

Telink

Telink DONGLE TLSR8208ADG56D

User Manual

AN-20082700-E1

Ver.0.1.0

2022/01/21

Keyword

Feature;2.4GHz; User manual

Brief

This is a user manual for Telink TLSR8208ADG56D DONGLE

Published by

Telink Semiconductor

**Bldg 3, 1500 Zuchongzhi Rd,
Zhangjiang Hi-Tech Park, Shanghai, China**

© Telink Semiconductor

All Right Reserved

Legal Disclaimer

The information contained in this document is confidential, privileged, and proprietary to Telink Semiconductor (Shanghai) Co, Ltd. and its related entities (“Telink”). The use and dissemination of this document is governed by the confidentiality/non-disclosure/disclaimer statement herein. Information in this document is intended for use by the intended recipient. This document may not be used, disclosed, published, disseminated, copied or distributed to any third party other than the intended recipient without the prior written consent of Telink which may be withheld in Telink’s sole discretion. Under no circumstances may this document be disclosed to a competitor of Telink. Any unauthorized use or disclosure is strictly prohibited.

Copyright © 2020 Telink Semiconductor (Shanghai) Ltd, Co.

Information

For further information on the technology, product and business term, please contact Telink Semiconductor Company (www.telink-semi.com).

For sales or technical support, please send email to the address of:

telinknsales@telink-semi.com

telinknsupport@telink-semi.com



Revision History

Version	Change Description
V0.1.0	Initial release.

Internal Only

Table of Contents

Revision History.....	2
Table of Contents.....	3
1. Product Introduction.....	4
1.1 GENERAL DESCRIPTION.....	4
1.2 KEY FEATURES.....	4
1.2.1 RF Features.....	4
1.2.2 Chip Features.....	4
1.2.3 Power Management Features.....	4
1.2.4 Bluetooth LE Features.....	5
1.3 SUPPLY POWER.....	5
1.4 DOWNLOAD FIRMWARE.....	6
1.5 FUNCTIONS OF EACH MODULE.....	6

1. Product Introduction

This is a user manual for Telink DONGLE TLSR8208ADG56D.

1.1 General description

The Telink DONGLE TLSR8208ADG56D, which is based on Telink TLSR8208A chip.

The TLSR8208A supports standards and industrial alliance specifications including Bluetooth 5.0 and Bluetooth low energy (LE). The embedded 2.4 GHz transceiver supports Bluetooth low energy as well as 2.4 GHz operation.

1.2 Key features

1.2.1 RF Features

1. Bluetooth/2.4 GHz RF transceiver in worldwide 2.4 GHz ISM band
2. Bluetooth 5.0 compliant, Bluetooth LE 1 Mbps , Long Range 125 kbps and 500 kbps
3. Tx output power: up to 0.001137W
4. RSSI monitoring with +/-1 dB resolution
5. RX sensitivity: -97 dBm @ Bluetooth LE 1 Mbps mode,@ Long Range 125 kbps mode, -98 dBm @ Long Range 500 kbps mode

1.2.2 Chip Features

The TLSR8208 integrates a powerful 32-bit MCU, 2.4 GHz ISM radio, 16 KB OTP, 16 kB retention SRAM, external Flash, 14-bit Aux ADC, PWM, flexible IO interfaces, and other peripheral blocks required for IoT (Internet of Things) and HID (Human Interface Devices) application development.

The TLSR8208 also includes multi-stage power management design allowing ultra-low power operation and making it the ideal candidate for power-constraint applications.

1.2.3 Power Management Features

1. Embedded LDO
2. Multiple stage power management to minimize power consumption
 - . RF/Digit core working at 1.2 V
3. Low power consumption:
 - . Whole chip RX mode: 9.1 mA with LDO
 - . Whole chip TX mode @ 0 dBm: 9.5 mA with LDO
 - . Deep sleep with external wakeup (without SRAM retention): 0.55 μ A
 - . Deep sleep with SRAM retention @ 0.6 V: 0.95 μ A (with 16 KB SRAM retention)
 - . Deep sleep with external wakeup, with 32K RC oscillator on @ 0.6 V (without SRAM retention): 0.95 μ A

. Deep sleep with SRAM retention, with 32K RC oscillator on @ 0.6 V: 1.45 μ A (with 16 KB SRAM retention)

1.2.4 Bluetooth LE Features

1. Fully compliant with Bluetooth 5.0
2. Mesh support
3. Single-antenna AOA/TX and multi-antenna AoD/TX BLE location

1.3 Supply power

The TLSR8208ADG56D only supports supply power via USB(5V).

As shown in figure 2-1, the marker is the USB port. Power can be supplied when USB is plugged in.

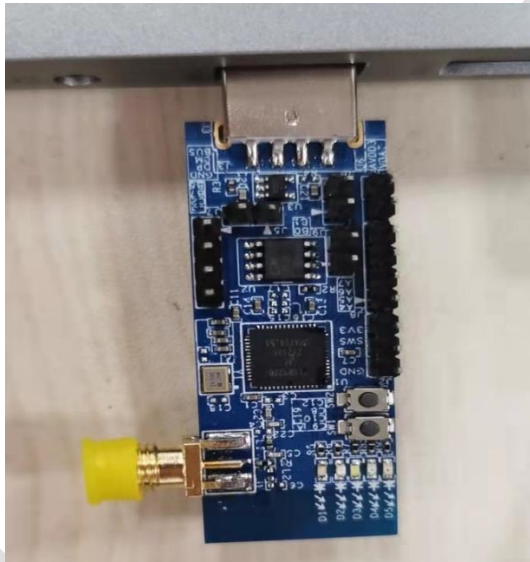


Figure 2-1 USB power supply

NOTICE:As shown in figure 2-2, the marker is the 3.3V and GND port. It is only used for the power supply of downloading firmware, the chip may not work under normal use.



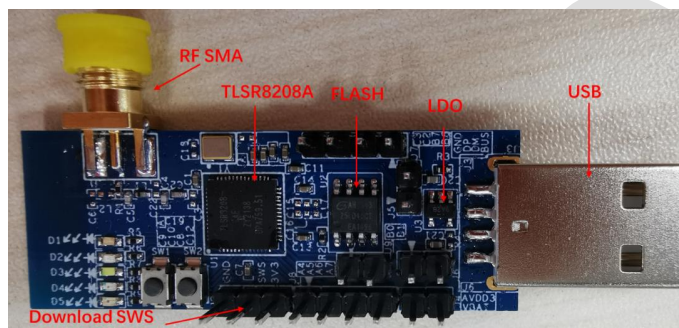
Figure 2-2 3.3V power supply

1.4 Download firmware

There are one ways to download firmware, SWS burning. But need another burning tool Telink Burning EVK. Telink Burning EVK have 3.3V/SWS/GND port. When using SWS download firmware, connect 3.3V/SWS/GND of dongle to 3.3V/SWM/GND of Burning EVK. The connection mode is shown in Figure 2-2.

1.5 Functions of each module

As shown in figure 2-3, The functions of each module on the board have been marked. There are LED, key, ANT, flash and debug port on board. The LED lights can indicate what status the TLSR8208ADG56D is in. This makes it an solution for low cost IoT (Internet of Things) and 2.4 Ghz devices. The TLSR8208 integrates hardware acceleration to support the complicated security operations required by Bluetooth, without the requirement for an external DSP.



FCC

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment complies with FCC exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment