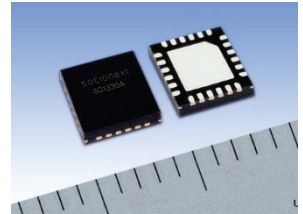


Tag solution

LPWA(ZETag) Communication IC SC1330A

Overview

ZETag®* IC "SC1330A" is a tag chip that supports a wide range of interface functions and applies next-generation ZETA communication standard technology, Advanced M-FSK. This one-chip solution enhances the design conveniences of tag product and can provide high potential on BOM cost optimization. A low power design, achieved through the digital-analog mixed integration, also gives advantages on planning energy-saving product.



SC1330A

*: ZETag is a registered trademark of TOPPAN Holdings Inc.

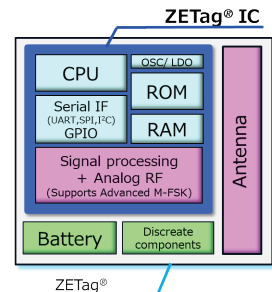
Features

- Enables connection with external sensors through its extensive interface functions.
- Advanced M-FSK function compatible with next-generation ZETA communication standard

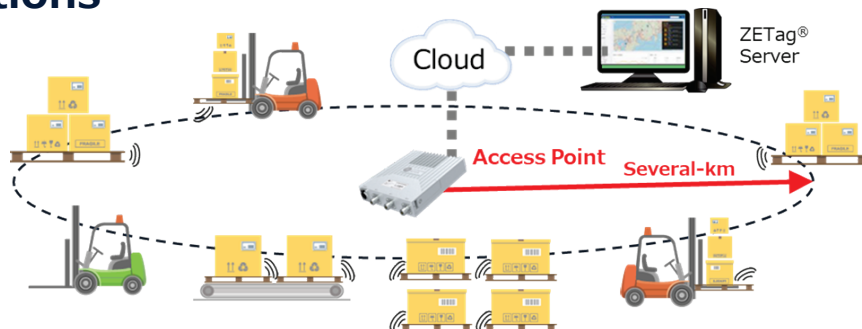
Advantages

- Simple implementation and improves quality by one-chip solution
- Reduces costs by minimizing external components.
- Achieves low power by digital-analog mixed integration.
- Enhances tag function by extensive interfaces and Advanced M-FSK.

System Structure



Applications

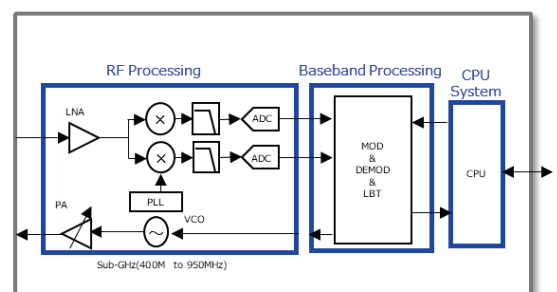


Specification

Main Feature

Item	Description
Frequency	400 to 950MHz
Channel width	2kHz
Modulation	2-8 GFSK 100bps-250Kbps
Supply Voltage	1.8 to 3.6 V
CPU	32bit RISC
I/F	UART/SPI/I ² C

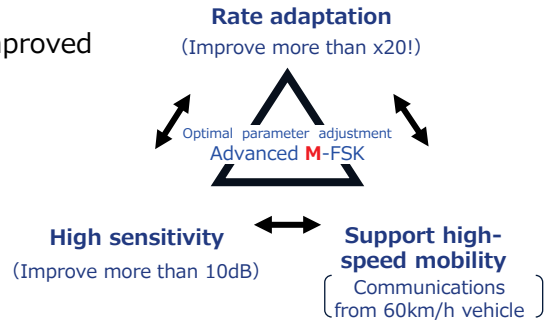
Block Diagram



Advanced M-FSK Modulation

● Features

- Enhances ZETA communication link budget with an improved signal attenuation resistance.
- Compared to the current standard, it offers:
 - Over 20x transfer rate
 - +10dB better reception sensitivity
 - Communication from moving objects at 60km/h

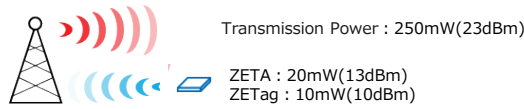


● Function Comparison

Feature	ZETA	Next generation ZETA
Modulation	2FSK	Advanced M-FSK (2FSK/4FSK/8FSK)
Data rate	300,600bps	0.02 to 20kbps
Error correction	No	Yes
Frame structure	Simple	Complex

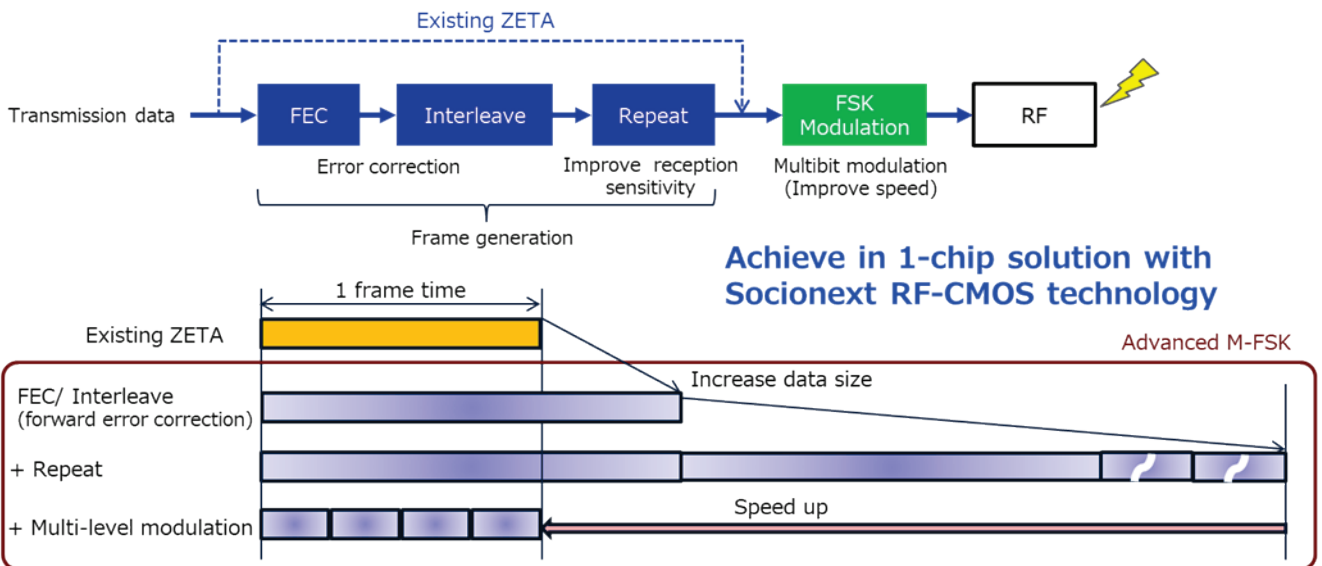
● Challenges

The access point can transmit at relatively high power, but the terminal (tag) side is limited in transmission power due to constraints such as battery power and storage size.



Key Achievement of Implementing Advanced M-FSK

Realize ZETA's unique encoding technology like error correction and multi-level FSK in one action.



The Products and product specifications described in this document are subject to change without notice for modification and/or improvement. At the final stage of your design, purchasing, or use of the products, therefore, ask for the most up-to-date Product Standards in advance to make sure that the latest specifications satisfy your requirements. All company names, brand names and trademarks herein are property of their respective owners.

Copyright 2024 Socionext Inc.
AD04-00149-1E October 2024

Edited : Connected Solution Team, IoT & Radar Sensing Business Unit

Socionext Inc.

Nomura Shin-Yokohama Bldg.,
2-10-23 Shin-Yokohama,
Kohoku-ku, Yokohama, Kanagawa, 222-0033, Japan
Tel. +81-45-568-1015
<https://socionext.com>