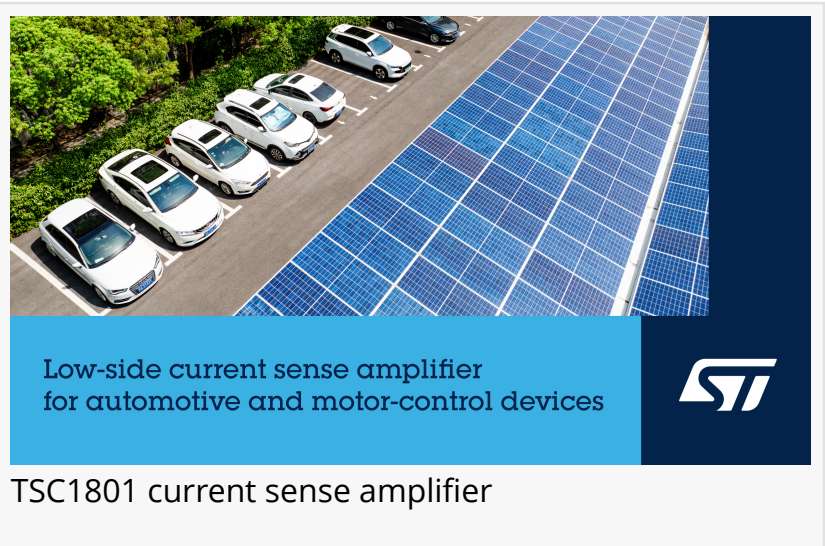


Highly integrated low-side current-measurement amplifier from STMicroelectronics simplifies high-accuracy sensing

Target segments include automotive and motor-control applications

GENEVA, SWITZERLAND, March 27, 2025 /EINPresswire.com/ -- STMicroelectronics' [TSC1801](#) low-side current-measurement amplifier integrates matched resistors to set the gain, which simplifies the circuit design, saves bill-of-materials costs, and ensures gain accuracy within 0.15% over the entire temperature range. The fixed gain also eliminates production trimming of external resistors.



Combining very high accuracy and wide bandwidth, the TSC1801 is used for motor control, solar power conditioning, high-bandwidth current sensing, and automotive power conditioning. The first gain value offered is 20V/V, with 5V/V and 50V/V models to follow.

Capable of bidirectional current sensing, the amplifier is optimized for use with precision low-value shunt (sense) resistors at low common-mode voltages. The architecture, dedicated to low-side sensing, permits tightly controlled parameters, including total output error better than 0.5% and offset voltage of $\pm 200\mu\text{V}$ (max).

The TSC1801's 2.1MHz bandwidth rating allows pulse-by-pulse current control even in very high-frequency power-management systems, translating to tangible benefits such as smoother torque adjustment for lower vibration in motor drives. The amplifier's fast response also ensures rapid over-current detection, protecting sensitive output-stage components against being damaged in the event of a fault.

The device can accommodate a wide supply voltage range (2.0V to 5.5V) with an operating

temperature range of -40°C to +125°C. Automotive versions are available, qualified and characterized according to AEC-Q100 and Q003 or equivalent, with advanced screening according to AEC Q001 and Q002 or equivalent.

In addition to its use in automotive and motor-control applications, the TSC1801 is expected to find applications in industrial, server and telecom infrastructure power conversion, power factor correction and high-accuracy signal conditioning.

The industrial-grade TSC1801BILT with fixed gain of 20V/V is in production now in a 6-lead SOT23 dual-in-line package, priced from \$0.54 for orders of 1000 pieces. The automotive-grade version will be available in Q2 2025.

For more information please visit www.st.com/low-side-current-sensing

Alexander Jurman
STMicroelectronics
Alexander.Jurman@st.com

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