

TMR2084

TMR Linear Magnetic Sensor

Description

TMR2084 TMR linear sensor adopts a unique push-pull Wheatstone full bridge structure utilizing four TMR sensor elements. This Wheatstone full bridge provides differential voltage output with excellent temperature stability when the applied magnetic field changes parallel to the sensor's sensitive direction.

The TMR2084 is available in SOT23-5 package with P/N of TMR2084S.



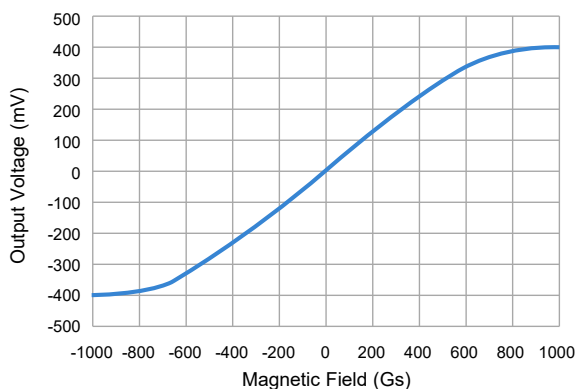
SOT23-5

Features and Benefits

- Tunneling magnetoresistance (TMR) technology
- High sensitivity
- Low non-linearity: 1.0%
- Excellent temperature stability
- RoHS and REACH compliant

Applications

- Magnetometer
- Current sensor
- Position sensor
- Rotation sensor



TMR2084 ± 1000 Gs Output Curve

Selection Guide

Part Number	Supply Voltage	Linear Dynamic Range	Sensitivity	Package	Packing Form
TMR2084S	0.5 V to 7 V	±400 Gs	0.6 mV/V/Gs	SOT23-5	Tape & Reel

Catalogue

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1. Pin Configuration

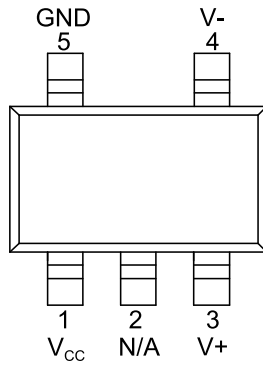


Figure 1. Pin Configuration (SOT23-5)

2. Sensing Direction

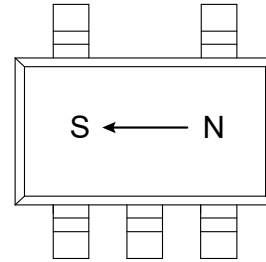


Figure 2. Sensing Direction (SOT23-5)

Pin Number	Name	Function
1	V_{CC}	Supply voltage
2	N/A	Not connected
3	$V+$	Analog differential output 1
4	$V-$	Analog differential output 2
5	GND	Ground

3. Absolute Maximum Ratings

Parameters	Symbol	Min.	Max.	Unit
Supply voltage	V_{CC}	-	7	V
Reverse supply voltage	V_{RCC}	-	7	V
External magnetic field	B	-	4000	Gs
ESD performance (HBM)	V_{ESD}	-	4000	V
Operating ambient temperature	T_A	-40	125	°C
Storage ambient temperature	T_{STG}	-50	150	°C

4. Electrical Specifications

$V_{CC} = 1.0\text{ V}$, $T_A = 25\text{ °C}$, differential output unless otherwise specified

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Supply Voltage	V_{CC}	Operating	0.5	-	7	V
Supply Current ¹⁾	I_{CC}	Open output, $V_{CC} = 1.0\text{ V}$	-	100	-	μA
Resistance ¹⁾	R_B	-	-	100	-	kΩ
Sensitivity	SEN	B in ±400 Gs	-	0.6	-	mV/V/Gs
Saturation Magnetic Field	B_{SAT}	-	-	±1000	-	Gs
Nonlinearity	NONL	B in ±400 Gs	-	1.0	-	%FS
Offset Voltage	V_{OFFSET}	-	-10	-	10	mV/V
Hysteresis	HYS	B in ±400 Gs	-	2	-	Gs
Temperature Coefficient of Resistance	TCR_B	B = 0 Gs	-	-400	-	PPM/°C
Temperature Coefficient of Sensitivity	TCS	-	-	-1000	-	PPM/°C
Temperature Coefficient of Offset Voltage	TCO	B = 0 Gs	-	0.008	-	mV/V/°C

1) $I_{CC} = V_{CC} / R_B$, and supply current changes linearly with supply voltage.

5. Dimensions

SOT23-5 Package

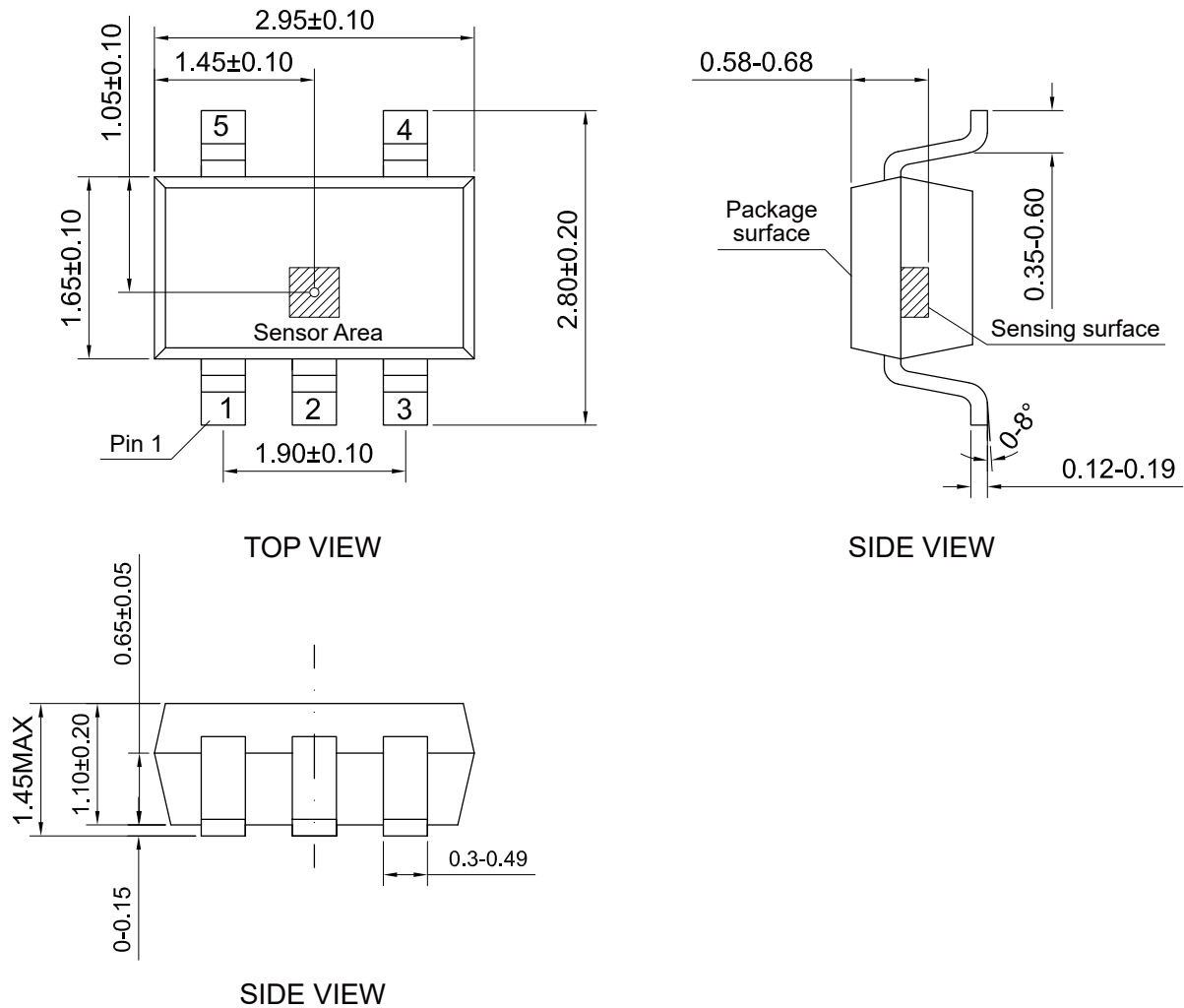


Figure 3. Package outline of SOT23-5 (unit: mm)

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