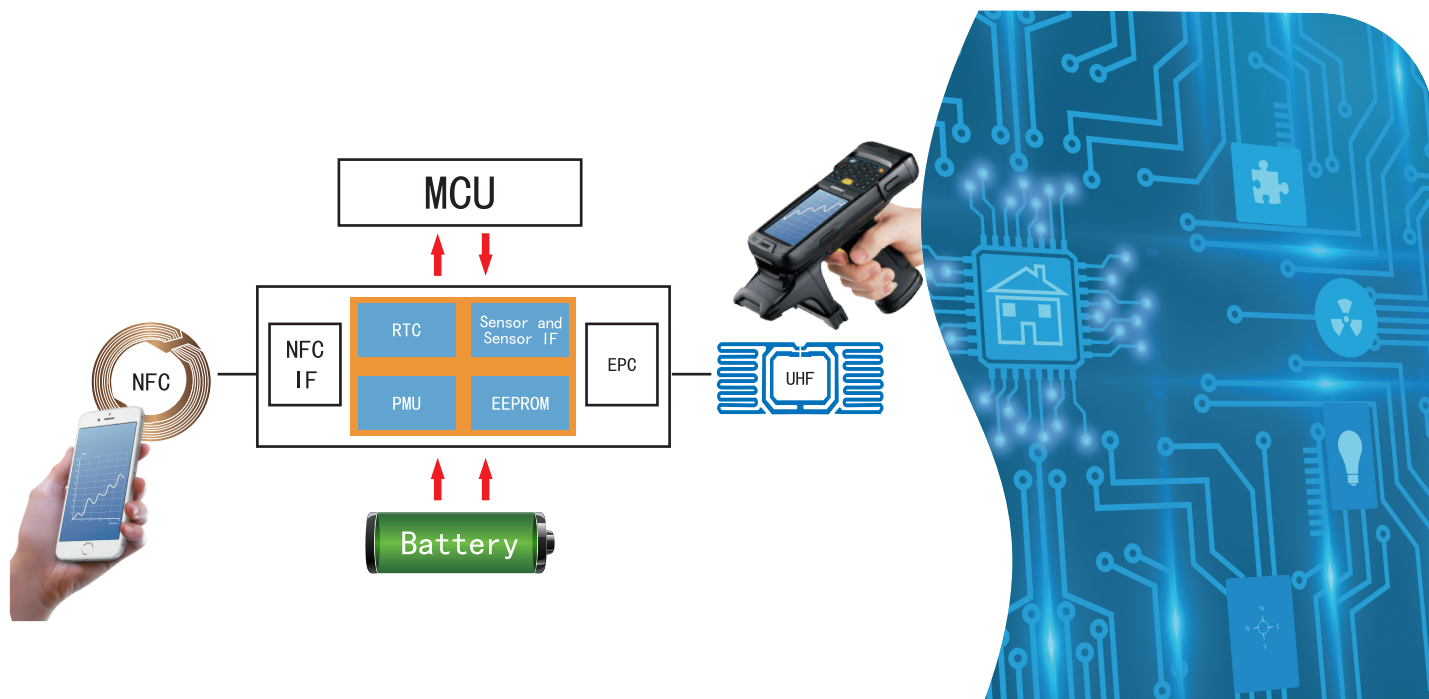# Dual Frequency Three Interfaces Temperature Sensor and Logger IC

FUDAN MICRO

Product Profile

FM13DT160 is designed for temperature monitoring and logging. It has three interfaces including NFC HF contactless interface, UHF contactless interface and I2C contact interface. All interfaces can fulfill a single time temperature measurement or start a temperature logging process and read the temperature data back. FM13DT160 works either battery-powered or none battery-powered. Temperature data can be stored in NDEF format and can be read by both Android phone and iPhone with NFC .

Interface

• Contactless-UHF
- ‣ EPC Global C1G2 V1.2.0
- ‣ Operating Frequency：840~960MHz
- ‣ Temperature measurement sensitivity (battery assistant mode)：-24dBm

• Contactless-HF (NFC)
- ‣ ISO15693 & NFC FORUM Type V or ISO14443 & NFC FORUM Type2
- ‣ Operating Frequency：13.56MHz
- ‣ Resonant capacitance：23.5pF

• Contact
- ‣ I2C
- ‣ Power supply：2.7V~3.6V
- ‣ Communication baud rate：100k bps

EEPROM
- • Total memory：160kbits
- • Potential temperature point: 20000

Dual Frequency Three Interfaces Temperature Sensor and Logger IC

Temperature Measurement and Logging

- Battery Supply Voltage：1.1V~1.65V
- Temperature Measurement Range：–35℃~50℃
- Temperature Sensor Absolute Accuracy：±0.5℃
- RTC Measurement Interval: 1s ~ 65535s
- Configurable Delay time for starting RTC logging: 1m~65535m
- Configurable stop time for the measurement and logging
- Multi–mode for logging: normal mode and limit mode
- RTC accuracy：±2%@–35℃~50℃
- Power consumption: 60nA in PD(Power Down) mode; 600nA in standby mode(RTC ON);

Security

- HF UID is unchangeable
- UHF TID is unchangeable
- Access to user area is protected by password
- Lock mechanism for user memory block (write protection)
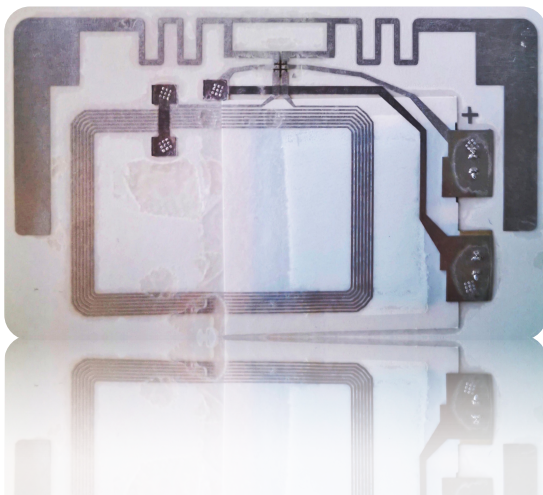- Temperature data area is read–only for the contactless interface

Special feature

- LED lighted function in passive mode and semi–active mode
- Battery low voltage warning function
- Light strength warning function

Applications

- Cold chain evaluation for medical, fresh food, special chemicals
- Long distance temperature measurement and monitor
- NFC sensor for body or environment temperature measurement
- Pressure measurement

Label sample

Demo board