

TMR2104

General Description

Large Dynamic Range TMR linear sensor

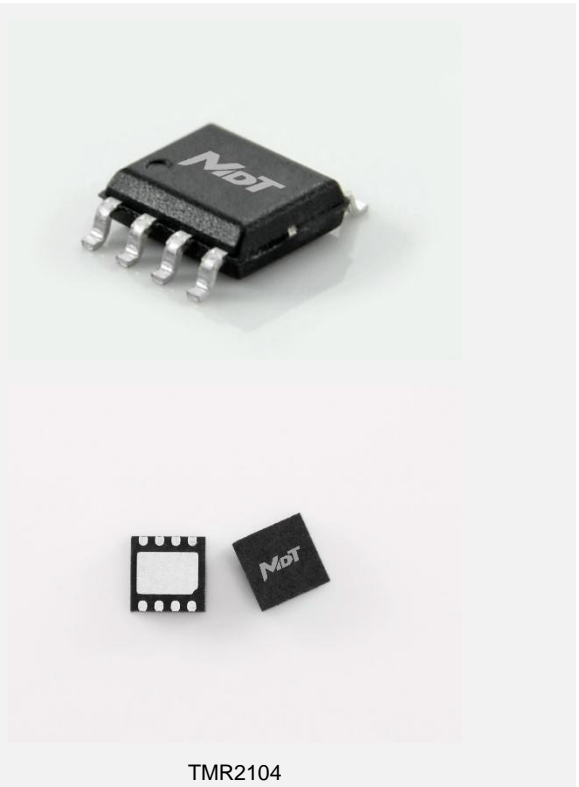
The TMR2104 linear sensor utilizes a unique push-pull Wheatstone bridge composed of four unshielded TMR sensor elements. The unique bridge design provides a high sensitivity differential output that is linearly proportional to a magnetic field applied parallel to the surface of the sensor package, and it provides superior temperature compensation of the output. The TMR2104 is available in 6 mm X 5 mm X 1.5 mm SOP8 and 3mmx3mmx0.75mm DFN8L package.

Features and Benefits

- Tunneling Magneto resistance (TMR) Technology
- High Sensitivity
- Large Dynamic Range
- Low Power Consumption
- Excellent Thermal Stability

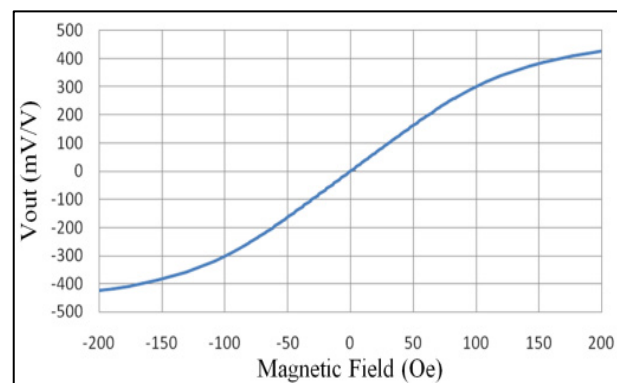
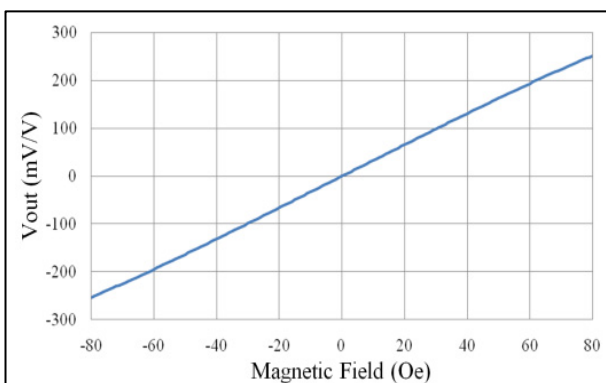
Applications

- Magnetic Field Sensing
- Current Sensors
- Displacement Sensing
- Rotary Position Sensors

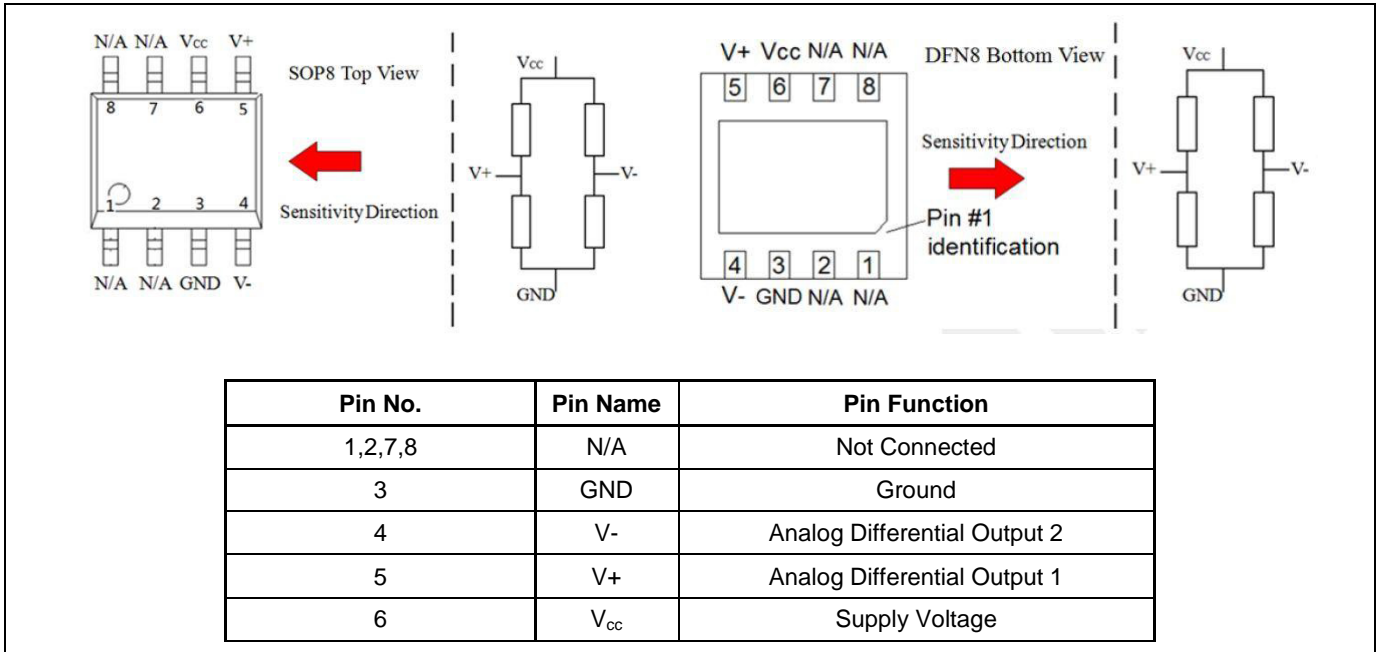


Transfer Curve

The following figure shows the response of the TMR2104 to an applied magnetic field in the range of ± 80 Oe (left) and ± 200 Oe (right) when the TMR2104 is biased at 1 V.



Pin Configuration



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)

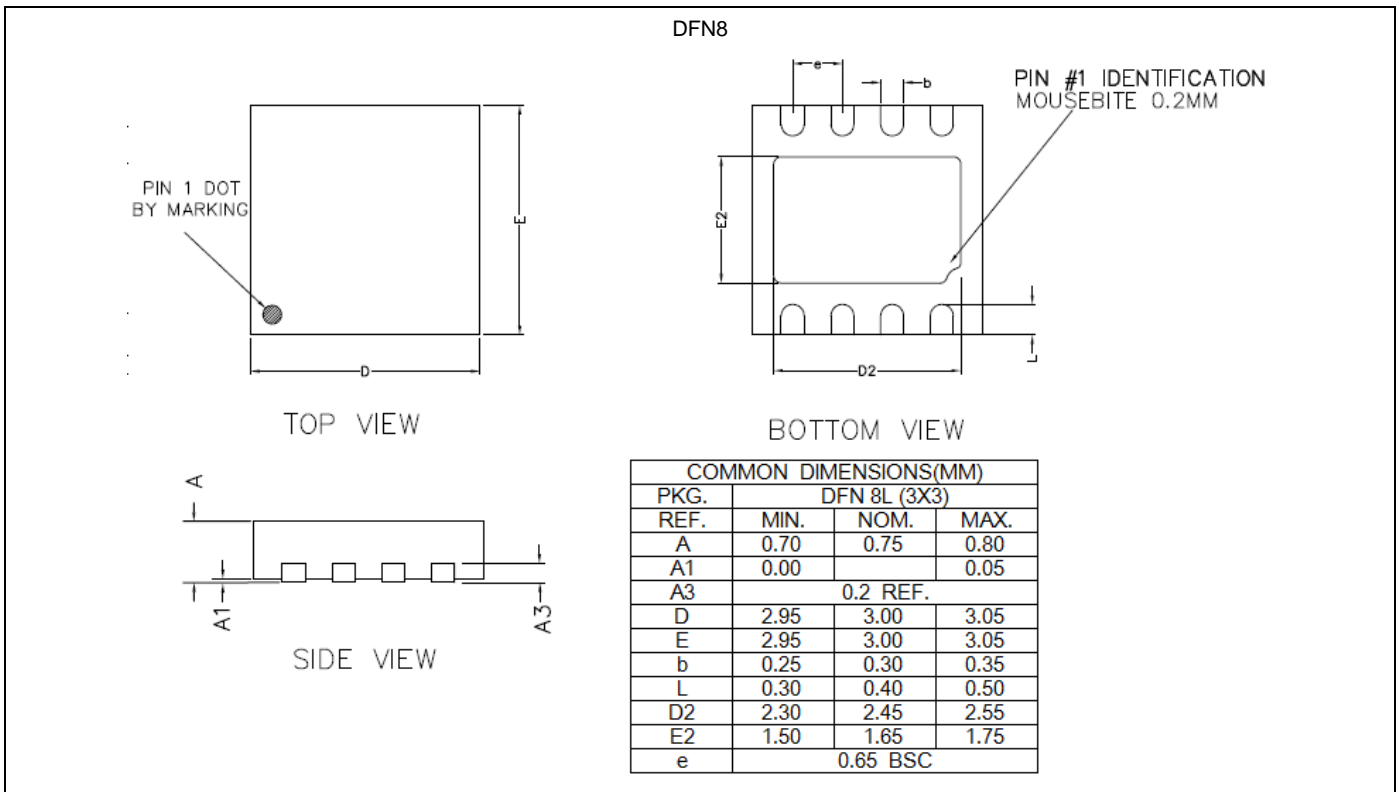
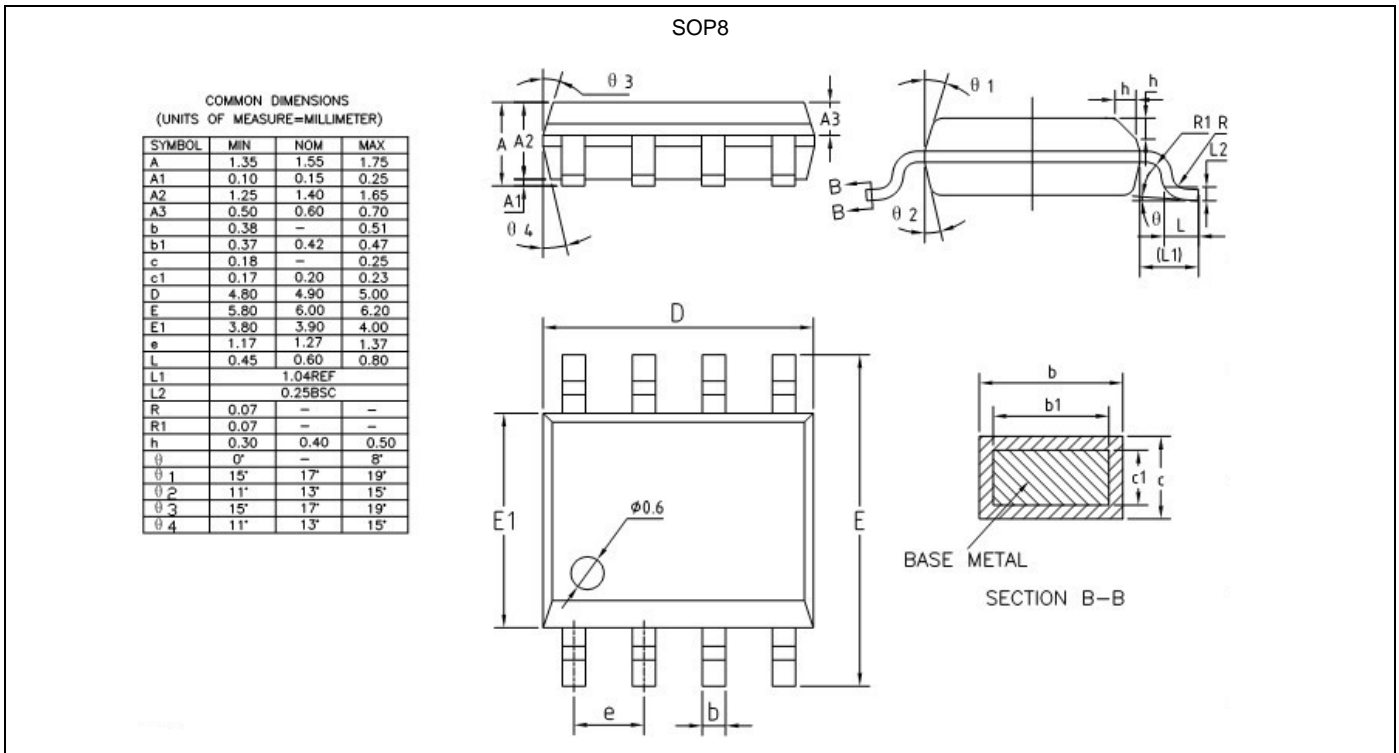
| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|---------------------------------------|---------------------|-------------|-----|-------------------|-----|---------|
| Supply Voltage | V _{CC} | Operating | | 1 | 7 | V |
| Supply Current | I _{CC} | Output Open | | 33 ⁽²⁾ | | μA |
| Resistance(SOP8) | R | | | 30 ⁽²⁾ | | KOhm |
| Sensitivity | SEN | Fit @±80Oe | | 3.1 | | mV/V/Oe |
| Saturation Field | H _{sat} | | | ± 150 | | Oe |
| Non-Linearity | NONL | Fit @±80Oe | | 1.5 | | %FS |
| Offset Voltage | V _{offset} | | -8 | | 8 | mV/V |
| Hysteresis | Hys | Fit @±80Oe | | 0.5 | | Oe |
| Temperature Coefficient of Resistance | TCR | H = 0 Oe | | -600 | | PPM/°C |
| Temperature Coefficient of Sensitive | TCS | | | -300 | | PPM/°C |

Notes:

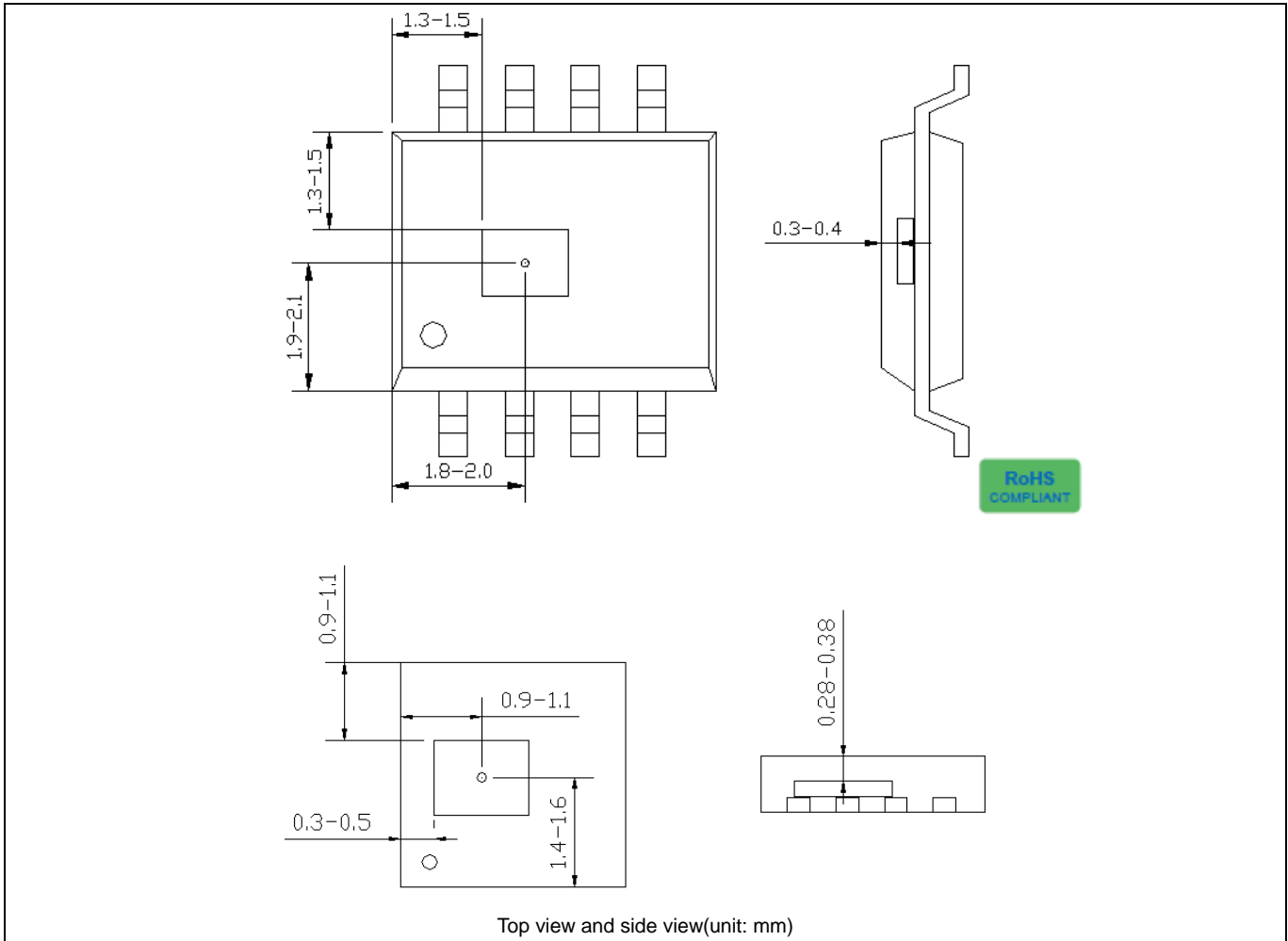
(1) 1 Oe (Oersted) = 1 Gauss in air = 0.1 millitesla = 79.8 A/m.

(2) Custom resistance may be available upon request.

Package Information



TMR Sensor Position



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