

Description

The F6101 is an 8-channel receiver silicon IC designed using a SiGe BiCMOS process for Ku-Band SATCOM phased array applications. The core IC has 6-bit phase control coupled with more than 30dB gain control on each channel to achieve fine beam steering and gain compensation between channels. The device has 15.5dB nominal electric gain and -23dBm IP1dB. The core chip achieves an RMS phase error of 2.5° and RMS gain error of 0.25dB over the frequency of operation. The typical total power consumption is 0.34W (43mW per channel).

Competitive Advantage

- High integration
- Orthogonality of phase and amplitude control
- Advanced Serial Peripheral Interface (SPI) with 4-state memory
- Superior channel-to-channel isolation
- Minimal footprint

Typical Applications

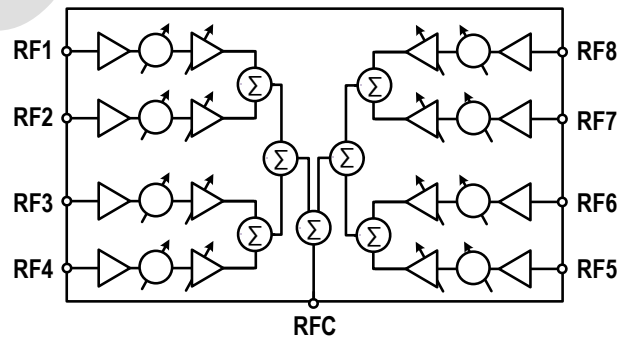
- Ku-Band SATCOM
- Aerospace and Maritime
- Weather Radar
- Beam Steering
- Test and Measurement

Features

- 10GHz to 14GHz operation
- 8 radiation channels
- 6-bit phase control
- 20ns typical gain settling time
- 20ns typical phase settling time
- 2.5° typical RMS phase error
- 0.25dB typical RMS gain error
- 30dB gain attenuation range
- 5-bit IC address
- Integrated proportional-to-absolute temperature (PTAT) sensor with external biasing
- -40°C to +95°C internal temperature sensor
- Programmable 4-state on-chip memory
- Supply voltage: +2.1V to +2.5V
- -40°C to +95°C ambient operating temperature range
- 27°C typical ambient operating temperature
- 5mm x 5mm, 40-QFN package

Block Diagram

Figure 1. Block Diagram



Ordering Information

| Orderable Part Number | Package | MSL Rating | Carrier Type | Temperature |
|-----------------------|--|------------|--------------|---------------|
| F6101NTGK | 5mm x 5mm 40-QFN | MSL 3 | Tray | -40° to +95°C |
| F6101NTGK8 | 5mm x 5mm 40-QFN | MSL 3 | Reel | -40° to +95°C |
| F6101EVB | Evaluation Board | | | |
| F6101EVS | F6101 Evaluation Kit System, including Evaluation Board, 2x THRU Reference Fixture, FT2232H Mini-Module Microcontroller, Digital Cable, Power Cable, and USB-to-Mini Cable | | | |



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