Welcome to the spring 2023 edition of the Aerospace and Defense newsletter. For more information on our products and capabilities, please visit our aerospace and defense homepage.

ADI at IMS 2023
Analog Devices to Showcase RF, Microwave, and mmWave Solutions at IMS 2023 Booth #1335

Featured Products:

ADAR3002: Dual-Beam Receive Beamformer IC 17.7 GHz to 21.2 GHz
ADAR3003: Single-Beam Transmit Beamformer IC 27.5 GHz to 31.5 GHz

Analog Devices continues to expand its offering of low power satcom beamforming ICs by introducing ADI's first terminal beamforming ICs in Ka band. The ADAR3002 is a dual-beam/dual-polarization/four element beamforming IC that operates from 17.7 GHz to 21.2 GHz. The ADAR3003 is a single-beam/dual-polarization/four element beamforming IC that operates from 27.5 GHz to 31.5 GHz. Both of these ICs are designed for space-sensitive applications requiring the lowest possible power dissipation. At nominal quiescent power, the ADAR3002 has a gain of 30 dB and an output P1dB of 14 dBm.

The ADAR3002 supports two transmit beams with programmable phase and amplitude delays. The ADAR3003 includes four outputs, allowing for a variety of beamforming configurations. The ADAR3002's power dissipation is an industry low of 330 mW for the entire beamforming while maintaining a 2 dB noise figure. The ADAR3003 offers adjustable bias to the PAs and can operate as low as 560 mW. At nominal quiescent power, the ADAR3003 has a gain of 28 dB and an output P1dB of 13 dBm.

Features
- 6-bit, 0° to 360° phase adjustment range
- 6-bit, 31 dB gain adjustment range
- Memory for 256 prestored beam positions with programmable sequencer
- 6.6 mm × 6.6 mm WLCSP (ADAR3002);
  5 mm × 5 mm WLCSP (ADAR3003)

Applications
- Mobile Ka band satcom applications
- Air terminals
- Ground terminals
- Maritime terminals

ADAR3002 Design Resources
ADAR3003 Design Resources

ADAR5000: 17 GHz to 32 GHz, 4-Way RF Splitter Combiner
ADI is introducing its first 4-way Wilkinson splitter/divider. The ADAR5000 is a 1-to-4 Wilkinson power divider that is designed for space-sensitive microwave signal distribution applications requiring the lowest possible insertion loss and phase accuracy. The Wilkinson splitter/divider provides a means for distributing microwave signals with low loss and phase accuracy to multiple applications sharing the same signal between channels. The Wilkinson divider can also be used as a combiner, combining the 4 input signals to a single port. The ADAR5000 is a small, reliable microwave power divider that is suitable for use in a variety of space-sensitive applications, including phased array radars and satellite communication systems that require tight phase control between elements.

Features
- Frequency range: 17 GHz to 32 GHz
- Insertion loss (excess of 6.0 dB): −1.7 dB at 22 GHz to 27 GHz
- Isolation: −17 dB at 22 GHz to 27 GHz
- 2.460 mm × 2.460 mm × 0.500 mm, wafer-level, chip-scale package

Applications
- General-purpose microwave signal distribution
- Phased array satellite communication (satcom) systems
- Phased array radar systems

ADAR5000 Documentation

For more details, visit analog.com/ADEF.