

## General Description

The TMR2905 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 TMR2905 is available a 6mm X 5mm X 1.5mm SOP8 package.

## Features and Benefits

- Tunneling Magneto resistance (TMR) Technology
- Ultra High Sensitivity (50~60mV/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(<2nT/sqrt(Hz)@1Hz)

## Applications

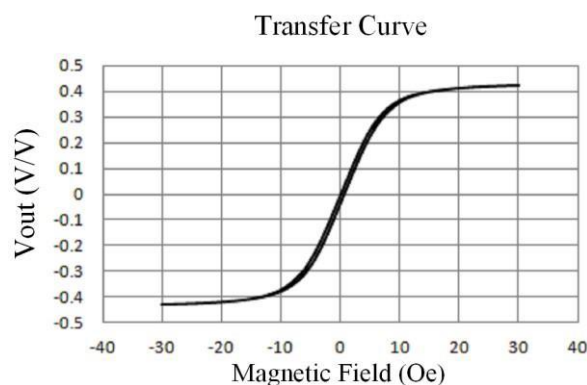
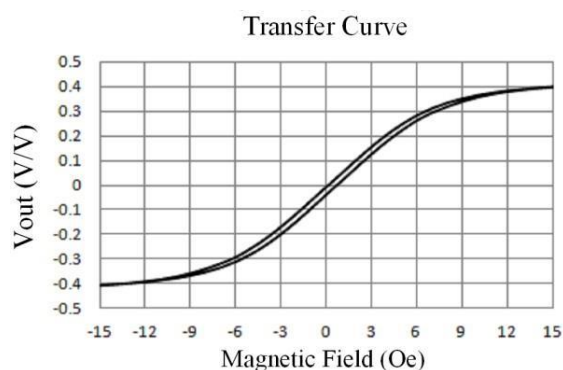
- Weak Magnetic Field Sensing
- Current Sensors
- Position and Displacement Sensing



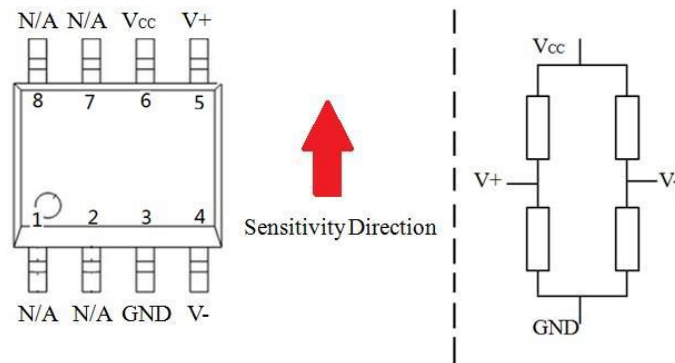
TMR2905

## Transfer Curve

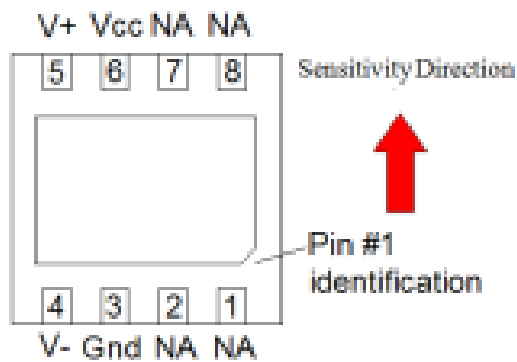
The following figure shows the response of the TMR2905 to an applied magnetic field in the range of  $\pm 15$  Oe and  $\pm 30$  Oe when the TMR2905 is biased at 1V.



# Pin Configuration



SOP8 Top View



DFN8 Bottom View

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

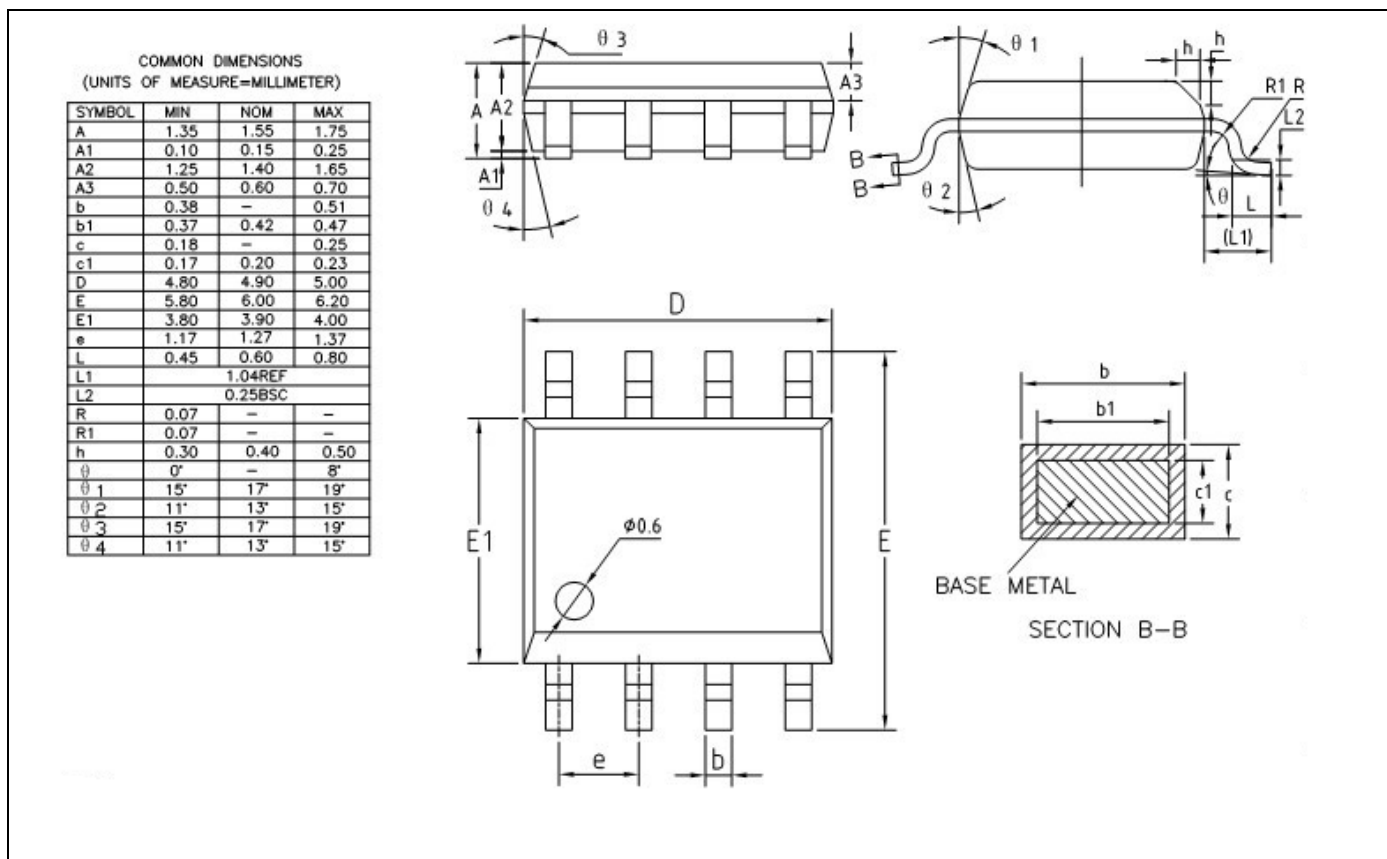
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Supply Voltage	$V_{CC}$	Operating		1	7	V
Supply Current	$I_{CC}$	Output Open		0.2		mA
Resistance	R		2	45, 5 <sup>(2)</sup>	8	KOhm
Sensitivity	SEN	Fit @ $\pm 5$ Oe	50		60	mV/V/Oe
Saturation Field	$H_{sat}$			$\pm 10$		Oe
Non-Linearity	NONL	Fit @ $\pm 5$ Oe		2		%FS
Offset Voltage	$V_{offset}$		-30		30	mV/V
Hysteresis	Hys	Fit @ $\pm 30$ Oe			1	Oe
Temperature Coefficient of Resistance	TCR	$H = 0$ Oe		-500		PPM/ $^{\circ}C$
Temperature Coefficient of Sensitivity	TCS			-1100		PPM/ $^{\circ}C$

Notes:

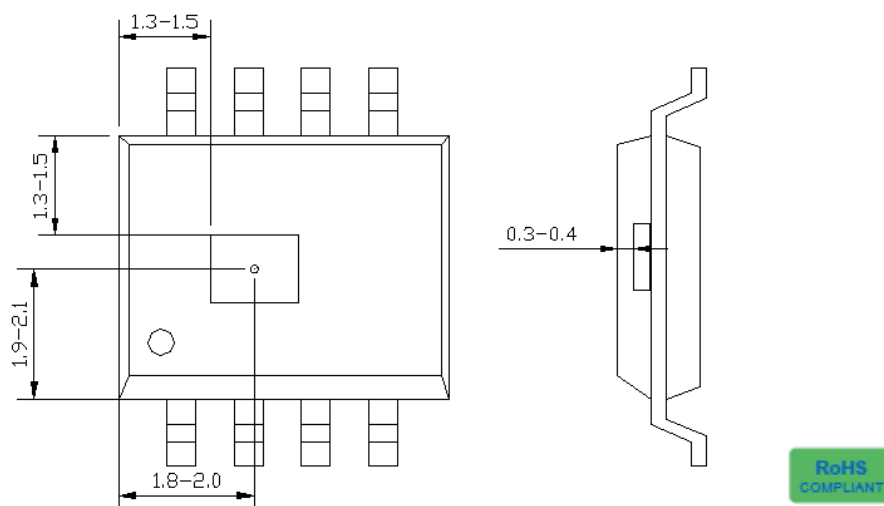
(1) 1 Oe (Oersted) = 1 Gauss in air = 0.1 millitesla = 79.8 A/m.

(2) Custom resistance may be available upon request.

## Package Information



## TMR Sensor Position



Top view and side view (unit:mm)

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