

General Description

The TMR2003 linear sensor utilizes a unique push-pull Wheatstone bridge composed of four TMR sensor elements. The TMR2003 is available in a 3 mm X 3 mm X 1.45 mm SOT23-5 package.

Features and Benefits

- Tunneling Magneto resistance (TMR) Technology
- High Sensitivity
- Low Power Consumption
- Excellent Thermal Stability
- Compatible with Wide Range of Supply Voltages
- No need for set/reset calibration

Applications

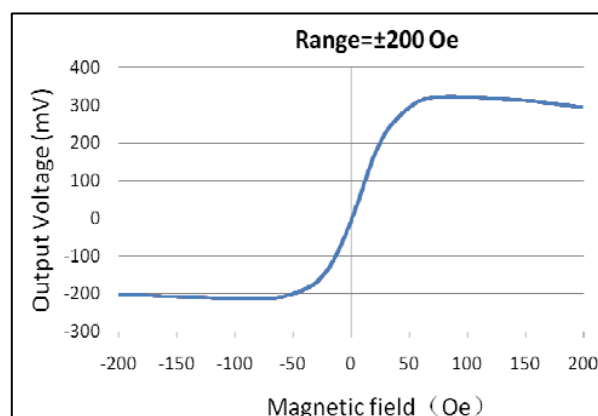
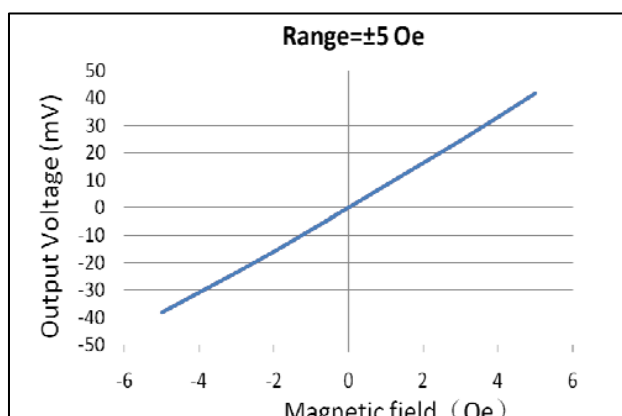
- Weak Magnetic Field Sensing
- Current Sensors
- Position and Displacement Sensing



TMR2003

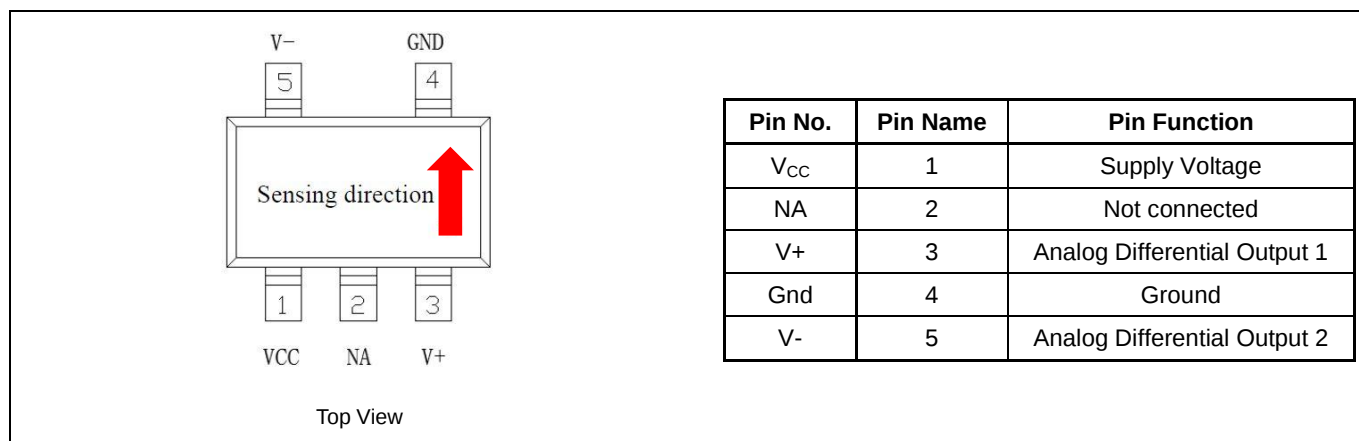
Transfer Curve

The following figure shows the response of the TMR2003 to an applied magnetic field in the range of ± 5 Oe and ± 200 Oe when the TMR2001 is biased at 1V.



Pin Configuration

(Arrow indicates direction of applied field that generates a positive output 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		18 ⁽²⁾		μA
Resistance	R			56		kOhm
Sensitivity	SEN	Fit @±5Oe		6		mV/V/Oe
Saturation Field	H _{sat}		-35		55	Oe
Non-Linearity	NONL	Fit @±5Oe		1		%FS
Offset Voltage	V _{offset}		-30		30	mV/V
Hysteresis	Hys	Fit @±5Oe		0.4		Oe
Temperature Coefficient of Resistance	TCR	H = 0 Oe		-620		PPM/°C
Temperature Coefficient of Sensitivity	TCS			-1100		PPM/°C

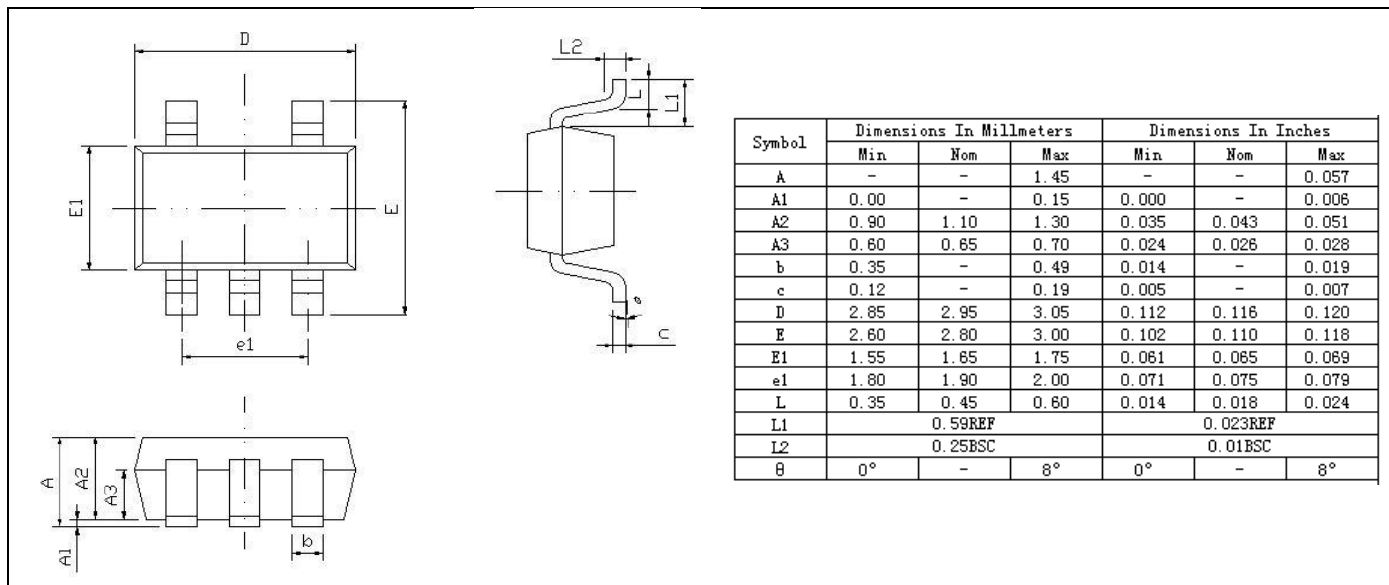
Notes:

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

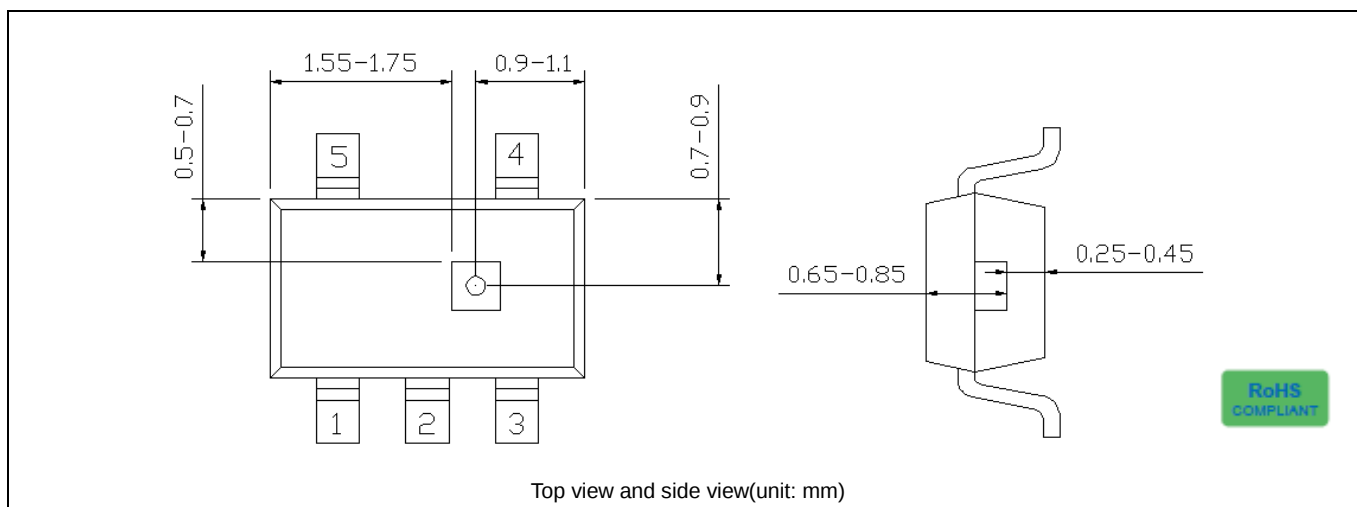
(2) Custom sensor resistance may be available upon request.

Package Information

SOT23-5L package



TMR Sensor Position





MultiDimension Technology Co., Ltd.

Address: No. 7 Guangdong Road, Zhangjiagang Free Trade Zone, Jiangsu, 215634, China

Web: www.dowaytech.com/en

Email: info@dowaytech.com

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