



1. General

The AK1594 is a low power consumption transmitter IC that supports Bluetooth® 4.2. The AK1594 is a simplest Bluetooth® Low Energy transmitter without the need for a microcontroller, providing advertising data in the on-chip EEPROM.

2. Features

- Single Chip Bluetooth® Low Energy Transmitter
 - Only the AK1594 and a few passive components are required to complete Bluetooth® Low Energy advertising transmission function.
- Microcontroller-less(MCU-less)
 - Bluetooth® Low Energy advertising transmissions can be broadcasted using the AK1594's on-chip EEPROM data. This MCU-less architecture eases system design without a complicated development environment.
- Functional Switches
 - 4-hardware switches works as on-off, interval and power controller for advertising transmission.
- Programmable Output Power
 - Support wide range output power from -32dBm to +6dBm.
- Data whitening and CRC
 - Build-in data whitening feature and CRC that are compliant with Bluetooth® Low Energy.
 - Support GFSK(1Mbps)
- Security
 - AES-128 Hardware Encryption

3. Block Diagram

Power supply and ground pins are not included.

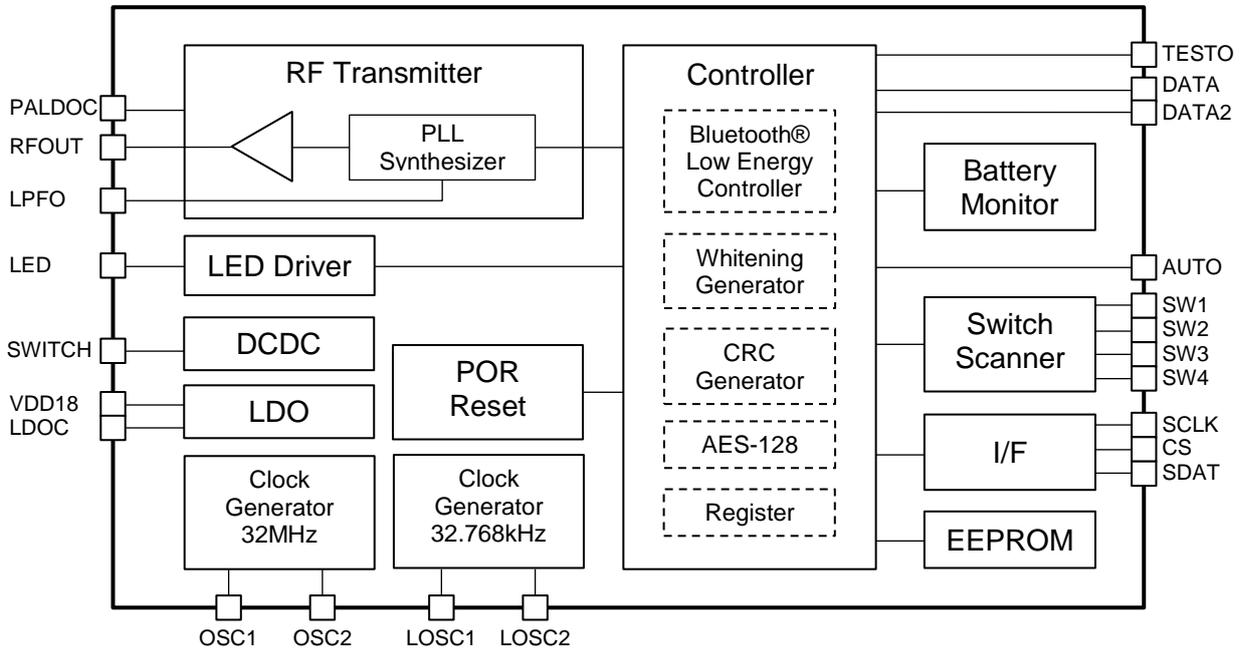


Figure 1 Overall Block Diagram

-RF Transmitter

This block outputs RF signal after GFSK modulation.

-Switch Scanner

This block detects switch actions.

-EEPROM

EEPROM holds AK1594 setting and TX data.

-Resister

EEPROM read data is stored temporary to the register. It's not accessible to users.

-Battery Monitor

This block monitoring VDD voltage

-LED Driver

This block lights LED.

4. Package

4.1. Outline Dimensions

28-pin QFN (4.0 x 4.0 x 0.70, 0.4mm pitch)
 (Unit: mm)

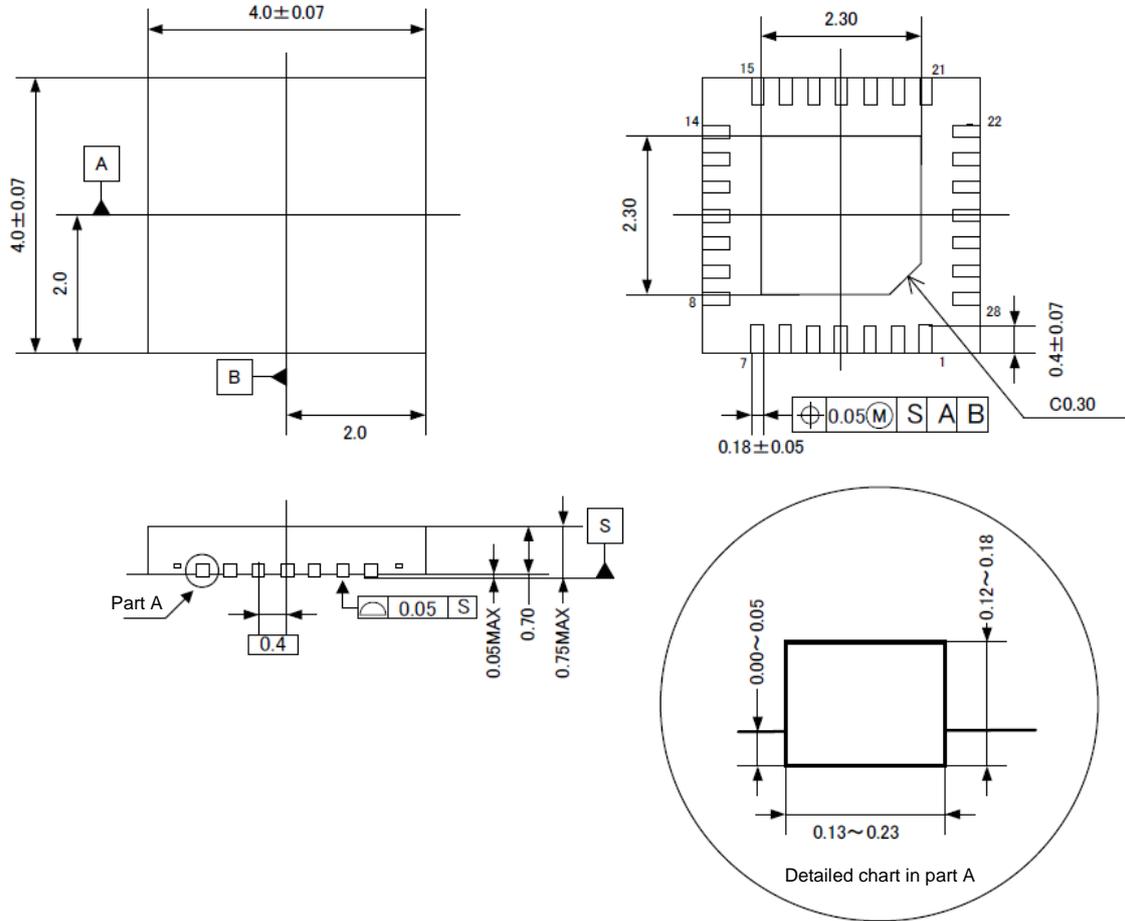


Figure 2 Package outer dimension

Note 1 Leave the exposed pad on the bottom surface of the package open.

4.2. Marking

- a. Style : QFN
- b. Number of pins : 28pins
- c. A1 pin marking : Circle
- d. Product number : 1594
- e. Date code : XXXX (4 digits)

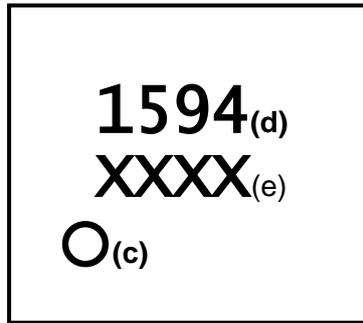


Figure3 Marking

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