TMR2703

High Sensitivity and Low Hysteresis TMR linear sensor

General Description

The TMR2703 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 TMR2703 is available in a 3mm X 3mm X 0.75mm DFN8 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

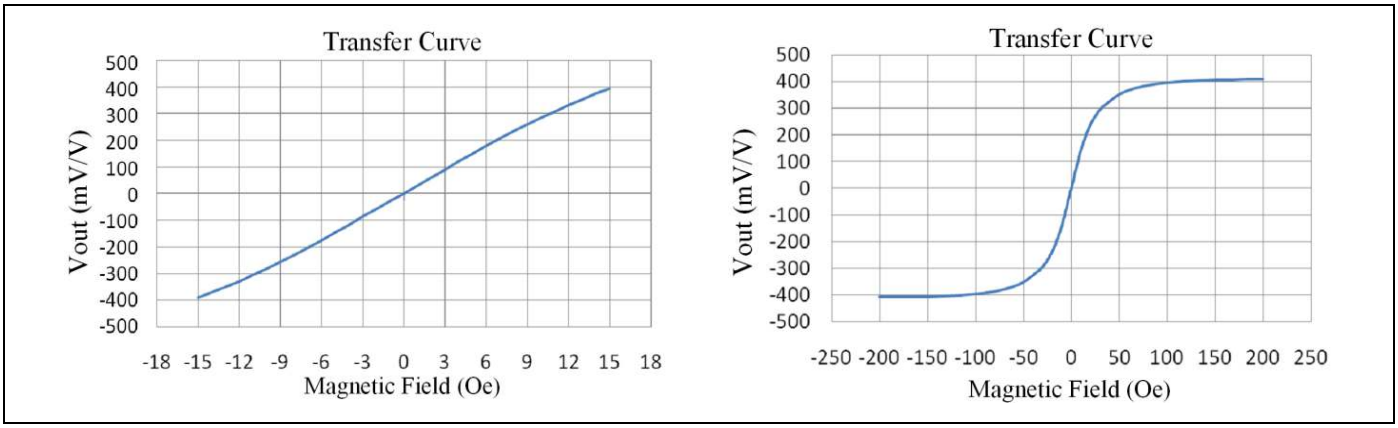
TMR2703

Applications

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

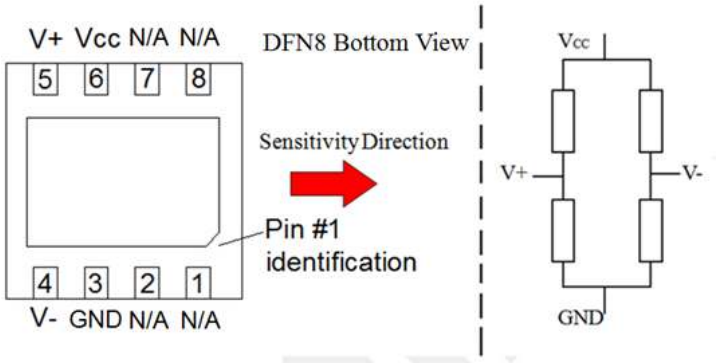
Transfer Curve

The following figure shows the response of the TMR2703 to an applied magnetic field in the range of ±15 Oe(left) and ±200 Oe(right) when the TMR2703 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_{cc}	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°C, Differential Output)

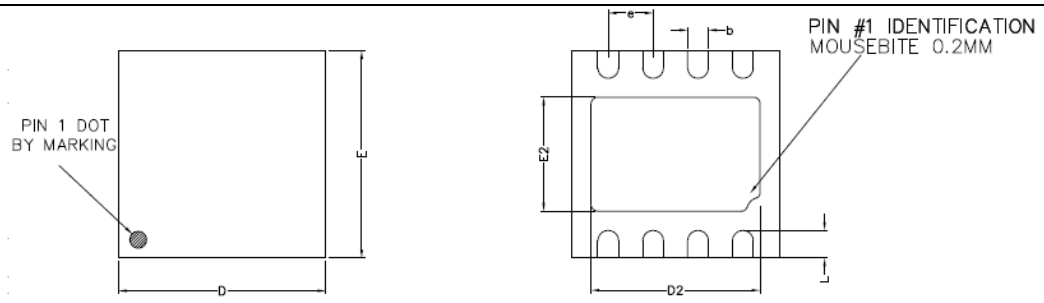
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Supply Voltage	V_{CC}	Operating		1	7	V
Supply Current	I_{CC}	Output Open		16		μA
Resistance	R			60(2)		KOhm
Sensitivity	SEN	Fit @±15 Oe		13.5		mV/V/Oe
Saturation Field	H_{sat}			±30		Oe
Non-Linearity	NONL	Fit @±15 Oe		3		%FS
Offset Voltage	V_{offset}		-20		20	mV/V
Hysteresis	Hys	Fit @±15 Oe			0.3	Oe
Temperature Coefficient of Resistance	TCR	H = 0 Oe		-600		PPM/°C
Temperature Coefficient of Sensitivity	TCS		-2		2	mV/V/G

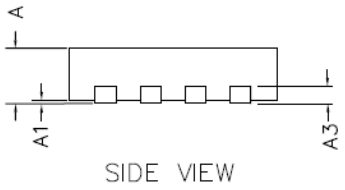
Notes:

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

(2) Custom resistance may be available upon request.

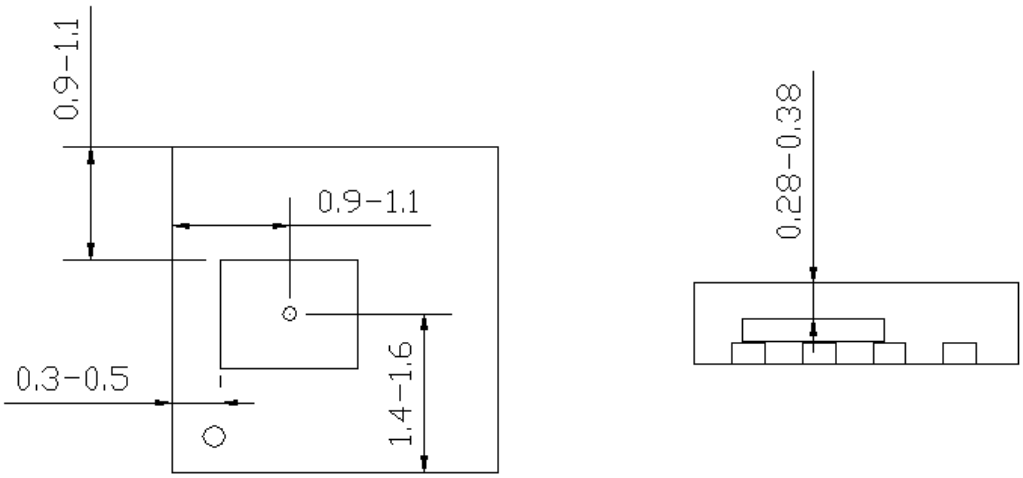
Package Information





COMMON DIMENSIONS(MM)			
PKG.	DFN 8L (3X3)		
REF.	MIN.	NOM.	MAX.
A	0.70	0.75	0.80
A1	0.00		0.05
A3	0.2 REF.		
D	2.95	3.00	3.05
E	2.95	3.00	3.05
b	0.25	0.30	0.35
L	0.30	0.40	0.50
D2	2.30	2.45	2.55
E2	1.50	1.65	1.75
e	0.65 BSC		

TMR Sensor Position



RoHS COMPLIANT

Top view and side view (unit:mm)

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