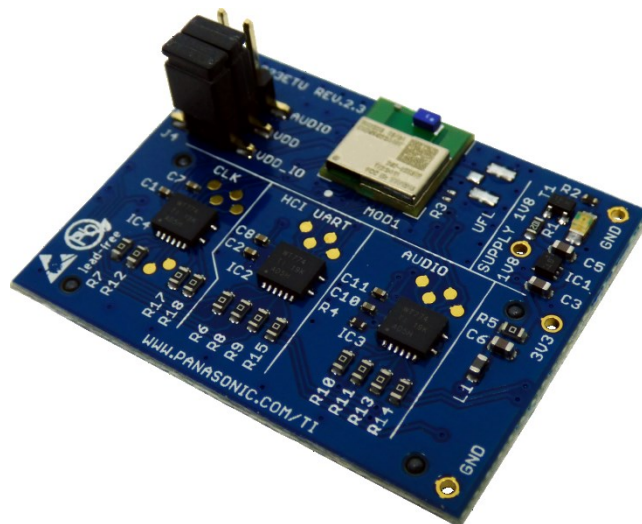


# PAN1326C Bluetooth

Basic Data Rate and Low Energy Module

Design Guide

Rev. 1.0



## Overview

Panasonic's new PAN1326C is a Host Controlled Interface (HCI) Bluetooth RF module that brings Texas Instrument's seventh generation Bluetooth core integrated circuit, the CC2564, to an easy-to-use module format. The PAN1326C is Bluetooth-4.2-compliant and it offers best-in-class RF performance with about twice the range of other Bluetooth Low Energy solutions. Panasonic's tiny footprint technology has produced a module of only 85.5 mm<sup>2</sup>. The module is designed to accommodate PCBs pad pitch of 1.3 mm and as few as two layers for easy implementation and manufacturing. The module has been designed to be 100 % pin-compatible with previous generations of Texas Instruments-based Bluetooth HCI modules.

## Features

- Bluetooth 4.2 Basic Data Rate (BR) and Low Energy (LE)
- Dimensions 15.6 x 8.7 x 1.9 mm
- Integrated high speed crystal oscillator (26 MHz)

## Bluetooth

- Scatternet and piconets simultaneously
- Synchronous Connection Oriented (SCO) links on the same piconet
- Support for All Voice Air-Coding - Continuously Variable Slope Delta (CVSD), A-law,  $\mu$ -law, modified Subband Coding (mSBC), and transparent (uncoded)
- Assisted mode for HFP 1.6 Wideband Speech (WBS) profile or A2DP profile to reduce host processing and power
- Support of multiple Bluetooth profiles with enhanced QoS
- Multiple sniff instances tightly coupled to achieve minimum power consumption
- Independent buffering for Low Energy allows large numbers of multiple connections without affecting BR or EDR performance
- Built-in coexistence and prioritization handling for BR, EDR, and Low Energy
- Capabilities of link layer topology Scatternet - can act concurrently as peripheral and central
- Network support for up to 10 devices
- Time line optimization algorithms to achieve maximum channel utilization

## Characteristics

- Bluetooth 4.2
- Receiver sensitivity -93 dBm
- Output power 12 dBm
- Power supply 1.7 to 4.8 V
- Power consumption Tx 40 mA
- Power consumption Rx 20 mA
- Sleep mode 135  $\mu$ A
- Operating temperature range -45 °C to +85 °C

## Table of Contents

<b>1</b>	<b>About This Document</b> .....	<b>4</b>
1.1	Purpose and Audience .....	4
1.2	Revision History.....	4
1.3	Use of Symbols .....	4
1.4	Related Documents .....	4
<b>2</b>	<b>PAN1326C</b> .....	<b>5</b>
2.1	PAN1326C Block Diagram .....	5
2.2	PAN1326C Placement Recommendations .....	5
<b>3</b>	<b>PAN1326C Breakout Board</b> .....	<b>6</b>
3.1	PAN1326C Breakout Board Component Placement .....	6
3.2	PAN1326C Breakout Board Schematic .....	7
<b>4</b>	<b>EM Adapter BoosterPack</b> .....	<b>8</b>
<b>5</b>	<b>MSP432 Launchpad</b> .....	<b>9</b>
<b>6</b>	<b>Appendix</b> .....	<b>10</b>
6.1	Ordering Information.....	10
6.2	Contact Details .....	10
6.3	Product Information .....	10
<b>7</b>	<b>Life Support Policy</b> .....	<b>12</b>

# 1 About This Document



## 1.1 Purpose and Audience

This Design Guide applies to the Bluetooth development platform PAN1326C Experimenter Kit. The intention is to enable our customers to easily and fast integrate our module PAN1326C in their product. This guide describes the Hardware and gives useful hints.

## 1.2 Revision History

Revision	Date	Modifications/Remarks
1.0	14.11.2017	1st version.

## 1.3 Use of Symbols

Symbol	Description
	<b>Note</b> Indicates important information for the proper use of the product. Non-observance can lead to errors.
	<b>Attention</b> Indicates important notes that, if not observed, can put the product's functionality at risk.
⇒ [chapter number] [chapter title]	<b>Cross reference</b> Indicates crossreferences within the document. Example: Description of the symbols used in this document ⇒ <a href="#">1.3 Use of Symbols</a> .

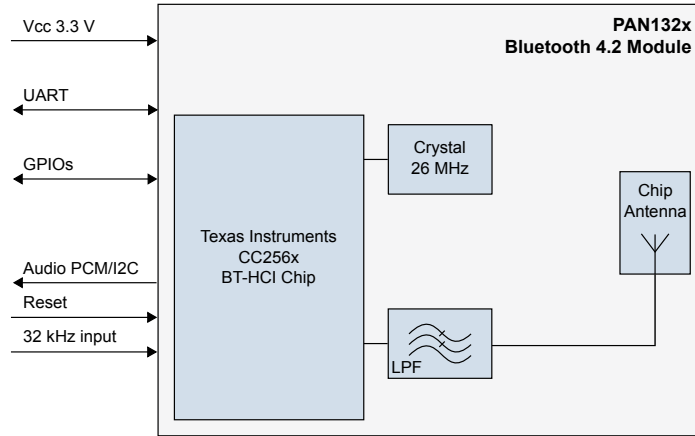
## 1.4 Related Documents

Please refer to the Panasonic website for related documents ⇒ [6.3 Product Information](#)

For further information refer to the Ti WIKI for CC256x ⇒ [CC256x WIKI](#)

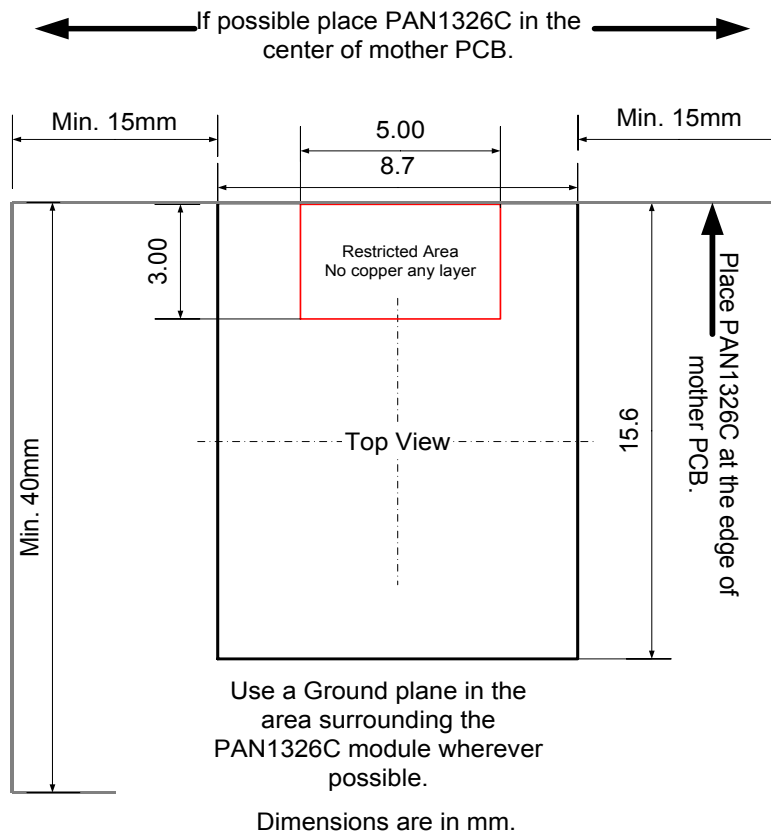
## 2 PAN1326C

### 2.1 PAN1326C Block Diagram

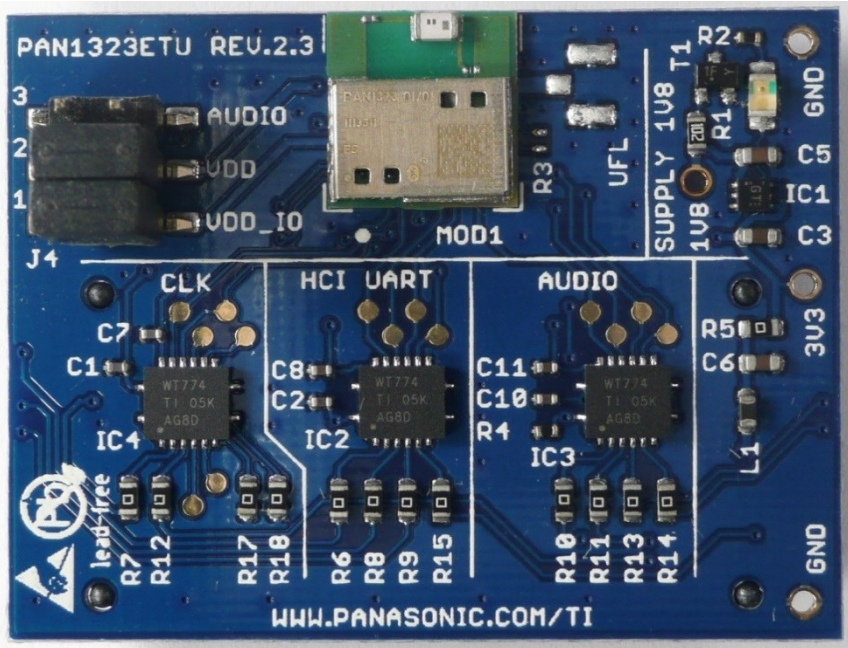


### 2.2 PAN1326C Placement Recommendations

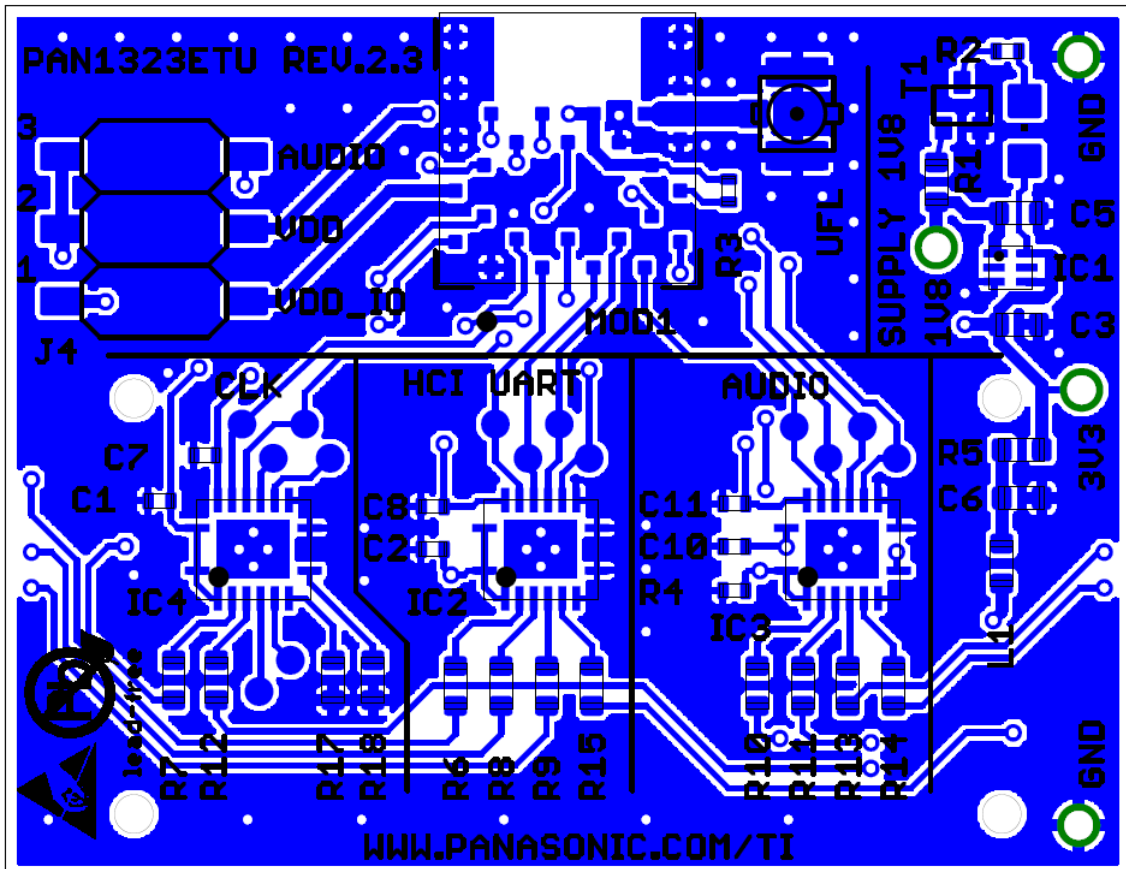
#### PAN1326C WITH ANTENNA PLACEMENT



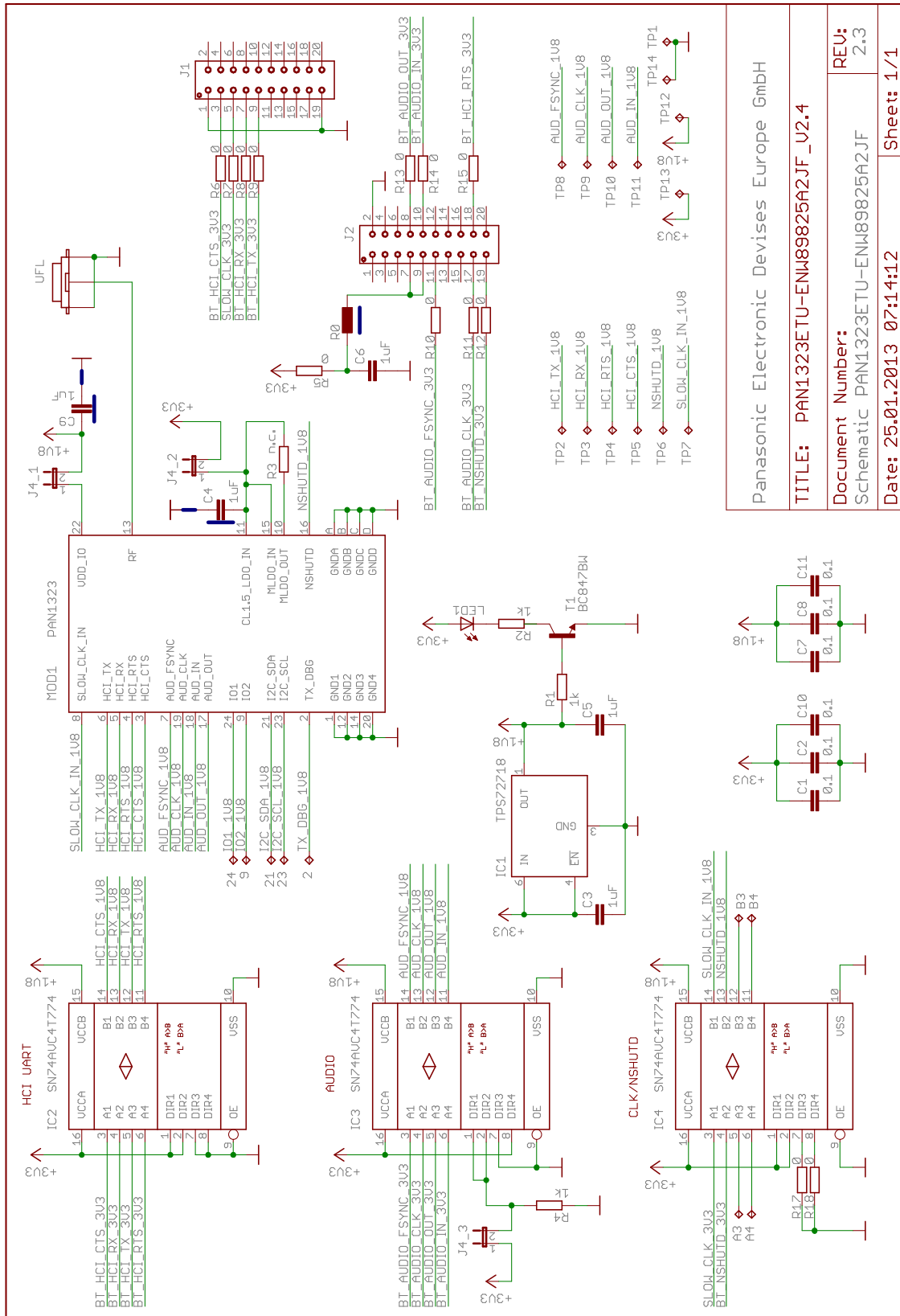
### 3 PAN1326C Breakout Board



#### 3.1 PAN1326C Breakout Board Component Placement



### 3.2 PAN1326C Breakout Board Schematic

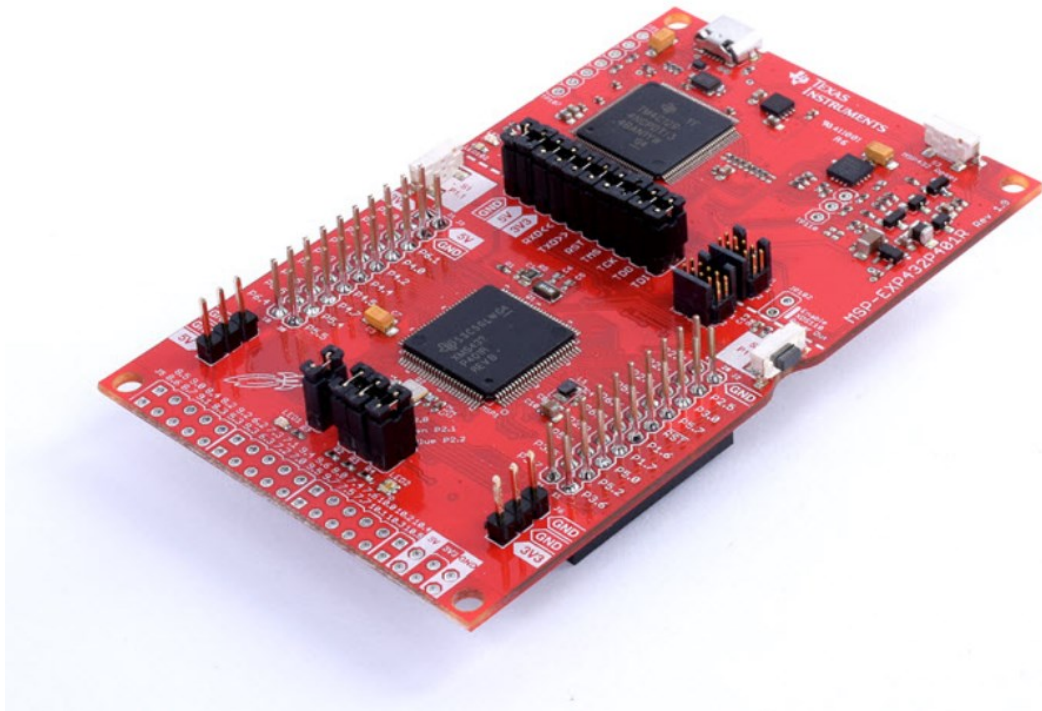


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Document Number:	REU: 2.3
Schematic PAN1323ETU-ENW89825A2JF	
Date: 25.01.2013 07:14:12	Sheet: 1/1





## 5 MSP432 Launchpad



The installation and tools are described in the Quick Start Guide for the MSP432 Launch Pad on the TI Wiki page ⇒ [Getting Started Guide for MSP432 + CC2564C](#)

## 6 Appendix

### 6.1 Ordering Information

#### Variants and Versions

Order Number	Brand Name	Description	MOQ <sup>1</sup>
ENW89819AYKF	Experimenter Kit	1x PAN1326C Breakout Board, 1x Texas Instruments MSP430 Launchpad, 1x Texas Instruments Boost/CCEMAdapter	1
ENW89819AXKF	1326C Breakout Board	1x PAN1326C Breakout Board	1

### 6.2 Contact Details

#### 6.2.1 Contact Us

Please contact your local Panasonic Sales office for details on additional product options and services:

For Panasonic Sales assistance in the **EU**, visit

<https://eu.industrial.panasonic.com/about-us/contact-us>

Email: [wireless@eu.panasonic.com](mailto:wireless@eu.panasonic.com)

For Panasonic Sales assistance in **North America**, visit the Panasonic Sales & Support Tool to find assistance near you at

<https://na.industrial.panasonic.com/distributors>

Please visit the **Panasonic Wireless Technical Forum** to submit a question at

<https://forum.na.industrial.panasonic.com>

### 6.3 Product Information

Please refer to the Panasonic Wireless Connectivity website for further information on our products and related documents:

For complete Panasonic product details in the **EU**, visit

<http://pideu.panasonic.de/products/wireless-modules.html>

For complete Panasonic product details in **North America**, visit

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<sup>1</sup> Abbreviation for Minimum Order Quantity (MOQ). The default MOQ for mass production is 1 500 pieces, fewer only on customer demand. Samples for evaluation can be delivered at any quantity via the distribution channels.

<http://www.panasonic.com/rfmodules>

## **7 Life Support Policy**

This Panasonic Industrial Devices Europe GmbH product is not designed for use in life support appliances, devices, or systems where malfunction can reasonably be expected to result in a significant personal injury to the user, or as a critical component in any life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

Panasonic customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Panasonic Industrial Devices Europe GmbH for any damages resulting.