

SUNSTAR商斯达实业集团是集研发、生产、工程、销售、代理经销、技术咨询、信息服务等为一体的高科技企业，是专业高科技电子产品生产厂家，是具有 10 多年历史的专业电子元器件供应商，是中国最早和最大的仓储式连锁规模经营大型综合电子零部件代理分销商之一，是一家专业代理和分销世界各大品牌IC芯片和电子元器件的连锁经营综合性国际公司。在香港、北京、深圳、上海、西安、成都等全国主要电子市场设有直属分公司和产品展示展销窗口门市部专卖店及代理分销商，已在全国范围内建成强大统一的供货和代理分销网络。我们专业代理经销、开发生产电子元器件、集成电路、传感器、微波光电元器件、工控机/DOC/DOM电子盘、专用电路、单片机开发、MCU/DSP/ARM/FPGA软件硬件、二极管、三极管、模块等，是您可靠的一站式现货配套供应商、方案提供商、部件功能模块开发配套商。**专业以现代信息产业（计算机、通讯及传感器）三大支柱之一的传感器为主营业务，专业经营各类传感器的代理、销售生产、网络信息、科技图书资料及配套产品设计、工程开发。我们的专业网站——中国传感器科技信息网（全球传感器数据库）www.SENSOR-IC.COM 服务于全球高科技生产商及贸易商，为企业科技产品开发提供技术交流平台。欢迎各厂商互通有无、交换信息、交换链接、发布寻求代理信息。欢迎国外高科技传感器、变送器、执行器、自动控制产品厂商介绍产品到中国，共同开拓市场。**本网站是关于各种传感器-变送器-仪器仪表及工业自动化大型专业网站，深入到工业控制、系统工程计 测量、自动化、安防报警、消费电子等众多领域，把最新的传感器-变送器-仪器仪表买卖信息，最新技术供求，最新采购商，行业动态，发展方向，最新的技术应用和市场资讯及时的传递给广大科技开发、科学研究、产品设计人员。本网站已成功为石油、化工、电力、医药、生物、航空、航天、国防、能源、冶金、电子、工业、农业、交通、汽车、矿山、煤炭、纺织、信息、通信、IT、安防、环保、印刷、科研、气象、仪器仪表等领域从事科学研究、产品设计、开发、生产制造的科技人员、管理人员、和采购人员提供满意服务。**我公司专业开发生产、代理、经销、销售各种传感器、变送器、敏感元器件、开关、执行器、仪器仪表、自动化控制系统：专门从事设计、生产、销售各种传感器、变送器、各种测控仪表、热工仪表、现场控制器、计算机控制系统、数据采集系统、各类环境监控系统、专用控制系统应用软件以及嵌入式系统开发及应用等工作。**如热敏电阻、压敏电阻、温度传感器、湿度变送器、湿度传感器、湿度变送器、气体传感器、压力传感器、压力变送器、称重传感器、物（液）位传感器、物（液）位变送器、流量传感器、流量变送器、电流（压）传感器、溶氧传感器、霍尔传感器、图像传感器、超声波传感器、位移传感器、速度传感器、加速度传感器、扭矩传感器、红外传感器、紫外传感器、火焰传感器、激光传感器、振动传感器、轴角传感器、光电传感器、接近传感器、干簧管传感器、继电器传感器、微型电泵、磁敏（阻）传感器、压力开关、接近开关、光电开关、色标传感器、光纤传感器、齿轮测速传感器、时间继电器、计数器、计米器、温控仪、固态继电器、调压模块、电磁铁、电压表、电流表等特殊传感器。同时承接传感器应用电路、产品设计和自动化工程项目。

欢迎索取免费详细资料、设计指南和光盘；产品凡多，未能尽录，欢迎来电查询。

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Motorola's MPXY8000 Series Tire Pressure Monitoring Sensors



**Motorola
Sensor Products Division
Transportation & Standard
Products Group**

May 2003

May 2003

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Organizational Focus

Semiconductor Products Sector

Technology and Manufacturing

Technology Focus

- CMOS
- RF CMOS
- SMARTMOS
- BiCMOS
- Bipolar
- GaAs
- Memories

Efficiency and Speed

“Go-to-Market” Organizations

Communications and Networking

Market Focus

- Mobile Clients
- Network Infrastructure
- Network Edge Devices

Profitable, High Growth

Standard Products

Market Focus

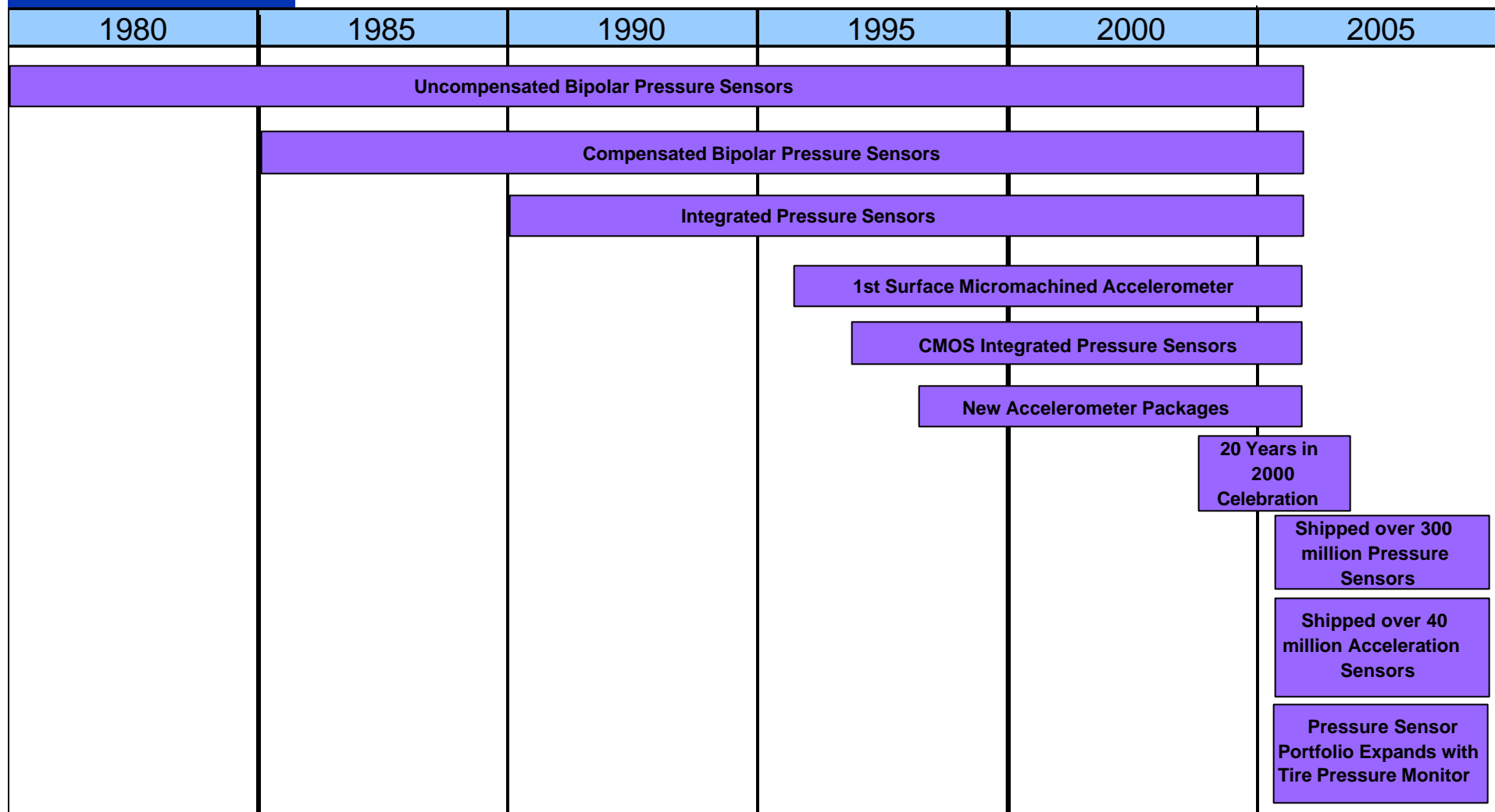
- Transportation
- Standard Products
 - MCU – Analog
 - DSP – Sensors

Profitable Growth and Cash

Architectures

Tools and Platforms–Metrowerks

Motorola's Sensor Business History



Pervasiveness

*Microcontrollers
and Microprocessors*

Sensors

Analog

Digital Signal Processors

Automotive



Consumer



Industrial



*Consumer
Networking*



Sensor Product Families



Inertial Sensors

- Automotive Occupant Safety
- Vibration Monitoring
- Sports Diagnostics
- Anti-theft Devices
- Appliance Balance
- Earthquake Detection
- Game Pads
- Inclinator
- Pedometer



Pressure Sensors

- Tire Pressure Monitoring
- Blood Pressure
- Barometer/Altimeter
- Engine Control
- HVAC Applications
- Respiratory Applications
- Process Control
- Drug Delivery for Inhalers
- Industrial Control
- Water Level

Sensor Products Division

Vision:

To be the preeminent supplier of silicon solutions for sensing real time change in transportation and standard products.



Key Strategies:

- Maximize [operational excellence](#) to drive profitable growth and accelerated share.
- Use [automotive expertise](#) to propel economies of scale and quality for standard products.
- Leverage [technology expertise](#) in micro-machining for embedded solutions.
- Engage with universities / institutes for [breakaway technology](#).

MPXY8000 Series Tire Pressure Monitoring (TPM) Sensors



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Why the Need for Tire Pressure Monitoring?

Regulations

- In the US, the TREAD Act

Safety

- Proper tire inflation reduces blowouts
- Proper tire inflation mitigates hydroplaning
- Proper tire inflation reduces braking distance and improves handling

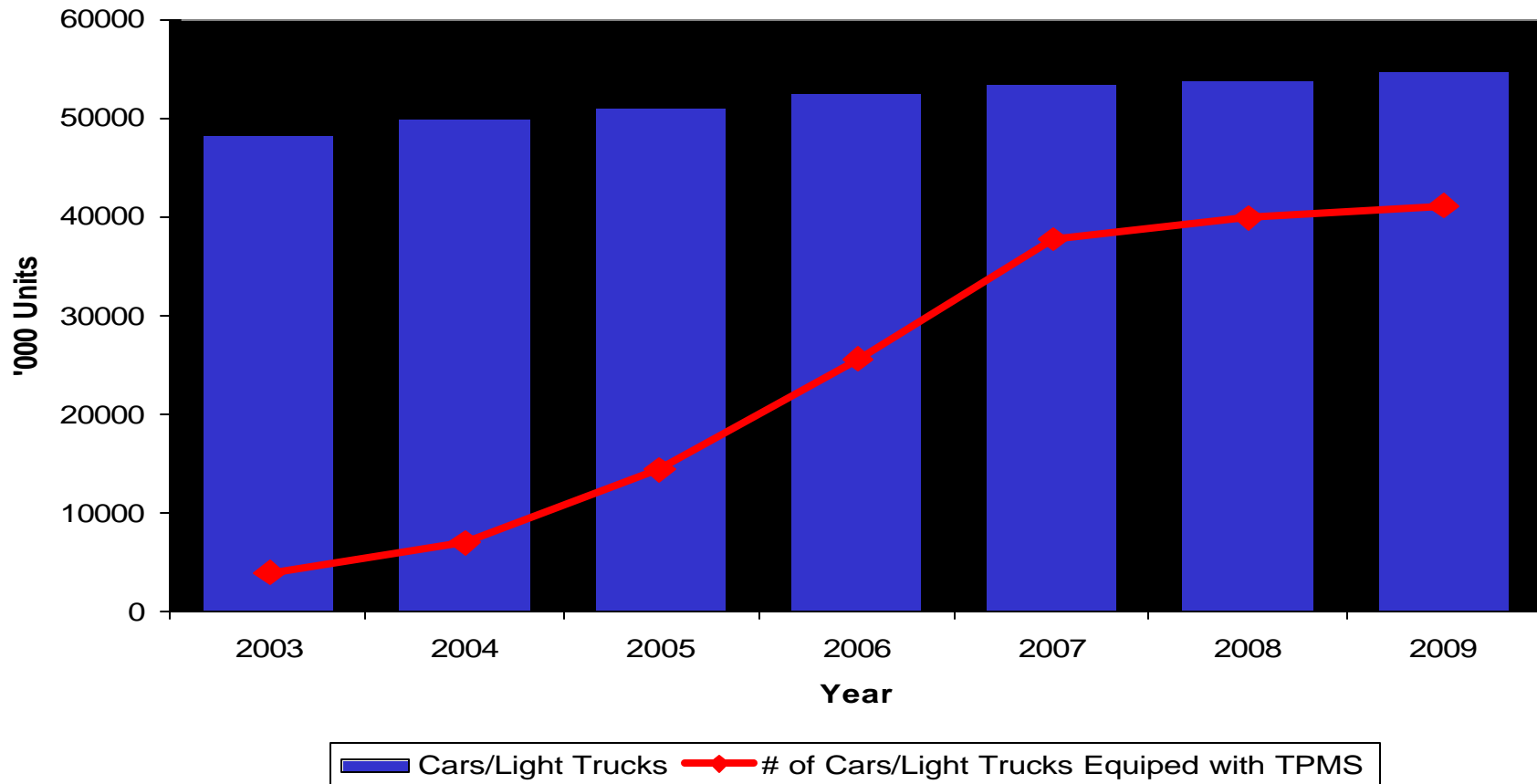
Cost Saving

- Increases tire life with proper tire inflation. Tires are a major cost for commercial vehicles such as tractor trailers
- Improves gas mileage.

TREAD Act

- Application:
 - Passengers cars, trucks, MPV & buses with a Gross Vehicle Weight Rating (GVWR) of 10000 pounds or less, except those vehicles with dual axis
- Compliance options:
 - Option 1: Direct TPMS, 25% deflation, single or each tire
 - Option 2: Indirect TMS, 30% deflation, single tire only
- Phase in schedule & min quantity required:
 - Year #1 01Nov03 to 31Oct04: 10% min with either option 1 or 2
 - Year #2 01Nov04 to 31Oct05: 35% min with either option 1 or 2
 - Year #3 01Nov05 to 31Oct06: 65% min with either option 1 or 2
- Long Term Requirements
 - After 31Oct06, 100% with option 1 only (pending revision March2005)
- Full text available at:
<http://www.nhtsa.dot.gov/cars/rules/rulings/TirePresFinal/index.html>

Automotive TAM for Cars/Light Trucks with TPM Systems



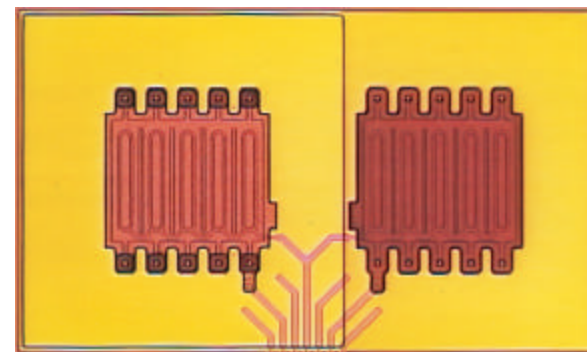
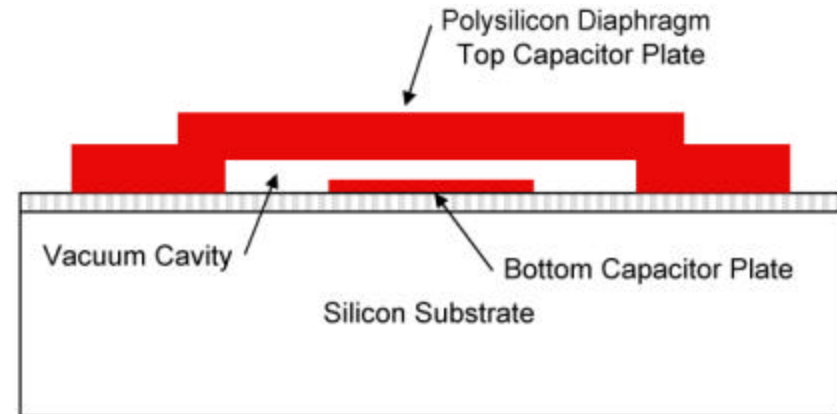
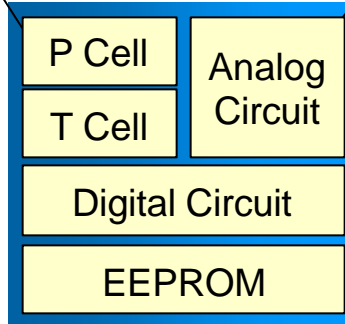
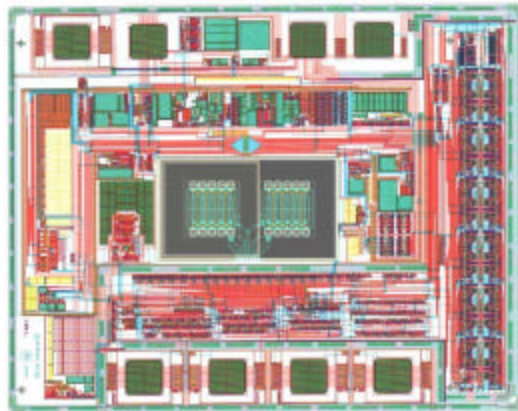
Source for Worldwide TAM #: DRI World car industry forecast report March2002, Table W2COMB, Car & light truck sales



MPXY8000 Series Sensor Features

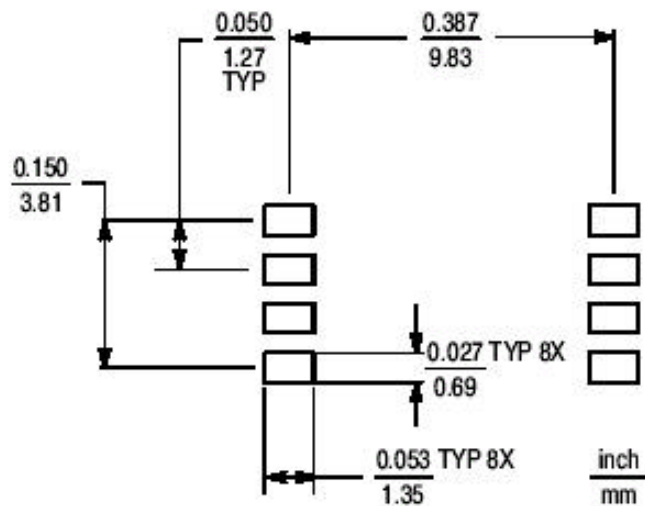
- Dedicated pressure & temperature sensor
- Single die MEMS surface micromachined P-cell
- CMOS PIDR73% process: builds upon established IDR73% process
- 2.1-3.6V operating voltage
- Low power consumption for extended battery life
- Integrated low frequency oscillator with MCU wake up
- 8 bit digital output
- SSOP pressure sensor package with integrated media protection
- Optimized for MC68HC908RF2 interfacing
- Ideal for integration with existing Remote Keyless Entry (RKE) systems

MPXY8000 Series: Silicon



Close-up of the Pressure Transducer

MPXY8000 Series: Package



- Small footprint requires reduced board space
- Integrated media protection filter
- Durable polymer package material
- Available in Tape & Reel for mass production
- Proven assembly process be used for other Motorola pressure sensor products





MPXY8000 Series: Standard Devices

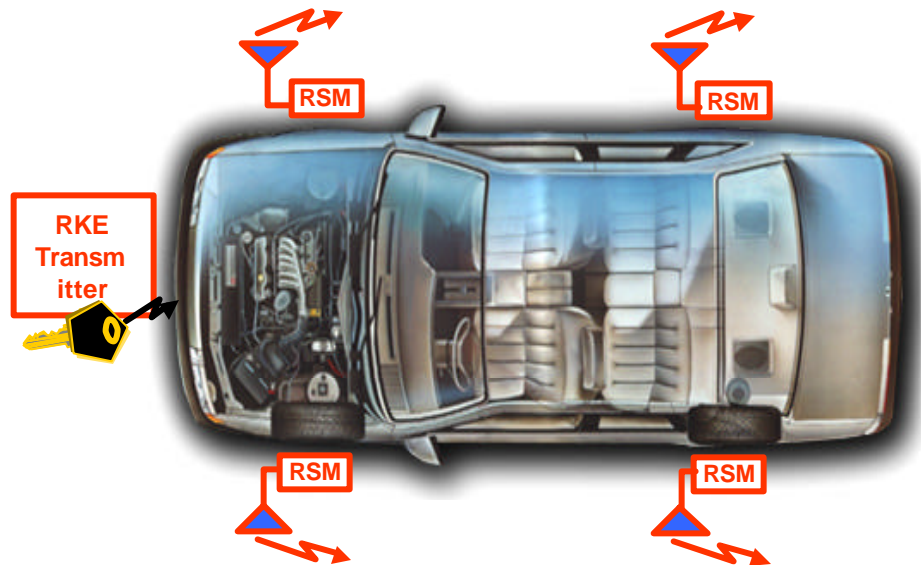
<u>Part Number</u>	<u>Range</u>	<u>Trim points</u>	<u>Best P-accuracy</u>	<u>Best T-accuracy</u>
• MPXY8020A	0-637.5 kPa	250 & 450 kPa	+/-7.5kPa	+/-4°C

Special Transfer Functions available on request

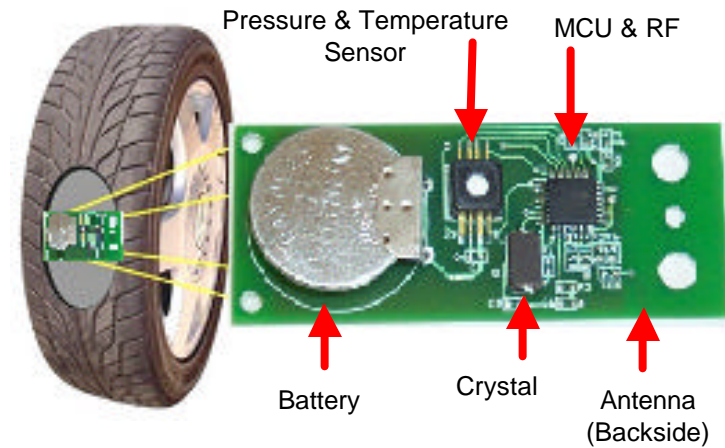
Samples Available Now!



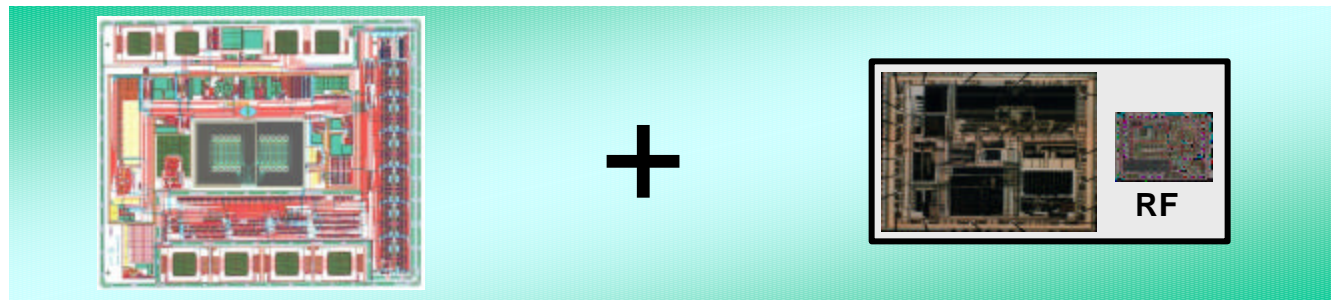
TPM System Description



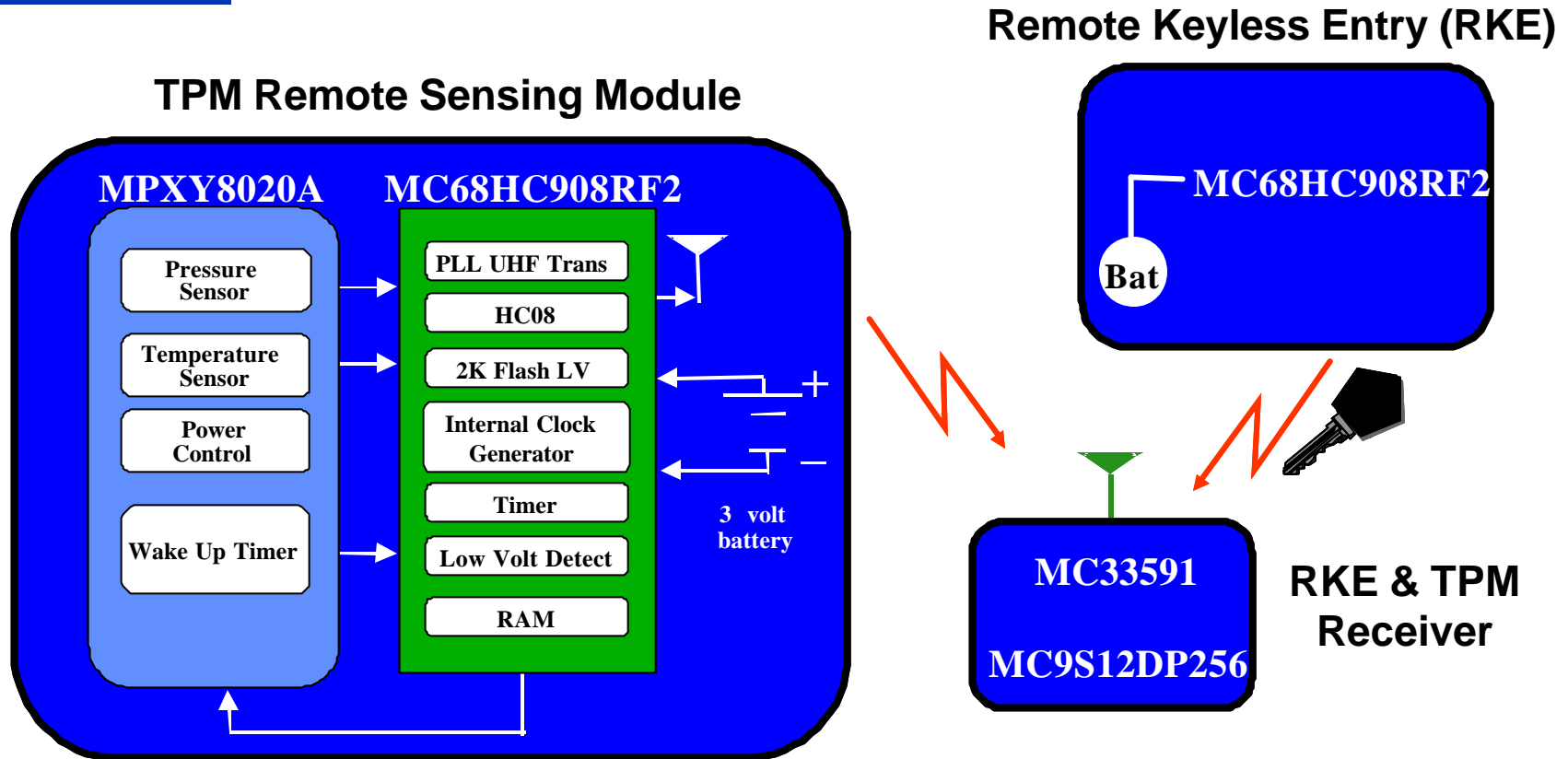
MPXY8020A Series CMOS P & T



MCU + RF



Motorola's TPMS Chipset



Benefits of Going with Motorola and the MPXY8000 Series TPM Sensors

Feature	Benefit
<ul style="list-style-type: none">• Low power consumption due to CMOS capacitive transducer and on-chip power management features	<ul style="list-style-type: none">• Less drain on the battery -> longer module lifetime• Do not need roll detection to conserve battery life
<ul style="list-style-type: none">• Motorola offers a complete chip set for a TPMS-RKE system with integrated components	<ul style="list-style-type: none">• Eliminates the need for an additional TPM specific receiver• The integration of components (MCU and RF) results in a cost savings from parts count and board space reduction. This also allows for a smaller module.
<ul style="list-style-type: none">• Motorola has experience in key competencies for this application, and also has established manufacturing capacity installed.	<ul style="list-style-type: none">• Time to market, and peace of mind.

TPM Sensor Roadmap

Introduction

**MPXY8000
Series**

CMOS Pressure & Temperature Sensor
Digital Output, Power Management
Optimized for MC68HC908RF2 Interface

2003

**MPXY8100
Series**

CMOS Pressure & Temperature Sensor + RF
Integrated State Machine (no MCU required)
Integrated RF PLL stage
Very Low Energy Consumption,
FMVSS138 compliant

2005

**3rd Generation
Series**

CMOS Pressure & Temperature Sensor + RF
SPI Interface for low cost MCU Interface
Integrated RF PLL stage
Very Low Energy Consumption
Provides Flexibility

2006

**Battery Less
Solution**

To be defined

2008

Motorola's TPM Strategy Assets

- Highly integrated products:
 - Signal conditioned digital sensor
 - On-chip power management
- Multiple Process Technologies:
 - MEMS sensor
 - Analog Mixed Signal
 - High density logic
 - RF
- Integrated Media Protection
- Promising roadmap:
 - Further integration
 - Design expertise
- Unique RF expertise
- High Volume Manufacturing Capacity Already Installed
- Proven Automotive Supplier





Summary

- Builds upon a 20-year legacy of sensor solutions
- Provides a necessary solution to meet TREAD Act
- Pressure and temperature sensor and interface circuit with wake-up feature, all on a single chip
- Low Power consumption
- Motorola offers a complete chip set for a TPMS-RKE system with integrated components saving board space and allow part count reduction
- Robust package that offers excellent resistance against common automotive media



More Motorola TPM Sensor/System Information

Visit us at: www.motorola.com/semiconductors for:

- Tire Pressure Monitoring Sensor Family Brochure (BR1564/D)
- Motorola Sensors Selector Guide (SG1010/D)
- TPMS Demonstration Kit (AN1943/D)
- Motorola Tire Pressure Monitor System Demo (AN1951/D)
- High Accuracy Digital Tire Pressure Gauge (AN1953/D)

For More Product Information:

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