

60 GHz Wireless Data Link**FEATURES**

- ▶ Meets V-band worldwide frequency requirements
- ▶ Integrated circularly polarized antenna
- ▶ Integrated high band and low band diplexer for improved multipath distortion
- ▶ Full-duplex operation
- ▶ Simple AM scheme
- ▶ Data rate: 1 Gbps
- ▶ Ultra-low latency
- ▶ Link communication distance: 1 cm to 5 cm typical
- ▶ Receiver frequency: 59.85 GHz
- ▶ Transmitter frequency: 63.2625 GHz
- ▶ Transmitter gain setting range: -3 dB to +32 dB
- ▶ Integrated transmitter PA power detector
- ▶ Receiver gain setting range: -10 dB to +69 dB
- ▶ Integrated receiver baseband power detector
- ▶ RF, IF, and BB gain control
- ▶ Integrated receiver and transmitter frequency synthesizers
- ▶ Integrated reference clock
- ▶ On-chip temperature sensors
- ▶ AC-coupled baseband input and output
- ▶ 3-wire digital SPI
- ▶ 34.70 mm × 29.89 mm, 52-terminal printed circuit assembly (PCA)

APPLICATIONS

- ▶ 60 GHz wireless data link for all industries, including industrial and medical high data rate applications
- ▶ High-speed data for rotating applications, such as slip rings and CT imaging systems
- ▶ Autonomous guided vehicles
- ▶ Mechanical connector replacement

For more information on the ADMV9615, contact Analog Devices, Inc., at VBand@analog.com

GENERAL DESCRIPTION

The ADMV9615 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) 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 59.85 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 AC-coupled and can provide almost 750 mV of differential output signal level. Likewise, the transmit path integrates all components to modulate input baseband signals to 63.2625 GHz. The transmitter has programmable gain control to maintain level transmit power. The transmit baseband inputs are AC-coupled and allow a wide input voltage 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 1 Gbps. On-board power management is integrated to a single 5 V voltage rail to power the ADMV9615.

Together with the [ADMV9625](#), the ADMV9615 provides a complete, full duplex 60 GHz data link for high speed data transmission in the unlicensed 60 GHz industrial, scientific, and medical (ISM) band.

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