

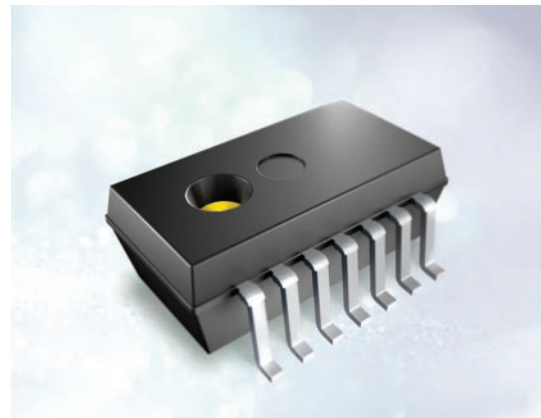
## SP35 Tyre Pressure Sensor



**Single Package IC for Tyre Pressure Monitoring Systems (TPMS) with Pressure and Acceleration Sensor, embedded 8051 Microcontroller, LF 125 kHz ASK Receiver and FSK/ASK 315/434 MHz Transmitter**

THE SP35 is a highly integrated device which performs all necessary functions of a TPM module in the wheel for high-volume applications. The device contains the sensing element, the microcontroller, the LF receiver and the transmitter in one package.

The Sensor design is based upon Infineon's patented bulk micro-machined sensing technology which allows highly reliable measurements in harsh environments. The SP35 measures pressure, temperature, supply voltage and radial acceleration. The device is offered with a pressure range of 100–450 kPa.



### Major Functional Blocks of SP35 Tyre Pressure Sensor

- Pressure sensor
- Radial acceleration sensor
- Temperature sensor
- Battery voltage sensor
- 8051 compatible microcontroller
- 6 kByte onchip FLASH memory
- 256 byte RAM
- Advanced power control/wake-up system to minimize battery consumption
- RF transmitter for 315 and 434 MHz
- Selectable output power 5 or 8 dBm
- LF receiver for 125 kHz
- P-DSOSP-14-6 Package

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## Sensors



Never stop thinking

## Pressure Measurements

Pressure measurement specifications, 100 to 450 kPa

Pressure Sensor Characteristics

( $V_{\text{bat}} = 2.1 \dots 3.6 \text{ V}$ )

Parameter	Symbol	Limit Values		Unit	Test Conditions
		min.	max.		
Input Range	$P_{\text{Range}}$	100	450	kPa	$T = -40 \dots 125^{\circ}\text{C}$
Measurement Error	$P_{\text{Error}}$	-7	7	kPa	$T = 0 \dots 50^{\circ}\text{C}$
Measurement Error	$P_{\text{Error}}$	-9	9	kPa	$T = 50 \dots 70^{\circ}\text{C}$
Measurement Error	$P_{\text{Error}}$	-17.5	17.5	kPa	$T = -40 \dots 125^{\circ}\text{C}$

## Acceleration Measurements

Acceleration Sensor Characteristics

( $V_{\text{bat}} = 2.1 \dots 3.6 \text{ V}$ )

Parameter	Symbol	Limit Values		Unit	Test Conditions
		min.	max.		
Input Range	$A_{\text{Range}}$	-12	115	g	$T = -40 \dots 125^{\circ}\text{C}$
Sensitivity Accuracy	$A_{\text{Sens}}$	-18.75	18.75	%	$T = -40 \dots 90^{\circ}\text{C}$
Offset Accuracy	$A_{\text{Offset}}$	-6	6	g	$T = -20 \dots 70^{\circ}\text{C}$
Offset Accuracy	$A_{\text{Offset}}$	-8.5	8.5	g	$T = -40 \dots 90^{\circ}\text{C}$
Offset Accuracy	$A_{\text{Offset}}$	-12	12	g	$T = 90 \dots 125^{\circ}\text{C}$

## Temperature Measurements

Temperature Sensor Characteristics

( $V_{\text{bat}} = 2.1 \dots 3.6 \text{ V}$ )

Parameter	Symbol	Limit Values		Unit	Test Conditions
		min.	max.		
Measurement Error	$T_{\text{Error}}$	-3	3	$^{\circ}\text{C}$	$T = -20 \dots 70^{\circ}\text{C}$
Measurement Error	$T_{\text{Error}}$	-5	5	$^{\circ}\text{C}$	$T = -40 \dots 125^{\circ}\text{C}$

## Supply Voltage Measurements

Battery Sensor Characteristics

( $V_{\text{bat}} = 1.9 \dots 3.6 \text{ V}$ )

Parameter	Symbol	Limit Values		Unit	Test Conditions
		min.	max.		
Measurement Error	$V_{\text{Error}}$	-100	100	mV	$T = -40 \dots 125^{\circ}\text{C}$

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