

**DATA SHEET**

# AS192-306: PHEMT GaAs IC High Power SP4T Switch 0.1–2.5 GHz

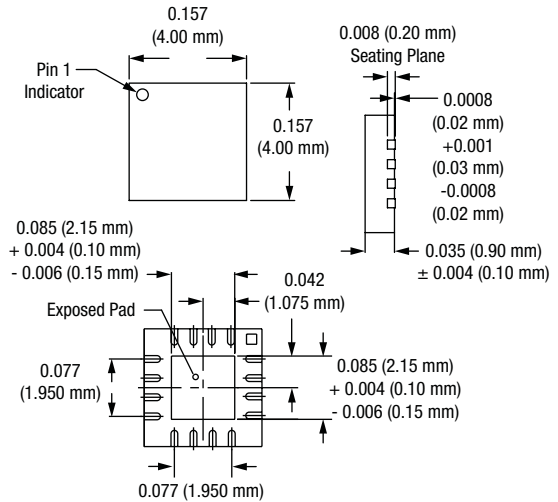
**Features**

- 4 symmetric RF paths
- Positive voltage control
- High IP3
- Excellent harmonic performance
- Handles GSM power levels
- Available in QFN-16 (4 x 4 mm) package

**Description**

The AS192-306 is a reflective SP4T switch. It is an ideal switch for higher power applications. It can be used for GSM dual-band handset applications where low loss, low current and small size are critical parameters.

**QFN-16 (4 x 4 mm)**



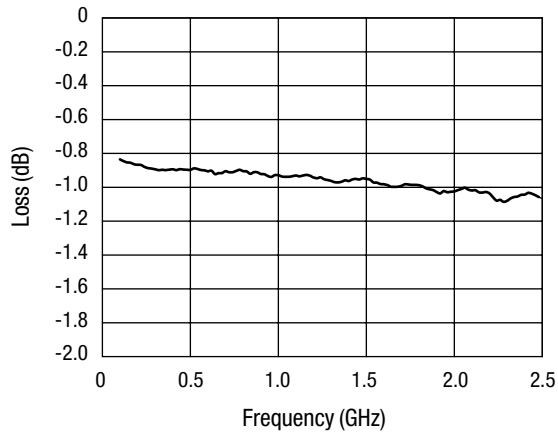
**Electrical Specifications at 25 °C (0, +4.5 V)**

Parameter	Frequency	Min.	Typ.	Max.	Unit	
Insertion loss	Ant-J1, J2, J3, J4	0.1–0.5 GHz		0.90	1.1	dB
		0.5–1.0 GHz		0.95	1.1	dB
		1.0–2.0 GHz		1.00	1.2	dB
		2.0–2.5 GHz		1.10	1.3	dB
Isolation	Ant-J1, J2, J3, J4	0.1–0.5 GHz	30	34		dB
		0.5–1.0 GHz	25	29		dB
		1.0–2.0 GHz	19	23		dB
		2.0–2.5 GHz	18	21		dB
VSWR		0.1–1.0 GHz		1.3:1		
		1.0–2.5 GHz		1.4:1		

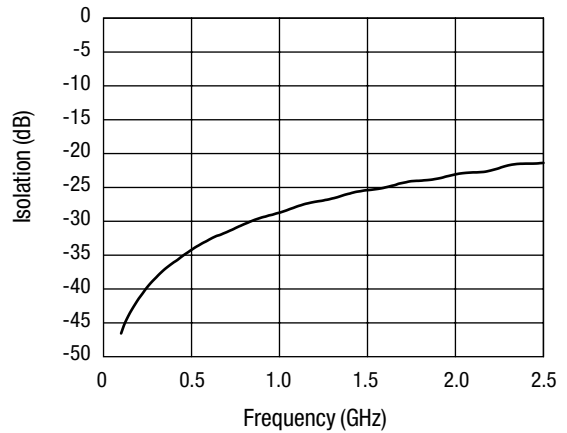
**Operating Characteristics at 25 °C (0, +4.5 V)**

Parameter	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching characteristics	Rise, fall (10/90% or 90/10% RF)			50		ns
	On, off (50% CTL to 90/10% RF)			100		ns
	Video feedthru			50		mV
IP3	13 dBm/tone			+55		dBm
2nd and 3rd harmonics	34 dBm input 900 MHz			+65		dBc
Control voltages	V <sub>LOW</sub> = 0 V <sub>HIGH</sub> = +4.5 V @ 200 μA max. for RF power > 30 dBm V <sub>HIGH</sub> = +3.0 V @ 200 μA max. for RF power 20–30 dBm V <sub>HIGH</sub> = +2.7 V @ 200 μA max. for RF power < 20 dBm					

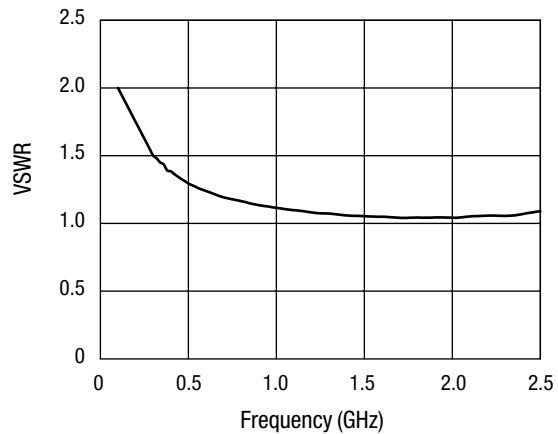
### Typical Performance Data



Typical Insertion Loss vs. Frequency



Typical Isolation vs. Frequency

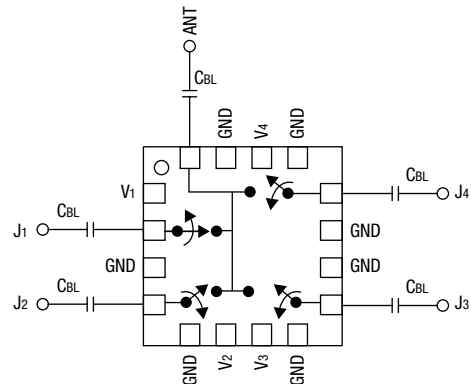


Typical VSWR

### Absolute Maximum Ratings

Characteristic	Value
RF input power	4 W > 0.5 GHz 0/+6 V control
Control voltage	+6 V
Operating temperature	-40 °C to +85 °C
Storage temperature	-65 °C to +150 °C
Θ <sub>JC</sub>	25 °C/W

### Pin Out



DC blocking capacitors (C<sub>BL</sub>) must be supplied externally.  
C<sub>BL</sub> = 47 pF for operating frequency >500 MHz.

### Truth Table

V <sub>1</sub>	V <sub>2</sub>	V <sub>3</sub>	V <sub>4</sub>	Ant-J <sub>1</sub>	Ant-J <sub>2</sub>	Ant-J <sub>3</sub>	Ant-J <sub>4</sub>
V <sub>HIGH</sub>	V <sub>LOW</sub>	V <sub>LOW</sub>	V <sub>LOW</sub>	Ins. loss	Isolation	Isolation	Isolation
V <sub>LOW</sub>	V <sub>HIGH</sub>	V <sub>LOW</sub>	V <sub>LOW</sub>	Isolation	Ins. loss	Isolation	Isolation
V <sub>LOW</sub>	V <sub>LOW</sub>	V <sub>HIGH</sub>	V <sub>LOW</sub>	Isolation	Isolation	Ins. loss	Isolation
V <sub>LOW</sub>	V <sub>LOW</sub>	V <sub>LOW</sub>	V <sub>HIGH</sub>	Isolation	Isolation	Isolation	Ins. loss

V<sub>LOW</sub> = 0.  
V<sub>HIGH</sub> = 4.5 to 5.0 V for RF power > 30 dBm.  
V<sub>HIGH</sub> = 3.0 to 5.0 V for RF power 20–30 dBm.  
V<sub>HIGH</sub> = 2.7 to 5.0 V for RF power < 20 dBm.