RF Front-End T/R Chip

AAS1601

Product Specification

V1.0

1. Product Specification

Operating Frequency: 14 – 18 GHz

Transmit Path:

Output Power: 31.8 dBm @ Pin = 8 dBm

Power-Added Efficiency (PAE): 41.0% @ Pin = 8 dBm

Drain Dynamic Current: 720 mA @ Pin = 8 dBm

Power Gain: 23.7 dB @ Pin = 8 dBm

Input Return Loss: 18 dB

Small-Signal Gain: 30.0 dB

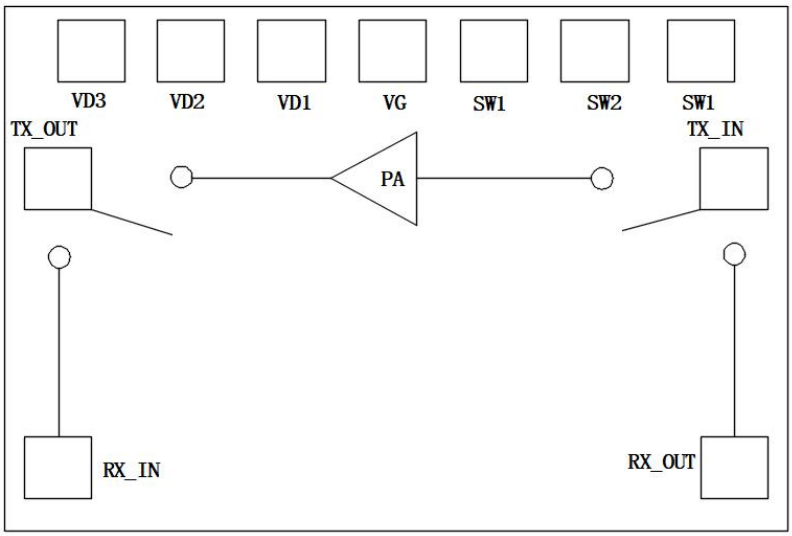
Bias Conditions: VD1 = VD2 = VD3 = 5 V, SW1 = -5 V, SW2 = 0 V, VG = -0.5 V, IDQ = 538 mA

2. Functional Overview

This chip is a GaAs RF front-end T/R chip operating at 14 – 18 GHz, tested under continuous wave (CW) conditions. With a +5 V operating voltage for the transmit path, it provides a power gain of 23.7 dB and a saturated output power of 31.8 dBm, with a typical power-added efficiency of 41.0%. The insertion loss of the receive path is approximately 1.1 dB.

The port impedance of the chip is 50 Ω, and the chip is grounded via backside metallization.

3. Block Diagram



4. Typical Applications

Suitable for applications including communications, radar, electronic warfare, and other related fields.

5. Electrical Performance Parameters

5.1 RF Characteristics – Transmit Path

Unless otherwise specified, measurements are taken under the following test conditions:VD1 = VD2 = VD3 = 5 V (typical), IDQ = 538 mA, VG = -0.5 V (typical), SW1 = -5 V, SW2 = 0 V, large-signal Pin = 8 dBm, TA = +25 ℃, 50 Ω system, tested under continuous wave.