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TYRE PRESSURE SENSOR FOR HEAVY VEHICLES

SP12T is a piezoresistive pressure sensor designed for tyre pressure measurement in heavy vehicle applications. The design is based on proven high-volume, low cost production processes developed for products to be used in automotive applications.

The sensor design is based upon SensoNor's proprietary and patented solutions aimed at high reliability measurements in harsh environments, still with a predictable and stable quality in high volume applications

The SP12T measures pressure, temperature and supply voltage, and by integrating these functions with an ASIC in one package, SensoNor has developed the ideal product for tyre pressure monitoring applications, offering the system designer the flexibility to determine sequences and functionality.

■ Pressure sensor:	Range:	50 to 1400kPa
■ Temperature sensor:	Range:	-40 to +125°C
■ Supply Voltage sensor:	Range:	1.8 to 3.6V

SP12T



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PRESSURE MEASUREMENTS

All specification limits to be understood as 5 sigma values. The specified values reflect the situation with an ideal voltage source (0 ohm internal resistance)

PARAMETER	SPECIFICATION				AMBIENT CONDITION		
	Unit	Min	Typ	Max	Temperature [°C]	Pressure [kPa]	Supply voltage [V]
Input range	kPa	50	--	1400	-40 to 125	50 - 1400	2.1 - 3.6
Resolution	kPa/lb		2.97		-40 to 125	50 - 1400	2.1 - 3.6
Measurement error	kPa	-28		28	0 to 50	50 - 1400	2.1 - 3.6
	kPa	-48		48	-20 to 70	50 - 1400	2.1 - 3.6
	kPa	-68		68	-40 to 125	50 - 1400	2.1 - 3.6
Measurement time	ms			6			

TEMPERATURE MEASUREMENTS

All specification limits to be understood as 5 sigma values

PARAMETER	SPECIFICATION				AMBIENT CONDITION	
	Unit	Min	Typ	Max	Temperature [°C]	Supply voltage [V]
Input range	°C	-40		125	-40 to 125	2.1 - 3.6
Resolution	°C/lb		1		-40 to 125	2.1 - 3.6
Deviation from actual temperature	°C	-4		4	0 to 50	2.1 - 3.6
	°C	-5		5	-40 to 100	2.1 - 3.6
	°C	-8		8	100 to 125	2.1 - 3.6
	°C	-7		7	0 to 50	2.1 - 3.6
	°C	-10		10	-40 to 125	
Measurement time	ms			1.5		

SUPPLY VOLTAGE MEASUREMENTS

All specification limits to be understood as 5 sigma values

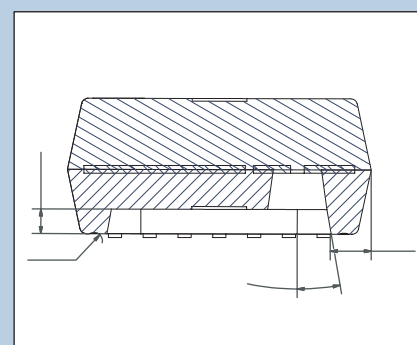
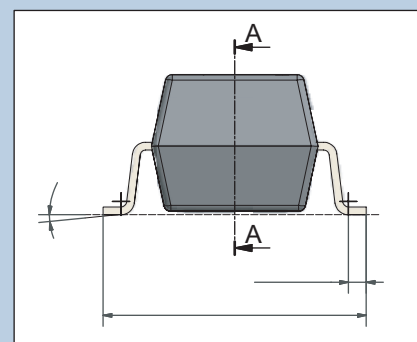
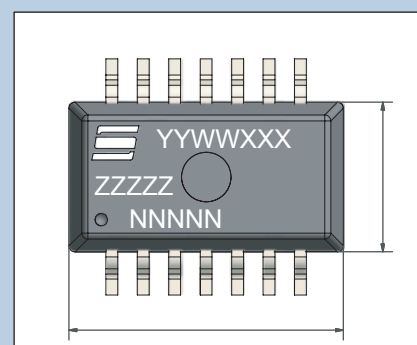
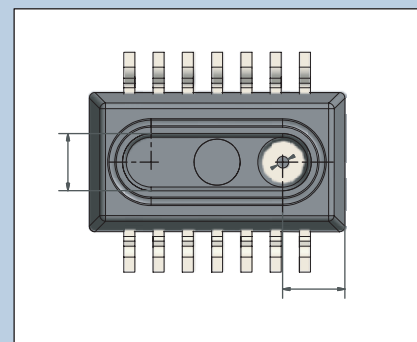
PARAMETER	SPECIFICATION				AMBIENT CONDITION	
	Unit	Min	Typ	Max	Temperature [°C]	Supply voltage [V]
Input range	V	1.8		3.6	-40 to 125	1.8 - 3.6
Resolution	V/lb		0.0184		-40 to 125	2.1 - 3.6
Measurement error	V	-0.1		0.1	-40 to 125	2.1 - 3.6
Delay time between supply voltage measurement command and sampling	ms	2.8	3.5	4.2	-40 to 125	2.1 - 3.6
Delay time between sampling and A/D conversion	ms	8	10	12	-40 to 125	2.1 - 3.6
Supply measurement time	ms			17		

ABSOLUTE MAXIMUM RATINGS

Prolonged exposure to values between recommended operating conditions and absolute maximum ratings might affect the performance or reliability of the device

PARAMETER	MIN	MAX	UNIT
Input pressure		3300	kPa
Storage temperature	-40	150	°C
Temperature in application	-40	150	°C
Temperature in application, transient	-40	175	°C
Supply voltage	-0.3	6.0	V
Input voltage, any pin	-0.3	VDD +0.3	V
Latch-up protection	-100	100	mA
ESD protection (machine model)	-200	200	VkV
ESD protection (human body model)	-2	2	g
Mechanical shock		2000	g
Static acceleration		2000	

PACKAGE TYPE 1



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