

FEATURES

- **Low Insertion Loss (0.4 dB @ 0.9 GHz)**
- **Complementary Positive Control Voltages (0/+3V to 0/+5V)**
- **Positive Voltage Supply (+3 to +5 V)**
- **Low DC Power Consumption**
- **Ultra Miniature 6 Lead SOT-6 Package**

DESCRIPTION

The AWS5502 is a Single Pole Double Throw GaAs MMIC Switch assembled in a SOT-6 plastic package. The AWS5502 is designed for analog and digital application that require low insertion loss, small size, and low cost. State selection is achieved with a complimentary positive voltage (requires positive bias V_s , and blocking caps) or negative voltage (no V_s or blocking caps required).

Typical applications include: selection of synthesizers, filters, amplifiers in dual mode and dual band handsets.



S14
SOT-6
6 Pin Plastic Package

ELECTRICAL SPECIFICATIONS AT 25 °C (0, +3V)

Parameter ¹	Frequency ²	Min	Typ	Max	Unit
Insertion Loss ³	DC - 0.5 GHz	-	0.4	0.5	dB
	DC - 1.0 GHz		0.45	0.6	
	DC - 2.0 GHz		0.6	0.8	
	DC - 2.5 GHz		0.9	1.1	
Isolation	DC - 0.5 GHz	22	25	-	dB
	DC - 1.0 GHz	17	20		
	DC - 2.0 GHz	11	14		
	DC - 2.5 GHz	10	13		
VSWR ⁴	DC - 1.0 GHz	-	1.2:1	1.3:1	-
	DC - 2.5 GHz		1.5:1	1.7:1	

OPERATING CHARACTERISTICS AT 25° C (0, +3V)

Parameter	Condition	Frequency	Min	Typ	Max	Unit
Switching Characteristics ⁵	Rise, Fall (10/90% or 90/10% RF)	-	-	10	-	ns
	ON, Off (50% CTL to 90%/10% RF)			20		ns
	Video Feedthru			25		mV
Intermodulation Intercept Point (IP3)	For Two-tone Input Power +10 dBm	0.5 - 2.0 GHz	-	+45	-	dBm
Input Power for 1dB Compression	@ +3V	0.5 - 2.0 GHz	-	+21	-	dBm
	@ +5V	0.5 - 2.0 GHz		+28		
Control Voltage	$V_{LOW} = 0 \text{ to } 0.2 \text{ V @ } 20 \text{ uA Max}$ $V_{HIGH} = +3 \text{ V @ } 100 \text{ uA Max to } +5 \text{ V @ } 200 \text{ uA Max}$ $V_s = V_{HIGH} \pm 0.2\text{V}$					

1. All measurements made in a 50 ohm system, unless otherwise specified.
2. DC = 300 kHz.
3. Insertion loss changes by 0.003 dB/°C.
4. Insertion loss state.
5. Video feedthru measured with 1 ns rise time pulse and 500 MHz bandwidth.

ABSOLUTE MAXIMUM RATINGS

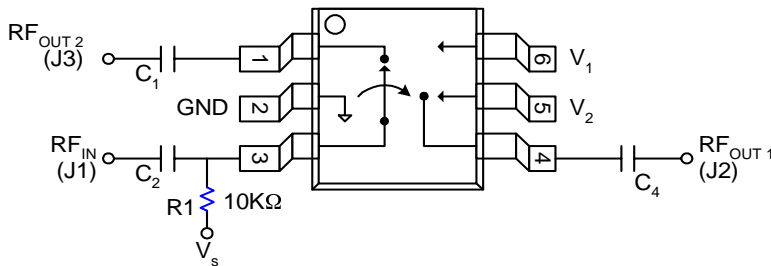
Characteristics	Value
RF Input Power	2 W > 500 MHz, 0/+7 V Control
Control Voltage	-0.2 V, +8 V
Operating Temperature	-40° C to +125° C
Storage Temperature	-50° C to +150° C
θ_{JC}	25° C/W

TRUTH TABLE Positive Operation

V_1	V_2	$J_1 - J_2$	$J_1 - J_3$
V_{High}	0	Insertion	Isolation
0	V_{High}	Isolation	Insertion

$$V_{High} = +3 \text{ to } +5 \text{ V } (V_S = V_{High} \pm 0.2 \text{ V})$$

PIN OUT

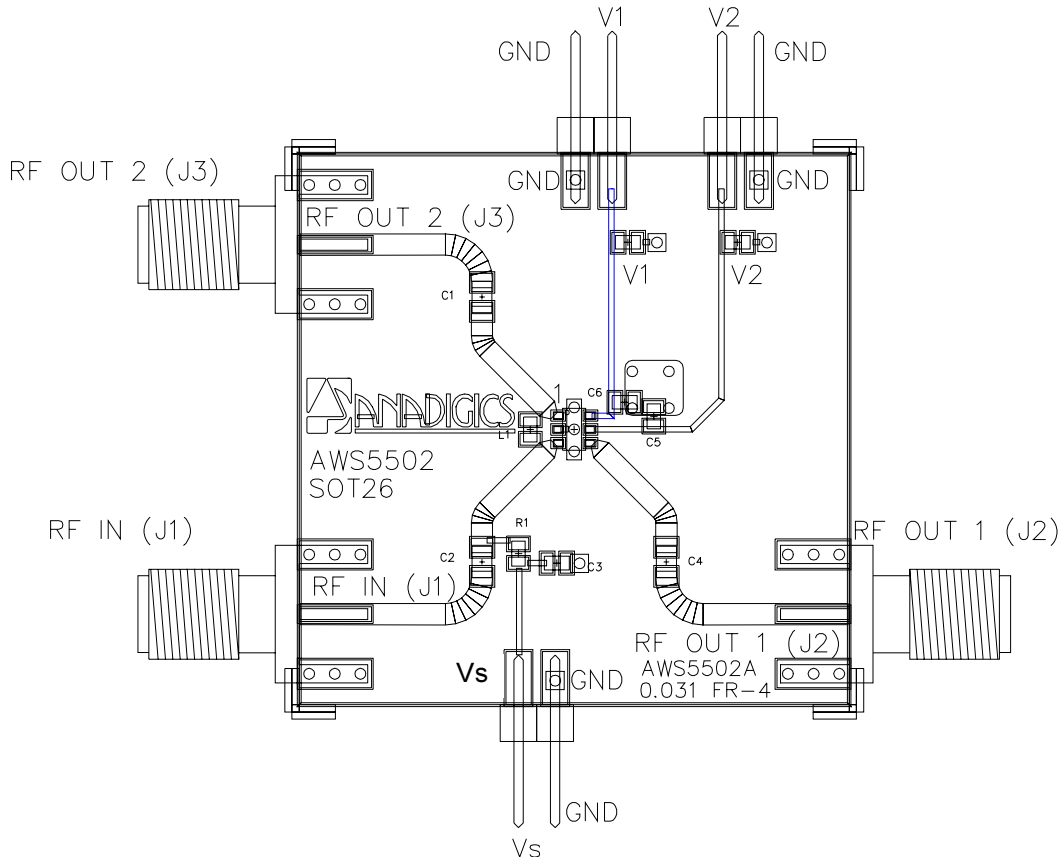


DC blocking capacitors ($C_{1,2,4}$) and biasing resistor must be supplied externally for positive voltage operation.

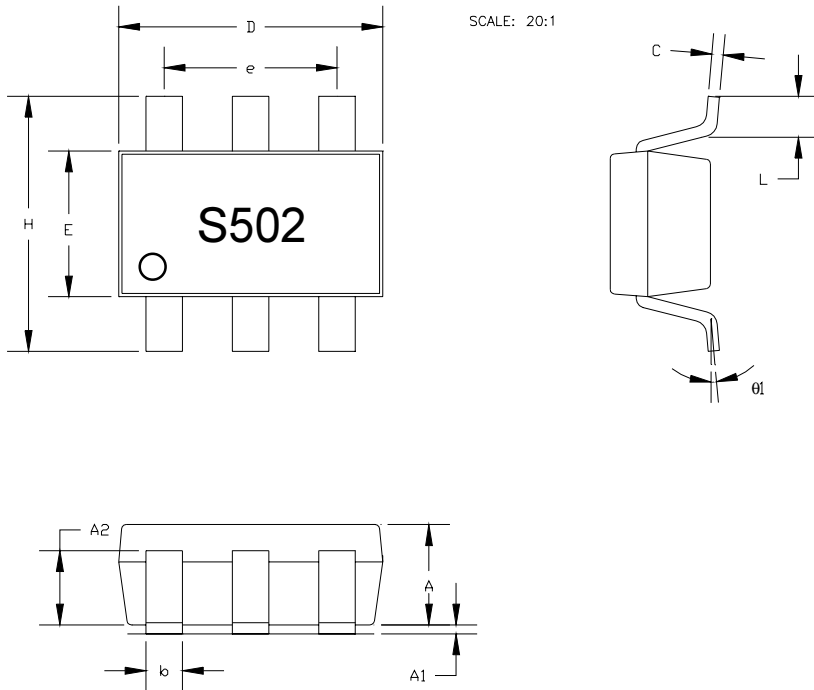
$C_{1,2,4} = 100 \text{ pF}$ for operation >500 MHz.

Pin	Function	Description
1	RFOUT (J2)	RF port (can be used as an input or as an output)
2	GND	Ground connection (keep as short as possible)
3	RFIN (J1)/ V_S	RF common port and bias voltage for positive control (3V to 5V)
4	RFOUT 1 (J2)	RF port (can be used as an input or as an output)
5	V2	Control voltage 2 (low 0V , high 3V to 5V)
6	V1	Control voltage 1 (low 0V , high 3V to 5V)

TEST CIRCUIT LAYOUT



PACKAGE OUTLINE DRAWING



SCALE: 20:1

NOTES:

1. Package body sizes exclude mold flash and gate burrs.
2. Dimension L is measured in gage plane
3. Coplanarity: 0.1000 mm
4. Tolerance ± 0.1000 mm (4 mil) unless otherwise specified.

SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.00	1.10	1.30	0.039	0.043	0.051
A1	0.00	—	0.10	0.00	—	0.004
A2	0.70	0.80	0.90	0.027	0.031	0.035
b	0.35	0.40	0.50	0.014	0.016	0.020
C	0.10	0.15	0.25	0.004	0.006	0.010
D	2.70	2.90	3.10	0.106	0.114	0.122
E	1.40	1.60	1.80	0.055	0.063	0.071
e	1.90(TYP)			0.075(TYP)		
H	2.60	2.80	3.00	0.102	0.110	0.118
L	0.37	—	—	0.015	—	—
$\theta 1$	1°	5°	9°	1°	5°	9°

ANADIGICS, Inc.
 35 Technology Drive
 Warren, New Jersey 07059

Tel: (908) 668-5000 / Fax: (908) 668-5132

Email: Mktg@anadigics.com

www.anadigics.com

IMPORTANT NOTICE

ANADIGICS, Inc. reserves the right to make changes to its products or discontinue any product at any time without notice. The Advanced Product data sheets and product specifications contained in this data sheet are subject to change prior to a products formal introduction. The information in this data sheet has been carefully checked and is assumed to be reliable. However, ANADIGICS assumes no responsibility for inaccuracies. ANADIGICS strongly urges customers to verify that the information they are using is current before placing orders.

WARNING

ANADIGICS products are not intended for use in life support appliances, device, or systems. Use of an ANADIGICS product in any such application without written consent is prohibited.