

PHEMT GaAs IC High Power SP3T Switch DC–2 GHz



AS202-321

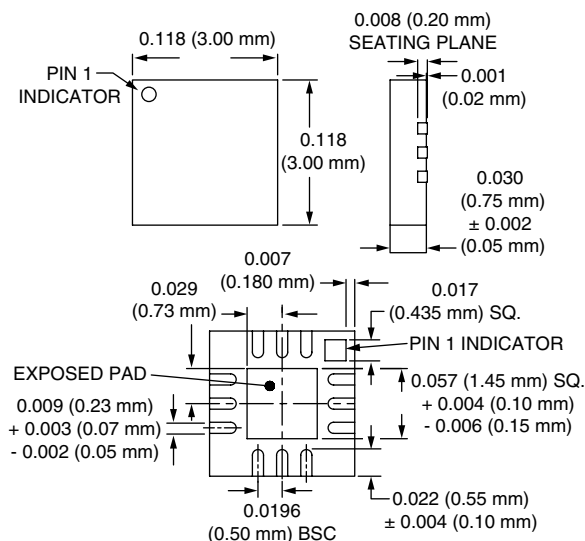
Features

- Positive Low Voltage Control (0/2.75 V Operation)
- Low Insertion Loss (< 0.8 dB @ 2 GHz)
- High Isolation (25 dB at 1 and 2 GHz)
- Excellent Harmonics Performance (65 dBc @ 2.75 V 1 GHz $P_{IN} = 34$ dBm)
- Miniature QFN-12 Plastic Package
- PHEMT Process

Description

The AS202-321 is a PHEMT GaAs IC SP3T antenna switch operating in the 900 MHz and 1800 MHz frequency bands. Switching between the antenna and T_X/R_X 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 R_X or T_X port, while the other ports have high attenuation.

QFN-12



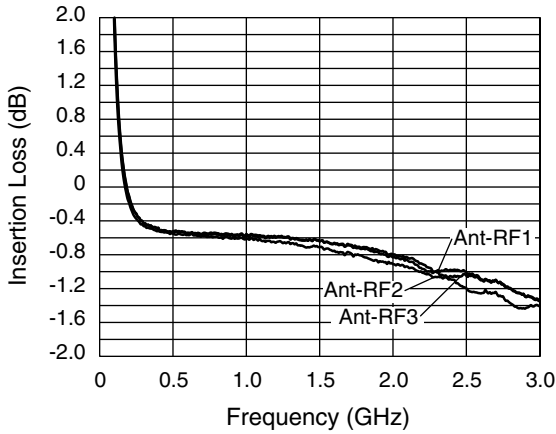
Electrical Specifications at 25°C (0, +2.75 V)

| Parameter | Frequency | Min. | Typ. | Max. | Unit |
|----------------|------------|------|------|------|------|
| Insertion Loss | DC–0.5 GHz | | 0.55 | 0.75 | dB |
| | DC–1.0 GHz | | 0.60 | 0.80 | dB |
| | DC–2.0 GHz | | 0.80 | 1.10 | dB |
| Isolation | DC–0.5 GHz | 25 | 28 | | dB |
| | DC–1.0 GHz | 22 | 25 | | dB |
| | DC–2.0 GHz | 22 | 25 | | dB |
| Return Loss | DC–0.5 GHz | | 18 | | dB |
| | DC–1.0 GHz | | 18 | | dB |
| | DC–2.0 GHz | | 14 | | dB |

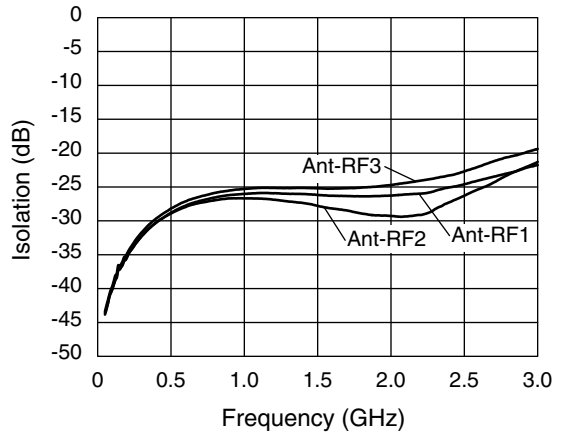
Operating Characteristics at 25°C (0, +2.75 V)

| Parameter | Condition | Frequency | Min. | Typ. | Max. | Unit |
|----------------------|--------------------|-----------|-------|------|-------|------|
| 2nd Harmonic | 34 dBm In @ 2.75 V | 1 GHz | | 72 | | dBc |
| 3rd Harmonic | 34 dBm In @ 2.75 V | 1 GHz | | 65 | | dBc |
| 2nd Harmonic | 32 dBm In @ 2.75 V | 2 GHz | | 70 | | dBc |
| 3rd Harmonic | 32 dBm In @ 2.75 V | 2 GHz | | 65 | | dBc |
| Gate Leakage Current | 34 dBm In @ 2.75 V | | | | 0.030 | mA |
| Control Voltages | V_{High} | | -0.25 | 0 | 0.25 | V |
| | V_{Low} | | 2.60 | 2.75 | 5.00 | V |

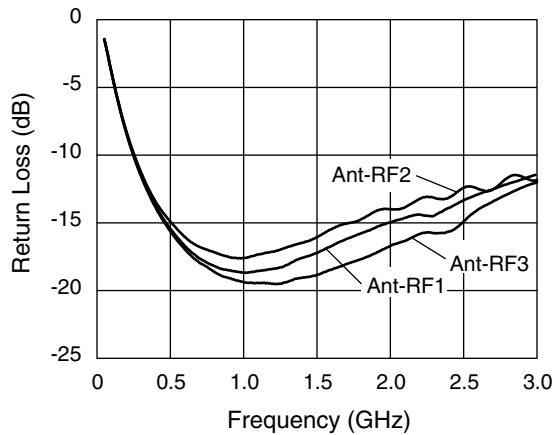
Typical Performance Data (0, +2.75 V, $C_{BL} = 47$ pF)



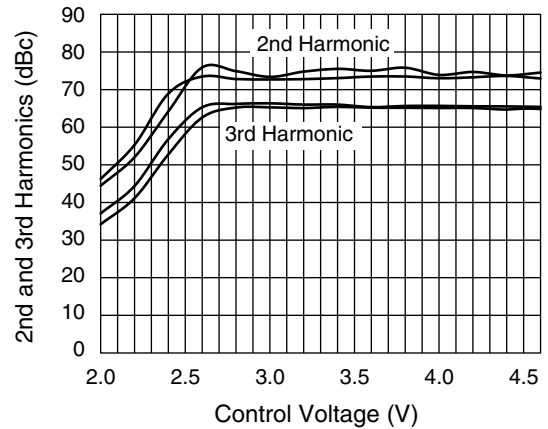
Insertion Loss vs. Frequency



Isolation vs. Frequency



Return Loss vs. Frequency



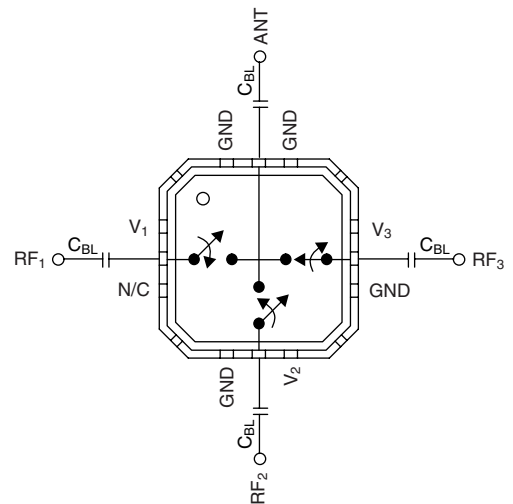
2nd and 3rd Harmonics vs. Control Voltage

Truth Table

| V ₁ | V ₂ | V ₃ | Ant-RF1 | Ant-RF2 | Ant-RF3 |
|-------------------|-------------------|-------------------|-----------|-----------|-----------|
| V _{High} | V _{Low} | V _{Low} | Ins. Loss | Isolation | Isolation |
| V _{Low} | V _{High} | V _{Low} | Isolation | Ins. Loss | Isolation |
| V _{Low} | V _{Low} | V _{High} | Isolation | Isolation | Ins. Loss |

V_{Low} = 0–0.2 V.
V_{High} = 2.75–5 V.

Pin Out



DC blocks required. $C_{BL} = 47$ pF for operation >500 MHz.



LittleDiode supplies new, hard to find or obsolete electronic components and semiconductors all over the world.

With over two million different components listed you are sure to find the part you need.

Feel free to visit us today at our online store:

LittleDiode.com

Looking forward to providing you with the best possible service.