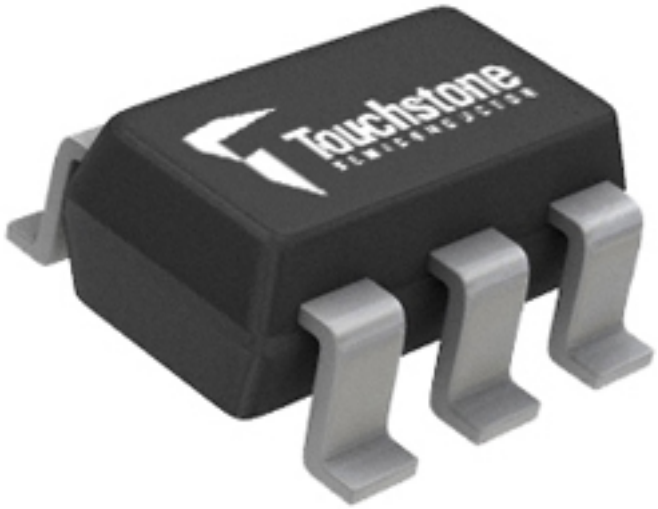
ICs offer a wide input common-mode voltage range from 2V to 25V



Touchstone Semiconductor [1] announced two new members of its 1µA current-sense amplifier portfolio – the unidirectional TS1102 [2] and the bidirectional TS1103 [3]. Starting at $0.61 each in 1,000-piece quantities, these new current-sense amplifiers combine a very low 1µA supply current, a 200-µV (max) V_{OS}, and very low (0.5% (max) gain error for TS1102 and 0.6% (max) gain error for the TS1103 for cost-sensitive applications. Both CSAs offer a wide input common-mode voltage range from 2V to 25V and each is available in four gain options: 25V/V, 50V/V, 100V/V and 200V/V.

The low input offset voltage performance exhibited by these two new CSAs enables design engineers to achieve improved accuracy and reduced current-sense resistor expense without increasing the power consumption. This makes them suitable for portable applications where form factor and cost are important. Touchstone's current-sense amplifiers are the only ICs in the market that shatter the offset/power/price performance ceiling.

The TS1102 is form-factor identical to Maxim's MAX9938 and the MAX9634 CSAs. Its 200-µV (max) V_{OS} is 60% lower than the MAX9938's input V_{OS} and 20% lower than the MAX9634's input V_{OS}. It is also pin-for-pin to the industry-standard, 100-µV (max) V_{OS} TS1100.

The TS1103 IC is a symmetrical, high-side current-sense amplifier and pin-for-pin to Touchstone's industry-standard 100-µV (max) V_{OS} TS1101 announced in March of this year. The TS1103's symmetrical architecture eliminates the load current "dead band" when switching from measuring battery discharge to measuring battery charge. This significantly simplifies customer designs while reducing power, saving

board space and improving system accuracy. The TS1103 is self-powered and provides a SIGN comparator digital output that indicates the current flow direction.

The combination of a small form factor (SOT23-5 for the TS1102 and SOT23-6 for the TS1103), low supply current operation and variety of fixed gain options make these an ideal choice for low current, high-side current-sensing amplification. This includes applications such as battery-powered and portable devices, including mobile phones, notebook computers, power management systems, motor control, load protection, current-shunt measurement and smart battery packs and chargers.

Key Specifications

· Ultra-Low Supply Current: 1µA

· Wide Input Common Mode Range: +2V to +25V

· Low Input Offset Voltage: 200µV (max)

· Low Gain Error: 0.5% (max) TS1102; 0.6% (max) TS1103

· Voltage Output

· Packaging: 5-Pin SOT23 (TS1102) and 6-Lead SOT23 (TS1103)

· Four Gain Options Available:

· TS1102-25/ TS1103-25: Gain = 25V/V

· TS1102-50/ TS1103-50: Gain = 50V/V

· TS1102-100/ TS1103-100: Gain = 100V/V

· TS1102-200/ TS1103-200: Gain = 200V/V

Pricing starts at $0.61/each for the TS1102 and $0.84/each for the TS1103 in 1,000 piece quantities. The TS1102 and TS1103 are fully specified over the extended temperature range of −40°C to +105°C. These products are in stock and ready to ship from Digi-Key [4] (www.digikey.com [5]) and Future Electronics (www.futureelectronics.com [6])

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http://www.ecnmag.com/product-releases/2012/10/ics-offer-wide-input-common-mode-voltage-range-2v-25v?qt-most_popular=0

Links:
[1] http://www.touchstonesemi.com
[2] http://www.touchstonesemi.com/products/ts1102

[3] http://www.touchstonesemi.com/products/ts1103
[4] http://www.digikey.com/Suppliers/us/touchstone.page?lang=en
[5] http://www.digikey.com
[6] http://www.futureelectronics.com