Description

The F6102 is an 8-element receiver silicon IC designed using a SiGe BiCMOS process for Ka-Band SATCOM phased array applications. The core IC has 6-bit phase control coupled with 30dB gain control on each channel to achieve fine beam steering and gain compensation between radiating elements. The device has 16dB nominal electric gain and -30dBm IP1dB. The core chip achieves an RMS phase error of 3° and RMS gain error of 0.3dB over the frequency of operation. The typical total power consumption is 0.32W (40mW 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

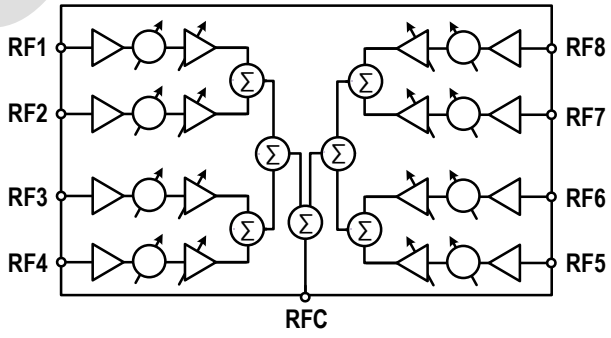
- Ka-Band SATCOM
- Aerospace and Maritime
- Beam Steering
- Test and Measurement

Features

- 17.5GHz to 21.5GHz operation
- 8 radiation channels
- 6-bit phase control
- 20ns typical gain settling time
- 20ns typical phase settling time
- 3° typical RMS phase error
- 0.3dB 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



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Ordering Information

Orderable Part Number	Package	MSL Rating	Carrier Type	Temperature
F6102NTGK	5mm x 5mm 40-QFN	MSL 3	Tray	-40° to +95°C
F6102NTGK8	5mm x 5mm 40-QFN	MSL 3	Reel	-40° to +95°C
F6102EVB	Evaluation Board			
F6102EVS	F6102 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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