TPMS SELECTOR GUIDE

Tire Pressure Monitoring Sensors

TARGET APPLICATIONS

- Tire pressure monitoring systems
- Ultra-low-power wireless sensing

IMPLEMENTATIONS

- Measures dual-axis acceleration to support location of wheel on the vehicle
- Measures temperature
- Measures battery voltage
- Bi-directional wireless communication
- Measures tire pressure for passenger, light-duly or heavy-duty vehicles

NXP TPMS SENSORS

NXP's tire pressure monitoring sensors (TPMS) has a fully integrated 4 x 4 mm and 7 x 7 mm package footprint. These are significantly smaller than the previous generation of QFN packages on the market.

These devices provide:

- Low transmitting power consumption (less than 7 mA Idd)
- Large customer memory size (~8-15 kB)
- Dual-axis accelerometer architecture

NXP'S TPMS SOLUTION INTEGRATES:

- 8-bit MCU
- Pressure sensor
- XZ-axis or Z-axis accelerometer
- 125 kHz LF receiver
- 315–434 MHz RF transmitter

NXP's portfolio can support cars, light and heavy trucks as well as buses. These TPMS markets are mainly regulation driven with new mandates, resulting in significant growth. NXP continues to produce TPMS products that meet the latest mandates to accommodate customer requirements.

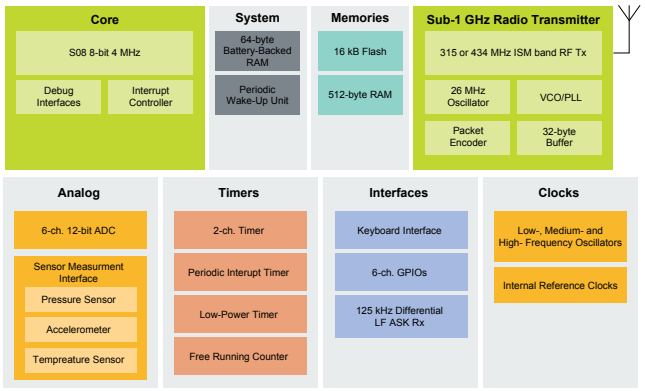
PRODUCT DIFFERENTIATION

Features	Benefits
Small, fully integrated package size	Enables small module design for lighter weight and space-constrained applications
Dual-axis XZ inertial sensor	Enables easier localization capability
Same package height and similar firmware as QFN 9 x 9 solutions	Easy transition from between solutions
8–15 kB customer memory/capability of interfacing with external memory	Flexibility of software development and time to market
Low RF power consumption	Long battery life
High production capacity	Secured supply and short lead time

NTM88 SPECIFICATIONS

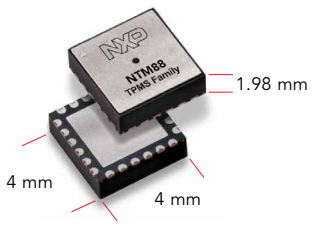
Part number	Pressure Range (kPa)	Pressure Accuracy (-40°C <= Ta <= 105°C)	Temperature Range (°C)	Temperature Accuracy (-20°C <= Ta <= 70°C)	Z-axis Accelerometer Range (g)	Z-axis Accelerometer Accuracy (-40°C <= Ta <= 125°C)	X-axis Accelerometer Range (g)	X-axis Accelerometer Accuracy (-40°C <= Ta <= +125°C)
Passenger Car and Light Duty Pressure Range with Single X-axis Accelerometer								
NTM88H055T1	90 to 930	±5	-40 to +125	±3	NA		-80 to +90	±3 @ 0g
NTM88H065T1							-360 to +400	
NTM88H075T1							-120 to +520	
Passenger Car and Light Duty Pressure Range with Dual XZ-axis Accelerometer								
NTM88H125T1	90 to 930	±5	-40 to +125	±3	-175 to +550	±3 @ 0g	-400 to +400	±3 @ 0g
NTM88H135T1					-360 to +400		-80 to +90	
NTM88H145T1					-80 to +90		-360 to +400	
NTM88H155T1					-360 to +400		-360 to +400	
Medium Duty Pressure Range with Dual XZ-axis Accelerometer – Under Development, contact sales representative for samples								
NTM88J125T1	90 to 1110	90 to 700kPa: ±5 700 to 1110kPa: ±8	-40 to +125	±3	-175 to +550	±3 @ 0g	-400 to +400	±3 @ 0g
NTM88J135T1					-360 to +400		-80 to +90	
NTM88J145T1					-80 to +90		-360 to +400	
NTM88J155T1					-360 to +400		-360 to +400	

NTM88 TPMS FAMILY BLOCK DIAGRAM



NTM88 ATTRIBUTES

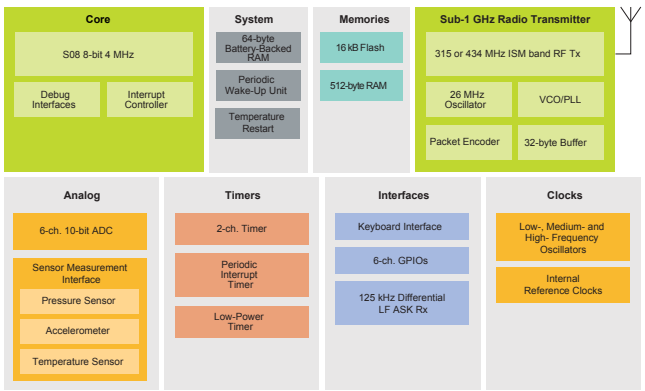
Voltage Measurement Range	1.8 V to 3.6 V
Voltage Resolution (8-bit)	10 mV/LSB
Voltage Accuracy (>2.1 V supply)	± 100 mV
Temperature Measurement Range Run Mode	-40 °C to +125 °C
Temperature Resolution (8-bit unsigned)	1 °C/LSB
Temperature Offset Accuracy (-20 °C ≤ TA ≤ 70 °C)	± 3 °C



FXTH87 SPECIFICATIONS

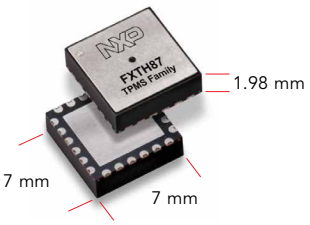
Part number	Pressure Range (kPa)	Pressure Accuracy (-40 °C <= Ta <= 85 °C)	Temperature Range (°C)	Temperature Accuracy (-20 °C <= Ta <= 70 °C)	Z-axis Accelerometer Range (g)	Z-axis Accelerometer Accuracy (-40 °C <= Ta <= 125 °C)	X-axis Accelerometer Range (g)	X-axis Accelerometer Accuracy (-40 °C <= Ta <= +125 °C)
Heavy Duty Pressure Range with Dual XZ-axis Accelerometer – Under Development, contact sales representative for samples								
FXTH87EK116T1	100-1500	±17 kPa from 90 to 1500 kPa	-40 to 125	± 3 °C	-215 to 305	± 3g	-80 to 90	± 3g

FXTH87 TPMS FAMILY BLOCK DIAGRAM



FXTH87 ATTRIBUTES

Voltage Measurement Range	1.8 V to 3.6 V
Voltage Resolution (8-bit)	10 mV/LSB
Voltage Accuracy (>2.1 V supply)	± 100 mV
Temperature Measurement Range Run Mode	-40 °C to +125 °C
Temperature Resolution (8-bit unsigned)	1 °C/LSB
Temperature Offset Accuracy (-20 °C ≤ TA ≤ 70 °C)	± 3 °C



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