

DATA SHEET

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

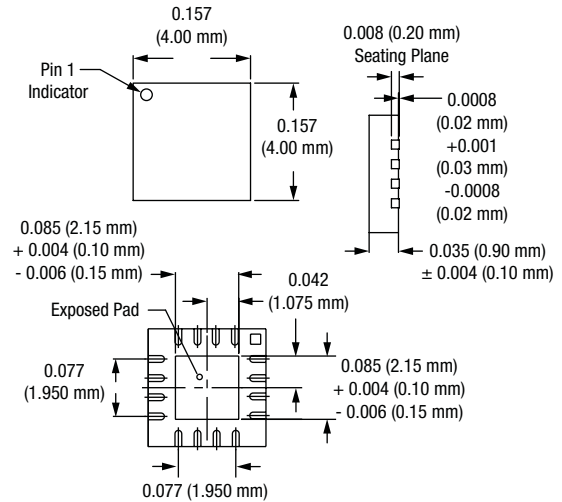
Features

- 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)



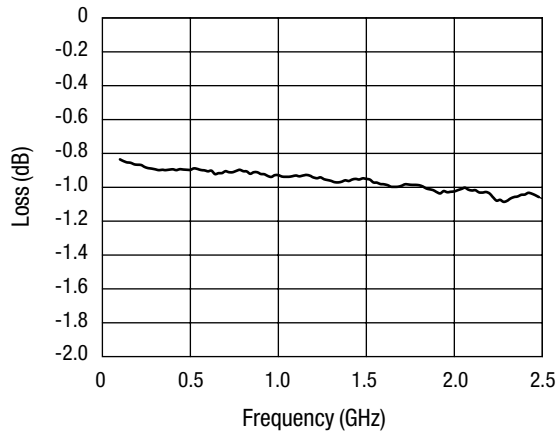
Electrical Specifications at 25 °C (0, +4.5 V)

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		

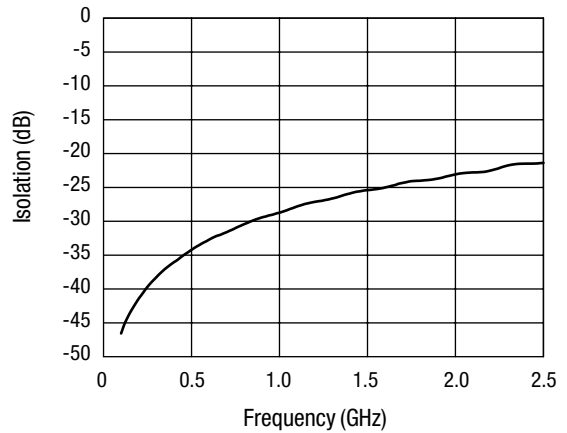
Operating Characteristics at 25 °C (0, +4.5 V)

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 _{LOW} = 0 V _{HIGH} = +4.5 V @ 200 μA max. for RF power > 30 dBm V _{HIGH} = +3.0 V @ 200 μA max. for RF power 20–30 dBm V _{HIGH} = +2.7 V @ 200 μA max. for RF power < 20 dBm					

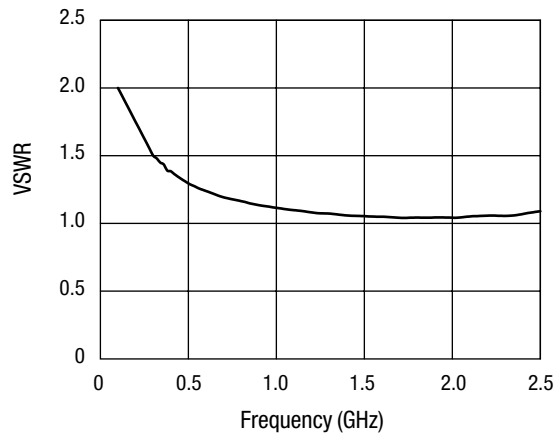
Typical Performance Data



Typical Insertion Loss vs. Frequency



Typical Isolation vs. Frequency



Typical VSWR

Truth Table

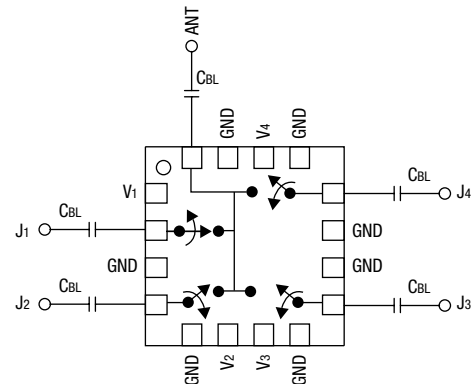
V ₁	V ₂	V ₃	V ₄	Ant-J ₁	Ant-J ₂	Ant-J ₃	Ant-J ₄
V _{HIGH}	V _{LOW}	V _{LOW}	V _{LOW}	Ins. loss	Isolation	Isolation	Isolation
V _{LOW}	V _{HIGH}	V _{LOW}	V _{LOW}	Isolation	Ins. loss	Isolation	Isolation
V _{LOW}	V _{LOW}	V _{HIGH}	V _{LOW}	Isolation	Isolation	Ins. loss	Isolation
V _{LOW}	V _{LOW}	V _{LOW}	V _{HIGH}	Isolation	Isolation	Isolation	Ins. loss

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

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 _{JC}	25 °C/W

Pin Out



DC blocking capacitors (C_{BL}) must be supplied externally.
 C_{BL} = 47 pF for operating frequency >500 MHz.