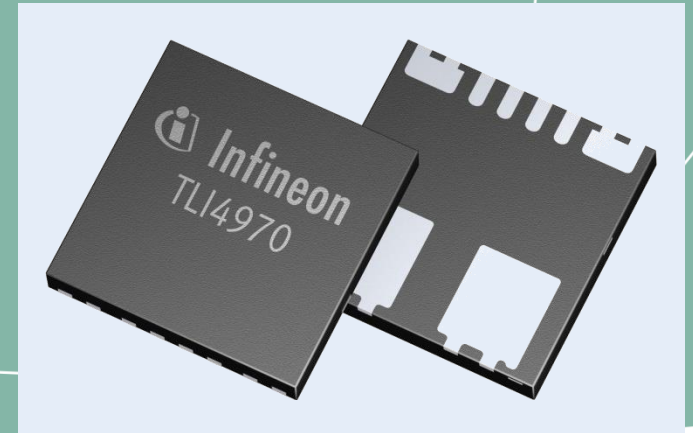


Infineon Current Sensor TLI4970-D050T4

July 2015



Infineon ATV SC



Market for current sensor applications

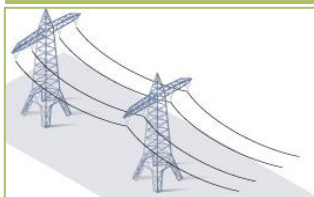
Solar Inverter



Power Supplies



Smart Grid



Lighting



Today

Many applications require current sensors.

Future

- > Need for power efficiency and effective power conversion will increase.
- > Smart Grids and Smart Metering will change the way we produce, distribute and consume energy.
- > In lighting we will see smart, controllable and more efficient lighting systems.

Infineon's highly precise current sensor TLI4970 in a nutshell



TLI4970 is ...

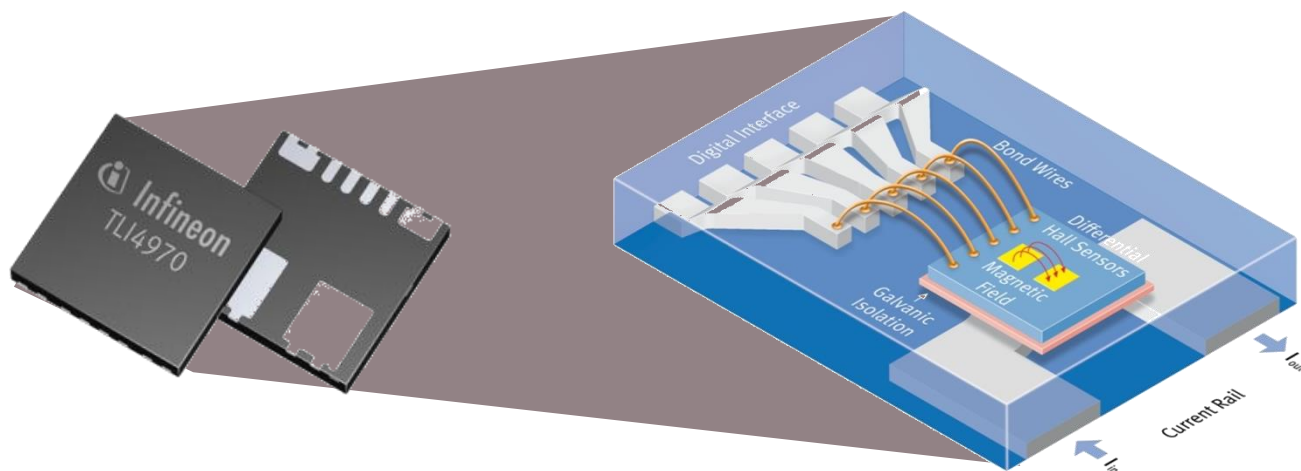
... a **high-accurate** current sensor based on Infineon's proven **Hall technology**. The **coreless concept** significantly reduces footprint compared with existing solutions.

... an easy-to-use, fully digital solution that **does not require external calibration** or additional parts such as A/D converters, OP amps or reference voltage. It thus significantly reduces overall implementation effort as well as PCB **space and cost**.

... more **accurate** than existing open-loop and comparable to closed-loop systems. It also provides functions such as **fast over current detection** and programmable filters yet has a significantly smaller footprint and **lower power consumption**.

... extremely robust against external magnetic fields thanks to implemented **stray field suppression** and is also suitable for fast over current detection at a pre-configurable level. This allows the control unit to switch off independently of the main measurement path and protect power consumers from damage.

TLI4970 – Technical key features



- › AC & DC measurement $\pm 50\text{A}$
- › Excellent accuracy:
 - › 1% accuracy (max. 1.6% over temperature and lifetime)
 - › maximum 75mA offset error over temperature and lifetime
 - › differential principle with high magnetic stray field suppression
- › Small size SMD package: only 7 x 7 x 1mm
- › Fast (typ. $1.8\mu\text{s}$) Over Current Detection (OCD), threshold configurable
- › 16-bit digital SPI interface (13bit current value)
- › Galvanic isolation up to 2.5kV max. rated isolation voltage

Small 7x7x1mm SMD package

**100 x
smaller volume**

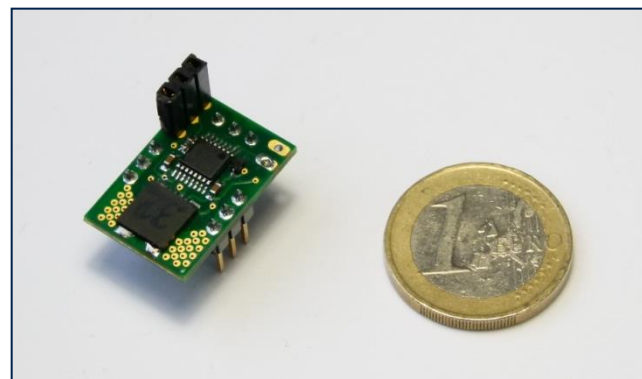
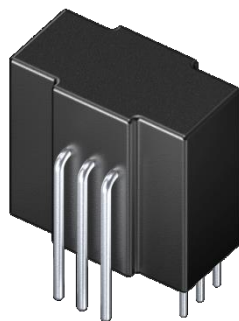
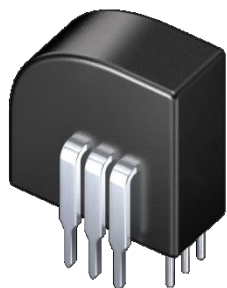
**6 x
smaller footprint**

**Compared to competitor products
with similar accuracy!**



TLI4970-Analog-Board

- PCB with analog output for fast evaluation
- Allows replacement of typical open/closed loop current sensor solutions (pin compatibility)



TLx4970 Product Family

Sales Name	Operating Range	Accuracy*	SP Number	Automotive qualified
TLI4970-D025T4	25A	±1.6%	SP001323154	No
TLI4970-D025T5	25A	±3.5%	SP001323150	No
TLI4970-D050T4	50A	±1.6%	SP000917088	No
TLI4970-D050T5	50A	±3.5%	SP001323146	No
TLE4970-D025T4	25A	±1.6%	On request	Yes
TLE4970-D050T4	50A	±1.6%	On request	Yes

* Accuracy over temperature and lifetime

Summary of TLI4970 key features



Design

- › $\pm 50\text{A}$ for AC & DC measurement – reduces bill of material: "1 fits all"
- › High accuracy
 - 1% accuracy (max. 1.6% over temperature and lifetime)
 - Maximum 75mA offset error over lifetime
 - Differential principle, high magnetic stray field suppression – no shielding required
- › Fast Over Current Detection (typ. $1.8\mu\text{s}$) – effectively allows quick shut down to protect system from over-current
- › Small size: 7x7x1mm – allows compact application designs
- › No field concentrator used – hysteresis free

Manufacturing

- › SMD package – allows easy pick and place in manufacturing
- › Integrated current rail – no end-of-line calibration needed



Part of your life. Part of tomorrow.

