

# Ultra-low-power, High robustness Sub GHz RF Transceiver

晶豪科技 (ESMT) 針對物聯網 (IoT) 應用推出嶄新無線 RF 收發器產品 (Sub GHz RF Transceiver)。ER4100 系列可以滿足長距離數據通訊應用需求，傳輸速率高達 2Mbps，並內部整合高達 24dBm 的功率放大器 (PA)。為提升產品功耗性能，ER4100 系列內建多種功耗控制模式、低接收電流特性 9mA@433MHz、週期性自動喚醒功能 (Automatic RX wake up) 且不需額外透過 MCU，可以延長電池供電壽命外，也減少終端產品的維護成本。另外，其接收靈敏度高達 -125dBm@600bps、優異鄰道選擇性 70 dB@1-Ch offset 以及阻斷性能 80dB@1MHz，使得 ER4100 系列即使在高干擾環境下，仍能發揮其優異的通訊能力。ER4100 系列適合用於包含電子標籤、智慧電表、無線資產追蹤系統、一次性使用感測器 ... 等等各種 IoT 應用。

Elite Semiconductor Microelectronics Technology Inc. unveils a brand - new ultra - low - power Sub GHz transceiver. The EliteRF™ - ER4100 transceiver realizes long range wireless data communication with high data rate up to 2Mbps, and a proprietary on - chip power amplifier design offers output power up to 24dBm without adding any external PA. To support the never ending pursuing of low power and high interference robustness performance for RF chip in various IoT applications, the ER4100 series is designed to provide multiple power management modes with low RF receive current as well as automatic RX wake up without MCU involved to extend lifespan of battery operation, hence reducing overall maintenance cost. The high sensitivity (125dBm@600bps), excellent selectivity (70dB@1-Ch offset) and blocking (80dB@1MHz) performance of ER4100 series gets job done in most challenging hostile RF environment. These outstanding merits make ER4100 series most suitable for low power IoT applications such as electronic shelf labels, smart meters, wireless asset tracking system, disposable wireless sensors, etc.

## Features

### Immunity to Unwanted RF Signals

#### Adjacent channel selectivity

- 70dB at 1 Channel separation

#### Excellent blocking performance

- 80 dB at 1MHz Offset
- 90 dB at 8MHz Offset

#### Best - in - class receive sensitivity

- - 125dBm at 600bps GFSK (902MHz)
- - 103dBm at 125kbps GFSK (915MHz)

#### Ultra Low Power Consumption

##### Operation mode

- Deep sleep mode:0.12uA
- Stand by mode (Xtal on):0.55mA
- Sleep mode (WOR on):1.2uA

##### Sub1GHz

- 9mA RX
- 38mA TX@ 16dBm;85mA TX @ 20dBm

## Benefits

- Wide range of data rates:100bps~2Mbps
- Modulation scheme:GFSK,BPSK
- No need external power amplifier (PA)
- Multiple power saving modes to increase lifespan of batteries
- Wake on RX (WOR) without MCU intervened
- Low BOM cost
- Easy to use EVM and friendly development tool

## Application

- IoT (internet of things)
- Assets tracking system
- Automated meter reader (AMR)
- Electronic shelf labels (ESL)
- Security applications
- Wireless networks
- Automation building applications

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## Product Selections

Product	Sample	Modulation Type	Carrier Frequency (MHz)	Output Power (dBm)	Package Type
ER-4100	Available	GFSK BPSK	433MHz 868MHz 915MHz	24dBm	QFN-32

## Module Available

Module Part Number	MD4100-ER40	MD4100-ER80	MD4100-ER90
Corresponding Band	433 MHz	868 MHz	915 MHz

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