Description

The F6502 is an 8-channel transmitter (TX) silicon IC designed using a SiGe BiCMOS process for Ka-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 1.6W (200mW 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
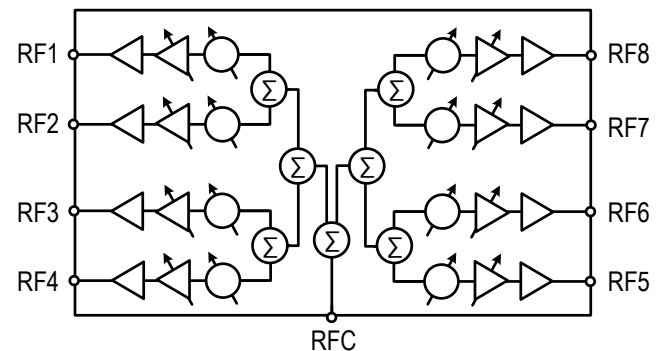- Minimal footprint

Typical Applications

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

Features

- 27GHz to 31GHz 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

September 26, 2018

Ordering Information

Orderable Part Number	Package	MSL Rating	Carrier Type	Temperature
F6502AVGK	3.8mm x 4.6mm 62-BGA	MSL 3	Tray	-40° to +95°C
F6502AVGK8	3.8mm x 4.6mm 62-BGA	MSL 3	Reel	-40° to +95°C
F6502EVB	Evaluation Board			
F6502EVS	F6502 Evaluation Kit System, including Evaluation Board, 2x THRU Reference Fixture, FT2232H Mini-Module Microcontroller, Digital Cable, Power Cable, and USB-to-Mini Cable			

IMPORTANT NOTICE AND DISCLAIMER

Corporate Headquarters

TOYOSU FORESIA, 3-2-24 Toyosu,
Koto-ku, Tokyo 135-0061, Japan
www.renesas.com

Trademarks

Renesas and the Renesas logo are trademarks of Renesas Electronics Corporation. All trademarks and registered trademarks are the property of their respective owners.

Contact Information

For further information on a product, technology, the most up-to-date version of a document, or your nearest sales office, please visit:
www.renesas.com/contact/

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for RF Transmitter *category:*

Click to view products by Renesas *manufacturer:*

Other Similar products are found below :

TDK5101F AX5031-1-TW30 TX7316ZCX TDK5100FHTMA1 110C2-433A MICRF405YML-TR CC1050PWR ATA8401C-6AQY-66 ATA8402C-6AQY-66 FOBLOQA-4T1 FOBLOQA-4T4 HORNETPRO-8S1 HORNETPRO-8S4 MD1730-V/M2 TDA7110F SI4063-C2A-GM SX1243IULTRT MICRF112YMM-TR TDA7100 TDA7100HTMA1 TDA7116F TDA7210XUMA1 TDK5100F MICRF114T-I/OT MAX7044AKA+T MAX1472AKA+T TH72016KLD-CAA-000-SP MICRF113YM6 TR MAQRF112YMM ATA8403C-6AQY-66 CMX998Q1 MICRF102YM MICRF112YMM DR4001 TH72002KDC-BAA-000-SP MLX72013KDC-AAA-000-SP TH72031KDC-BAA-000-SP SX1230I066TRT SX1240ISTRT Si4012-C1001GT Si4012-C1001GTR SI4420-D1-FTR Si4032-B1-FM Si4060-B1B-FMR SI4063-B1B-FMR SI4060-C2A-GM S2-LPTXQTR T7G-434.075 TDA7110FHTMA1 AFE7070IRGZT