

Tagmicro-TxFN

Overview

Frequency Band

LF 125 kHz

UHF 315-434-868-915 MHz

Chip

ASIC 4k

ASIC 8k

Hard Tag Dimensions

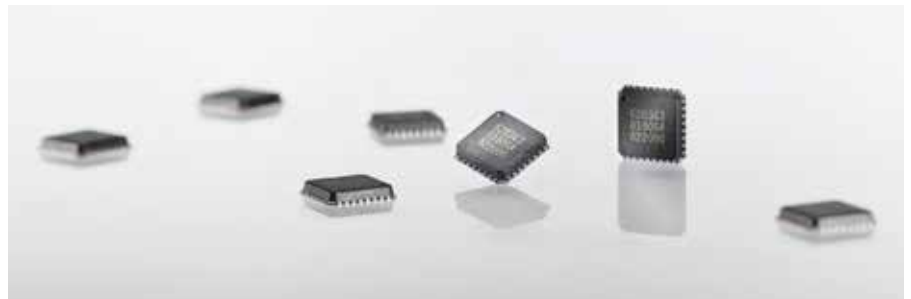
5 x 5 mm / 0.20 x 0.20 in

Industry Segments

Automotive

Applications

Remote Control



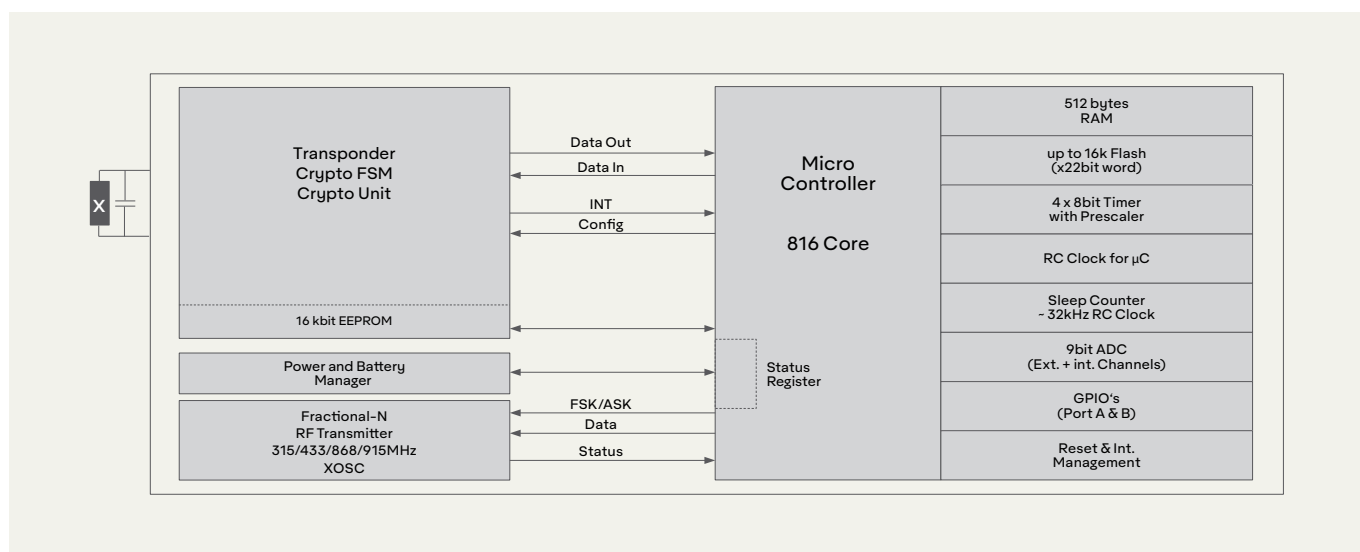
Ultra low power 8-bit microcontroller and tractional-N RF transmitter

Our Tagmicro-TxFN is designed for immobilizer and battery operated remote keyless entry (RKE) applications. The transponder part is protocol and instruction-set compatible with our existing products and works even without a battery. Additional commands for microcontroller communication are also implemented. A powerful fractional-N based UHF-transmitter circuit is built in enabling a single chip application.

The microcontroller offers brownout, power-check and glitch detection functions to ensure reliable operation at under voltage conditions. Each of the 16 I/Os are freely programmable. A trimmed RC oscillator of up to 10MHz frequency allows stable operation without need for external resonator. Featuring an 8-bit RISC architecture specially designed for very low power consumption, Tagmicro-TxFN executes up to 5 MIPS without compromising battery-lifetime. The battery management feature allows batteries to be recharged by a 125 kHz magnetic field.

Technical features

Chip	ASIC 8k	ASIC 4k
User Memory	Flash: 8k-bit instruction EEPROM: 16k-bit RAM: 256 bytes	Flash: 4k-bit instruction EEPROM: 16k-bit RAM: 256 bytes
True Low Current	500 μ A typical active mode 200 nA typical power-down mode	
TID Memory	Available for all	
Product Code	620334	620354
Hard Tag Dimension	5 x 5 mm / 0.20 x 0.20 in	
Housing Material	G 700	
Color	Black	
Operating Temperature	-40 °C to 85 °C -40 °F to 185 °F	
Storage Temperature	-40 °C to 90 °C -40 °F to 194 °F (max. 1000h)	
Quantity / Package	2500 pcs / tape on reel	



Microcontroller

Wide supply voltage range 1.8 V – 3.6 V
Up to 5 MIPS at 10MHz
“Run by field” capability
8-level supply voltage level detection
Adjustable battery charging circuit
16 fully configurable I/Os (8x IRQ, pull-up / down, open drain)
Timer Capture / Output Compare / PWM
4 high currents outputs (e.g. for LED driving)
Dual mode RC oscillator (1 MHz or 10 MHz)
8-bit CoolRISC architecture
16 registers
200 ns instruction cycle time
2 clocks per instruction
POR, BO-Reset, OSC Fail detection
8/16-bit timer, frequency generator
9-bit, 1+5 channel A/D converter
40 Bit Sleep Counter (>1 year)
Analog and digital watchdog

UHF Transmitter

Fractional N based architecture
Programmable output power, 32 steps (~ -60dBm to +13dBm)
Programmable output load capacitance
Quartz XTAL fine-tuning feature - temperature compensation - improved oscillator stability
Single device concept for all frequencies (ASK and FSK modulation)
Up to 100 kbps data rate (ASK Manchester)
Manchester / Biphasic / NRZ / Miller data encoder

Tools and service

Easy to use DoC functions, full peripheral integration, C-Compiler
Windows-based software programs with engineering support

3D LF Receiver and RSSI

125 kHz Crypto Transponder functionality (battery-less)
Multiple on-chip crypto-algorithms (AES, TagCoder family)
Challenge-response mode and rolling code mode
3 different secret keys (96/128 bit each) – Secret-key 1 and 2 for challenge / response mode, AES mutual mode and rolling code mode – Secret-key 3 for memory protection
32 bit unique device identification number
~15 kbit of free User Memory (UM)
Lock-bits to inhibit programming
Power check for EEPROM write operation
Transmission rate 4 kbaud
Parallel interface for EEPROM and crypto access via microcontroller
Mileage counter (increment only)

Applications

Car immobilizers
Remote keyless entry (RKE)
Passive keyless entry (PKE)
Keyless Start/Go (PKG)

Contact information

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Warranty: Please refer to Avery Dennison standard terms and conditions: rfid.averydennison.com/termsandconditions

Care and handling: RFID inlays are sensitive to ESD. Observe standard industry practices relating to electronics / RFID to keep environmental impact and static charge to a minimum.

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