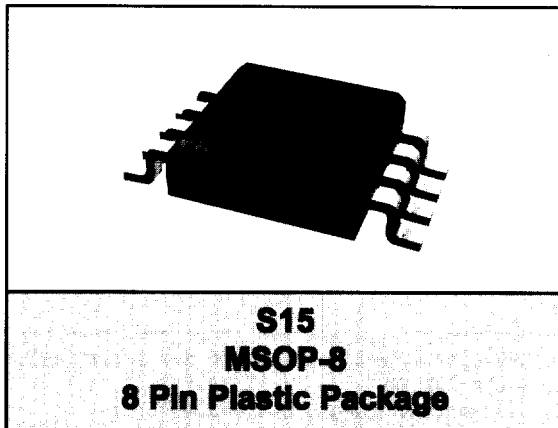


FEATURES

- High Linearity (+45 dBm IP3 @ 0.9 GHz)
- Low Insertion Loss (0.4 dB @ 0.9 GHz)
- Simultaneous T/R Switching
- Small MSOP-8 Plastic Package



Description

The AWS5507 GaAs MMIC is a four port transfer switch assembled in a MSOP-8 plastic package. The switch design is used for applications that require, high linearity, as well as the combination of transmit/recieve and antenna selection functionality in one device. The AWS5507 has two complimentary control lines which may be positive or negative.

Electrical Specifications at 25 °C (0, -5V)

Parameter ¹	Frequency ²	TX-J ₁ or RX - J ₁			TX-J ₂ or RX - J ₂			Unit
		Min	Typ	Max	Min	Typ	Max	
Insertion Loss ³	DC - 0.5 GHz		0.35	0.5		0.5	0.7	dB
	DC - 1.0 GHz	-	0.45	0.7		0.6	0.9	
	DC - 2.0 GHz		0.7	1.0		0.85	1.3	
Isolation	DC - 0.5 GHz	20	25		25	28		dB
	DC - 1.0 GHz	13	15	-	17	20		
	DC - 2.0 GHz	10	13		14	16		
VSWR ⁴	DC - 1.0 GHz	-	1.2:1	1.3:1	-	1.2:1	1.5:1	-
	DC - 2.0 GHz		1.3:1	1.7:1		1.3:1	1.8:1	

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) On, Off (50% CTL to 90%/10% RF) Video Feedthru	-	-	20 40 50	-	ns ns mV
Intermodulation Intercept Point (IP3)	For Two-tone Input Power +0 dBm	0.5 - 2.0 GHz	-	+45	-	dBm
Input Power for 1dB Compression (TX)	-	0.5 - 2.0 GHz	-	+33	-	dBm
Control Voltage	$V_{LOW} = 0 \text{ to } 0.2 \text{ V @ } 20 \text{ uA Max}$ $V_{HIGH} = -5 \text{ V @ } 25 \text{ uA Max to } -8 \text{ V @ } 100 \text{ uA Max}$					

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	4 W > 0.5 GHz MHz, 0/-7 V Control
Control Voltage	+0.2 V, -8 V
Operating Temperature	-40° C to +85° C
Storage Temperature	-65° C to 150° C
Θ_{jc}	25° C/W

Truth Table

Negative Operation

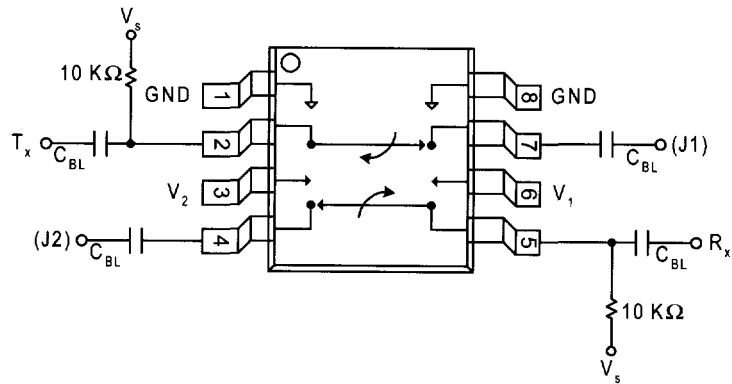
V_1	V_2	TX - J ₂ , RX - J ₁	TX - J ₁ , RX - J ₂
0	-5	Insertion Loss	Isolation
-5	0	Isolation	Insertion Loss

Positive Operation

V_1	V_2	TX - J ₂ , RX - J ₁	TX - J ₁ , RX - J ₂
V_{High}	0	Insertion Loss	Isolation
0	V_{High}	Isolation	Insertion Loss

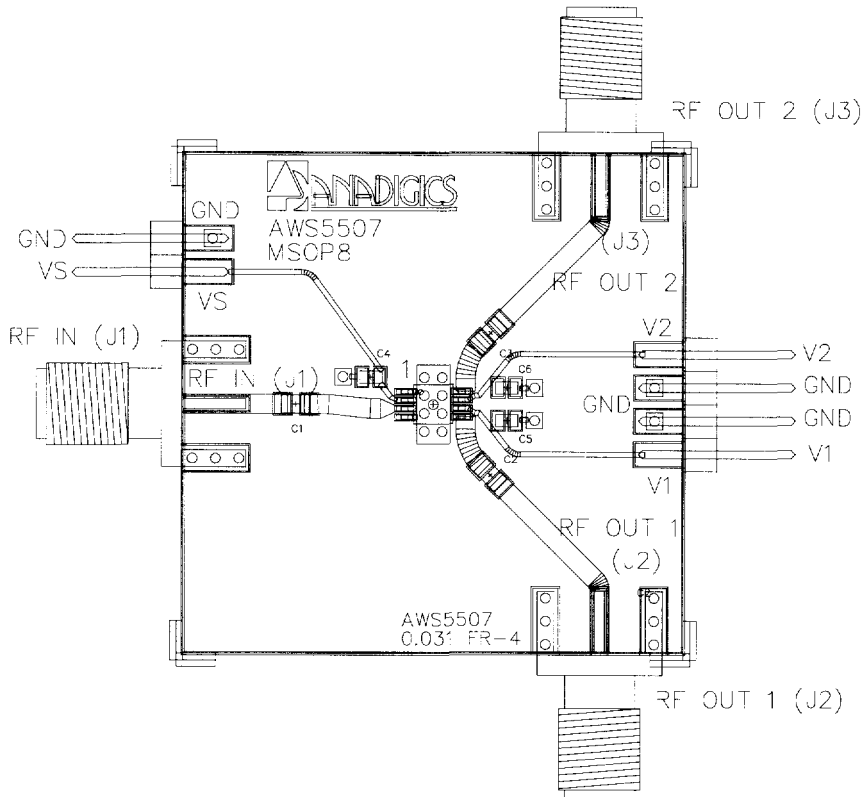
Pin Out

Pin	Function
1	GND
2	TX
3	V2
4	J2
5	RX
6	V1
7	J1
8	GND



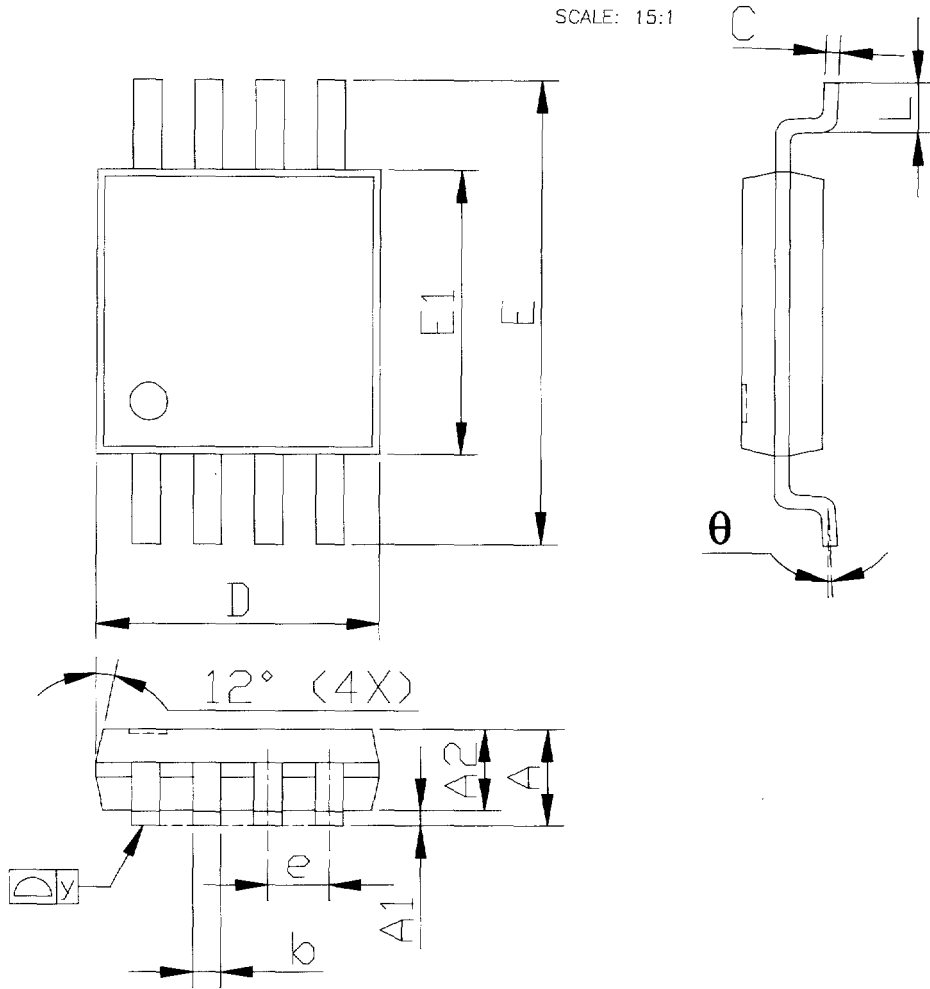
External components shown are for positive voltage operation only.
 $C_{BL} = 100 \text{ pF}$ for operation $>500 \text{ MHz}$.

Test Circuit Layout



Package Outline Drawing

SCALE: 15:1



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Wireless Products

NOTES:

1. Package body sizes exclude mold flash and gate burrs.
2. Dimension L is measured in gage plane.
3. Tolerance 0.10 mm unless otherwise specified.
4. Controlling dimensions are metric. Converted inch dimensions are not necessarily exact.