CoreHW

Databrief   **CHW1010**

FEATURES

- Optimized for Bluetooth® 5.1 AoA / AoD direction finding.
- 16 phase balanced antenna ports with 50Ω termination
- Clean Spectrum for AoD with SSU (Patent Pending)
- Bluetooth AoA/AoD 1µs and 2µs slot compliant
  - Settling time typical 250ns (AoA)
- Low Insertion loss, typical 2.7dB
- Supply voltage 1.7V-3.6 V, nominal 3.0 V
- Ultra-Low current consumption
- Single-ended 50Ω matched antenna ports
- Single-ended 50Ω matched transceiver interface
- 6-pin GPIO interface

APPLICATIONS

- 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
- Security services

GENERAL DESCRIPTION

CoreHW AoA / AoD Antenna switch
CHW1010 comprises of very low phase mismatch antenna switch array up to max 16 single ended antennas. This component is key enabler for high accuracy[1] BLE Angle-of-Arrival (AoA)[2] and Angle-of-Departure (AoD)[2] positioning systems with single or multiple locators.

Switching time is optimized for both Bluetooth AoA and AoD, while for AoD transmission there is patented Soft antenna Switching Unit (SSU) to reduce spectral emissions due to switching transients to ensure compliance for FCC&ETSI regulatory requirements.

Non-active antenna ports are terminated to 50Ω impedance by default, reflective open/short termination options are available on request.

The Antenna Switch has fast start-up time and only 1-2 external components are needed. CHW1010 comes in QFN 4.0x4.0x0.85mm package with 32 IOs.

The chip operates on 1.7-3.6V supply and has very low current consumption (Typ. AoA 0.75µA, AoD 3.2µA). CHW1010 is controlled with fast GPIO interface.

[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.
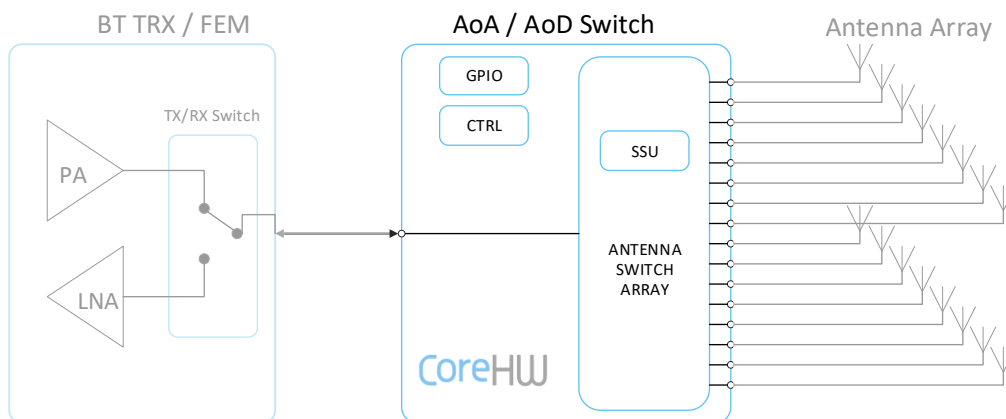
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