

TMR2922

Ultra High Sensitivity TMR linear sensor

General Description

The TMR2922 linear sensor utilizes a unique push-pull Wheatstone bridge composed of four unshielded TMR sensor elements. The unique bridge design provides a high sensitivity differential output that is linearly proportional to a magnetic field applied parallel to the surface of the sensor package, and it provides superior temperature compensation of the output. The TMR2922 is available a 6mm X 5mm X 1.5mm SOP8 package.

Features and Benefits

- Tunneling Magneto resistance (TMR) Technology
- High Sensitivity (7~15mV/V/Oe)
- Large Dynamic Range
- Very Low Power Consumption
- Excellent Thermal Stability
- Very Low Hysteresis
- Compatible with wide Range of Supply Voltages
- Ultra Low Noise Spectral Density(<math>< 1\text{nT}/\sqrt{\text{Hz}}</math>@1Hz)



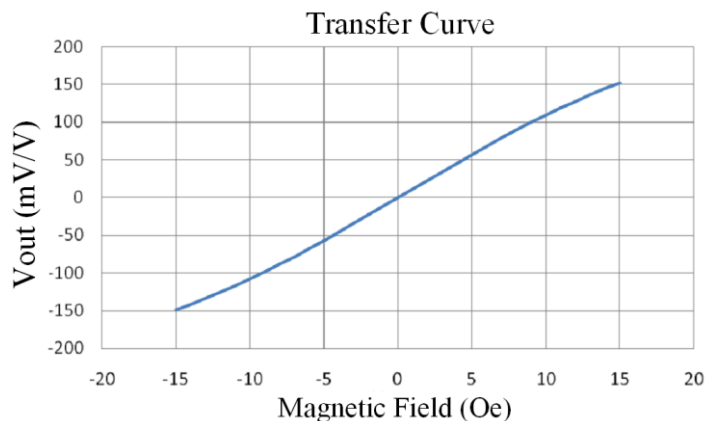
TMR2922

Applications

- Weak Magnetic Field Sensing
- Current Sensors
- Position and Displacement Sensing

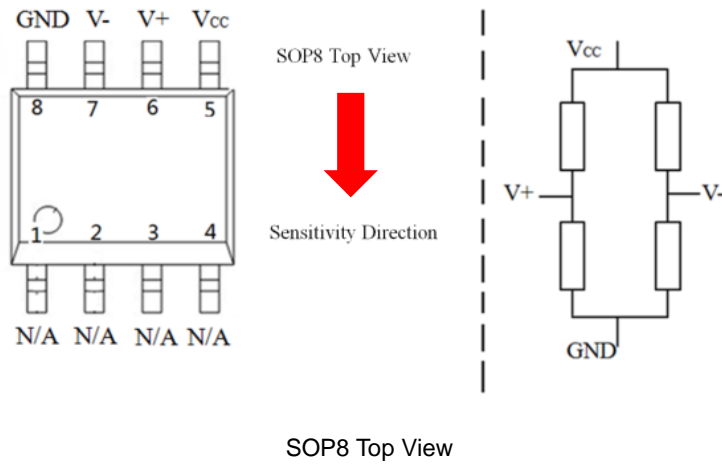
Transfer Curve

The following figure shows the response of the TMR2922 to an applied magnetic field in the range of ± 15 Oe when the TMR2922 is biased at 1V.



Pin Configuration

(Arrow indicates direction of applied field that generates a positive output voltage.)



Pin No.	Pin Name	Pin Function
5	Vcc	Supply Voltage
6	V+	Analog Differential Output 1
7	V-	Analog Differential Output 2
8	GND	Ground
1,2,3,4	N/A	Not Connected

Absolute Maximum Ratings

Parameter	Symbol	Limit	Unit
Supply Voltage	V_{CC}	7	V
Reverse Supply Voltage	V_{RCC}	7	V
Max Exposed Field	H_E	4000	Oe ⁽¹⁾
ESD Voltage	V_{ESD}	4000	V
Operating Temperature	T_A	-40~125	°C
Storage Temperature	T_{stg}	-50 ~150	°C

Specification ($V_{CC}=1.0V$, $T_A=25^{\circ}C$, Differential Output)

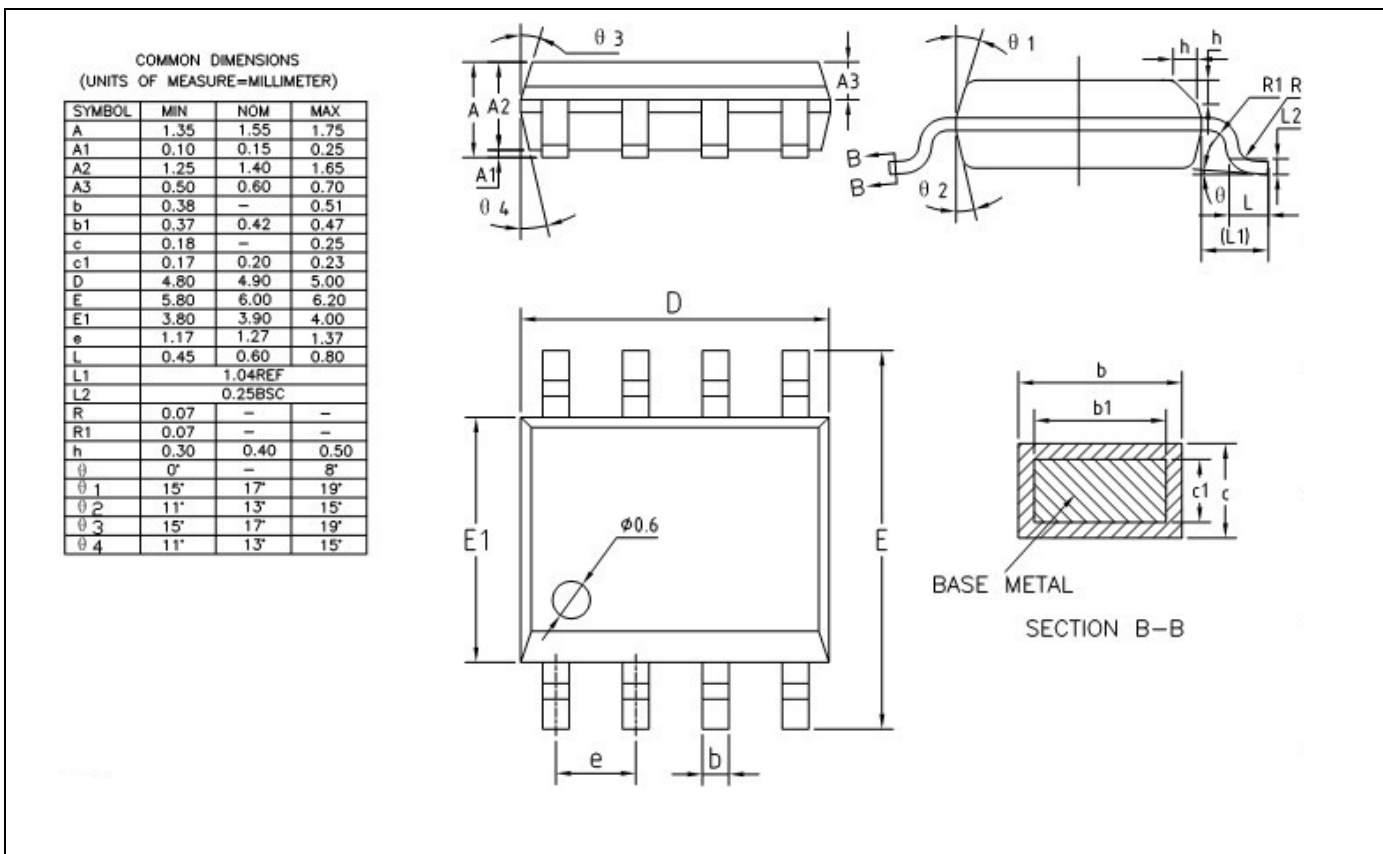
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Supply Voltage	V_{CC}	Operating		1	7	V
Supply Current	I_{CC}	Output Open		0.5		mA
Resistance	R			2 ⁽²⁾		KOhm
Sensitivity	SEN	Fit @ ± 15 Oe	7		18	mV/V/Oe
Saturation Field	H_{sat}			± 30		Oe
Non-Linearity	NONL	Fit @ ± 15 Oe		2		%FS
Offset Voltage	V_{offset}		-20		20	mV/V
Hysteresis	Hys	Fit @ ± 15 Oe			3	Oe

Temperature Coefficient of Resistance	TCR	H = 0 Oe		-500		PPM/°C
Temperature Coefficient of Sensitivity	TCS			-1100		PPM/°C

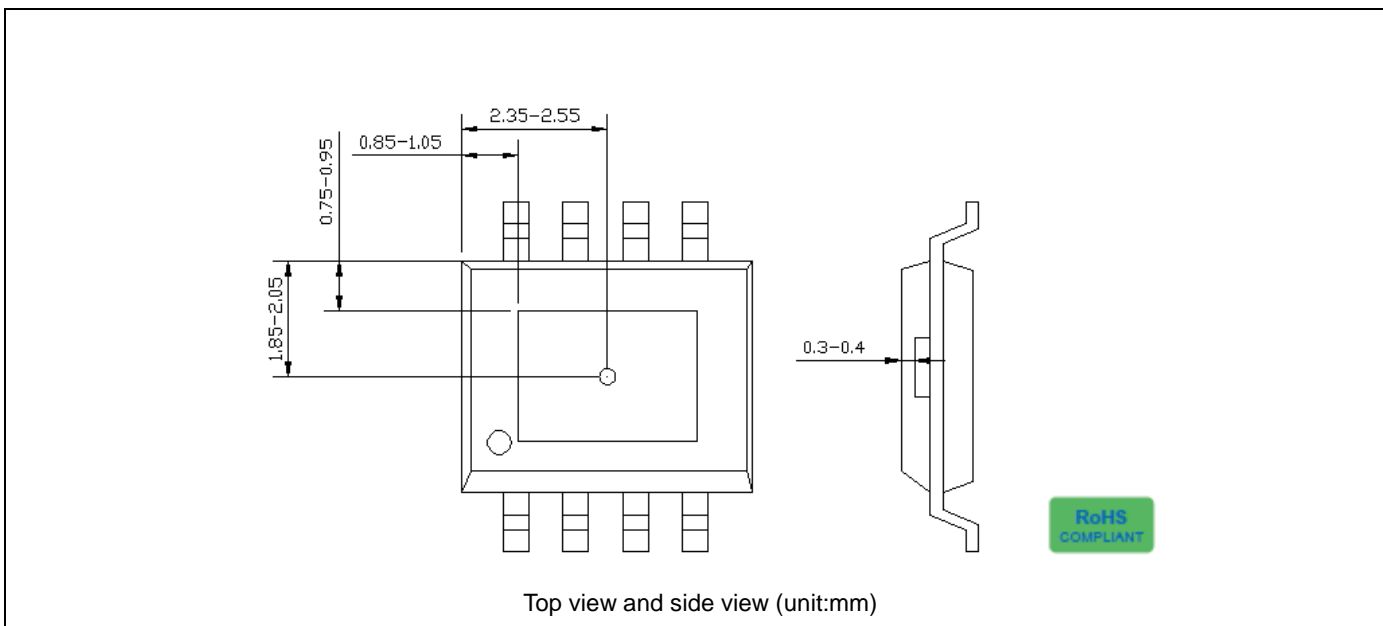
Notes:

- (1) 1 Oe (Oersted) = 1 Gauss in air = 0.1 millitesla = 79.8 A/m.
- (2) Custom resistance may be available upon request.

Package Information



TMR Sensor Position





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