

PHEMT GaAs IC High Power Transfer Switch DC–6 GHz



AS218-321

Applications

- WLAN 802.11a, b, g Diversity

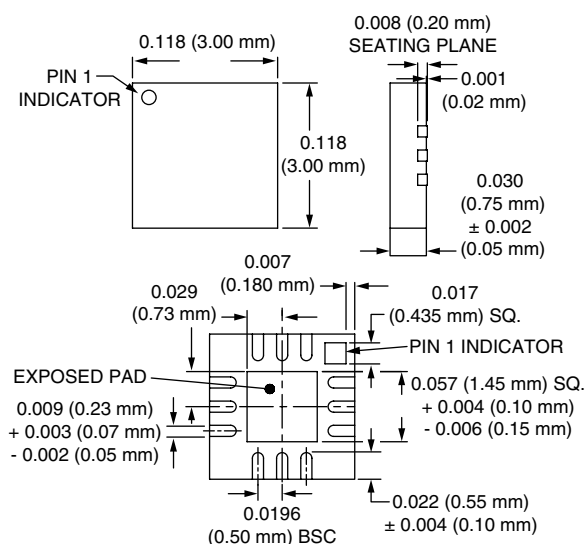
Features

- Operating Frequency DC–6 GHz
- Positive Low Voltage Control (0/+3 V Operation)
- Low Insertion Loss
- PHEMT Process

Description

The AS218-321 is a broadband transfer switch designed to combine T/R and antenna diversity switching functions on a single IC. The device is designed to handle high power and maintain high linearity at low control voltages. This low cost switch is ideal for Wi-Fi systems and is capable of covering both the 2.4 and 5 GHz bands.

QFN-12



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

Parameter ^{1, 4}	Condition	Frequency	Min.	Typ.	Max.	Unit
Insertion Loss ²	Ant 1, Ant 2 to T _X , R _X	0.10–6.00 GHz		1.6	1.8	dB
		2.40–2.50 GHz		1.2	1.4	dB
		5.15–5.85 GHz		1.4	1.6	dB
Isolation	Ant 1, Ant 2 to T _X , R _X	0.10–6.00 GHz	17	19		dB
		2.40–2.50 GHz	32	37		dB
		5.15–5.85 GHz	17	19		dB
Return Loss ³	Ant 1, Ant 2 to T _X , R _X	0.10–6.00 GHz		10		dB
		2.40–2.50 GHz		15		dB
		5.15–5.85 GHz		20		dB

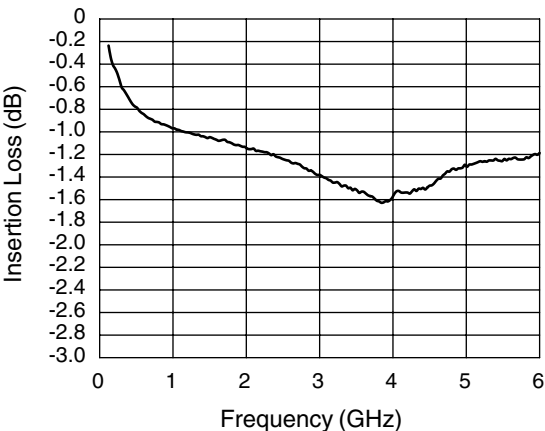
Operating Characteristics at 25°C (0, +3 V)

Parameter	Condition	Frequency	Min.	Typ.	Max.	Unit
2nd and 3rd Harmonic	23 dBm Input @ 0, +3 V	2–6 GHz		63		dBc
P ₁ dB		2–6 GHz		33		dBm
IIP3	20 dBm Per Tone	2–3 GHz		54		dBm
	22 dBm Per Tone	5–6 GHz		47		dBm
Control Voltages	V _{Low} = 0–0.2 V @ 20 μA Max. V _{High} = 3–5 V @ 200 μA Max.					

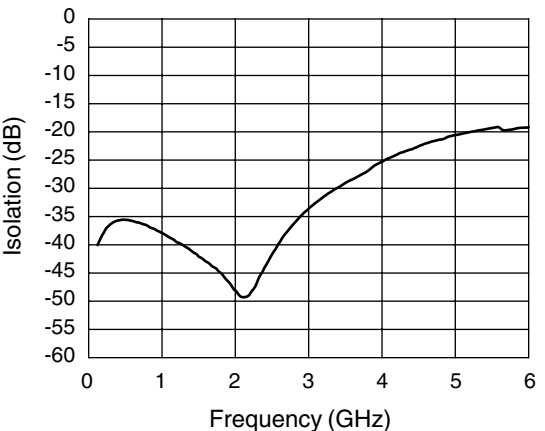
1. All measurements made in a 50 Ω system.
2. Insertion loss changes by 0.003 dB/C.

3. Return loss for insertion loss state.
4. T_X and R_X paths can be used interchangeably.

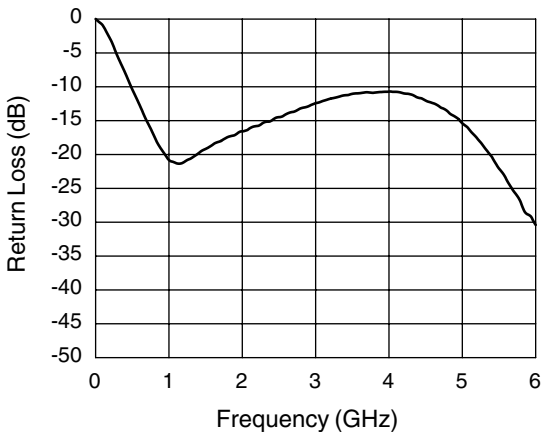
Typical Performance Data (0, +3 V)



Insertion Loss vs. Frequency

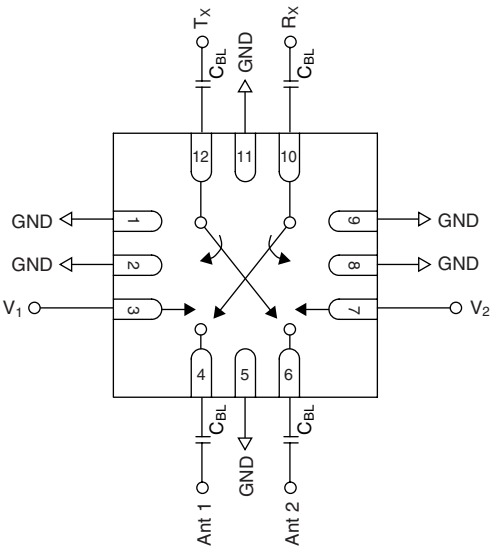


Isolation vs. Frequency



Return Loss vs. Frequency

Pin Out (Top View)



DC blocking capacitors (C_{BL}) required on RF ports.
 C_{BL} = 15 pF.

Truth Table

V ₁	V ₂	Insertion Loss Path
0	1	Ant 1 to T _X , Ant 2 to R _X
1	0	Ant 2 to T _X , Ant 1 to R _X

"1" = +3 to +5 V.
 "0" = 0 to +0.2 V.