Data Sheet

ADMV9611

60 GHz Millimeterwave Short Data Link

FEATURES

- Integrated omnidirectional circularly polarized antenna
- 12 dBi gain and ±20° half power beamwidth typical
- 17 dBm equivalent isotropic radiated power typical
- RoHS compliant
- Integrated high band and low band diplexer for improved multipath distortion
- Full duplex operation
- Simple AM scheme
- Data rate: 100 Mbps
- Ultralow latency
- Short link communication distance: 1 cm to 5 cm (typical)
- Receiver frequency: 58.0125 GHz
- Transmitter frequency: 63 GHz
- Transmitter gain: −3 dB to +32 dB
- Integrated transmitter PA power detector
- Receiver gain: −10 dB to +69 dB
- RF, IF, and BB gain control
- Integrated receiver and transmitter frequency synthesizers
- Integrated reference clock
- On-chip temperature sensors
- DC-coupled baseband input and output
- 3-wire serial digital interface
- 34.70 mm × 29.89 mm, 52-terminal printed circuit assembly (PCA)

APPLICATIONS

- 60 GHz short data link for industrial and medical high data rate applications
- High speed data for rotating applications, such as slip rings and magnetic resonance imaging systems

GENERAL DESCRIPTION

The ADMV9611 is a complete millimeterwave (mmWave) wireless connectivity solution in a small printed circuit assembly (PCA) format. All millimeterwave signals are confined to the printed circuit assembly, simplifying implementation. Wireless transmission is achieved using the integrated circularly polarized (CP) omnidirectional patch antenna array, which enables communication in many applications, including rotation. Following the antenna array is an integrated diplexer that provides isolation between the separate transmit and receive paths on the board, which reduces multipath distortion. The receive path integrates all components to demodulate the 58.0125 GHz frequency to baseband signals. The flexible receiver gain control is programmable over a wide range to easily accommodate the required link budget. The receiver baseband outputs are dc-coupled and can provide over 500 mV of differential output signal level. Likewise, the transmit path integrates all components to modulate input baseband signals to 63 GHz. The transmitter has programmable gain control to maintain level transmit power. The transmit baseband inputs are dc-coupled and have a broad common-mode input range. Synthesizers are integrated to maintain excellent frequency stability vs. temperature. The simple amplitude modulation (AM) scheme eliminates the need for external data converters, allowing for bit rates of greater than 100 Mbps. On-board power management is integrated to a single 5 V voltage rail to power the ADMV9611.

Together with the ADMV9621, the ADMV9611 provides a complete, full duplexed 60 GHz data link for high speed data transmission in the unlicensed 60 GHz industrial, scientific, and medical (ISM) band.

For more information on the ADMV9611, contact Analog Devices, Inc., at VBand@analog.com

Rev. SpA

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