

# Coaxial Switch

## ZFSW-2-46

50Ω SPDT, Reflective DC<sup>5</sup> to 4.6 GHz



Generic photo used for illustration purposes only

CASE STYLE: G144

| Connectors | Model     |
|------------|-----------|
| SMA        | ZFSW-2-46 |

### Maximum Ratings

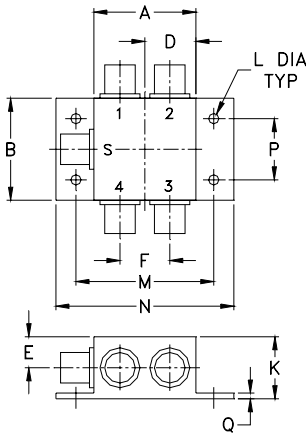
|                       |                |
|-----------------------|----------------|
| Operating Temperature | -55°C to 100°C |
| Storage Temperature   | -55°C to 150°C |
| Input Power           | see Note 1     |
| Control V             | see Note 2     |

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

### Coaxial Connections

|           |   |
|-----------|---|
| RF IN     | s |
| RF OUT 1  | 3 |
| RF OUT 2  | 2 |
| CONTROL 1 | 4 |
| CONTROL 2 | 1 |

### Outline Drawing



### Outline Dimensions (inch/mm)

|       |       |      |       |       |       |      |       |
|-------|-------|------|-------|-------|-------|------|-------|
| A     | B     | C    | D     | E     | F     | G    | H     |
| 1.25  | 1.25  | --   | .63   | .38   | .61   | --   | --    |
| 31.75 | 31.75 | --   | 16.00 | 9.65  | 15.49 | --   | --    |
| J     | K     | L    | M     | N     | P     | Q    | wt    |
| --    | .76   | .125 | 1.688 | 2.18  | .75   | .07  | grams |
| --    | 19.30 | 3.18 | 42.88 | 55.37 | 19.05 | 1.78 | 85.0  |

### Features

- wideband, DC to 4.6 GHz
- high isolation, 50 dB typ.
- excellent VSWR, 1.3:1 typ

### Applications

- instrumentation
- communication systems
- laboratory

### Electrical Specifications

| FREQ. <sup>5</sup><br>(GHz) | INSERTION LOSS<br>(dB) |      |                 |      |                  |      | 1dB COMPR.<br>(dBm) |                 |                  | IN-OUT ISOLATION<br>(dB) |      |                 |      |                  |      |      |
|-----------------------------|------------------------|------|-----------------|------|------------------|------|---------------------|-----------------|------------------|--------------------------|------|-----------------|------|------------------|------|------|
|                             | DC-200<br>MHz          |      | 200-1000<br>MHz |      | 1000-4600<br>MHz |      | DC-200<br>MHz       | 200-1000<br>MHz | 1000-4600<br>MHz | DC-200<br>MHz            |      | 200-1000<br>MHz |      | 1000-4600<br>MHz |      |      |
| f <sub>L</sub>              | f <sub>U</sub>         | Typ. | Max.            | Typ. | Max.             | Typ. | Max.                | Typ.            | Typ.             | Typ.                     | Typ. | Min.            | Typ. | Min.             | Typ. | Min. |
| DC                          | 4.6                    | 0.9  | 1.1             | 1.0  | 1.3              | 1.3  | 1.8*                | 10              | 17               | 27                       | 60   | 50              | 50   | 40               | 40   | 28   |

\*1.8 dB max up to 3 GHz, 2.8 dB max 3-4.6 GHz

### Additional Specifications

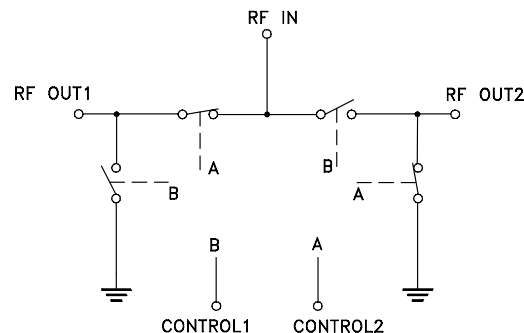
|                                                        |                 |
|--------------------------------------------------------|-----------------|
| Control Voltage, volts                                 |                 |
| Low State                                              | -0.2 to 0       |
| High State (negative)                                  |                 |
| for compression specs                                  | -8              |
| for other specs                                        | -5 to -8        |
| Control Current, mA                                    | 2.5 typ. at -8V |
| VSWR(:1)                                               | 1.3 typ.        |
| Rise/Fall time (10%-90%), ns                           | 2 typ.          |
| Switching time, 50% of Control to 90% RF (Turn-on), ns | 4 typ.          |
| 10% RF (Turn-off), ns                                  | 2.5 typ.        |
| Video Leakage, mVp-p 0/-5V Control                     | 30 typ.         |

1. Max Input RF power, +30 dBm except 100-500 MHz +27 dBm, and DC-100 MHz +24 dBm
2. Control voltage (-10V) maximum.
3. Video leakage or break through is defined as leakage of switching signal to RF output ports.
4. OFF state at RF output is low impedance.
5. All RF connections must be DC blocked or held at 0V DC.

### CONTROL LOGIC

| Control Ports |    | RF outputs |     |
|---------------|----|------------|-----|
| 1             | 2  | 1          | 2   |
| -V            | 0  | On         | Off |
| 0             | -V | Off        | On  |

### Electrical Schematic



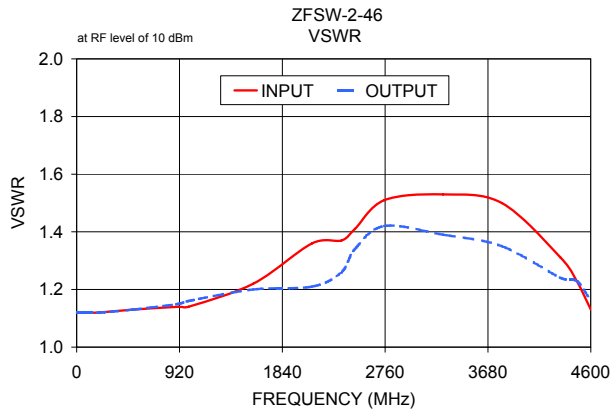
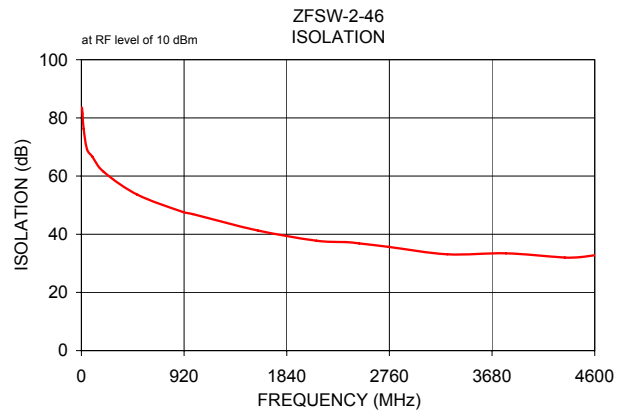
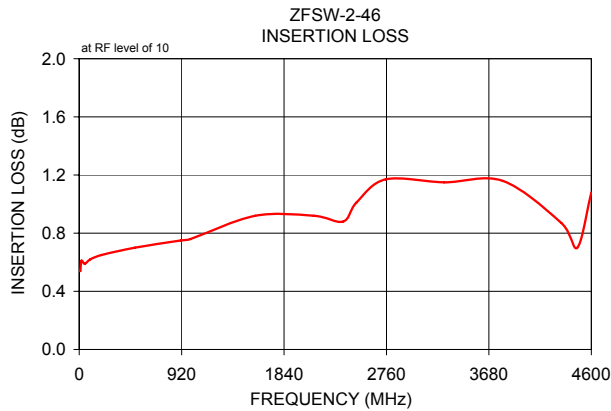
### Notes

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## Typical Performance Data

| FREQ.<br>(MHz) | ON INSERTION LOSS (dB)<br>CONTROL @ 0V/-5V<br>IN-OUT |          | OFF ISOLATION (dB)<br>CONTROL @ 0V/-5V<br>IN-OUT |          | VSWR<br>IN | VSWR<br>ON | VSWR<br>OUT<br>OFF |
|----------------|------------------------------------------------------|----------|--------------------------------------------------|----------|------------|------------|--------------------|
|                | $\bar{x}$                                            | $\sigma$ | $\bar{x}$                                        | $\sigma$ |            |            |                    |
| 3.00           | 0.54                                                 | 0.04     | 83.44                                            | 4.68     | 1.12       | 1.12       | 16.46              |
| 5.00           | 0.54                                                 | 0.04     | 83.46                                            | 2.97     | 1.12       | 1.12       | 16.21              |
| 10.00          | 0.54                                                 | 0.04     | 81.44                                            | 2.66     | 1.12       | 1.12       | 16.21              |
| 20.00          | 0.61                                                 | 0.06     | 76.29                                            | 2.13     | 1.12       | 1.12       | 16.04              |
| 50.00          | 0.59                                                 | 0.04     | 69.27                                            | 0.92     | 1.12       | 1.12       | 15.37              |
| 100.00         | 0.62                                                 | 0.04     | 66.59                                            | 1.42     | 1.12       | 1.12       | 14.63              |
| 200.00         | 0.65                                                 | 0.04     | 61.43                                            | 0.74     | 1.12       | 1.12       | 14.00              |
| 500.00         | 0.70                                                 | 0.04     | 53.61                                            | 0.93     | 1.13       | 1.13       | 12.83              |
| 911.55         | 0.75                                                 | 0.04     | 47.64                                            | 0.59     | 1.14       | 1.15       | 11.86              |
| 1000.00        | 0.76                                                 | 0.04     | 46.91                                            | 0.61     | 1.14       | 1.16       | 11.79              |
| 1581.00        | 0.92                                                 | 0.05     | 41.27                                            | 0.47     | 1.22       | 1.20       | 11.85              |
| 2107.00        | 0.92                                                 | 0.06     | 37.77                                            | 0.41     | 1.36       | 1.21       | 11.91              |
| 2370.00        | 0.88                                                 | 0.06     | 37.33                                            | 0.42     | 1.37       | 1.26       | 9.64               |
| 2489.55        | 1.01                                                 | 0.07     | 36.86                                            | 0.43     | 1.41       | 1.34       | 9.98               |
| 2752.55        | 1.17                                                 | 0.09     | 35.65                                            | 0.39     | 1.51       | 1.42       | 9.70               |
| 3278.55        | 1.15                                                 | 0.11     | 33.10                                            | 0.42     | 1.53       | 1.39       | 13.14              |
| 3804.55        | 1.16                                                 | 0.08     | 33.46                                            | 0.37     | 1.50       | 1.35       | 13.37              |
| 4330.55        | 0.87                                                 | 0.05     | 31.99                                            | 0.42     | 1.31       | 1.24       | 15.41              |
| 4474.00        | 0.70                                                 | 0.04     | 32.16                                            | 0.40     | 1.23       | 1.23       | 17.84              |
| 4600.00        | 1.08                                                 | 0.04     | 32.78                                            | 0.42     | 1.13       | 1.16       | 14.40              |



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