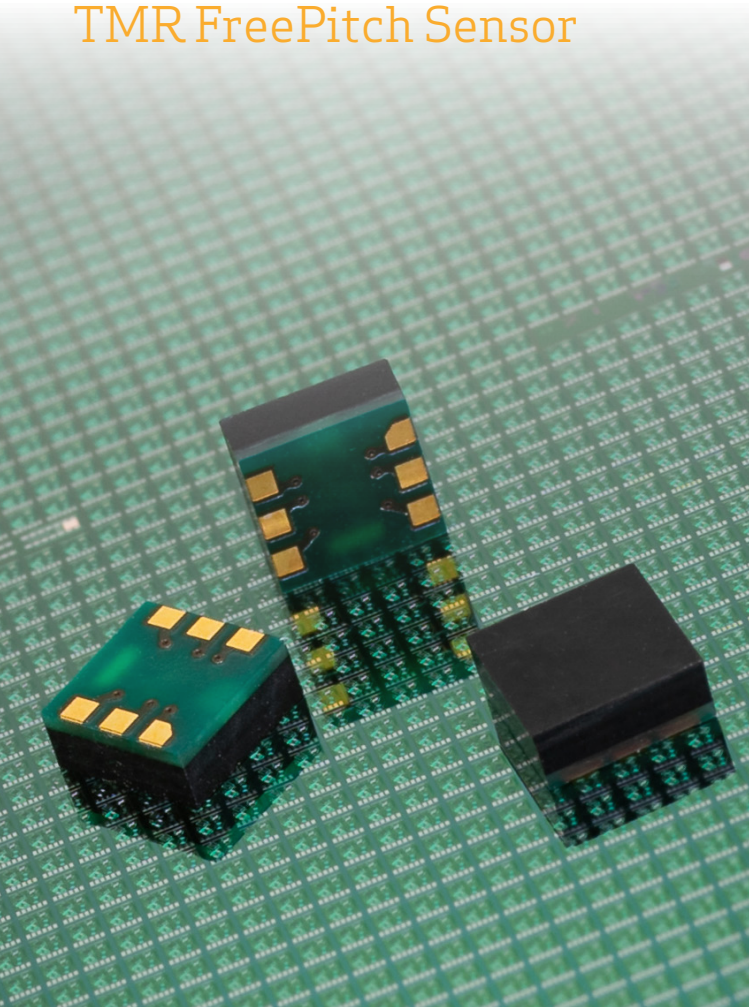
SENSITEC
KÖRBER SOLUTIONS

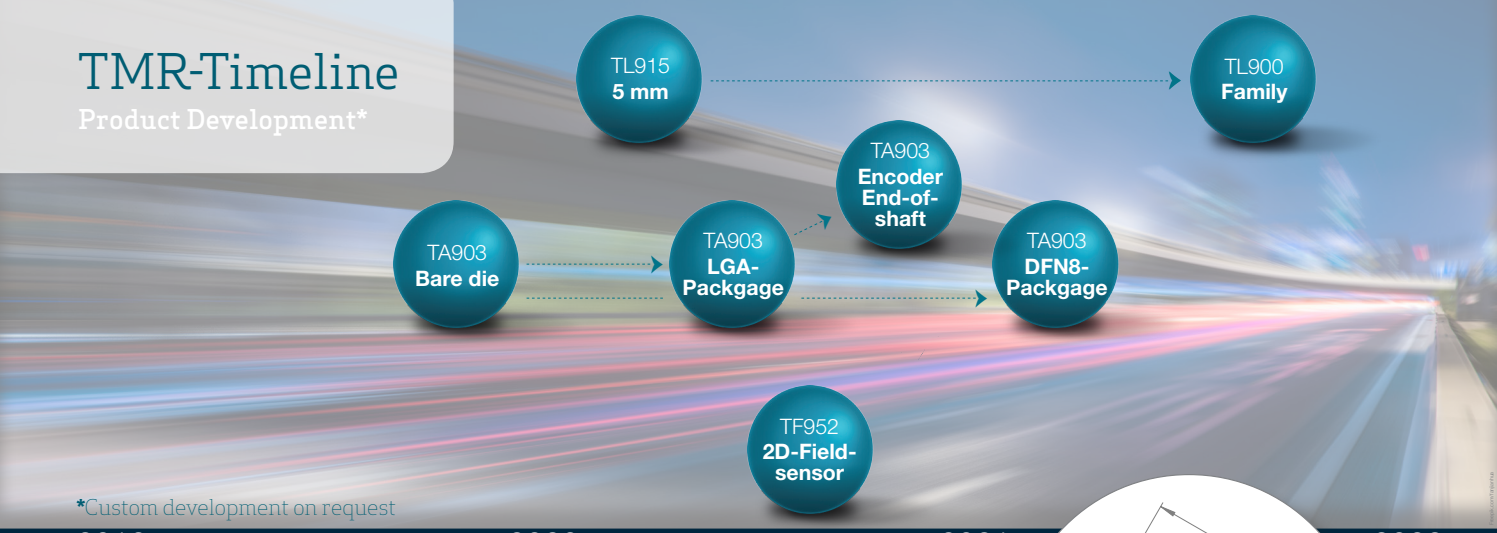
TA903

TMR FreePitch Sensor



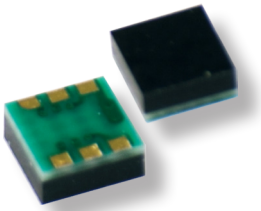
TMR-Timeline

Product Development*



The TA903 is a position sensor based on the Tunnel MagnetoResistive (TMR) effect. The sensor contains two Wheatstone bridges with a common ground and supply pin. They are shifted at a relative angle of 90° to one another.

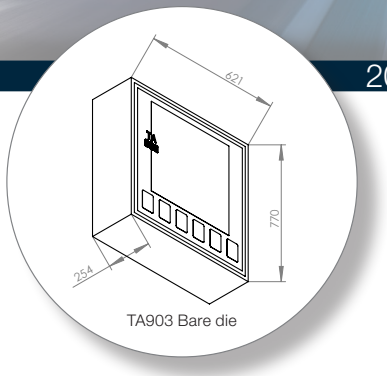
A rotating magnetic field in the sensor plane delivers two sinusoidal output signals depending on the angle α between sensor and magnetic field direction. The function of these signals is $+\sin\alpha$ and $+\cos\alpha$, i.e. the output signal in an end-of-shaft application has a periodicity of one per revolution.



TA903 is available as bare die on wafer, for chip-on-board processing, the sensor is available in a LGA package.

Quick Reference Guide

Symbol	Parameter	Min.	Typ.	Max.	Unit
V_{CC}	Supply voltage	1.8	5.0	5.5	V
V_{OUT}	Output amplitude per V_{CC}	70	100	130	mV/V
V_{OFF}	Offset voltage per V_{CC}	-3.0	-	+3.0	mV/V
R_B	Bridge resistance	6.0	10.0	14.0	kΩ
R_S	Sensor resistance	3.0	5.0	7.0	kΩ



TA903 Bare die

Features

- Based on the Tunnel MagnetoResistive (TMR) effect
- Contains two Wheatstone bridges
- Sine and cosine output
- Temperature range from -40 °C to +125 °C

Advantages

- Contactless angle and position measurement
- Large air gap
- Excellent accuracy
- Position tolerant
- Minimal offset voltage
- Minimal hysteresis

Applications

- Incremental or absolute position measurement
- Motor commutation
- Rotational speed measurement
- Angle measurement (360° absolute at end of shaft)

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