

Freescall introduces world's smallest integrated tire pressure monitoring system

October 21 2014



Freescall's new FXTH87 is the world's smallest tire pressure monitoring system.
Credit: Business Wire

Freescall Semiconductor today introduced the FXTH87 tire pressure monitoring system (TPMS) family, which is the smallest integrated package TPMS solution available at an extremely light weight of 0.3 grams. The FXTH87 family is 50 percent smaller than competing products, helping designers reduce overall bill of materials costs. Freescall's newest TPMS system-in-package solution provides low power consumption combined with the highest level of functional

integration in one package, featuring a dual-axis accelerometer architecture, pressure and temperature sensor, integrated MCU, RF transmitter and low frequency receiver.

The National Highway Traffic Safety Administration estimates that 23,000 accidents and 535 vehicle fatalities occur each year involving flat tires or blowouts, which TPMS systems help prevent by ensuring proper tire inflation monitoring. In addition, properly inflated tires improve fuel economy and reduce emissions, resulting in many regions worldwide, including the United States, European Union, China, Japan and Taiwan, to begin requiring TPMS in new vehicles. According to IHS iSuppli, TPMS will represent more than 25 percent of the total pressure measurement market for automotive sensors by 2015.

"We have a long history of innovation and success in pressure systems and in the automotive market, and we're leveraging that history to bring this tiny, integrated, low-power system solution to our automotive customers," said Babak Taheri, vice president and general manager for Freescale's sensors solutions division. "In TPMS, size and weight are critical, because the system is installed on the car's tire. We are offering a one-of-a-kind solution that can help improve the safety and efficiency of virtually every car on the road."

Enclosed in a 7 x 7 x 2.2 mm package, the FXTH87 family provides the smallest footprint available, enabling form factors ideal for tire pressure sensor module developers to reduce the weight and overall bill of materials costs. The industry's lowest RF power consumption at 7 mA ldd significantly extends battery life. Both the single- and dual-axis accelerometer options improve accuracy and facilitate more precise tire localization implementation and universal interoperability for original equipment manufacturers and aftermarket applications. And the integrated MCU and dedicated firmware offer the largest customer flash memory at 8 KB, increasing application flexibility and reducing time to

market.

"Maintaining properly inflated tires is one of the best things a driver can do for his car – it makes the vehicle safer, improves efficiency and increases fuel economy," said Charles Zhang, CEO at Baolong Group.

"Freescale's TPMS has the kind of optimized integration and small form factor that our customers expect, while also helping to reduce bill of materials costs for us. It's a win-win solution."

Product Features

- QFN 7 x 7 x 2.2 mm package enables visible solder joint for inspection
- 100–450 kPa and 100–900 kPa pressure ranges
- Z-axis or dual XZ-axis accelerometers
- Accelerometer standard or precision tolerances available
- Low-power wake-up timer and periodic reset driven by LFO
- Dedicated state machines for reduced power consumption
- 8-bit MCU/S08 core with SIM, interrupt and debug/monitor
- 512 Bytes RAM / 16 k Flash (8 k for Freescale library, 8 k for applications)
- Internal 315/434 MHz RF transmitter
- Internal 125 kHz LF receiver
- Six multipurpose GPIO pins (including two A/D inputs)

Provided by Freescale Semiconductor

Citation: Freescale introduces world's smallest integrated tire pressure monitoring system (2014, October 21) retrieved 19 April 2024 from <https://phys.org/news/2014-10-freescale-world-smallest-pressure.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private

study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.