

60 GHz RF transceiver for short-range contactless connectivity



VFBGA25 (2.2 x 2.2 x 0.8 mm)

Product status link

ST60A2

Features

- 60 GHz V-Band transceiver for short range contactless connectivity
- Up to 6.25 Gbit/s data rate
- Compact solution integrating full RF transceiver operating in half-duplex mode
- Low-power ASK modulation scheme supported
- Differential SLVS input-output port (NRZ), or single-ended CMOS 1.8 V bidirectional data for low data rate. The latter goes from 9.6 Kbit/s to 100 Mbit/s with 15 pF PCB load.
- 28 dB typical total link budget at 5 Gbit/s
- 7 ns typical propagation delay
- Supply voltage: power-optimized dual 1.8 V and 1.45 V supply or single-supply 1.8 V
- Low power consumption (typical values at 3.125 Gbit/s with dual power supplies)
 - 55 mW in Tx mode
 - 30 mW in Rx mode
 - 7.7 μ W in Off mode
- 8.9 pJ/bit for Tx mode and 6.4 pJ/bit for Rx mode at maximum data rate
- 50 Ω single-ended nominal RF input/output impedance with recommended PCB transition
- Operating temperatures:
 - Consumer range: -20 to 85 $^{\circ}$ C
 - Industrial range: -40 to 105 $^{\circ}$ C
- Package: VFBGA 2.2 mm x 2.2 mm x 0.8 mm, 25 balls, 5x5 array, 0.4 mm pitch
- Optimized BOM without external matching network and clock references

Description

The ST60A2 is an RF millimeter-wave transceiver product operating in the 60 GHz V-Band. It provides a very power efficient and high data-rate wireless link enabling freedom from physical cables and connectors for short-range (a few cm) point-to-point communications, using a variety of external antennas (such as patch antennas designed on PCB or highly directive SMT horn antennas allowing both end-fire and broadside radiation patterns).

The ST60A2 offers best-in-class wireless performance with transfer speeds up to 6.25 Gbit/s, along with very low power consumption. Its unmatched efficiency, very small form factor, and innovative architecture designed for optimized system bill of materials, make it ideally suited for a wide range of applications including personal electronics, industrial, computer, and peripherals.

Applications

- Board-to-board contactless connections
 - To remove Flex cables in consumer electronics devices
 - To remove cables in industrial electronic systems that undergo mechanical stresses, movement or need for rotation (RADAR, LiDAR, rotating display, and so on)
- Connector-free solutions
 - For waterproof and dustproof connector-free devices
 - For seamless docking and on-the-go device-to-device data synchronization
 - For harsh industrial environment use-cases, avoiding exposure of internal electronics through connector ports
- Contactless connector solutions for industrial applications

Revision history

Table 1. Document revision history

Date	Revision	Changes
31-Mar-2023	1	Initial release
14-Sep-2023	2	Updated power consumption and total link budget in Section Features
10-Oct-2023	3	Updated power consumption in Section Features

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