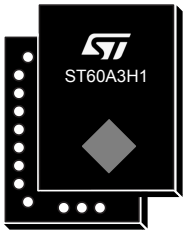
60 GHz V-band contactless connectivity transceiver with linear-polarization integrated antenna, and tunneling eUSB2, UART, GPIO or I²C



VFBGA23 AiP LP
(2.9 mm x 4.1 mm x 0.8 mm)

Product status link
ST60A3H1

Features

- 60 GHz V-Band transceiver for short range contactless connectivity up to 480 Mbit/s
- Compact solution integrating full RF transceiver and dual-linear-polarization antenna, operating in Half-Duplex mode
- RF operational bandwidth: From 60 GHz to 61 GHz
- 42 dB typical total link budget, up to 5 cm free-space propagation loss
- eUSB2, UART, GPIO, or I²C RF tunneling
- Single 1.8 V supply
- Low-power consumption (typical values):
  - eUSB2 Rx/Tx - 110/130 mW
  - UART/GPIO/I²C - 90 mW
  - Standby - 23 µW
- Optimized BOM without external matching network and clock references. A reference clock may be used at one end of the RF link to comply with specific regional regulation
- Package: VFBGA 2.9 mm x 4.1 mm x 0.8 mm, 23 balls, 0.4 mm pitch

Description

The ST60A3H1 is an RF millimeter-wave transceiver product with a dual-linear-polarization integrated antenna, operating in the 60 GHz V-band from 60 GHz to 61 GHz. The ST60A3H1 has a miniature form factor, optimized bill of materials and low-power operation. The ST60A3H1 is a high-speed RF transceiver compliant with eUSB2, UART, and I²C protocols. The transceiver module contains general-purpose input/outputs (GPIOs) that are also available in tunneling mode. The ST60A3H1 meets the requirements of applications by virtue of its compactness, low-power operation, ease of use and its innovative architecture design for optimized system bill of materials.

Applications

- Contactless test factory automation and after sales services
- Firmware Over-the-Air (FOTA) update
- Contactless data harvesting
- Life proof hole-less personal devices
- Contactless accessories
- Contactless personal equipment docking hub and data transfer
- Industrial contactless connectors
- Board-to-board connection and flex cable replacement

Revision history

Table 1. **Document revision history**

Date	Revision	Changes
11-Dec-2023	1	Initial release.
08-Oct-2024	2	Updated: • Antenna characteristics in Section Features • Section Description Added: • RF operational bandwidth in Section Features • New application use cases in Section Applications