

# GaAs IC SP4T Non-Reflective Switch DC–2 GHz



AS115-61

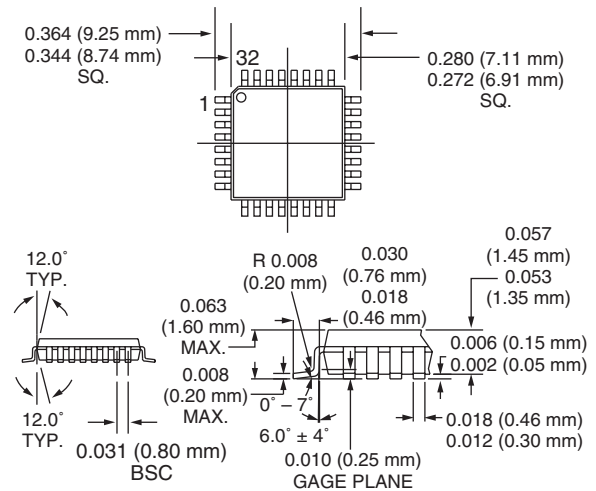
## Features

- -3 V to -5 V Operation
- High Isolation (50 dB @ 0.9 GHz)
- Low Insertion Loss (0.7 dB @ 0.9 GHz)
- LQFP-32 Plastic Package
- Non-Reflective All Ports

## Description

The AS115-61 is a high isolation SP4T FET IC non-reflective switch. The switch operates with 0 and -3 V or -5 V over the frequency range of DC–2 GHz. The insertion loss is 0.7 dB and isolation is 50 dB at 0.9 GHz. The switch is ideal for cellular base station switch matrices.

## LQFP-32



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

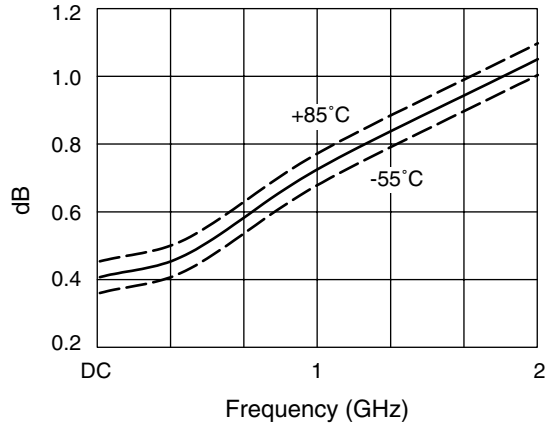
Parameter <sup>1</sup>	Frequency <sup>2</sup>	Min.	Typ.	Max.	Unit
Insertion Loss <sup>3</sup>	DC–0.5 GHz		0.5	0.7	dB
	DC–1.0 GHz		0.7	0.9	dB
	DC–2.0 GHz		1.1	1.3	dB
Isolation	DC–0.5 GHz	50	58		dB
	DC–1.0 GHz	45	51		dB
	DC–2.0 GHz	35	39		dB
VSWR <sup>4</sup>	DC–1.0 GHz		1.55:1	1.6:1	
	DC–2.0 GHz		1.65:1	1.8:1	

## Operating Characteristics at 25°C (0, -5 V)

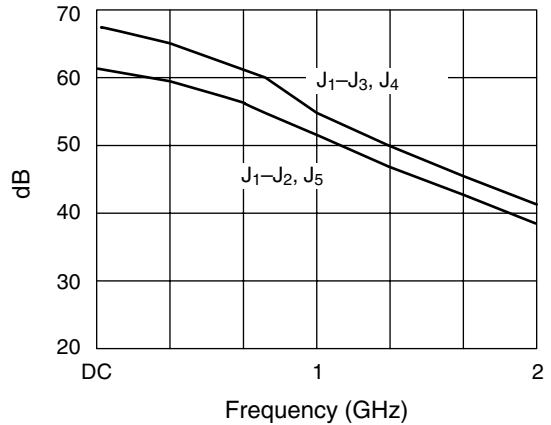
Parameter <sup>1</sup>	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching Characteristics <sup>5</sup>	Rise, Fall (10/90% or 90/10% RF)			15		ns
	On, Off (50% CTL to 90/10% RF)			30		ns
	Video Feedthru			30		mV
Input Power for 1 dB Compression	0/-3 V	0.50–2.0 GHz		+24		dBm
	0/-5 V	0.50–2.0 GHz		+30		dBm
Intermodulation Intercept Point (IP3)	For Two-tone Input Power +13 dBm	0.50–2.0 GHz 0.05 GHz		+40 +29		dBm dBm
Control Voltages	$V_{Low} = 0 \text{ to } -0.2 \text{ V @ } 20 \mu\text{A Max.}$ $V_{High} = -3 \text{ V @ } 100 \mu\text{A to } -5 \text{ V @ } 500 \mu\text{A Max.}$					

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

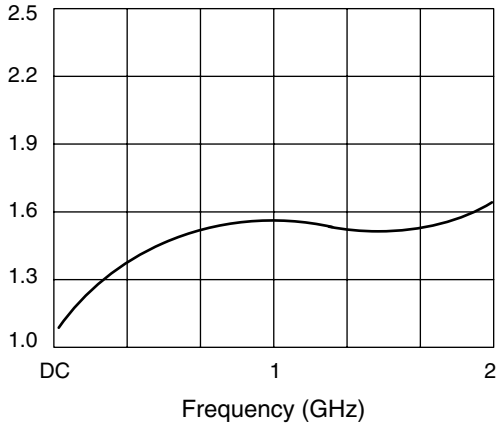
**Typical Performance Data (0, -5 V)**



**Insertion Loss vs. Frequency**



**Isolation vs. Frequency**



**VSWR vs. Frequency**

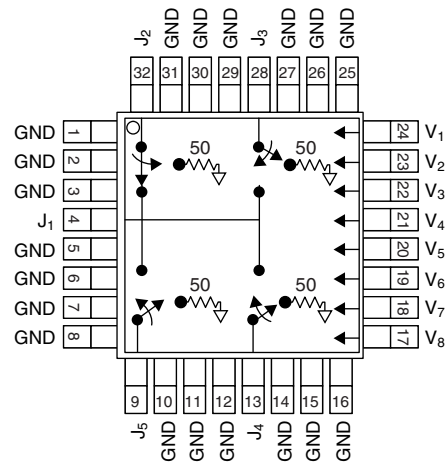
**Absolute Maximum Ratings**

Characteristic	Value
RF Input Power	2 W > 500 MHz 0/-7 V 0.5 W @ 50 MHz 0/-7 V
Control Voltage	+0.2 V, -10 V
Operating Temperature	-40°C to +85°C
Storage Temperature	-65°C to +150°C
$\Theta_{JC}$	25°C/W

**Truth Table**

Insertion Loss Path J <sub>1</sub> to:	J <sub>3</sub>		J <sub>2</sub>		J <sub>5</sub>		J <sub>4</sub>	
	V <sub>1</sub>	V <sub>2</sub>	V <sub>3</sub>	V <sub>4</sub>	V <sub>5</sub>	V <sub>6</sub>	V <sub>7</sub>	V <sub>8</sub>
J <sub>2</sub>	0	-5	-5	0	-5	0	-5	0
J <sub>3</sub>	-5	0	0	-5	-5	0	-5	0
J <sub>4</sub>	0	-5	0	-5	-5	0	0	-5
J <sub>5</sub>	0	-5	0	-5	0	-5	-5	0

**Pin Out**





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