



THE DATASHEET OF
AS227-321LF



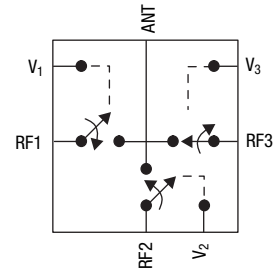
DATA SHEET

AS227-321LF: PHEMT GaAs IC High-Power SP3T Switch 300 kHz–2 GHz

Features

- Positive low voltage control (0/2.75 V operation)
- Low insertion loss (0.5 dB typ. @ 1 GHz)
- High isolation (26 dB typ. @ 1 GHz)
- Excellent IIP3 (63 dBm @ 2.75 V, 27 dBm/tone)
- Miniature QFN-12 plastic package
- PHEMT process
- Available lead (Pb)-free and RoHS-compliant MSL-1 @ 260 °C per JEDEC J-STD-020

Functional Block Diagram



Description

The AS227-321LF is a PHEMT GaAs IC SP3T antenna switch operating in the 900 MHz and 1800 MHz frequency bands. Switching between the antenna and Tx/Rx ports is accomplished with 3 control inputs. When the control inputs are driven with the appropriate voltages, a low insertion loss path is provided from an antenna port to an Rx or Tx port, while the other ports have high attenuation.

NEW Skyworks offers lead (Pb)-free, RoHS (Restriction of Hazardous Substances)-compliant packaging.



Electrical Specifications at 25 °C

V_{CTL} = 0/2.75 V, Z₀ = 50 Ω, unless otherwise noted

Parameter	Frequency	Min.	Typ.	Max.	Unit	
Insertion loss	Ant-RF1, RF2, RF3	300 kHz–0.5 GHz		0.45	0.6	dB
		300 kHz–1.0 GHz		0.50	0.7	dB
		300 kHz–2.0 GHz		0.70	0.9	dB
Isolation	Ant-RF1, RF2, RF3	300 kHz–0.5 GHz	30	32		dB
		300 kHz–1.0 GHz	24	26		dB
		300 kHz–2.0 GHz	18	20		dB
Return loss	Ant-RF1, RF2, RF3	300 kHz–0.5 GHz		18		dB
		300 kHz–1.0 GHz		18		dB
		300 kHz–2.0 GHz		14		dB

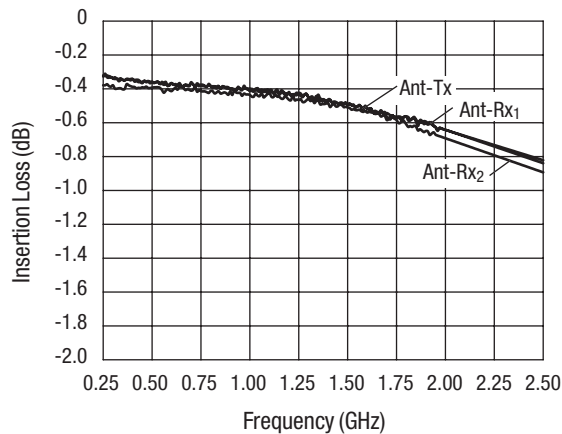
Operating Characteristics at 25 °C

$V_{CTL} = 0/2.75\text{ V}$, $Z_0 = 50\ \Omega$, unless otherwise noted

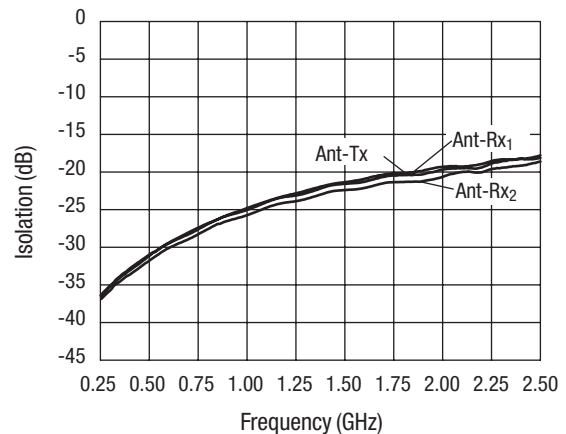
Parameter	Condition	Frequency	Min.	Typ.	Max.	Unit
Input Third Order Intercept (IIP3)	$P_{IN} = 27\text{ dBm}$, each tone	824/869 MHz		63		dBm
2nd/3rd harmonic	$P_{IN} = 34.5\text{ dBm}$	900 MHz		-65		dBc
Gate leakage current	$P_{IN} = 34\text{ dBm}$, $V_{CTL} = 2.75\text{ V}$			50		μA
Thermal resistance				25		$^{\circ}\text{C/W}$
Control voltages	V_{LOW} V_{HIGH}		-0.25 2.60	0 2.75	0.25 5.00	V V

Typical Performance Data

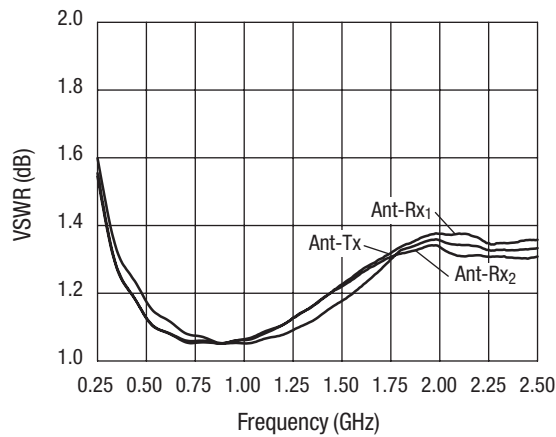
$T_A = 25\text{ }^{\circ}\text{C}$, $V_{CTL} = 0/2.75\text{ V}$, $Z_0 = 50\ \Omega$, unless otherwise noted



Insertion Loss vs. Frequency



Isolation vs. Frequency



VSWR vs. Frequency

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