

XENSIV™ TLI5572 TMR magnetic current sensors

Cost efficient, small sized current sensor as shunt replacement for high power density applications

The TLI5572 are miniature linear magnetic sensors used as coreless current sensors for bi-directional AC and DC measurement. They provide an amplified high-speed analog output signal replacing shunts and their respective isolated or non-isolated operational amplifiers. The galvanic isolation is provided by their magnetic sensing principle and use case for external current rails. The ultra-compact SOT23-6-4 package allows space and cost savings on system level.

Our revolutionary and robust, highly linear monolithic tunnel magneto-resistance (TMR) technology enables accurate current measurement with high signal to noise ratio (SNR). With a minimal bandwidth of 2 MHz, the sensor is well-suited for SiC and GaN applications, enabling high power density in compact designs.

The sensor's external current rail design allows measurement of currents above 1 kA with high resolution and precision, ensured by minimal noise on the analog output. The TLI5572 family supports 3.3 V and 5 V supply voltage and consists of six different pre-calibrated sensitivity ranges. All sensors are shipped with pre-calibrated offset and sensitivity over temperature, thus offering good accuracy and reducing system temperature compensation. System-level offset and sensitivity calibration further enhance the sensor's already high measurement accuracy.

XENSIV™ TLI5572 current sensor directly converts the sensed magnetic field on the external current rail and amplifies it internally with high bandwidth. The single-ended output signal can be fed directly into the ADC of a microcontroller.



Key features

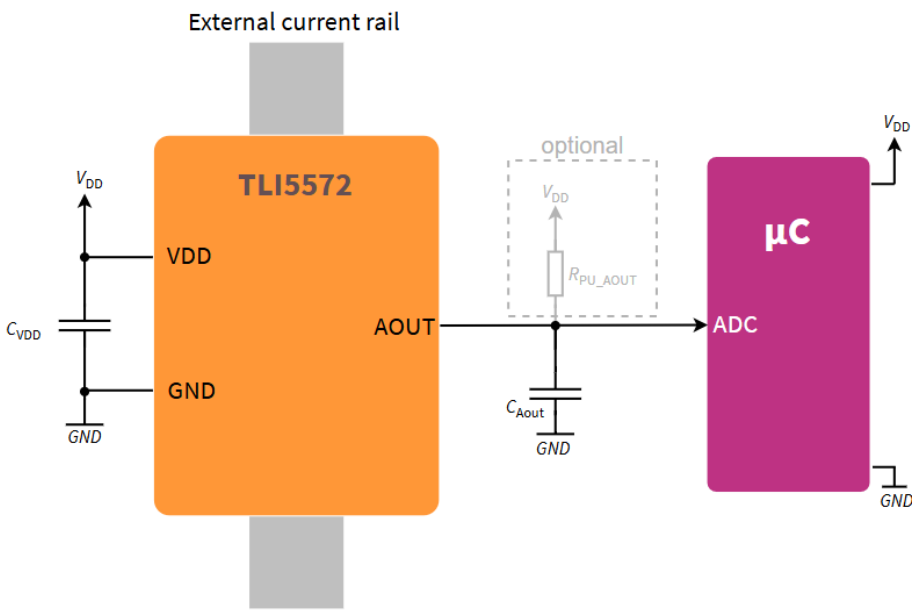
- Fully isolated measurement of current up to >1 kA
- 3.3 V and 5 V supply voltage
- >2MHz bandwidth
- Ultra-low noise analog output
- Operating range -40°C to 150°C
- Magnetic measurement ranges from ± 4 mT to ± 35 mT
- Product qualification according to JEDEC JESD47

Key benefits

- Cost-efficient TMR current sensor as shunt replacement
- Small design footprint & minimal PCB area consumption
- System level space & cost savings
- Isolated current measurement
- High ampacity of ± 1000 A
- Highly robust system design
- Great fit for SiC & GaN-based high power density applications
- Ideal in extreme operating conditions

PRODUCT BRIEF

Reference block diagram below shows the very small impact on the bill of material in the application



Product Overview

Product	Typ. accuracy	Field range @3.3V [mT]	Field range @5V [mT]	Band-width [MHz]	Typ. sensitivity [mV/V/mT]	Automotive/ Industrial	Package
TLI5572-AE24E1-E0001	3%	±25	±41 ¹⁾	2.0	53.3	Industrial	PG-SOT23-6-4
TLI5572-AE15E1-E0001	3%	±16	±25	2.0	85.5	Industrial	PG-SOT23-6-4
TLI5572-AE12E1-E0001	3%	±12	±20	2.0	107	Industrial	PG-SOT23-6-4
TLI5572-AE08E1-E0001	3%	±8	±13	2.0	172	Industrial	PG-SOT23-6-4
TLI5572-AE06E1-E0001	3%	±6	±10	2.0	214	Industrial	PG-SOT23-6-4
TLI5572-AE04E1-E0001	3%	±4	±6	2.0	340	industrial	PG-SOT23-6-4

¹⁾outside operating range

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