

PHEMT GaAs IC High Power SP4T Switch 0.1–2.5 GHz



AS192-300

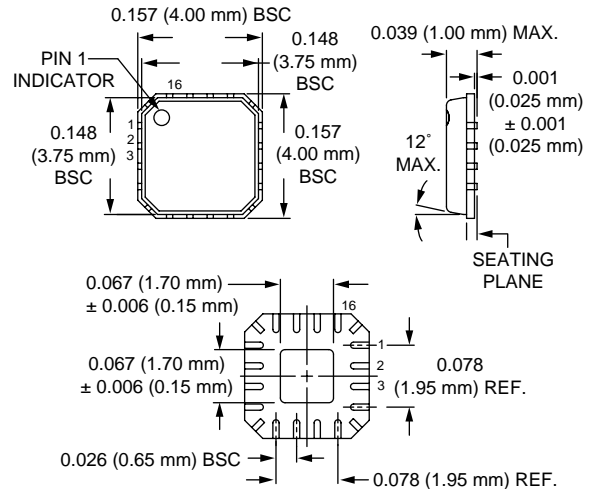
Features

- 4 Symmetric RF Paths
- Positive Voltage Control
- High IP3
- Excellent Harmonic Performance
- Handles GSM Power Levels
- Available in MLF-16 (4 x 4 mm) Package

Description

The AS192-300 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 both low loss, low current and small size are critical parameters.

MLF-16 (4 x 4 mm)



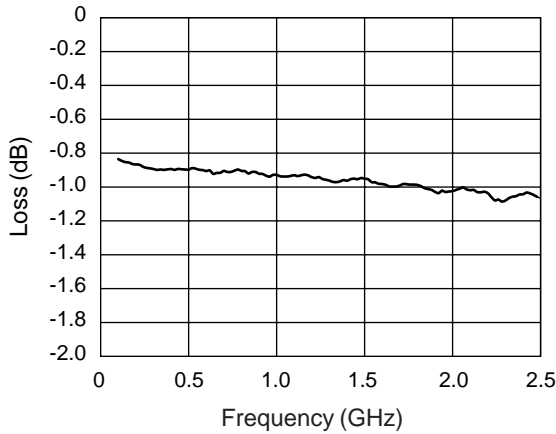
Electrical Specifications at 25°C (0, +4.5 V)

Parameter	Frequency	Min.	Typ.	Max.	Unit
Insertion Loss	Ant-J ₁ , J ₂ , J ₃ , J ₄	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-J ₁ , J ₂ , J ₃ , J ₄	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		

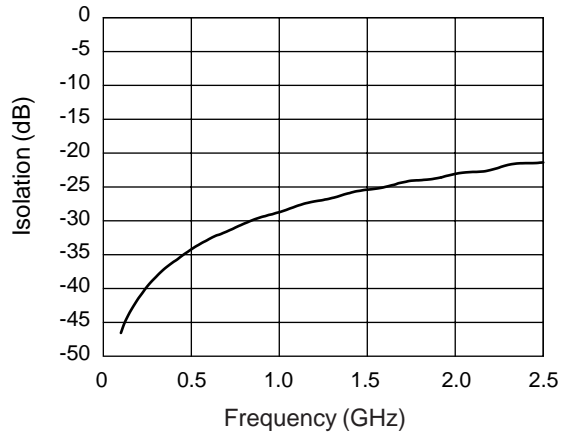
Operating Characteristics at 25°C (0, +4.5 V)

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					

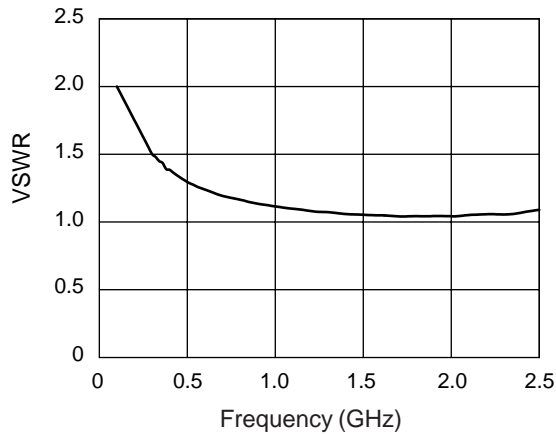
Typical Performance Data



Typical Insertion Loss vs. Frequency



Typical Isolation vs. Frequency

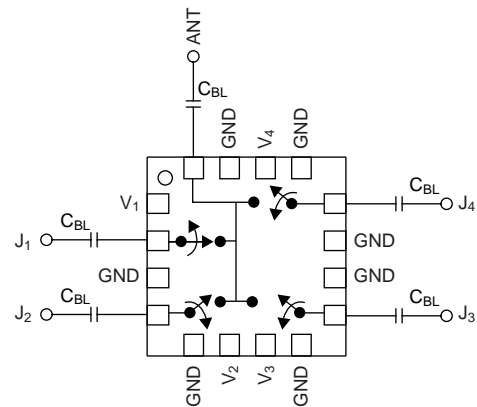


Typical VSWR

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.
 $C_{BL} = 47 \text{ pF}$ for operating frequency >500 MHz.

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.