



# TMR2701

High Sensitivity and Low Hysteresis TMR linear sensor

## General Description

The TMR2701 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 TMR2701 is available a 6mm X 5mm X 1.5mm SOP8 package.

## Features and Benefits

- Tunneling Magneto resistance (TMR) Technology
- High Sensitivity
- Large Dynamic Range
- Very Low Power Consumption
- Excellent Thermal Stability
- Very Low Hysteresis
- Compatible with wide Range of Supply Voltages

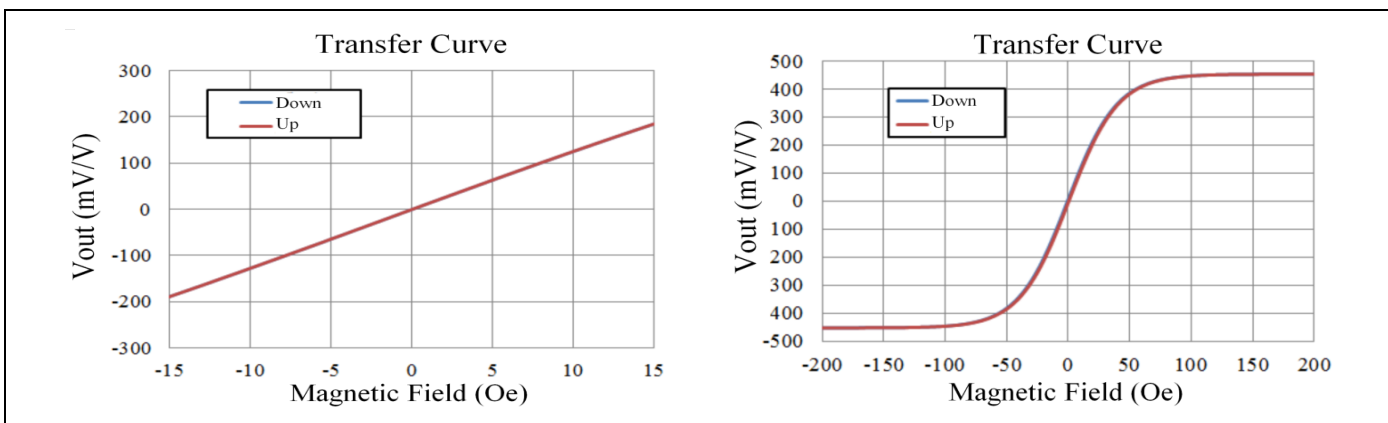
## Applications

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



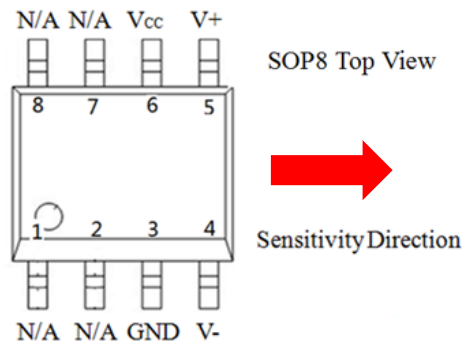
## Transfer Curve

The following figure shows the response of the TMR2701 to an applied magnetic field in the range of ±15 Oe and ±200 Oe when the TMR2701 is biased at 1V.



## Pin Configuration

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



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

## Absolute Maximum Ratings

Parameter	Symbol	Limit	Unit
Supply Voltage	V <sub>CC</sub>	7	V
Reverse Supply Voltage	V <sub>RCC</sub>	7	V
Max Exposed Field	H <sub>E</sub>	4000	Oe <sup>(1)</sup>
ESD Voltage	V <sub>ESD</sub>	4000	V
Operating Temperature	T <sub>A</sub>	-40~125	°C
Storage Temperature	T <sub>stg</sub>	-50 ~150	°C

## Specification (V<sub>CC</sub>=1.0V, T<sub>A</sub>=25°C, Differential Output)

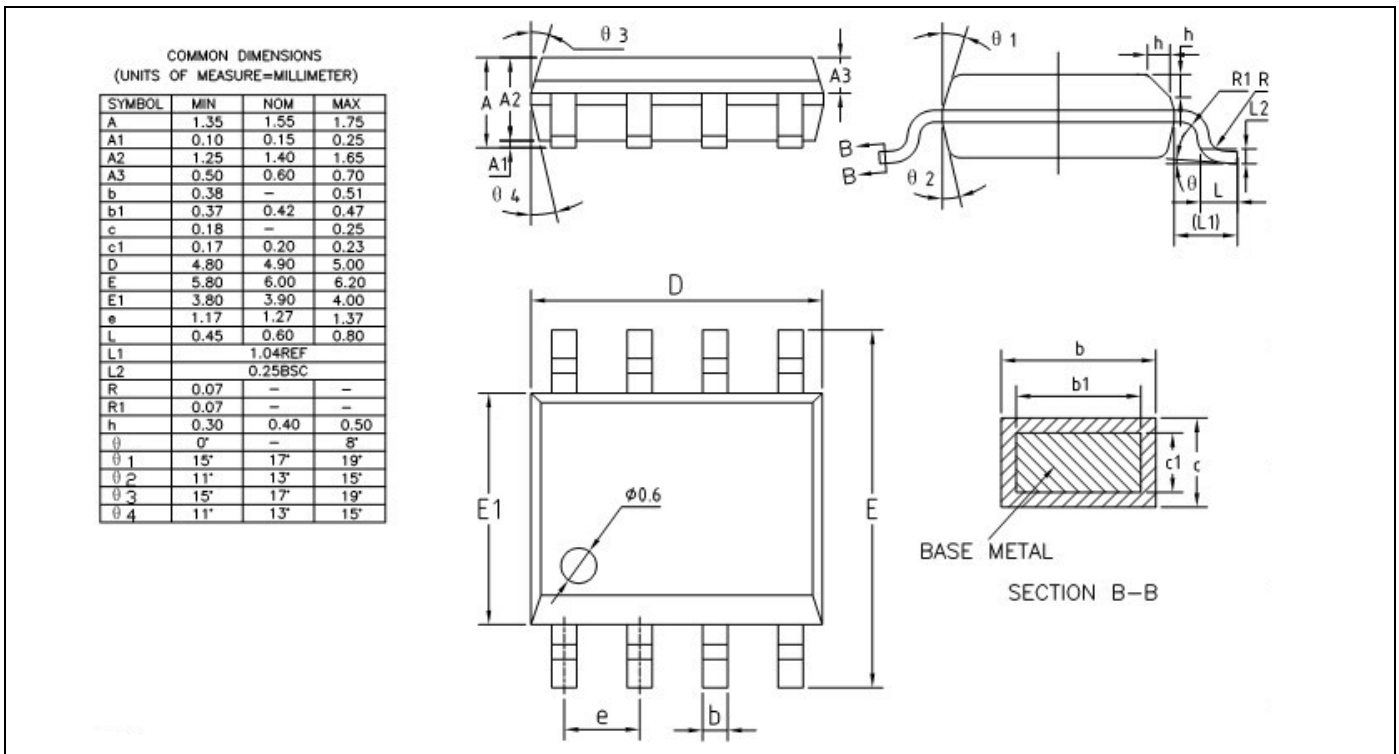
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Supply Voltage	V <sub>CC</sub>	Operating		1	7	V
Supply Current	I <sub>CC</sub>	Output Open		12.5		μA
Resistance	R			80 <sup>(2)</sup>		KOhm
Sensitivity	SEN	Fit @ ±15 Oe		12		mV/V/Oe
Saturation Field	H <sub>sat</sub>			±50		Oe
Non-Linearity	NONL	Fit @ ±15 Oe		1		%FS
Offset Voltage	V <sub>offset</sub>		-30		30	mV/V
Hysteresis	Hys	Fit @ ±15 Oe		0.3		Oe
Temperature Coefficient of Resistance	TCR	H = 0 Oe		0.01		mV/V/°C
Temperature Coefficient of Sensitivity	TCS			-1000		PPM/°C

Notes:

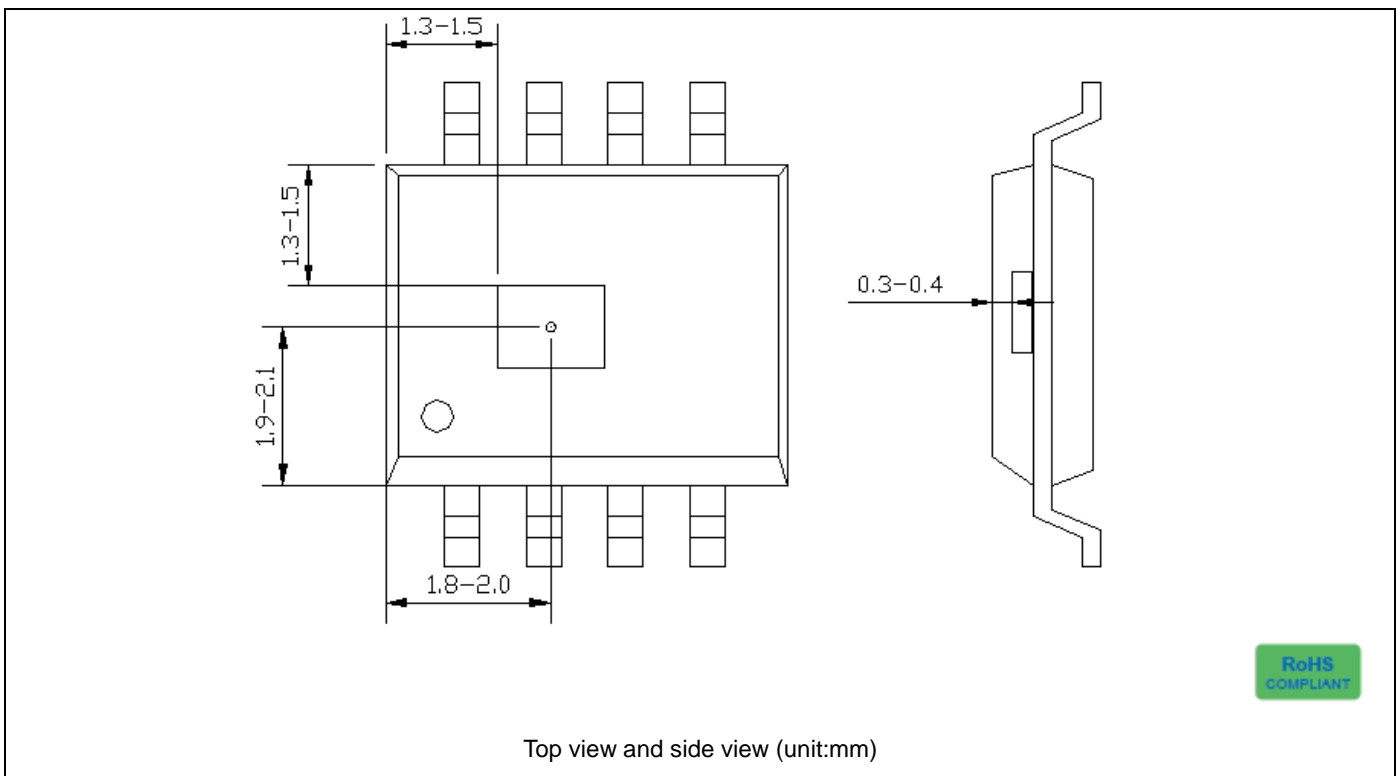
(1) 1 Oe (Oersted) = 1 Gauss in air = 0.1 millitesla = 79.8 A/m.

(2) Custom resistance may be available upon request.

### Package Information



### TMR Sensor Position





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