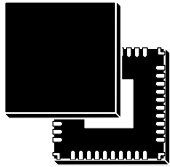


Next-generation ultra-wideband ranging IC with narrow band radio assist



HWQFN40 (6 x 6 mm)

Product status link

[ST64UWB-C100](#)

Features

Includes ST state-of-the-art patented technology

Core

- Arm® 32-bit Cortex®-M85 CPU with DP-FPU, MVE, ETM
- Frequency up to 100 MHz

GPIOs

- Out of the 20 available GPIOs, a subset is configurable for use as communication-interface pins

Security

- Arm® TrustZone® with Armv8.1-M mainline security extension
- Arm® PSA and SESIP L3 certifications

Ultra-wideband radio (UWB)

- Supported standards for UWB radio:
 - IEEE 802.15.4z-2020
 - IEEE802.15.4ab
- Antenna ports: 2 × transmit and receive ports
- Supported channels: 5, 6, 8, 9, 10, 12 (6489.6 MHz to 8985.6 MHz)
- Modulation: BPRF, HPRF

Narrow-band assisted radio (NBA)

- Supported standard for NBA radio
- 1 × antenna Tx/Rx port
- UNII-3 / UNII-5 (5.7-6.4 GHz)

Communication interfaces

- 2 × SPI, 2 × I2C, 2 × I3C, USART, LPUART

Digital temperature sensor

Applications

- Secure UWB localization: SS-TWR, DS-TWR, and AoA, PDoA

Package

- HWQFN40 with wettable flank (6 × 6 mm, 0.5 mm pitch)
- ECOPACK® 2 compliant

1 Introduction

This document provides information about the ST64UWB-C100, a wireless microcontroller for ultra-wideband applications.

For information on the embedded Arm core, refer to the Cortex[®]-M85 technical reference manual, available from the www.arm.com website.

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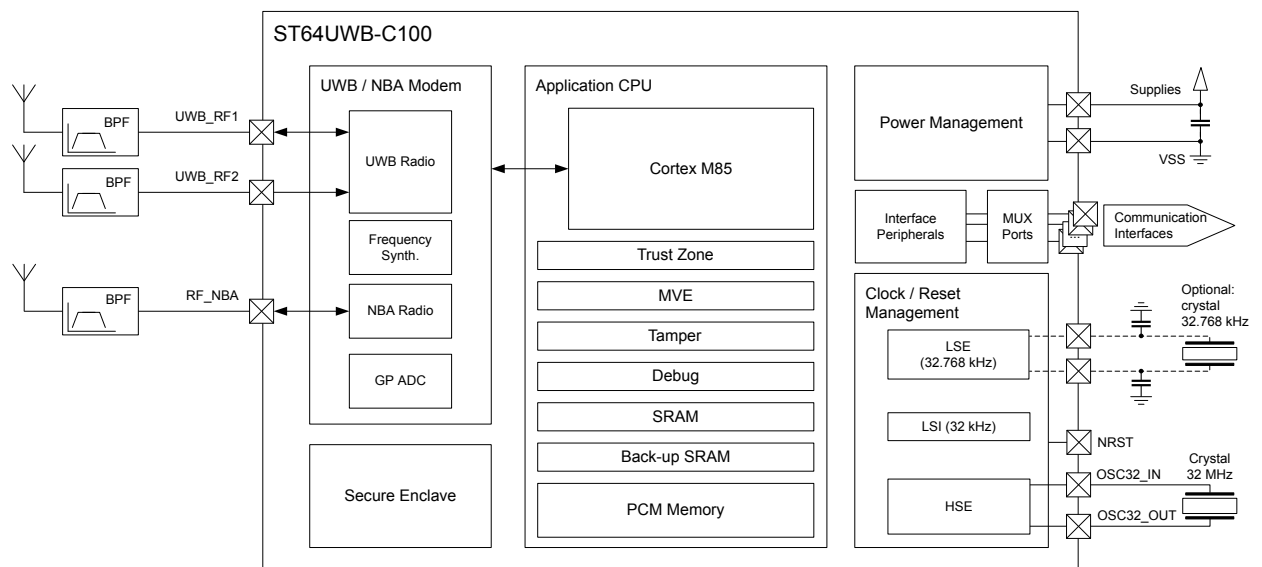
2 Description

The ST64UWB-C100 is the first monolithic industrial and consumer-grade mass-market next-generation ultra-wideband (NG UWB) solution from STMicroelectronics. It complies with IEEE 802.15.4ab and is based on narrowband-assisted multi-millisecond ranging. Manufactured using 18 nm FDSOI technology, it provides an improved link budget and robust, secure ranging, even in non-line-of-sight conditions.

The ST64UWB-C100 offers a 50% range increase while remaining compatible with legacy IEEE 802.15.4z. It increases range by up to eight times when operating in IEEE 802.15.4ab mode.

The ST64UWB-C100 features an Arm® Cortex®-M85 core operating at up to 100 MHz, integrated PCM and SRAM, and SPI and I²C connectivity. It is a highly integrated single-chip platform for secure, reliable, and cost-efficient ultra-wideband-based applications.

Figure 1. ST64UWB-C100series block diagram



DT60026V1

3 Package information

In order to meet environmental requirements, ST offers these devices in different grades of **ECOPACK** packages, depending on their level of environmental compliance. ECOPACK specifications, grade definitions and product status are available at: www.st.com. ECOPACK is an ST trademark.

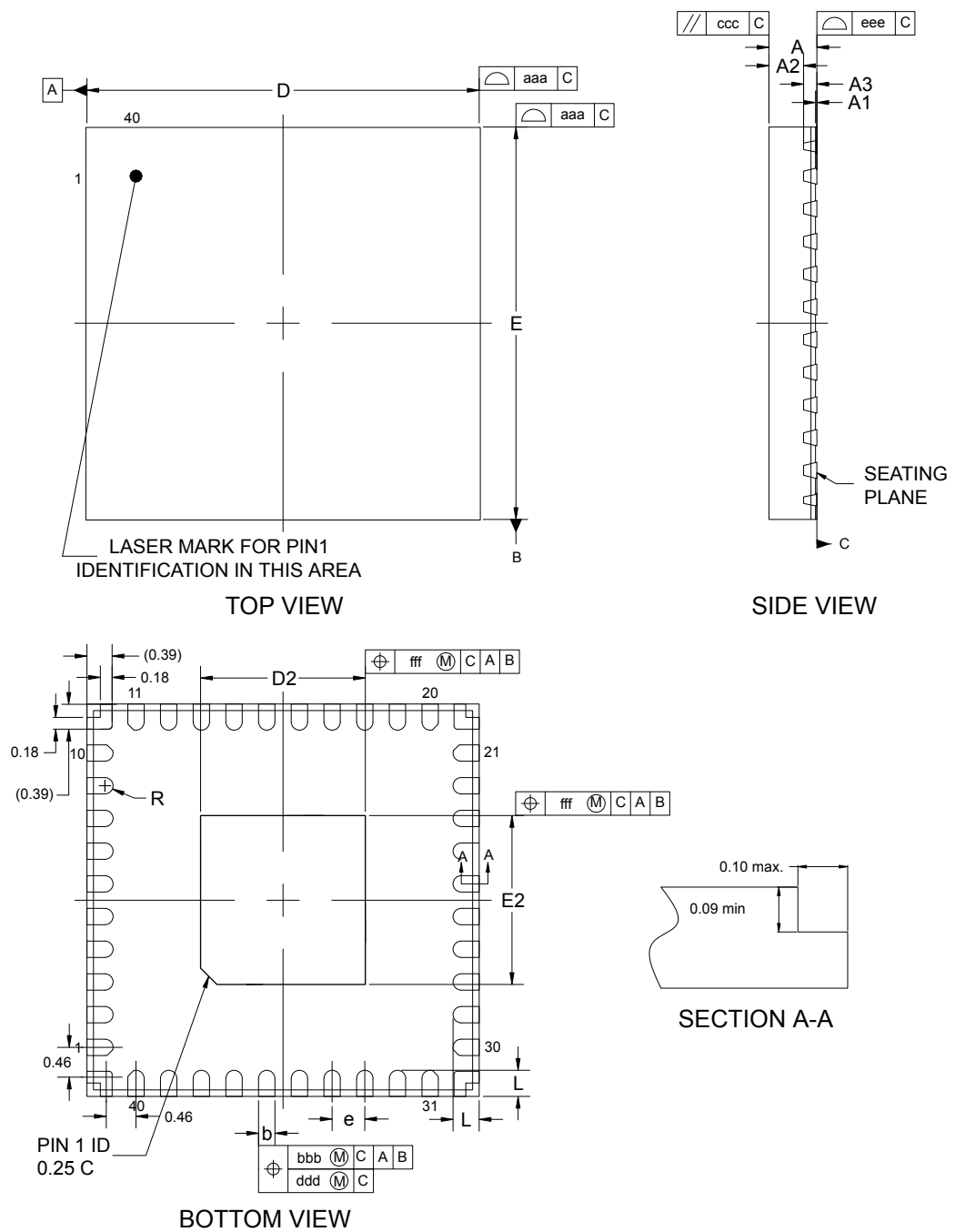
3.1 Device marking

Parts marked as "ES", "E" or accompanied by an engineering sample notification letter, are not yet qualified and therefore not approved for use in production. ST is not responsible for any consequences resulting from such use. In no event will ST be liable for the customer using any of these engineering samples in production. ST's Quality department must be contacted prior to any decision to use these engineering samples to run a qualification activity.

3.2 HWQFN40 package information

This HWQFN is a 40-pin, 6 x 6 mm, 0.5 mm pitch, thermally enhanced very thin profile quad flat no lead package.

Figure 2. HWQFN40 - Outline



1. Drawing is not to scale.
2. Dimensioning and tolerances conform to ASME Y14.5M-1994.
3. The pin number 1 identifier must be placed on the top surface of the package using an indentation mark or another feature of the package body.

Table 1. HWQFN40 - Mechanical data

Symbol	Millimeters			Inches ⁽¹⁾		
	Min	Typ	Max	Min	Typ	Max
A ⁽²⁾	-	-	0.80	-	-	0.0315
A1	0.00	-	0.05	0.0000	-	0.0020
A2	-	0.53	0.58	-	0.0209	0.0228
A3	0.20 REF			0.0079 REF		
b	0.18	0.25	0.30	0.0071	0.0098	0.0118
D	6 BSC ⁽³⁾			0.2362 BSC		
D2	2.42	2.52	2.62	0.0953	0.0992	0.1031
E	6 BSC			0.2362 BSC		
E2	2.48	2.58	2.68	0.0976	0.1016	0.1055
L	0.30	0.40	0.50	0.0118	0.0157	0.0197
e	0.50 BSC			0.0197 BSC		
R	0.09	-	-	0.0035	-	-

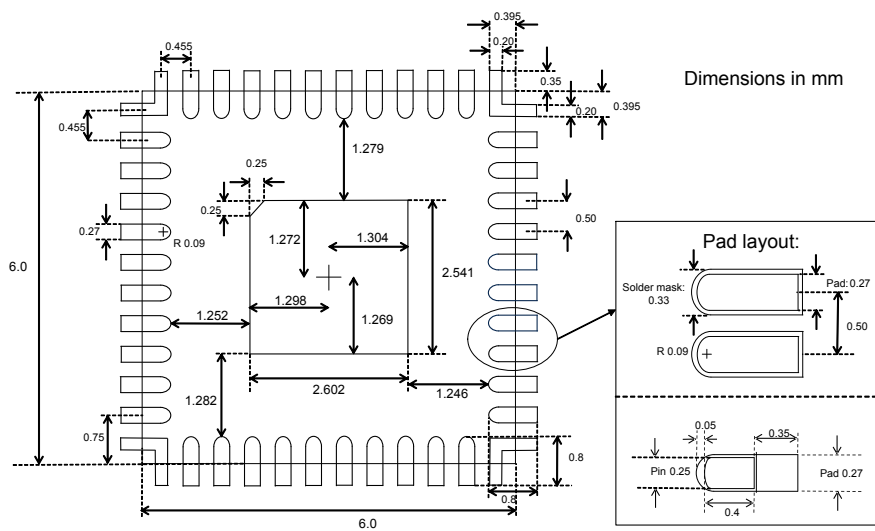
1. Values in inches are converted from mm and rounded to four decimal digits.
2. Very very thin profile: $0.65 < A \leq 0.80$ mm.
3. BSC stands for BASIC dimensions. It corresponds to the nominal value and has no tolerance.

Table 2. HWQFN40 - Tolerance of form and position

Symbol	Millimeters			Inches ⁽¹⁾		
	Min	Typ	Max	Min	Typ	Max
aaa	0.10			0.0039		
bbb	0.10			0.0039		
ccc	0.10			0.0039		
ddd	0.05			0.0020		
eee	0.08			0.0031		
fff	0.10			0.0039		

1. Values in inches are converted from mm and rounded to four decimal digits.

Figure 3. HWQFN40 - Footprint example



RR_HWQFN40_FP_V1

Important security notice

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Revision history

Table 3. Document revision history

Date	Revision	Changes
09-Mar-2026	1	Initial release.

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