Description

The F6501 is an 8-channel transmitter (TX) silicon IC designed using a SiGe BiCMOS process for Ku-Band SATCOM phased array applications. The core IC has 360° 6-bit phase control coupled with 35dB 6-bit gain control on each channel to achieve fine beam steering and gain compensation between radiating channels. The device has a 25dB nominal gain and 13dBm OP1dB. The core chip achieves an RMS phase error of 3° and an RMS gain error of 0.4dB over the frequency of operation. The typical total power consumption is 1.4W (175mW per channel) at OP1dB.

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

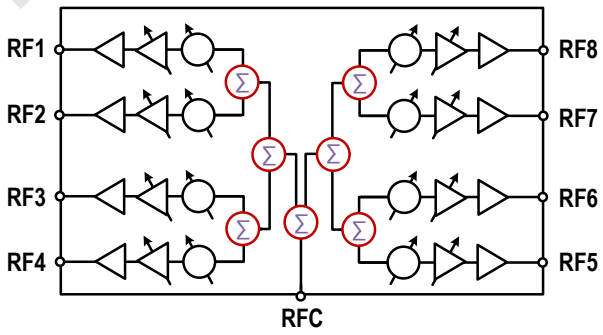
- Ku-Band SATCOM
- Aerospace and Maritime
- Weather Radar
- Beam Steering
- Test and Measurement

Features

- 12.5GHz to 15GHz operation
- 8 radiation channels
- 6-bit phase control
- 6-bit gain control
- 50ns typical gain settling time
- 20ns typical phase settling time
- 3° typical RMS phase error
- 0.4dB typical RMS gain error
- 35dB 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
- 3.8mm x 4.6mm, 62-BGA package

Block Diagram

Figure 1. Block Diagram



Preliminary

Ordering Information

Orderable Part Number	Package	MSL Rating	Carrier Type	Temperature
F6501AVGK	3.8mm x 4.6mm 62-BGA	MSL 3	Loose Parts	-40° to +95°C
F6501AVGK8	3.8mm x 4.6mm 62-BGA	MSL 3	Reel	-40° to +95°C
F6501EVB	Evaluation Board			
F6501EVS	F6501 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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