

PHEMT GaAs IC High Linearity and Isolation SPDT Switch DC–3 GHz



AS201-306

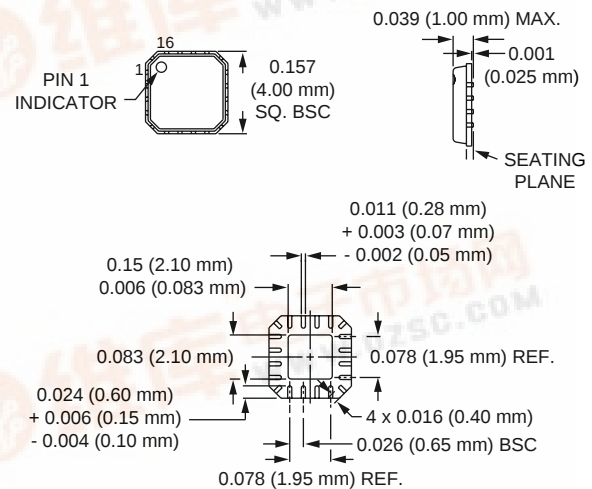
Features

- Positive Voltage Control (0/+3 to 0/+5 V)
- High Isolation (45 dB @ 0.9 GHz and 40 dB @ 1.9 GHz)
- MLF-16 4 x 4 mm Package
- High Linearity (60 dBm @ 900 MHz)

Description

The AS201-306 is a PHEMT GaAs IC SPDT switch packaged in a 16 lead, leadless exposed pad plastic package for low cost, high isolation commercial applications. Typical applications include GSM, DCS, WCDMA, 2.4 GHz ISM and wireless local loop.

MLF-16 (4 x 4 mm)



Electrical Specifications (0, +5 V) 25°C

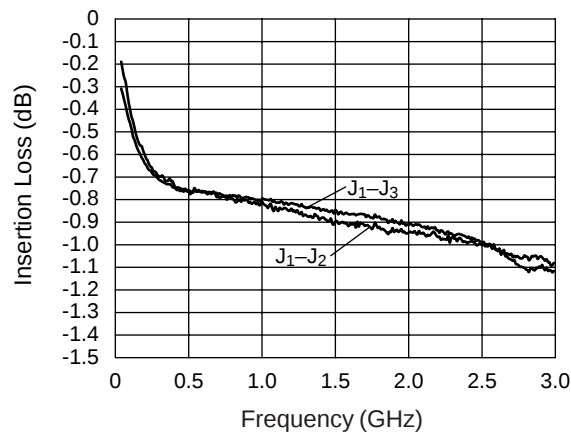
Parameter ¹	Condition	Frequency	Min.	Typ.	Max.	Unit
Insertion Loss		DC–1.0 GHz		0.8	1.0	dB
		DC–2.0 GHz		0.9	1.1	dB
		DC–3.0 GHz		1.2	1.4	dB
Isolation ²		DC–1.0 GHz	42	44		dB
		DC–2.0 GHz	35	40		dB
		DC–3.0 GHz	30	35		dB
VSWR		DC–3.0 GHz		1.3:1		
Intermodulation Intercept Point (IP3)	For Two-tone Input Power +30 dBm	0.5–3.0 GHz		60		dBm
Control Voltages	V _{CTL} (Low) = 0 to 0.2 V @ 20 μA Typ. V _{CTL} (High) = +3 V @ 100 μA Typ. to +5 V @ 200 μA Typ.					

1. All measurements made in a 50 Ω system, unless otherwise specified.

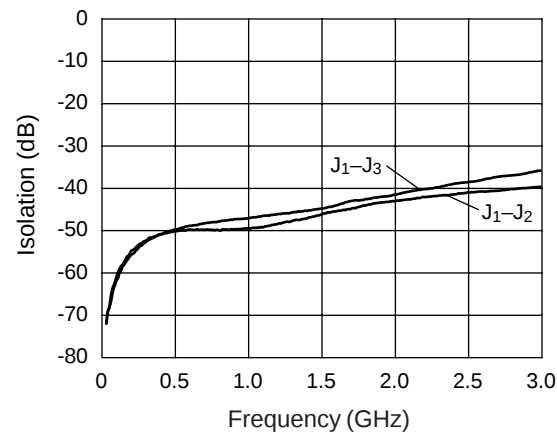
1. All measurements made in a 50 Ω system, unless otherwise specified.
2. Backside of exposed pad must be connected to RF ground to obtain specified isolation.

3. Video feedthru measured for 3 ns risetime pulse.

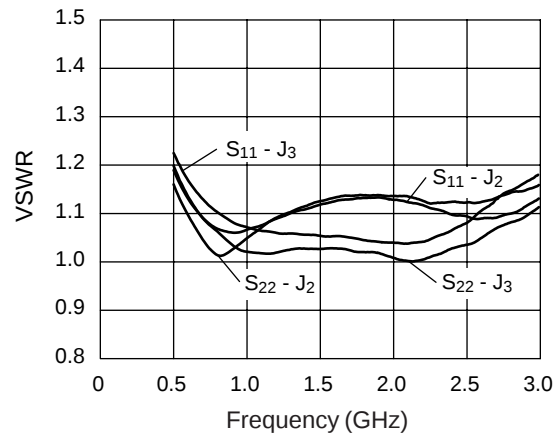
Typical Performance Data (+3 V, C_{BL} = 47 pF)



Insertion Loss vs. Frequency

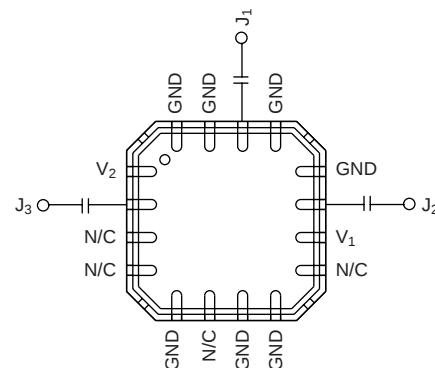


Isolation vs. Frequency



VSWR vs. Frequency

Pin Out (Top View)



DC blocking capacitors (C_{BL}) required for positive voltage operation.
 C_{BL} = 47 pF for operating frequency >500 MHz.

Truth Table

V ₁	V ₂	J ₁ –J ₂	J ₁ –J ₃
0	V _{High}	Isolation	Insertion Loss
V _{High}	0	Insertion Loss	Isolation

V_{High} = +3 V to +5 V.