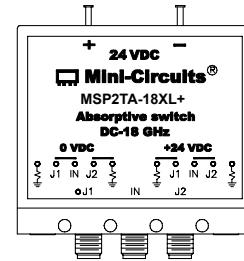
**Outline Drawing (FP914)**



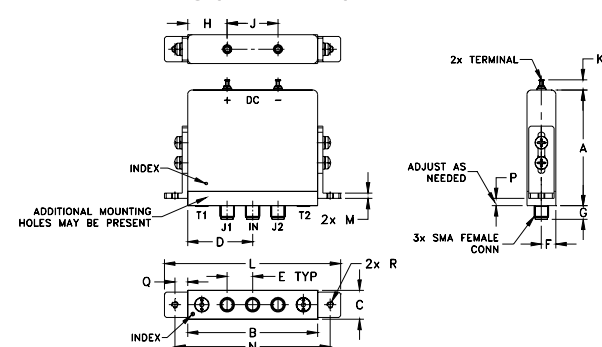
**Outline Dimensions (inch)**

| A     | B     | C     | D     | E     | F    | G    | H     | J     | K    | L    | M     | N     | P    | wt    |
|-------|-------|-------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|-------|
| 2.00  | 2.25  | .50   | .460  | .440  | .080 | .120 | 1.125 | .440  | .25  | .24  | .755  | .740  | .19  | grams |
| 50.80 | 57.15 | 12.70 | 11.68 | 11.18 | 2.03 | 3.05 | 28.58 | 11.18 | 6.35 | 6.10 | 19.18 | 18.80 | 4.83 | 93.1  |

**Marking Drawing**



**Outline Drawing (FP914-PM) Panel Mount Bracket**

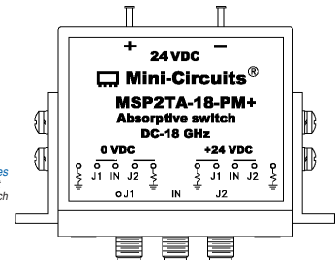


**Outline Dimensions (inch)**

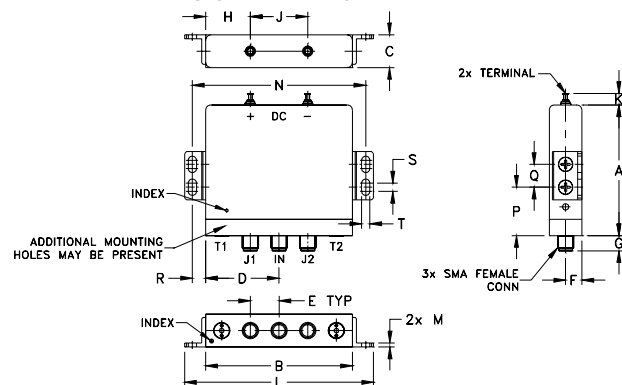
| A     | B     | C     | D     | E     | F    | G    | H     | J     | K    | L     | M    | N     | P              | Q    | R     | wt    |
|-------|-------|-------|-------|-------|------|------|-------|-------|------|-------|------|-------|----------------|------|-------|-------|
| 2.00  | 2.25  | .50   | 1.125 | .440  | .25  | .24  | .755  | .740  | .19  | 3.05  | .094 | 2.69  | 0 MIN/.25 MAX  | .22  | #4-40 | grams |
| 50.80 | 57.15 | 12.70 | 28.58 | 11.18 | 6.35 | 6.10 | 19.18 | 18.80 | 4.83 | 77.47 | 2.39 | 68.33 | 0 MIN/6.35 MAX | 5.59 | --    | 102   |



**Marking Drawing**



**Outline Drawing (FP914-BM) Base Mount Bracket**

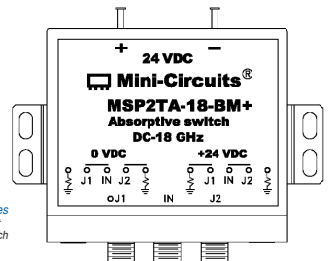


**Outline Dimensions (inch)**

| A     | B     | C     | D     | E     | F    | G    | H     | J     | K    | L     | M    | N     | P    | Q    | R    | S    | T    | wt    |
|-------|-------|-------|-------|-------|------|------|-------|-------|------|-------|------|-------|------|------|------|------|------|-------|
| 2.00  | 2.25  | .50   | 1.125 | .440  | .25  | .24  | .755  | .740  | .19  | 2.90  | .062 | 2.660 | .19  | .350 | .205 | .125 | .125 | grams |
| 50.80 | 57.15 | 12.70 | 28.58 | 11.18 | 6.35 | 6.10 | 19.18 | 18.80 | 4.83 | 73.66 | 1.57 | 67.56 | 4.83 | 8.89 | 5.21 | 3.18 | 3.18 | 96.6  |

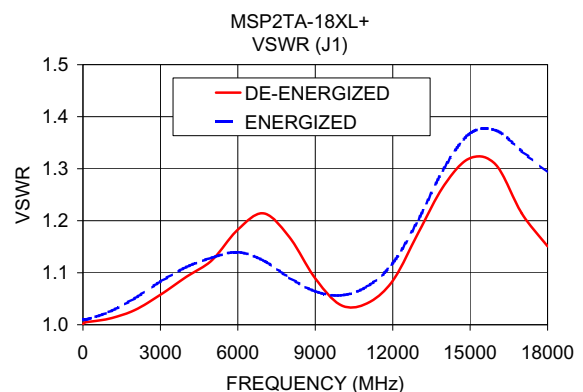
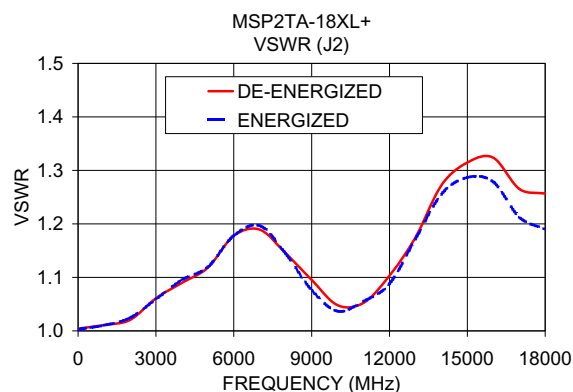
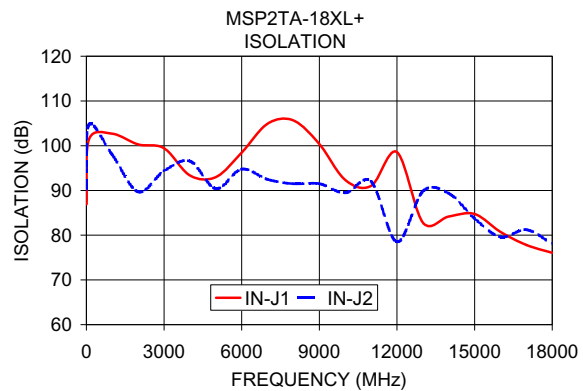
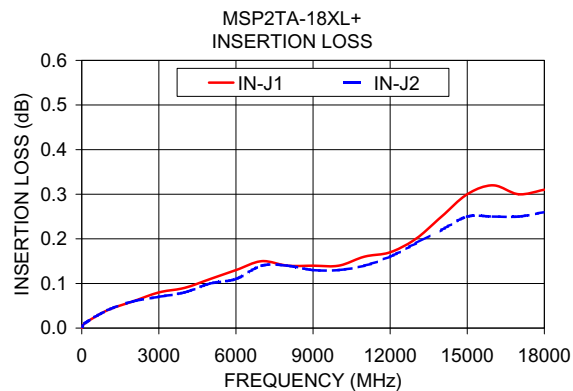


**Marking Drawing**



## Typical Performance Data

| FREQ.<br>(MHz) | ON INSERTION<br>LOSS<br>(dB) |       | OFF ISOLATION<br>(dB) |        | VSWR, IN<br>(:1) |           | VSWR, (J2)<br>(:1) |           | VSWR (J1)<br>(:1) |           |
|----------------|------------------------------|-------|-----------------------|--------|------------------|-----------|--------------------|-----------|-------------------|-----------|
|                | IN-J2                        | IN-J2 | IN-J1                 | IN-J2  | De-Energized     | Energized | De-Energized       | Energized | De-Energized      | Energized |
| 10.00          | 0.00                         | 0.00  | 86.92                 | 90.23  | 1.00             | 1.00      | 1.00               | 1.00      | 1.00              | 1.01      |
| 100.00         | 0.01                         | 0.01  | 101.44                | 104.72 | 1.00             | 1.01      | 1.00               | 1.00      | 1.00              | 1.01      |
| 1000.00        | 0.04                         | 0.04  | 102.68                | 97.93  | 1.01             | 1.01      | 1.01               | 1.01      | 1.01              | 1.02      |
| 2000.00        | 0.06                         | 0.06  | 100.29                | 89.71  | 1.02             | 1.03      | 1.02               | 1.02      | 1.03              | 1.05      |
| 3000.00        | 0.08                         | 0.07  | 99.44                 | 94.36  | 1.06             | 1.06      | 1.06               | 1.06      | 1.06              | 1.08      |
| 4000.00        | 0.09                         | 0.08  | 93.35                 | 96.55  | 1.09             | 1.09      | 1.09               | 1.10      | 1.09              | 1.11      |
| 5000.00        | 0.11                         | 0.10  | 92.98                 | 90.42  | 1.12             | 1.13      | 1.12               | 1.12      | 1.12              | 1.13      |
| 6000.00        | 0.13                         | 0.11  | 98.44                 | 94.76  | 1.16             | 1.18      | 1.18               | 1.18      | 1.18              | 1.14      |
| 7000.00        | 0.15                         | 0.14  | 104.93                | 92.46  | 1.18             | 1.21      | 1.19               | 1.20      | 1.21              | 1.12      |
| 8000.00        | 0.14                         | 0.14  | 105.64                | 91.48  | 1.14             | 1.17      | 1.15               | 1.14      | 1.17              | 1.09      |
| 9000.00        | 0.14                         | 0.13  | 100.36                | 91.51  | 1.09             | 1.09      | 1.10               | 1.08      | 1.09              | 1.06      |
| 10000.00       | 0.14                         | 0.13  | 92.35                 | 89.45  | 1.04             | 1.04      | 1.05               | 1.04      | 1.04              | 1.06      |
| 11000.00       | 0.16                         | 0.14  | 91.02                 | 91.97  | 1.04             | 1.04      | 1.05               | 1.06      | 1.04              | 1.07      |
| 12000.00       | 0.17                         | 0.16  | 98.57                 | 78.50  | 1.10             | 1.08      | 1.10               | 1.09      | 1.08              | 1.12      |
| 13000.00       | 0.20                         | 0.19  | 82.82                 | 89.80  | 1.19             | 1.17      | 1.17               | 1.17      | 1.18              | 1.20      |
| 14000.00       | 0.25                         | 0.22  | 84.16                 | 89.36  | 1.27             | 1.26      | 1.27               | 1.26      | 1.27              | 1.30      |
| 15000.00       | 0.30                         | 0.25  | 84.72                 | 83.73  | 1.32             | 1.32      | 1.31               | 1.29      | 1.32              | 1.37      |
| 16000.00       | 0.32                         | 0.25  | 80.73                 | 79.61  | 1.31             | 1.32      | 1.32               | 1.28      | 1.31              | 1.37      |
| 17000.00       | 0.30                         | 0.25  | 77.82                 | 81.23  | 1.30             | 1.23      | 1.27               | 1.21      | 1.21              | 1.33      |
| 18000.00       | 0.31                         | 0.26  | 76.06                 | 78.10  | 1.27             | 1.17      | 1.26               | 1.19      | 1.15              | 1.29      |



### Additional Notes

- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)