

Databrief CHW1010

## **FEATURES**

- Optimized for Bluetooth® 5.1 AoA / 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/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 / AoD Antenna switch

CHW1010 is a single chip phase matched SP16T antenna switch array which is a key enabler for high accuracy<sup>1)</sup> BLE Angle-of-Arrival (AoA)<sup>2)</sup> and Angle-of-Departure (AoD)<sup>2)</sup> 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.

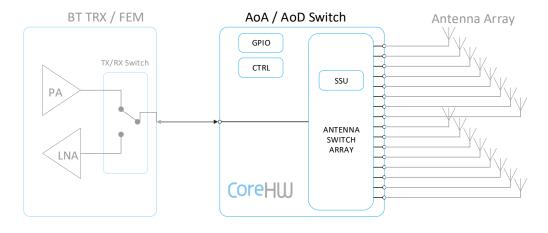
A single CHW1010 switch can support an antenna array up to 16 single-ended  $50\Omega$  antennae. Larger antenna count arrays can be supported by combining multiple CHW1010 devices. The unused and inactive antenna ports are internally terminated to  $50\Omega$  termination. Open or short termination 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 few external components make it ideal for small low-cost battery powered devices.

<sup>&</sup>lt;sup>2)</sup> Bluetooth Low Energy 5.1 onwards.



<sup>&</sup>lt;sup>1)</sup> 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.



Databrief CHW1010

Email: sales@corehw.com

CoreHW Semiconductor Ltd.

Visiokatu 1 33720 Tampere Finland

www.corehw.com

# Disclaimer

The contents of this document are subject to change without prior notice. CoreHW makes no representation or warranty of any nature whatsoever (neither expressed nor implied) with respect to the matters addressed in this document, including but not limited to warranties of merchantability or fitness for a particular purpose, interpretability or interoperability or, against infringement of third party intellectual property rights, and in no event shall CoreHW be liable to any party for any direct, indirect, incidental and or consequential damages and or loss whatsoever (including but not limited to monetary losses or loss of data), that might arise from the use of this document or the information in it.

© Copyright 2018-2021 CoreHW. All rights reserved.

