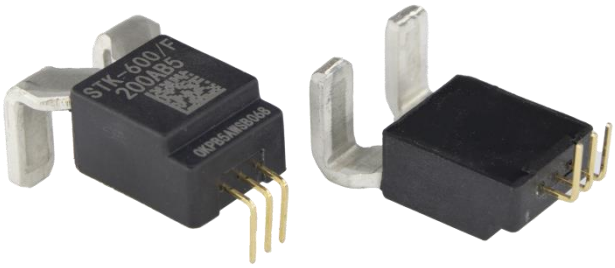
SINOMAGS
希 磁 科 技

# Current Sensor

Product Series: STK-600/F

Part number: STK-600/F-200AB5
STK-600/F-300AB5

Version: Ver 1.0

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# CONTENT

# 1. Introduction

The STK-600/F series current sensor is based on TMR (tunnel magnetoresistance) technology, and it has an open-loop design. It is suitable for DC, AC pulsed and any kind of irregular current measurement under the isolated conditions.

## Typical applications

- AC Variable speed drives
- Motor driver
- Electric welder power supply
- BMS

## General parameter

| Parameter | Symbol | Unit | Value |
|---|---|---|---|
| Working temperature | T_A | ℃ | -40 ~ 125 |
| Storage temperature | T_stg | ℃ | -40 ~ 125 |
| Mass | m | g | 4 |

## Absolute maximum rating

| Parameter | Symbol | Unit | Value |
|---|---|---|---|
| Supply voltage (not-destructive) | $V_{CC}$ | V | 6 |
| ESD rating (HBM) | $U_{ESD}$ | kV | 4 |

Remark: the unrecoverable damage may occur when the product works on the conditions over the absolute maximum ratings. Long-time working on the absolute maximum ratings may cause the degradation on performance and reliability.

## Isolation parameter

| Parameter | Symbol | Unit | Value | Comment |
|---|---|---|---|---|
| RMS voltage for AC test 50Hz/1 min | Ud | kV | 4 | |
| Clearance distance (pri. -sec) | dCl | mm | 8 | Shortest distance through air |
| Creepage distance (pri. -sec) | dCp | mm | 8 | Shortest path along device body |
| Case material | | | V0 according to UL 94 | |
| | | | | |

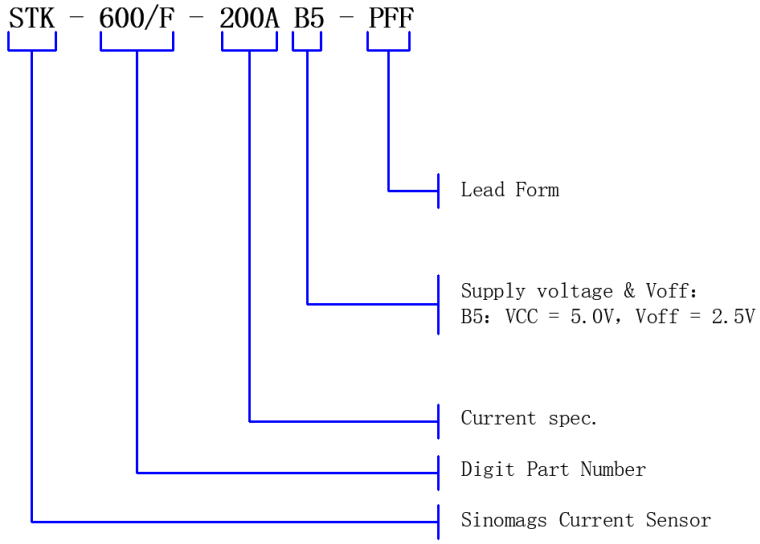
# 2. Package: 5-pin package

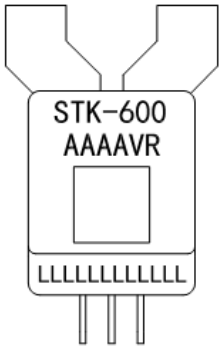
**PFF Leadform**

## 3. Features and Benefits

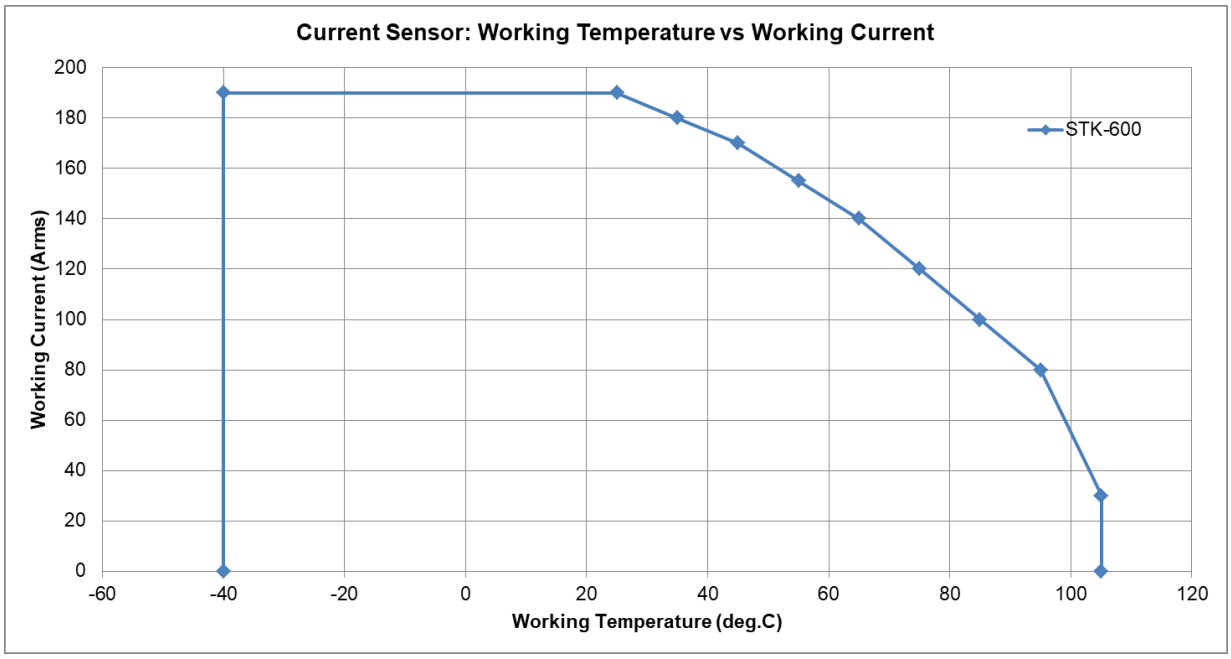
UL certified, File No. E507664.

## 4. Product Information




Production information is printed on the package surface by laser marking.



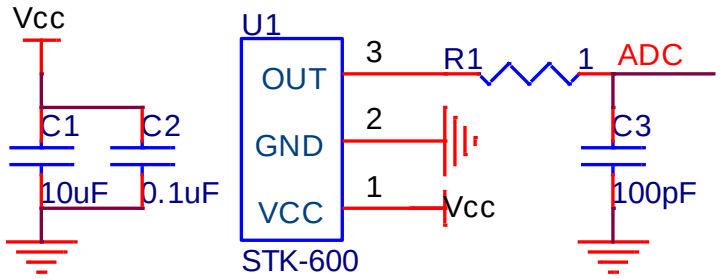

The relationship between working temperature & working current. It is suggested that the temperature of sensor not exceed 105 deg.C for better accuracy.

## 5. Electrical Data

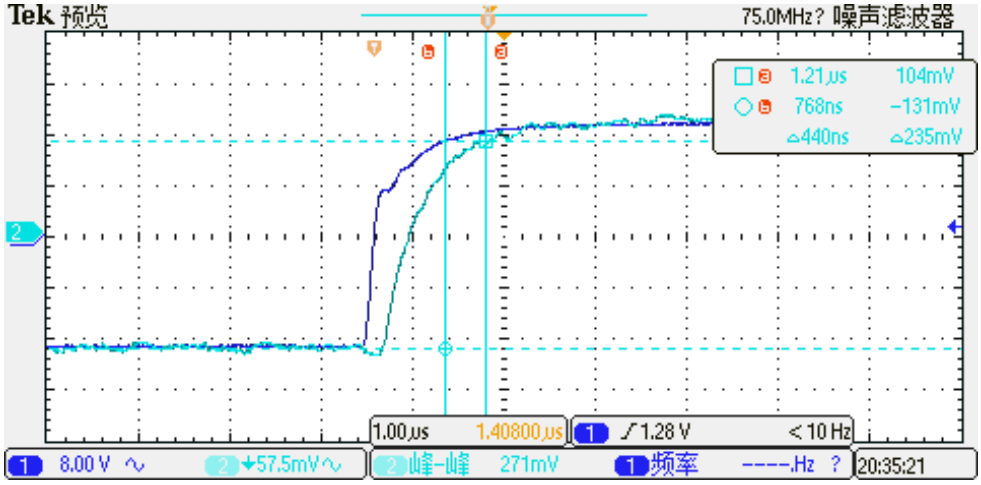
Condition: T_A = 25℃，STK-600/F/F-XXXAB5

| Parameter | Symbol | Unit | Min | Typ | Max | Comment |
|---|---|---|---|---|---|---|
| Primary nominal current | $I_{PN}$ | A | | 50 | | ALL |
| Current range (refer remark)S | $I_{PM}$ | A | -200 | | 200 | STK-600/F-200AB5 |
| | | | -300 | | 300 | STK-600/F-300AB5 |
| Sensitivity | Sens | mV/A | | 10 | | STK-600/F-200AB5 |
| | | | | 6.667 | | STK-600/F-300AB5 |
| Supply voltage | Vcc | V | | 5 ± 5% | | ALL |
| Current consumption | Icc | mA | | 6 | | ALL |
| Quiescent voltage Vout @ 0 A | Voff | V | 2.48 | 2.5 | 2.52 | ALL |
| Peak output voltage (Vout @ ±I_pm) –Voff | V_FS | V | | ± 2 | | ALL |
| Internal output resistance | R_out | Ω | | 2 | | ALL |
| Rated linearity error | $E_{LIN}$ | % $I_{PN}$ | | ± 1 | | ± $I_{PN}$ |
| Step response time @90% of $I_{PM}$ | t_res | μs | | 0.5 | | ALL |
| Frequency bandwidth (-3dB) | BW | kHz | | 800 | | ALL |
| Output voltage noise DC ~ 10 kHz DC ~ 100 kHz | Vnoise | mVpp | | 20 30 | | ALL |
| Accuracy @ 25℃ | $E_{TOT}$ | % of $I_{PM}$ | -2.4 | ±1 | 2.4 | ALL |
| Accuracy @ -40℃ ~ 85℃ | $E_{TOT}$ | % of $I_{PM}$ | -3.5 | | 3.5 | ALL |

## 6. Typical Application Circuit

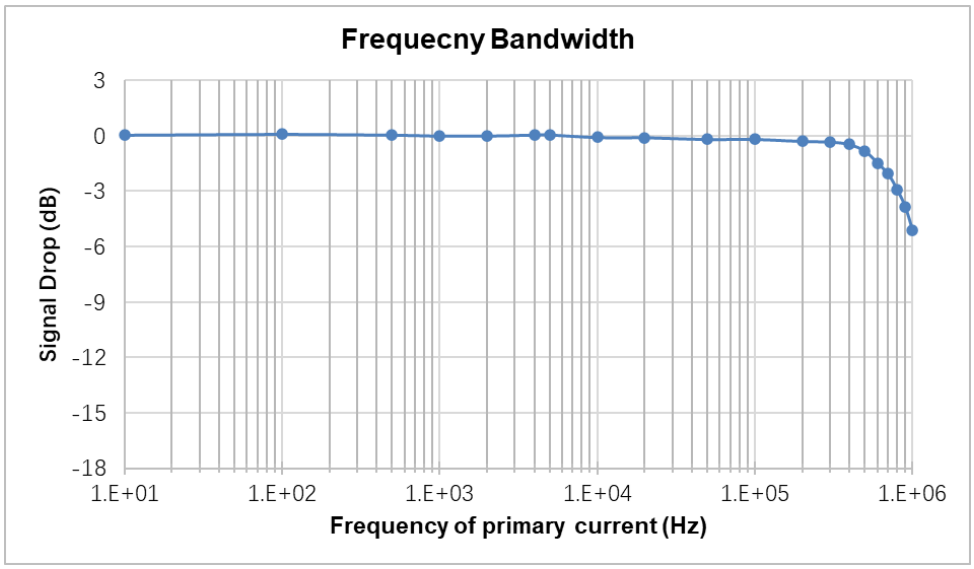



## 7. Response Time



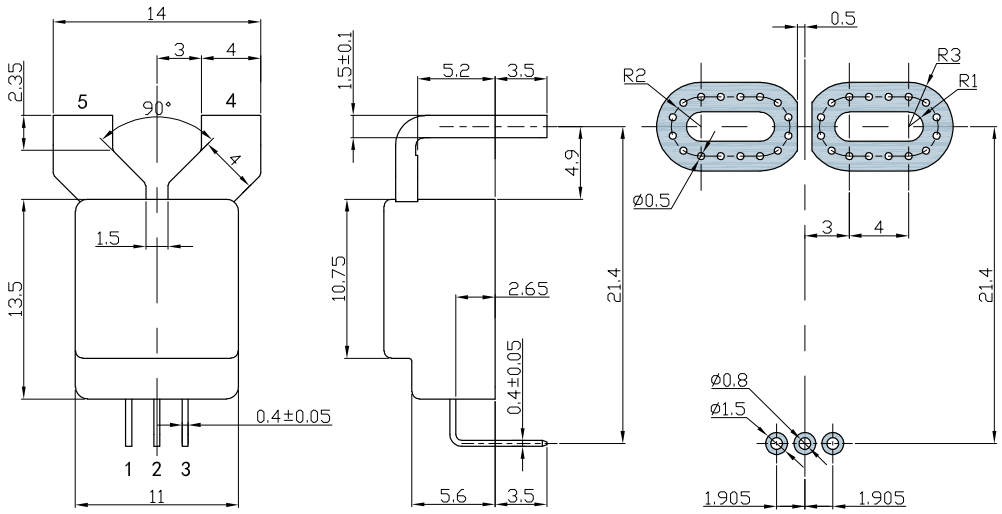

STK-600/F response time

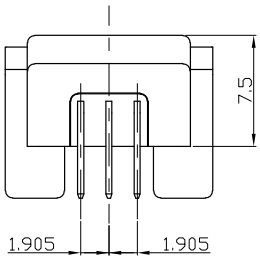
## 8. Frequency Bandwidth




STK-600/F bandwidth

## 9. Dimension & Pin Definitions




Terminals

| | |
|---|---|
| (1) | VCC |
| (2) | GND |
| (3) | VOUT |
| (4) | IP+ |
| (5) | IP- |

Material : Fit UL94V-0 & RoHS requirements ;
General tolerance : ±0.5
Unit :mm