

XENSIV™ TLE4978

Hall current sensor

Simplify current sensing with integrated safety: ASIL-B classified, high bandwidth, highly precise for high-frequency systems in automotive & industrial applications

Our XENSIV™ TLE4978 family of highly precise coreless current sensors is designed with the hybrid Hall + coil architecture. They deliver bi-directional AC/DC measurements with simultaneous over-current and zero-crossing detection (OCD & ZCD). Developed in accordance with ISO 26262 for safety requirements rated up to ASIL-B, its high 9 MHz bandwidth offers exceptional accuracy across automotive, industrial, and telecom applications. This enables you to simplify system design and reduce component count. You can accelerate time-to-market with a single certified solution that ensures reliable power management and safety protection.

The XENSIV™ TLE4978 current sensor comes in a PG-DSO-16 300 mil, Grade 0 wide-body package to meet basic and reinforced isolation requirements. This pre-calibrated, highly accurate AC/DC current sensor features a high 9 MHz bandwidth with pre-programmed sensitivity. With exceptionally low noise (typ. 38 mARMS), minimal sensitivity error over temperature and lifetime (max. ±1.2%), and low offset error over temperature and lifetime (max. 200 mA), it sets a new standard in coreless current sensing technology.

For modifying the device settings, the OCD thresholds can be adjusted using an external resistive divider and programming.

Potential applications

DC-DC converters, On-board charging, EV charging, PV inverter, Battery charging & discharging, Servo drives, SMPS, Data center



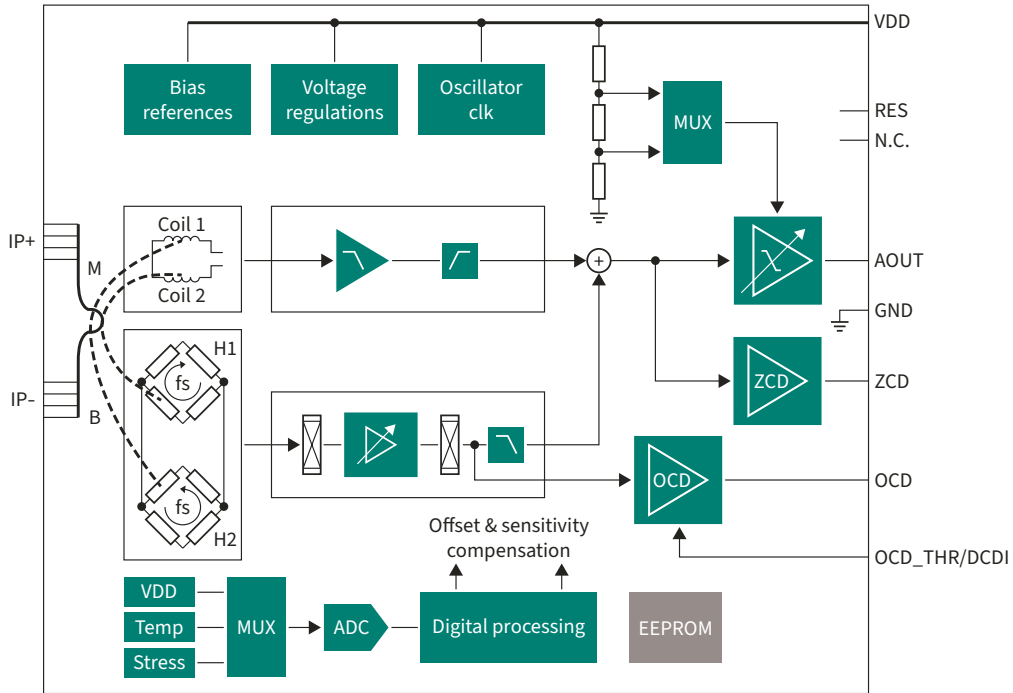
Key features – 5 V variant

- High bandwidth of 9 MHz
- Current measurement from 45 A to 67.5 A
- Supply voltage: 5 V
- Dedicated pin for the OCD & ZCD
- Operating ambient temperature: -40°C to 150°C (Grade 0)
- ASIL-B-classified
- DSO-16 300 mil package with basic isolation and reinforced isolation

Key benefits

- High versatility for different power ranges, with OCD & ZCD programming capabilities
- High bandwidth, enabling use across a wide range of applications
- Highly precise measurement over temperature and lifetime
- Exceptional low-current measurement capabilities, thanks to low noise performance
- Easy integration with pre-calibrated and pre-programmed sensitivity

Block diagram



Product table (5V variant)

Product	Supply [V]	Current range [Apeak]	Sensitivity [mV/A]	Output mode	Isolation class	Package
TLE4978-R040W5-O-S0010	5.0	45	48.75	Single-ended	Basic/Reinforced	PG-DSO-16
TLE4978-R050W5-O-S0010	5.0	56	39	Single-ended	Basic/Reinforced	PG-DSO-16
TLE4978-R060W5-O-S0010	5.0	67.5	32.5	Single-ended	Basic/Reinforced	PG-DSO-16

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