*Surface Mount*

# High Isolation Switch

## 50Ω SPDT, Reflective DC to 2500 MHz

# RSW-2-25P+

CASE STYLE: CL620
PRICE: $3.95 ea. QTY (10-49)

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

## Maximum Ratings

| | |
|---|---|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -65°C to 150°C |
| Input Power | see Table & Note 3 |
| Vs, Control V | see Note 1 |

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

## Pin Connections

| | |
|---|---|
| RF IN | 4 |
| RF OUT 1 | 14 |
| RF OUT 2 | 8 |
| Vs (+5V) | 2 |
| CONTROL 1 | 12 |
| CONTROL 2 | 10 |
| GROUND | 1,3,5,6,7,9,11,13 |
| DEMO BOARD | TB-23 |

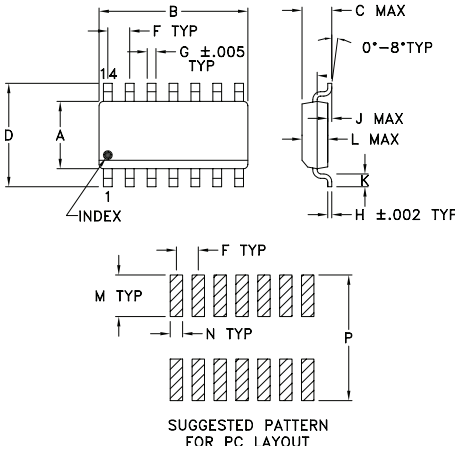
## Features

- wideband, DC to 2500 MHz
- high isolation, 50 dB typ.
- dual positive control
- aqueous washable

## Applications

- automated switching networks
- transmitters/receivers

## Outline Drawing




## Outline Dimensions (inch / mm)

| A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|
| .154 | .340 | .068 | .236 | -- | .050 | .016 | .008 |
| 3.91 | 8.64 | 1.73 | 5.99 | -- | 1.27 | 0.41 | 0.20 |

| J | K | L | M | N | P | wt |
|---|---|---|---|---|---|---|
| .010 | .032 | .059 | .095 | .028 | .287 | grams |
| 0.25 | 0.81 | 1.50 | 2.41 | 0.71 | 7.29 | 0.14 |

## Electrical Specifications

| FREQ. (MHz) | | INSERTION LOSS (dB) | | | | | | | | 1dB COMPR. (dBm) | | | | IN-OUT ISOLATION (dB) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | DC-100 MHz | | 100-1000 MHz | | 1000-2000 MHz | | 2000-2500 MHz | | DC-100 MHz | 100-1000 MHz | 1000-2000 MHz | 2000-2500 MHz | DC-100 MHz | | 100-1000 MHz | | 1000-2000 MHz | | 2000-2500 MHz | |
| $f_L$ | $f_U$ | Typ. | Max. | Typ. | Max. | Typ. | Max. | Typ. | Max. | Typ. | Typ. | Typ. | Typ. | Typ. | Min. | Typ. | Min. | Typ. | Min. | Typ. | Min. |
| DC | 2500 | 0.5 | 0.9 | 0.7 | 1.1 | 1.0 | 1.5 | 1.2 | 1.8 | 26* | 27 | 29 | 28 | 75 | 55 | 49 | 44 | 48 | 43 | 42 | 30 |

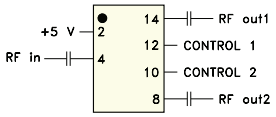
*Below 50 MHz, 1 dB compression gradually decreases to 6 dBm at 1 MHz.

| Additional Specifications | |
|---|---|
| Low Threshold, V<br>High Threshold, V | 0±0.2<br>(Vs-0.2) Min., 7 Max.[1] |
| Control Current, mA | 165µA Typ. |
| Positive Voltage, Vs | 5 to 7 |
| Positive Supply Current, mA | 50-100 µA Typ. |
| VSWR (:1)<br>ON, all ports<br>OFF, Input | <br>1.3 Typ.<br>1.7 Max. |
| Rise/Fall Time (10%-90%), ns<br>Switching Time, 50% of control to<br>90% RF (Turn-on), ns<br>10% RF (Turn-off), ns | 10 Typ.<br><br>20 Typ.<br>20 Typ. |
| Video Leakage[2], mVp-p | 50 Typ. |
| RF Power Input[3] | 1W (>500 MHz) |

1. Absolute max: Vs +8V DC, control voltage -0.2V & +8V DC. Performance specified at Vs=5V
2. Video leakage or break through is defined as leakage of switching signal to RF output ports.
3. Above 20° derate power linearly to zero at 150°C

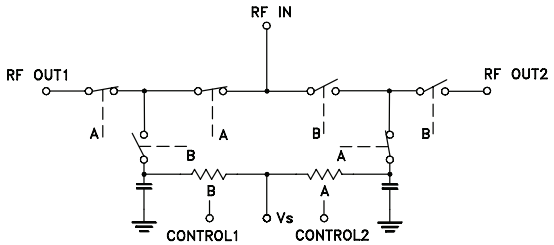
| CONTROL LOGIC | | | |
|---|---|---|---|
| CONTROL PORTS | | RF OUTPUTS | |
| 1 | 2 | 1 | 2 |
| LOW | HIGH | ON | OFF |
| HIGH | LOW | OFF | ON |

*connection schematic showing external dc blocking capacitors*




Note: impedance of the capacitor should be less than 5 ohms over the operating frequency range.

## Electrical Schematic




Notes
**A.** 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.
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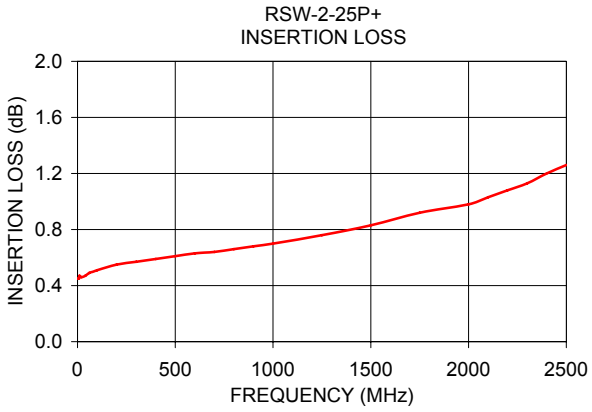
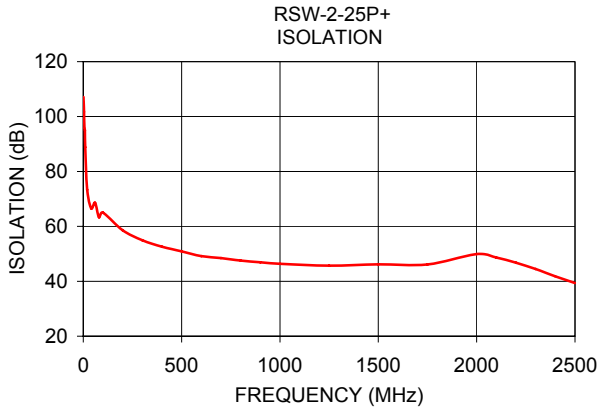
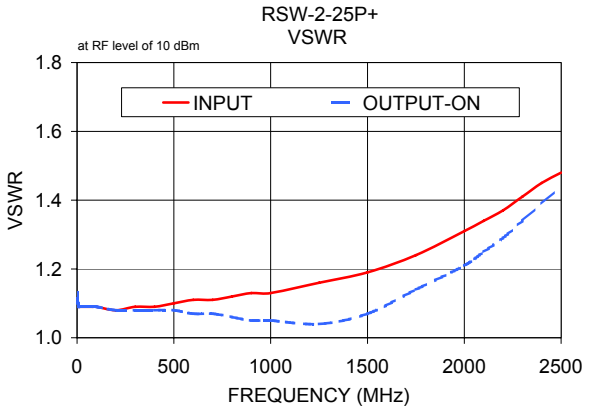
## Typical Performance Data

| FREQ. (MHz) | ON INSERTION LOSS (dB) Vs=5V, Control=0V/5V IN-OUT | | OFF ISOLATION (dB) Vs=5V, Control=0V/5V IN-OUT | | VSWR IN | VSWR OUT ON | RETURN LOSS (dB) OUT OFF |
|---|---|---|---|---|---|---|---|
| | $\overline{x}$ | σ | $\overline{x}$ | σ | $\overline{x}$ | $\overline{x}$ | $\overline{x}$ |
| 1.00 | 0.45 | 0.03 | 107.10 | 3.88 | 1.13 | 1.13 | 0.00 |
| 10.00 | 0.47 | 0.02 | 88.85 | 0.95 | 1.09 | 1.09 | 0.01 |
| 20.00 | 0.46 | 0.02 | 73.36 | 0.37 | 1.09 | 1.09 | 0.02 |
| 40.00 | 0.47 | 0.02 | 66.54 | 0.35 | 1.09 | 1.09 | 0.03 |
| 60.00 | 0.49 | 0.02 | 68.60 | 0.20 | 1.09 | 1.09 | 0.04 |
| 80.00 | 0.50 | 0.02 | 63.30 | 0.26 | 1.09 | 1.09 | 0.05 |
| 100.00 | 0.51 | 0.02 | 65.03 | 0.10 | 1.09 | 1.09 | 0.05 |
| 200.00 | 0.55 | 0.02 | 58.59 | 0.13 | 1.08 | 1.08 | 0.07 |
| 300.00 | 0.57 | 0.02 | 54.95 | 0.15 | 1.09 | 1.08 | 0.09 |
| 400.00 | 0.59 | 0.02 | 52.61 | 0.13 | 1.09 | 1.08 | 0.11 |
| 500.00 | 0.61 | 0.02 | 50.89 | 0.14 | 1.10 | 1.08 | 0.12 |
| 600.00 | 0.63 | 0.02 | 49.18 | 0.15 | 1.11 | 1.07 | 0.13 |
| 700.00 | 0.64 | 0.02 | 48.44 | 0.14 | 1.11 | 1.07 | 0.15 |
| 800.00 | 0.66 | 0.02 | 47.57 | 0.16 | 1.12 | 1.06 | 0.17 |
| 900.00 | 0.68 | 0.02 | 46.91 | 0.16 | 1.13 | 1.05 | 0.19 |
| 1000.00 | 0.70 | 0.02 | 46.38 | 0.18 | 1.13 | 1.05 | 0.22 |
| 1250.00 | 0.76 | 0.02 | 45.68 | 0.21 | 1.16 | 1.04 | 0.28 |
| 1500.00 | 0.83 | 0.02 | 46.19 | 0.24 | 1.19 | 1.07 | 0.35 |
| 2000.00 | 0.98 | 0.02 | 49.93 | 1.44 | 1.31 | 1.21 | 0.52 |
| 2100.00 | 1.03 | 0.02 | 48.67 | 2.02 | 1.34 | 1.25 | 0.56 |
| 2200.00 | 1.08 | 0.02 | 46.78 | 2.02 | 1.37 | 1.29 | 0.62 |
| 2300.00 | 1.13 | 0.02 | 44.49 | 1.84 | 1.41 | 1.34 | 0.68 |
| 2400.00 | 1.20 | 0.02 | 41.78 | 1.56 | 1.45 | 1.39 | 0.75 |
| 2500.00 | 1.26 | 0.02 | 39.35 | 1.41 | 1.48 | 1.44 | 0.83 |

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