



PHEMT GaAs IC SPDT Switch DC–4 GHz

AS211-334

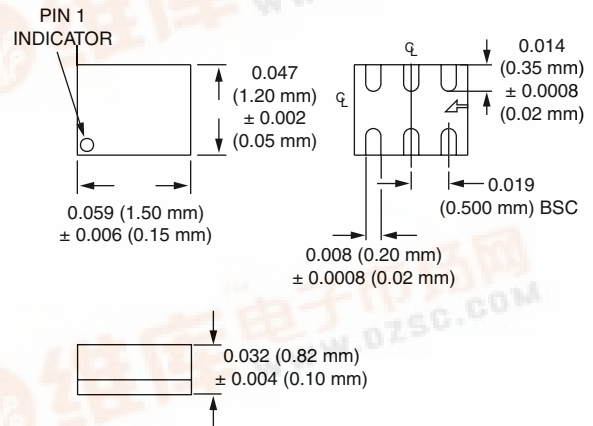
Applications

- General Purpose Switch for Telecommunication Applications

Features

- P_1 dB +30 dBm Typical @ +3 V
- IP3 43 dBm Typical @ +3 V
- Low Insertion Loss (0.3 dB @ 0.9 GHz)
- Low DC Power Consumption
- 1.5 x 1.2 x 0.8 mm Land Grid Array (LGA) Package
- PHEMT Process

LGA-6 (1.5 x 1.2 mm)



Description

The AS211-334 is an IC FET SPDT switch in a low cost miniature LGA package. The AS211-334 features low insertion loss and positive voltage operation with very low DC power consumption.

Electrical Specifications at 25°C (0, +3 V)

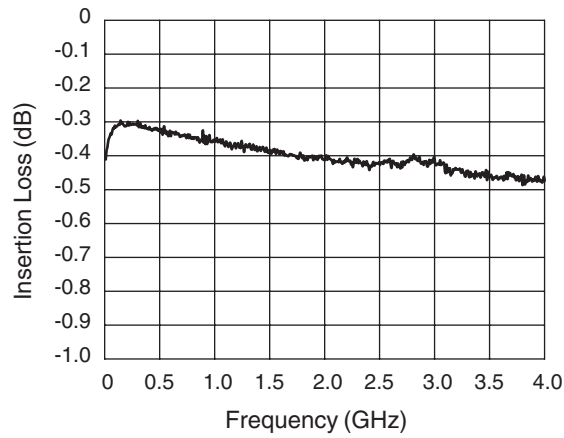
Parameter	Frequency	Min.	Typ.	Max.	Unit
Insertion Loss	0.1–1.0 GHz		0.3	0.5	dB
	1.0–2.0 GHz		0.4	0.6	dB
	2.0–3.0 GHz		0.5	0.7	dB
	3.0–4.0 GHz		0.6	0.8	dB
Isolation	0.1–1.0 GHz	22	25		dB
	1.0–2.0 GHz	20	22		dB
	2.0–3.0 GHz	20	23		dB
	3.0–4.0 GHz	23	26		dB
VSWR	DC–4.0 GHz		1.2:1	1.3:1	

Operating Characteristics at 25°C (0, +3 V)

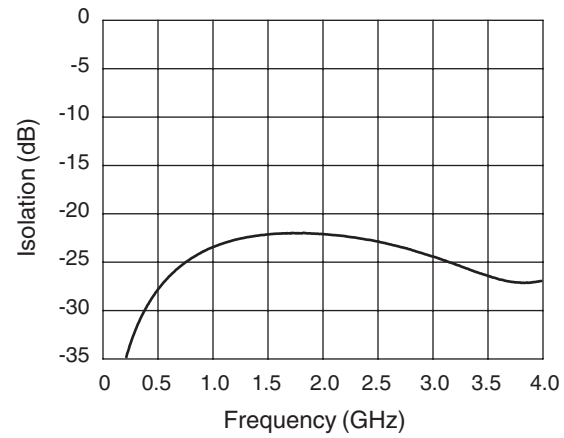
Parameter	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching Characteristics ¹	Rise, Fall (10/90% or 90/10% RF)			10		ns
	On, Off (50% CTL to 90/10% RF)			20		ns
	Video Feedthru			25		mV
Input Power for 1 dB Compression	0/+3 V	0.5–3.0 GHz		+30		dBm
	0/+5 V	0.5–3.0 GHz		+34		dBm
Intermodulation Intercept Point (IP3)	For Two-tone Input Power +5 dBm					
	0/+3 V	0.5–3.0 GHz		+43		dBm
	0/+5 V	0.5–3.0 GHz		+50		dBm
Control Voltages	$V_{Low} = 0$ to 0.2 V @ 20 μ A Max. $V_{High} = +3$ V @ 100 μ A Max. to +5 V @ 200 μ A Max.					

¹ Video feedthru measured with 1 ns risetime pulse and 500 MHz bandwidth.

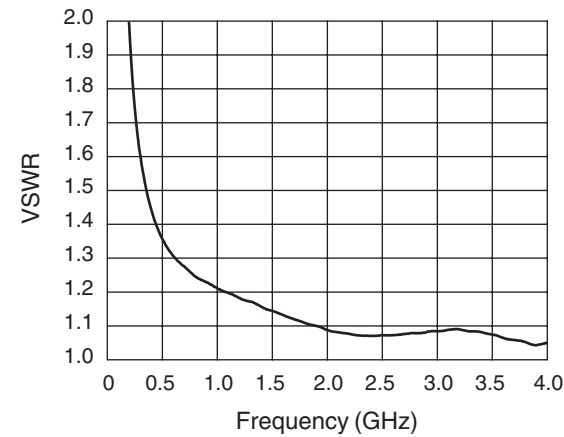
Typical Performance Data (+3 V, C_BL = 47 pF)



Insertion Loss vs. Frequency



Isolation vs. Frequency



VSWR vs. Frequency

Truth Table

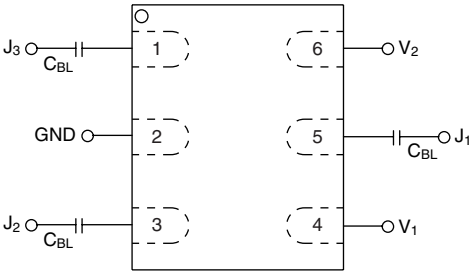
V ₁	V ₂	J ₁ –J ₂	J ₁ –J ₃
V _{High}	V _{Low}	Isolation	Ins. Loss
V _{Low}	V _{High}	Ins. Loss	Isolation

V_{Low} = 0 to +0.2 V.
 V_{High} = +3 to +5 V.

Absolute Maximum Ratings

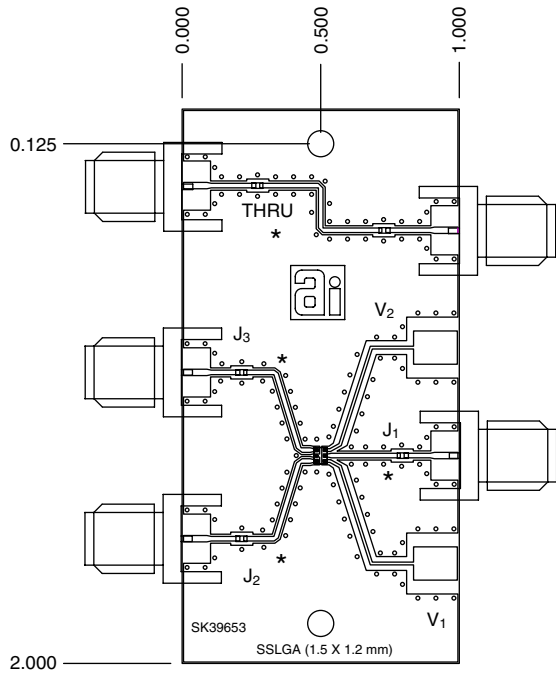
Characteristic	Value
RF Input Power	6 W > 500 MHz 0/+7 V Control
Control Voltage	-0.2 V, +8 V
Operating Temperature	-40°C to +85°C
Storage Temperature	-65°C to +150°C
Θ _{JC}	25°C/W

Pin Out (Top View)

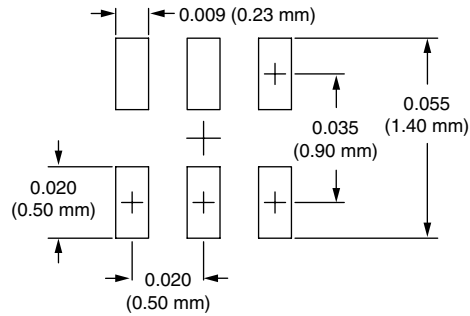


DC blocking capacitors (C_BL) must be supplied externally for positive voltage operation.
 C_BL = 47 pF for operation >500 MHz.

Test Board



Surface Mount Land Pattern
1.5 x 1.2 mm LGA-6 (-334)



Dimensions in inches (mm).