SP16T AoA / AoD Antenna Switch

Databrief

CHW1010

FEATURES

- Optimized for Bluetooth® 5.1 AoA and AoD direction finding
- 16 phase balanced antenna ports with 50Ω termination
- Soft antenna switching (AoDTX-mode) to reduce unwanted spectral emissions in AoD 2µs slot operation (Patent Pending)
- Bluetooth AoA and AoD 1µs and 2µs slot compliant
- Settling time typical 250ns (AoA)
- Insertion loss typically 2.7dB
- Frequency range 2.402 – 2.480 GHz
- Start-up time typically 15µs
- Supply voltage 1.7V-3.6 V, nominal 3.0 V
- Low current consumption
- Single-ended 50Ω matched antenna ports
- Single-ended 50Ω matched transceiver interface
- GPIO interface

APPLICATIONS

- Accurate Indoor Positioning and Navigation systems
- Asset tracking in factories, offices, logistics etc.
- Item finding
- Access control, People tracking
- Wayfinding
- Point-of-interest services
- Proximity marketing
- Shopping guidance and assistance
- Equipment and facilities utilization
- Consumer behaviour analysis

GENERAL DESCRIPTION

CoreHW AoA and AoD Antenna switch

CHW1010 is a single chip phase matched SP16T antenna switch which is a key enabler for high accuracy[1)] Bluetooth Angle-of-Arrival (AoA)[2)] and Angle-of-Departure (AoD)[2)] positioning systems with single or multiple locators. Low phase-mismatch between switch paths minimises residual error in computed angles of beam direction and subsequently improves estimated location accuracy.

A single CHW1010 switch can support an antenna array of up to 16 single-ended 50Ω antennae. Larger antenna count arrays can be supported by combining multiple CHW1010 devices. The unused and inactive antenna ports are internally terminated to 50Ω termination. Open or short termination variants are available on request.

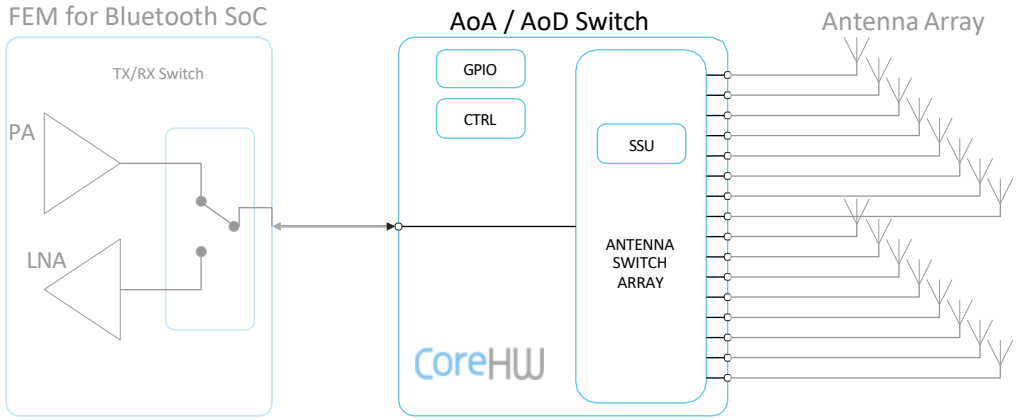
To enable high performance AoD operation CHW1010 includes a soft antenna switching function (AoDTX-mode) that reduces unwanted spectral emissions and helps compliance with Bluetooth 5.1 standard and FCC/ETSI regulatory requirements.

CHW1010 can be controlled using a simple 6-pin GPIO interface. Reduced GPIO count configurations are possible.

CHW1010's low power consumption and fast start-up time with only a few external components make it ideal for small low-cost battery powered devices.

[1)] Optimized systems reach positioning accuracy of 0.1…0.5m depending on antenna performances, locator matrix configuration, Bluetooth radio signal propagation environment, location software performance etc.

[2)] Bluetooth Low Energy 5.1 onwards.



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