



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China





Fact Sheet

MPXY8300 Tire Pressure Monitoring System

Freescale's MPXY8300 tire pressure monitoring system (TPMS) chipset is designed to enable a timely warning to the driver in the case of under-inflated or over-inflated tires on cars, trucks or buses—even while in motion. It is the first of its kind to offer capacitive sensor technology with full integration of a pressure sensor, an 8-bit S08 microcontroller (MCU), a radio frequency (RF) transmitter and a 2-axis accelerometer with X and Z axis in one package.

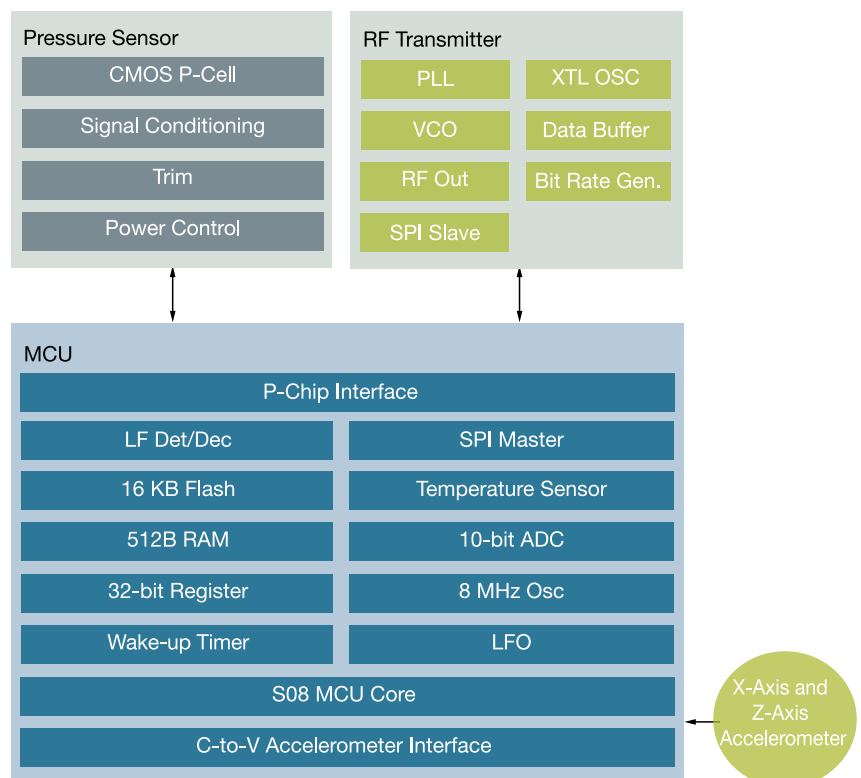
Key Features

- Pressure and temperature sensors
- Accelerometers for motion detection
- Integrated 315/434 MHz PLL-based RF transmitter
- Multiple baud rate and modulation scheme
- 8-bit MCU with 512B RAM and 16 KB flash
- Single-channel LF input with detector/decoder
- Over-temperature shutdown
- Supply voltage measurement
- Low-power wake-up timer and periodic reset driver by low frequency oscillations (LFO)
- Selective encapsulation for media protection

Design Considerations

- Power management specific to TPMS for long battery life
- Robust sensing accuracy in harsh environments during vehicle operation
- Fully integrated device in single package reduces system cost and development cycle time
- Precise tire pressure measurement
- Complies with the U.S. Federal Motor Vehicle Safety Standard (FMVSS) 138

TPMS All-in-One Package Block Diagram



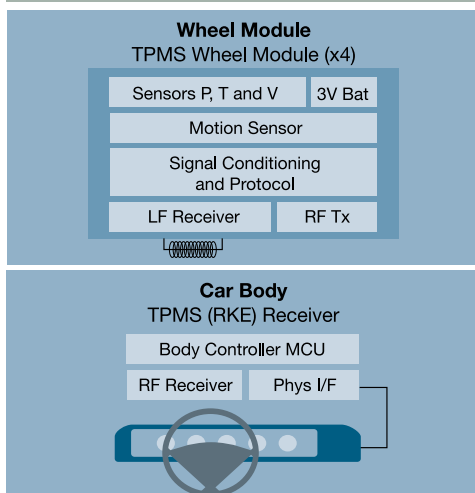
- MCU, RF transmitter, LF receiver, pressure sensor and accelerometer integrated in a single small outline wide body, 20-pin package (SOIC 20 WB) minimizing components and space needed
- RF transmission/protocol can be used globally with regional variation
- Customizable and programmable

MPXY8300 Selector Guide

| Root Part Number | MPXY8310A | MPXY8310B | MPXY8310C | MPXY8300A | MPXY8300B | MPXY8300C | MPXY8320A | MPXY8320B | MPXY8320C |
|--------------------------------------|---|-------------------------------|-------------|-------------------------------|-------------------------------|-------------|-------------------------------|-------------------------------|--------------|
| Automotive Pressure Range | √ | √ | √ | √ | √ | √ | | | |
| Truck Tire Pressure Range | | | | | | | √ | √ | √ |
| Pressure Range | 100–450 kPa | 100–450 kPa | 100–450 kPa | 100–800 kPa | 100–800 kPa | 100–800 kPa | 100–1500 kPa | 100–1500 kPa | 100–1500 kPa |
| Pressure Sensor Accuracy* | ±7 kPa | ±7 kPa | ±7 kPa | ±10 kPa | ±10 kPa | ±10 kPa | ±20 kPa | ±20 kPa | ±20 kPa |
| Z-axis Accelerometer Measuring Range | 0g–60g | 0g–60g | | 0g–60g | 0g–60g | | 0g–60g | 0g–60g | |
| Z-axis Accelerometer Accuracy | ±5g offset ±9g sensitivity | ±5g offset ±9g sensitivity | | ±5g offset ±9g sensitivity | ±5g offset ±9g sensitivity | | ±5g offset ±9g sensitivity | ±5g offset ±9g sensitivity | |
| X-axis Accelerometer Measuring Range | -10g–10g | | | -10g–10g | | | -10g–10g | | |
| X-axis Accelerometer Accuracy | ±2g offset ±2g sensitivity | | | ±2g offset ±2g sensitivity | | | ±2g offset ±2g sensitivity | | |
| Accelerometer Physical Self Test | √ | √ | | √ | √ | | √ | √ | |
| RF Type | Transmitter | | | | | | | | |
| Flash | 16 KB | | | | | | | | |
| RAM | 512B | | | | | | | | |
| RF Frequency | 315 MHz/434 MHz RF Transmitter | | | | | | | | |
| Protocols Supported | ASK and FSK Modulation | | | | | | | | |
| Clock Type | OSC | | | | | | | | |
| ADC | 4-ch., 10-bit | | | | | | | | |
| SPI | 1 | | | | | | | | |
| Timer | 2-ch., 16-bit Timer/Pulse-Width Modulator | | | | | | | | |
| Package | SOIC 20 WB | | | | | | | | |
| Temperature Range | -40°C to +125°C | | | | | | | | |

* Conditions: 0°C to 70°C

TPMS Architecture Block Diagram



TPMS Development Tools

| Product | Part Numbers |
|--|--|
| TPMS Evaluation Kit | 315 MHz Kit—KIT315MPXY8300A 434 MHz Kit—KIT434MPXY8300A |
| TPMS MPXY8300 Module Board | 315 MHz Board—EVB315MPXY8300A1 434 MHz Board—EVB434MPXY8300A1 |
| TPMS RF Receiver USB Demonstration Board | 315 MHz Board—EVB315MPXY8300A2 434 MHz Board—EVB434MPXY8300A2 |
| TPMS 125 kHz LF Transmitter Evaluation Board | EVBMPXY8300A3 |
| TPMS RF Receiver Evaluation Board | 315 MHz Board—MC33696MOD315EV 434 MHz Board—MC33696MOD434EV |
| BDM Multilink | USBMULTILINKBDM |
| CodeWarrior™ Development Studio and Service Pack V 6.0 | CWX-HXX-SE |

Learn More:

For current information about Freescale products and documentation, please visit www.freescale.com/tpms.