



TMR2905

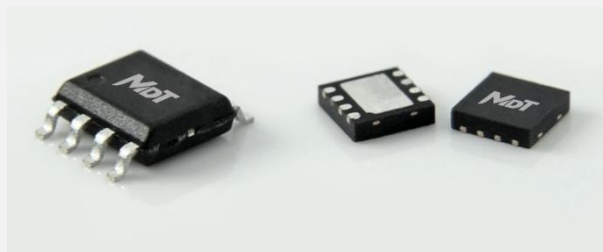
Ultra High Sensitivity TMR linear sensor

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 packaged in 6mm X 5mm X 1.5mm SOP8 named TMR2905P, and packaged in 3mmX3mmX0.75mm DFN8 named TMR2905D.**

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)



TMR2905

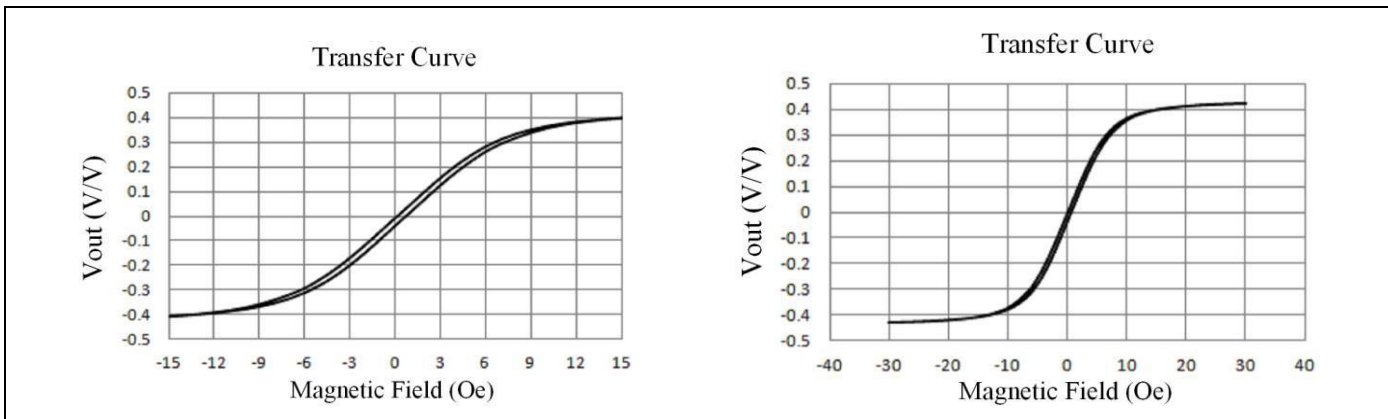
PN series	Resistance	Package
TMR2905SP	5kOhm	SOP8
TMR2905BP	45kOhm	SOP8
TMR2905SD	5kOhm	DFN8
TMR2905BD	45kOhm	DFN8

Applications

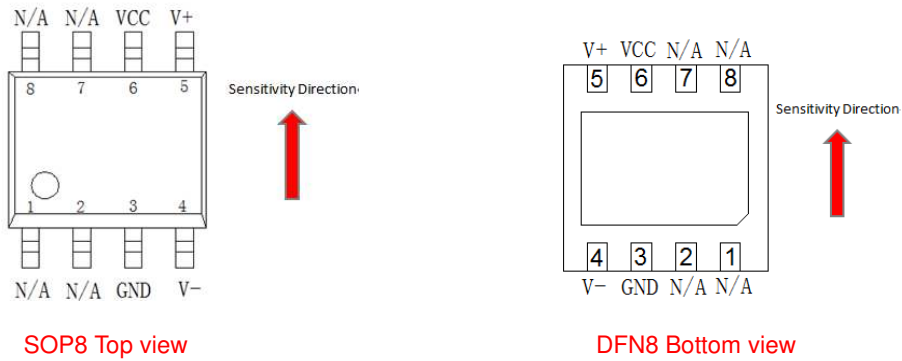
- Weak Magnetic Field Sensing
- Current Sensors
- Position and Displacement Sensing

Transfer Curve

The following figure shows the response of the TMR2905 to an applied magnetic field in the range of ±15 Oe and ±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_{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		0.2, 0.02 ⁽²⁾		mA
Resistance ⁽³⁾	TMR2905S	Between Vcc and GND	2	5	8	KOhm
	TMR2905B		35	45	55	KOhm
Sensitivity	SEN	Fit @ ± 5 Oe	45		65	mV/V/Oe
Saturation Field	H_{sat}			± 10		Oe
Non-Linearity	NONL	Fit @ ± 5 Oe		2		%FS
Offset Voltage	V_{offset}		-30		30	mV/V
Hysteresis	Hys	Fit @ ± 30 Oe			1	Oe
Temperature Coefficient of Resistance	TCR	$H = 0$ Oe		-500		PPM/°C
Temperature Coefficient of Sensitivity	TCS			-1100		PPM/°C

Notes:

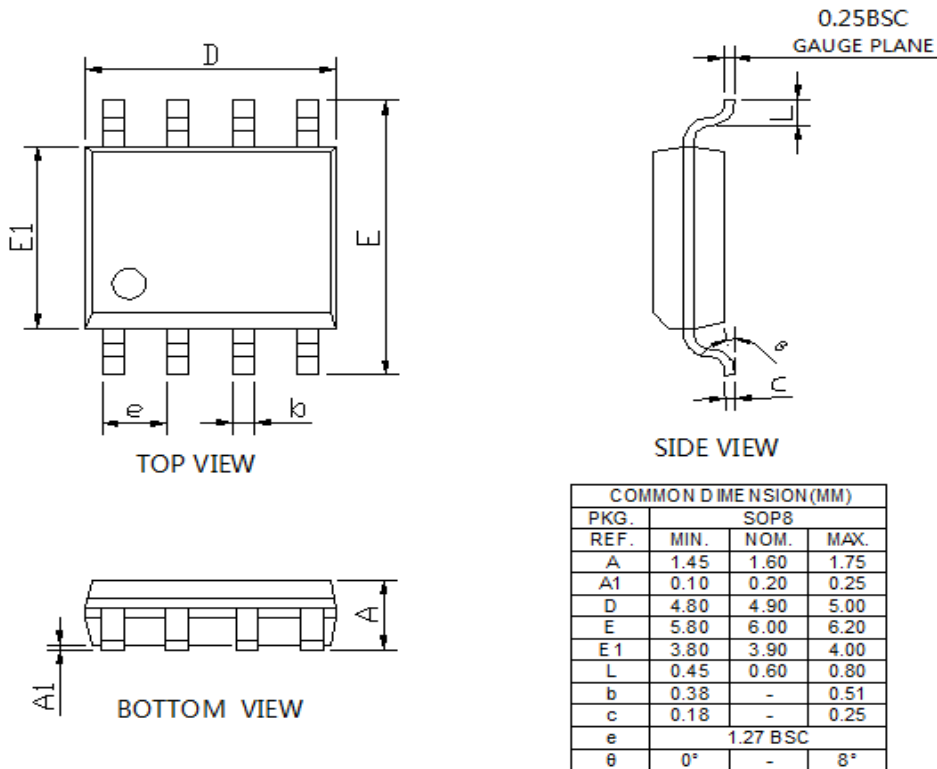
(1) 1 Oe (Oersted) = 1 Gauss in air = 0.1 millitesla = 79.8 A/m.

(2) $I_{cc} = V_{cc}/R$

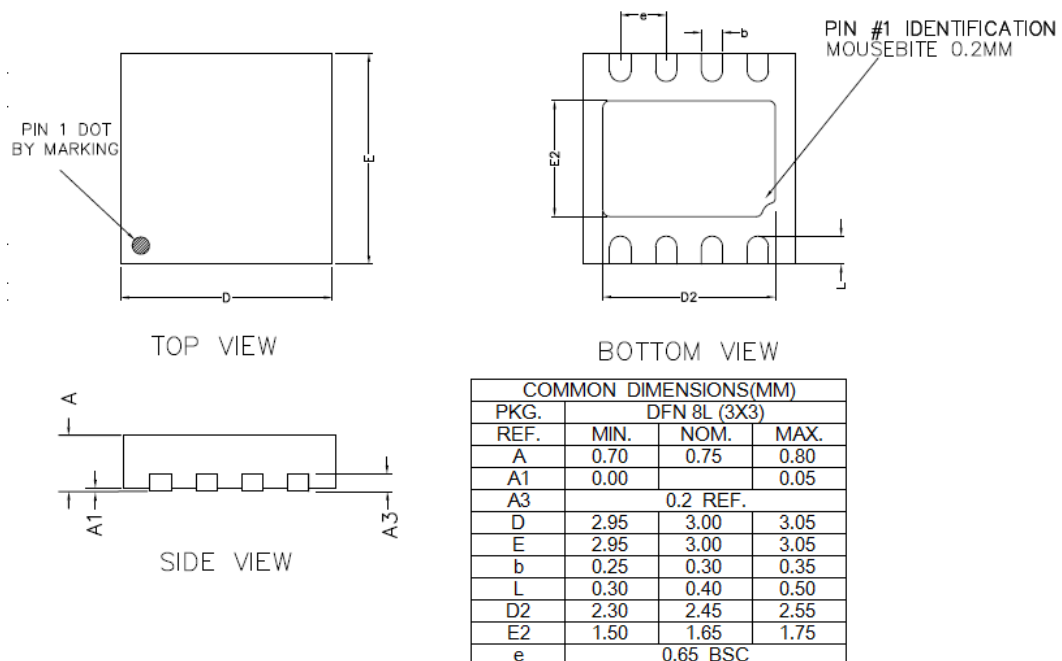
(3) 45Kohm be defined TMR2905B, 5Kohm be defined TMR2905S, Custom resistance may be available upon request.

Package Information

SOP8 封装图

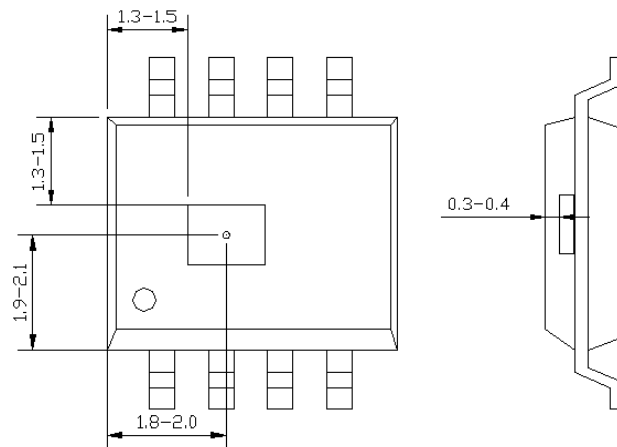


DFN8 package drawing

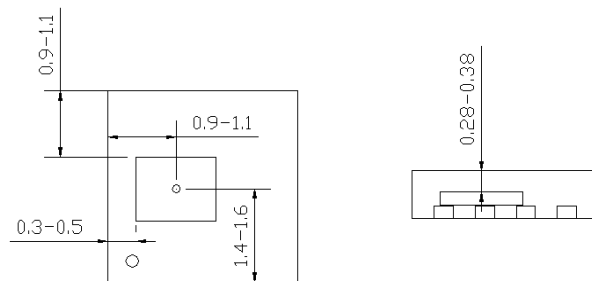


TMR Sensor Position

SOP8 package



DFN8 package



Top view and side view (unit:mm)





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