

## SP8T Absorptive Switch 0.1 – 18GHz Capability Update

LW24-series

### TYPICAL APPLICATIONS

The SP8T is ideal for :

- EW Systems
- Broadband Receivers
- Test

### GENERAL DESCRIPTION

This SP8T is a solid-state broadband 8 way absorptive switch with additional customer selected options such as Gain, Power Limiter, coupler, detector. The SP8T is ideal for a wide range of applications, offering exceptional performance and functionality in a small and lightweight form factor.

### PRODUCT FEATURES

- Small Form Factor (106 x 93 x 20 mm)
- Switching Speed < 100ns
- Function options Filter, gain, temp comp
- High Reliability and Ruggedness
- Simple 9 pin Power and Control interface



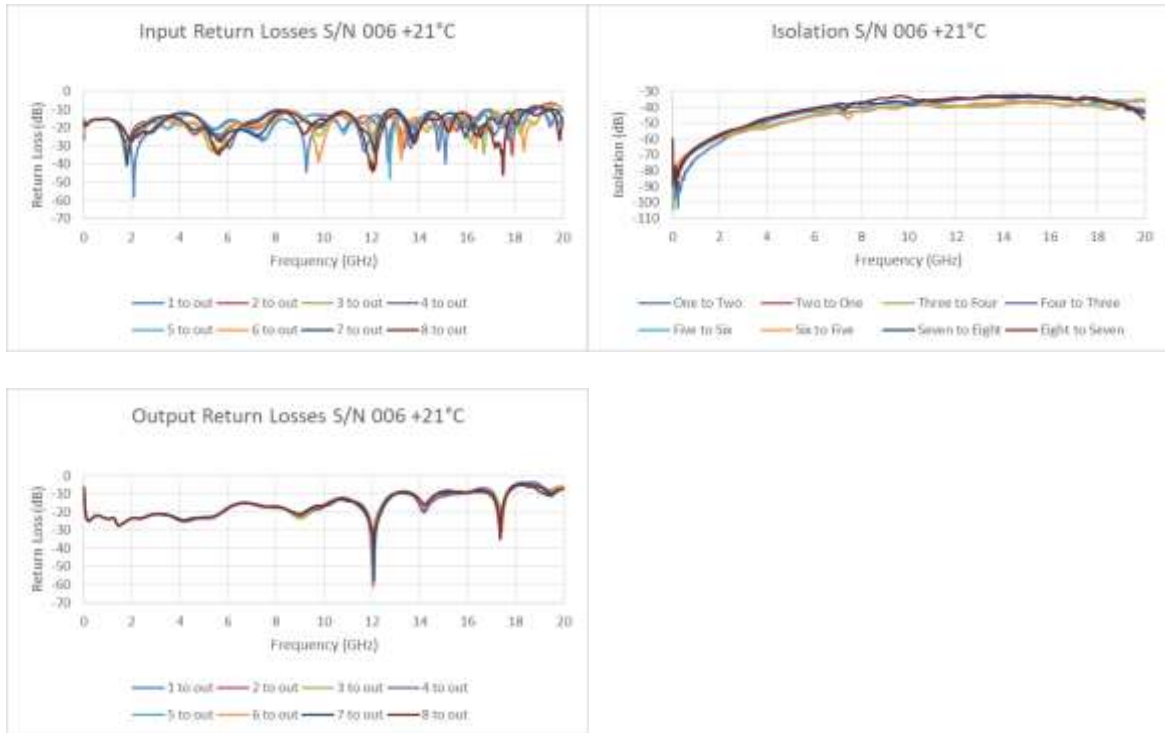
### ELECTRICAL CHARACTERISTICS - Operational $T_A = 25\text{ }^\circ\text{C}$ , 6V<sub>DC</sub>, 50Ω System (unless otherwise noted)

PARAMETER	MIN	TYP	MAX	UNITS
Operating Frequency Range	0.1		18	GHz
Tx / Rx Switching Characteristics: $T_{RX}, T_{TX}$ (50% CTRL to 10/90% RF)			100	ns
Isolation 0.1 - 6GHz	40			dB
Isolation 6 - 18GHz	30			dB
VSWR (input and output)		2.0:1		
DC Supply Voltage	5.5	6	6.5	V
Current Consumption			250	mA
Operating Temperature Range	-40		+85	°C

### Typical Performance

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## MECHANICAL CHARACTERISTICS

PARAMETER	VALUE	UNITS
Dimensions <sup>[1]</sup>	106 x 93 x 20	mm
Mass	140	g
RF In / Out Connectors	SMA Female	-
DC and Control In <sup>[2]</sup>	9 way D (Male) Pin 1 Control 3 (LSB) Pin 2 Control 2 (SB) Pin 3 Control 1 (MSB) Pin 4 GND Pin 5 +6 V	-

[1] Also see Outline Drawing.

[2] Also see Control Interface.

## ENVIRONMENTAL CHARACTERISTICS

PARAMETER	MIN	TYP	MAX	UNITS
Case or Baseplate Temperature	-40		+85	°C
Humidity (MIL-STD-810F, Method 507.4, para. 4.5.2)			95	%
Altitude (MIL-STD-810F, Method 500.4, para. 4.5.2, 4.5.3)			30,000	ft
Vibration Def Stan 08-123, (Data Sheet 25)				
Shock Def Stan 08-123, (Data Sheet 28)				
Ingress Protection		IPx6		-

## ABSOLUTE MAXIMUM RATINGS (Not simultaneous)

RF Input Power	+20 dBm
RF Output Mismatch	VSWR ∞:1 at all phase angles
Case or Baseplate Temperature (Operating)	-40 °C to +85 °C

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Case or Baseplate Temperature (Non-Operating)	-40 °C to +85 °C
DC Supply Voltage (DC IN+ to GND)	6.5 V
Tx / Rx Mode Switching Frequency	10 MHz

**Maximum Ratings.**

Exceeding maximum ratings may cause permanent damage. Operation between operating range maximum and absolute maximum for extended periods may reduce device reliability. Absolute maximum ratings are stress figures only and functional operation under these conditions is not implied.

**ESD Precautions.**

Observe standard precautions when handling ESD-sensitive devices.

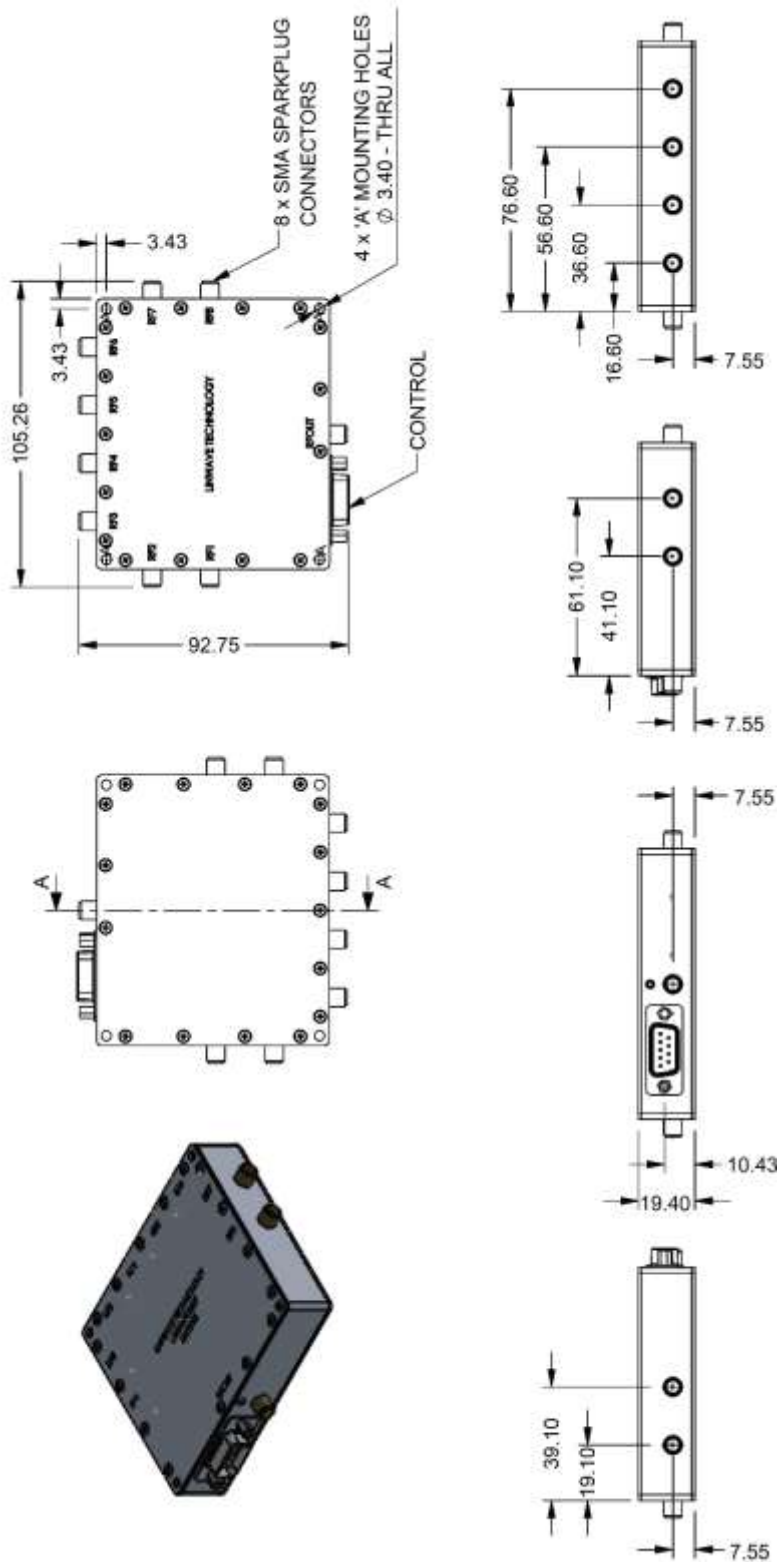
**CONTROL INTERFACE example**

PARAMETER	VALUE																											
Switch Control Interface	3 bit parallel +3.3V LVTTTL (+5V tolerant)																											
	<table border="1"> <thead> <tr> <th>Control Word</th> <th>MSB SB LSB</th> <th>MSB SB LSB</th> <th>MSB SB LSB</th> <th>MSB SB LSB</th> <th>MSB SB LSB</th> <th>MSB SB LSB</th> <th>MSB SB LSB</th> <th>MSB SB LSB</th> </tr> </thead> <tbody> <tr> <td></td> <td>0 0 0</td> <td>0 0 1</td> <td>0 1 0</td> <td>0 1 1</td> <td>1 0 0</td> <td>1 0 1</td> <td>1 1 0</td> <td>1 1 1</td> </tr> <tr> <th>Signal Path</th> <td>RF5 to RF OUT</td> <td>RF6 to RF OUT</td> <td>RF7 to RF OUT</td> <td>RF8 to RF OUT</td> <td>RF1 to RF OUT</td> <td>RF2 to RF OUT</td> <td>RF3 to RF OUT</td> <td>RF4 to RF OUT</td> </tr> </tbody> </table>	Control Word	MSB SB LSB	MSB SB LSB	MSB SB LSB	MSB SB LSB	MSB SB LSB	MSB SB LSB	MSB SB LSB	MSB SB LSB		0 0 0	0 0 1	0 1 0	0 1 1	1 0 0	1 0 1	1 1 0	1 1 1	Signal Path	RF5 to RF OUT	RF6 to RF OUT	RF7 to RF OUT	RF8 to RF OUT	RF1 to RF OUT	RF2 to RF OUT	RF3 to RF OUT	RF4 to RF OUT
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**OUTLINE DRAWING**

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