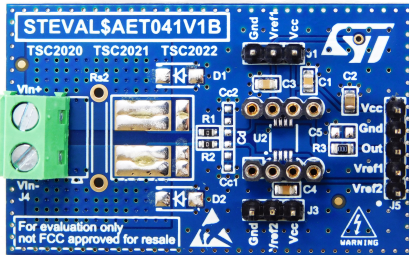


## Evaluation kit for TSC202x family, high voltage, precision current sense amplifier



### Features

- Wide common-mode voltage: -4 to 100 V
- High common-mode rejection CMR: 100 dB min.
- Offset voltage:  $\pm 150 \mu\text{V}$  max.
- Offset drift:  $0.5 \mu\text{V}/^\circ\text{C}$  max.
- Enhanced PWM rejection
- 2.7 to 5.5 V supply voltage
- Gain from 20 to 100
- Gain error: 0.3% max.
- Temperature range -40 to 125°C
- RoHS compliant

### Description

The [STEVAL-AETKT4V1](#) evaluation kit implements bidirectional current sense amplifiers. It consists of a motherboard and three different daughter boards for different gain configurations.

The STEVAL-AET041V1B is a mother board, which can accept different daughter boards to use different gain configuration.

STEVAL-AET042V1B: daughter board with a TSC2020 mounted with a gain of 20.

STEVAL-AET043V1B: daughter board with a TSC2021 mounted with a gain of 50.

STEVAL-AET044V1B: daughter board with a TSC2022 mounted with a gain of 100.

The TSC202x family is a current sense amplifier specifically designed to accurately measure current by amplifying the voltage across a shunt resistor connected to its input. It features a zero-drift topology, allowing it to achieve a high CMRR of at least 100 dB and a low input-offset voltage of 200  $\mu\text{V}$  at a common mode voltage of 12 V and over temperature.

Thanks to the use of thin film resistor, TSC202x offers an extremely precise gain and very high CMRR performance even in the high frequency range. Moreover, there is the possibility to fix the output common mode voltage allowing the TSC202x to be either used as a unidirectional or bidirectional current sensing amplifier.

TSC202x embedded a system to optimize the PWM rejection, allowing to reduce the effect of fast input common mode voltage variation on the output signal.

#### Product summary

Evaluation kit for high voltage, precision current sense amplifier	STEVAL-AETKT4V1
Low/high-side bidirectional zerodrift, high PWM rejection current sense amplifiers	TSC2020 TSC2021 TSC2022
Applications	Automotive motor control Battery management system 48 V power tools

# 1 Schematic diagrams

Figure 1. STEVAL-AET041V1B circuit schematic

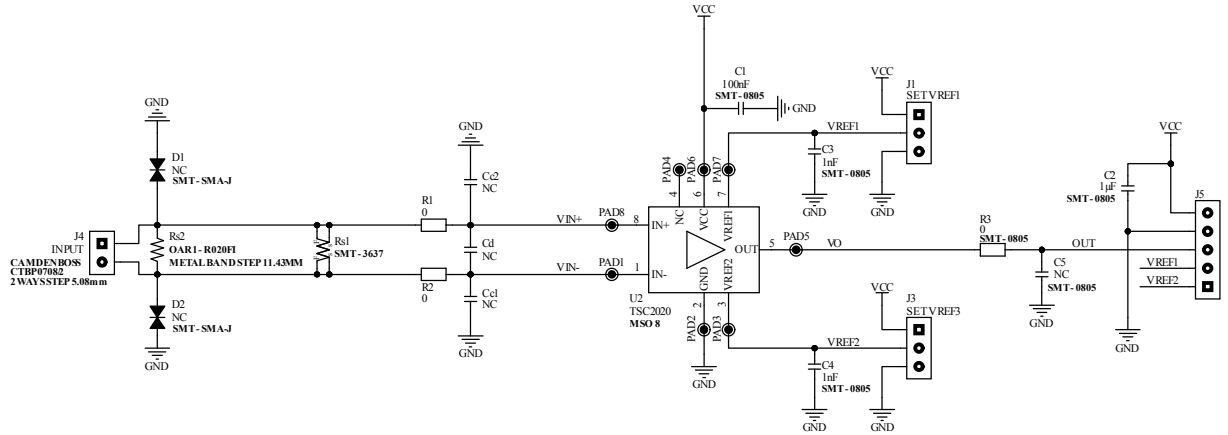


Figure 2. STEVAL-AET042V1B circuit schematic

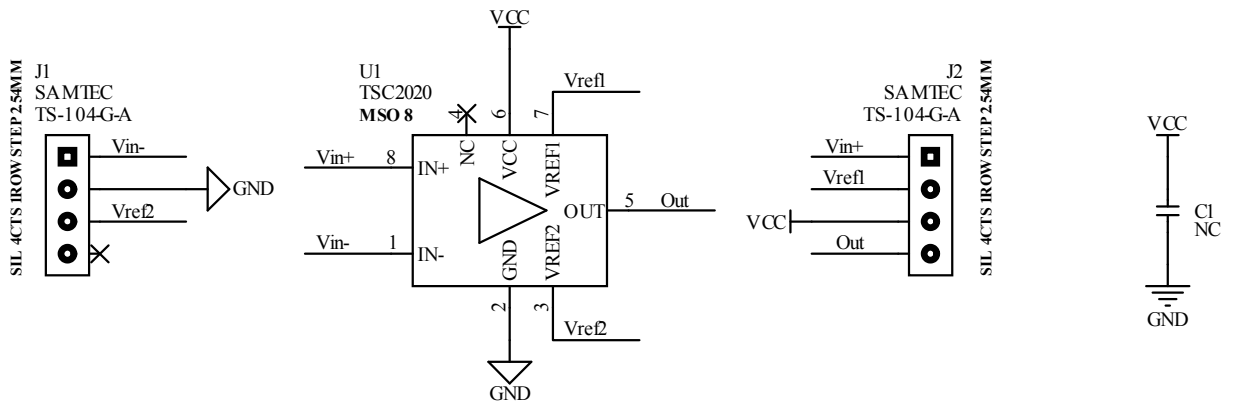


Figure 3. STEVAL-AET043V1B circuit schematic

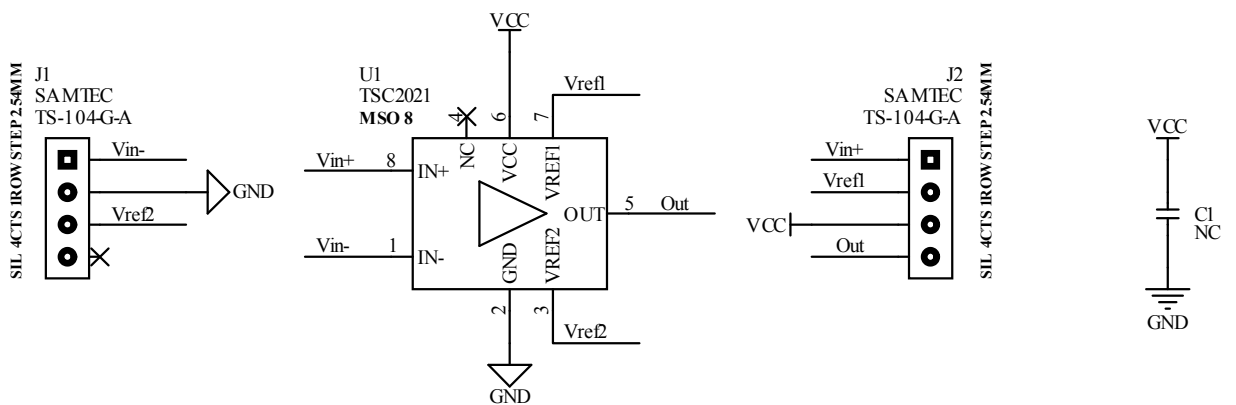
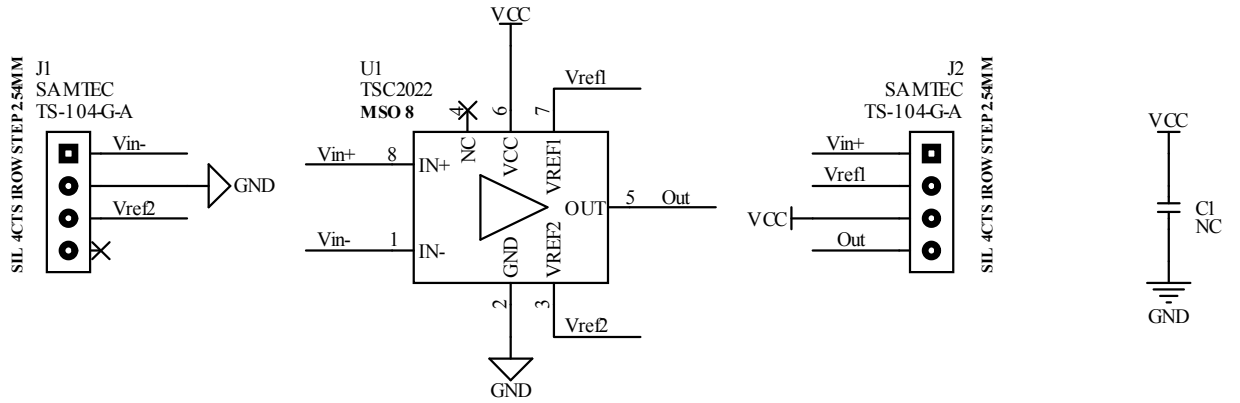


Figure 4. STEVAL-AET044V1B circuit schematic



## 2 Kit versions

**Table 1. STEVAL-AETKT4V1 versions**

Finished good	Schematic diagrams	Bill of materials
STEVAL\$AETKT4V1A <sup>(1)</sup>	STEVAL\$AETKT4V1A schematic diagrams	STEVAL\$AETKT4V1A bill of materials

- This code identifies the STEVAL-AETKT4V1 evaluation kit first version. The kit consists of a STEVAL-AET041V1B whose version is identified by the code STEVAL\$AET041V1B, a STEVAL-AET042V1B whose version is identified by the code STEVAL\$AET042V1B, a STEVAL-AET043V1B whose version is identified by the code STEVAL\$AET043V1B and a STEVAL-AET044V1B whose version is identified by the code STEVAL\$AET044V1B.*

## Revision history

Table 2. Document revision history

Date	Revision	Changes
03-Oct-2024	1	Initial release.

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