MULTI DIMENSION
Sensing the Future

TMR2001

TMR Linear Sensor

General Description

The TMR2001 linear sensor utilizes a unique push-pull Wheatstone bridge composed of four TMR sensor elements. The TMR2001 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



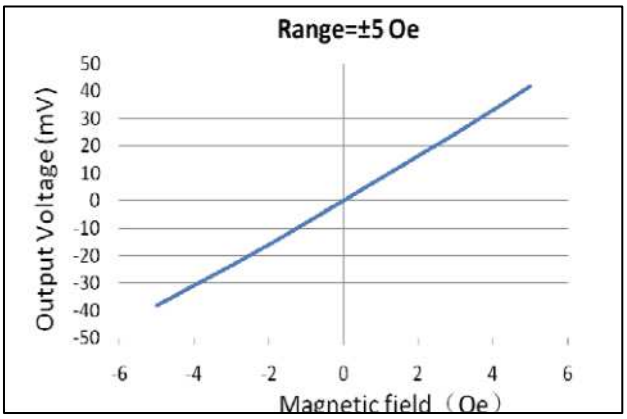
TMR2001

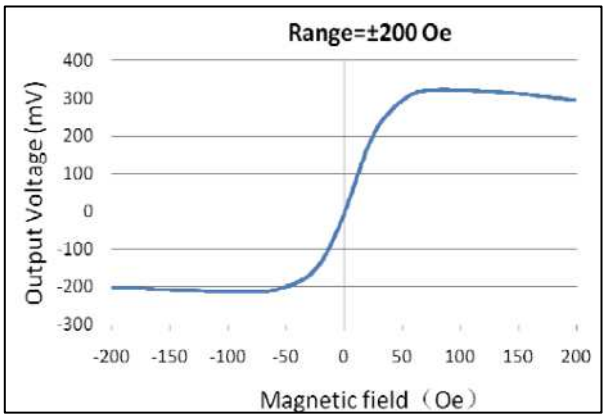
Applications

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

Transfer Curve

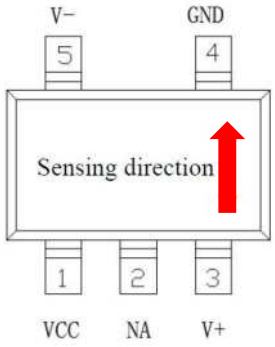
The following figure shows the response of the TMR2001 to an applied magnetic field in the range of ±5 Oe and ±200 Oe when the TMR2001 is biased at 1V.





Pin Configuration

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



Top View

Pin No.	Pin Name	Pin Function
V_{CC}	1	Supply Voltage
NA	2	Not connected
V+	3	Analog Differential Output 1
Gnd	4	Ground
V-	5	Analog Differential Output 2

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(2)		μA
Resistance	R			63		kOhm
Sensitivity	SEN	Fit @±5Oe		8		mV/V/Oe
Saturation Field	H_{sat}		-25		40	Oe
Non-Linearity	NONL	Fit @±5Oe		1.2		%FS
Offset Voltage	V_{offset}		-30		30	mV/V
Hysteresis	Hys	Fit @±5Oe		0.4		Oe
Temperature Coefficient of Resistance	TCR	H = 0 Oe		-560		PPM/°C
Temperature Coefficient of Sensitivity	TCS			-1160		PPM/°C

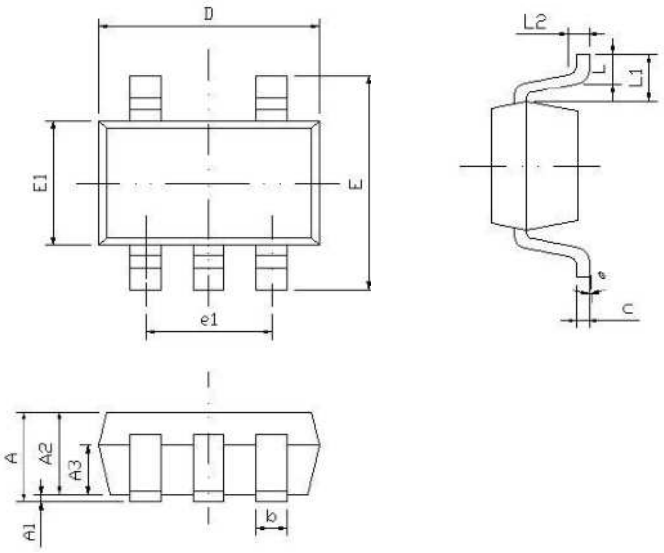
Notes:

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

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

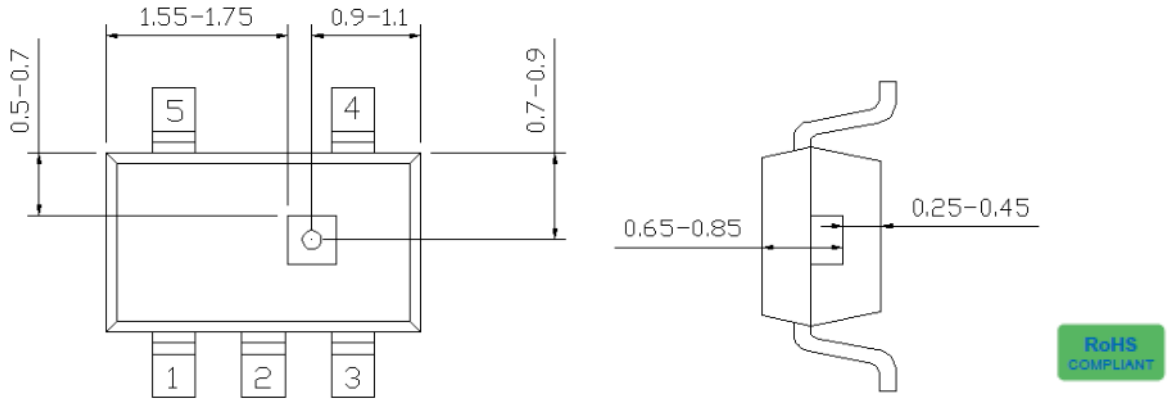
Package Information

SOT23-5L package



Symbol	Dimensions In Millmeters			Dimensions In Inches		
	Min	Nom	Max	Min	Nom	Max
A	-	-	1.45	-	-	0.057
A1	0.00	-	0.15	0.000	-	0.006
A2	0.90	1.10	1.30	0.035	0.043	0.051
A3	0.60	0.65	0.70	0.024	0.026	0.028
b	0.35	-	0.49	0.014	-	0.019
c	0.12	-	0.19	0.005	-	0.007
D	2.85	2.95	3.05	0.112	0.116	0.120
E	2.60	2.80	3.00	0.102	0.110	0.118
E1	1.55	1.65	1.75	0.061	0.065	0.069
e1	1.80	1.90	2.00	0.071	0.075	0.079
L	0.35	0.45	0.60	0.014	0.018	0.024
L1	0.59REF			0.023REF		
L2	0.25BSC			0.01BSC		
θ	0°	-	8°	0°	-	8°

TMR Sensor Position



Top view and side view(unit: mm)

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

The information provided herein by MultiDimension Technology Co., Ltd. (hereinafter MultiDimension) is believed to be accurate and reliable. Publication neither conveys nor implies any license under patent or other industrial or intellectual property rights. MultiDimension reserves the right to make changes to product specifications for the purpose of improving product quality, reliability, and functionality. MultiDimension does not assume any liability arising out of the application and use of its products. MultiDimension's customers using or selling this product for use in appliances, devices, or systems where malfunction can reasonably be expected to result in personal injury do so at their own risk and agree to fully indemnify MultiDimension for any damages resulting from such applications.