SINOMAGS 希 磁 科 技

# CURRENT SENSOR

| | |
|---|---|
| PRODUCT SERIES： | STB-LF2 |
| PRODUCT PART NUMBER： | STB-200LF2-D<br>STB-200LF2-DG3<br>STB-300LF2<br>STB-300LF2-LG3<br>STB-300LF2-LA4 |
| VERSION： | Ver 2.2 |

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# 1. Description

STB-LF2 series current sensors are based on close loop principle. The sensor can detect the current with DC, AC, pulse and irregular wave shape with current output.

## Typical application

- Windmill inverters
- Test and measurement
- UPS
- AC variable speed and servo motor drives
- Switched model power supplies (SMPS)

## General parameters

| Parameter | Symbol | Unit | Value |
|---|---|---|---|
| Sensor operating temperature | $T_A$ | ˚C | STB-200LF2-D :-40 ~ 85<br>STB-200LF2-DG3 :-40 ~ 85<br>STB-300LF2 :-40 ~ 70<br>STB-300LF2-LG3 :-40 ~ 70<br>STB-300LF2-LA4 :-40 ~ 70 |
| Storage temperature | $T_S$ | ˚C | STB-200LF2-D :-40 ~ 90<br>STB-200LF2-DG3 :-40 ~ 90<br>STB-300LF2 :-40 ~ 85<br>STB-300LF2-LG3 :-40 ~ 85<br>STB-300LF2-LA4 :-40 ~ 85 |
| Mass | m | g | 130 |
| Supply voltage (-40˚C…105˚C) | $V_{CC}$ | V | ±15 |

## Absolute parameters

| Parameters | Symbol | Unit | Value |
|---|---|---|---|
| Maximum supply voltage (-40˚C…105˚C) | $Vcc_{max}$ | V | ±16 |
| Maximum primary conductor temperature | $T_{B_{max}}$ | ˚C | 100 |

## Ratings

| Parameter | Unit | Value |
|---|---|---|
| Primary involved potential | V AC/DC | 1500 |
| Maximum surrounding air temperature | ˚C | 70 |
| Primary current | A | 0…600 |

## Isolation parameters

| Parameter | Symbol | Unit | Value | Remark |
|---|---|---|---|---|
| RMS voltage for AC test 50Hz/1 min | $U_d$ | kV | 5 | |
| Impulse withstand voltage 1.2/50μs | $U_W$ | kV | 5 | |
| Clearance distance (pri. -sec) | dCl | mm | 10.2 | Shortest distance through air |
| Creepage distance (pri. -sec) | dCp | mm | 11 | Shortest path along device body |
| Case material | - | - | V0 | According to UL 94 |
| Comparative tracking index | CTI | | 600 | |

## 2. STB-200LF2-D & STB-200LF2-DG3 Electrical parameters

Condition: $V_{CC}$ = ±15V, $T_A$= 25℃ unless specified

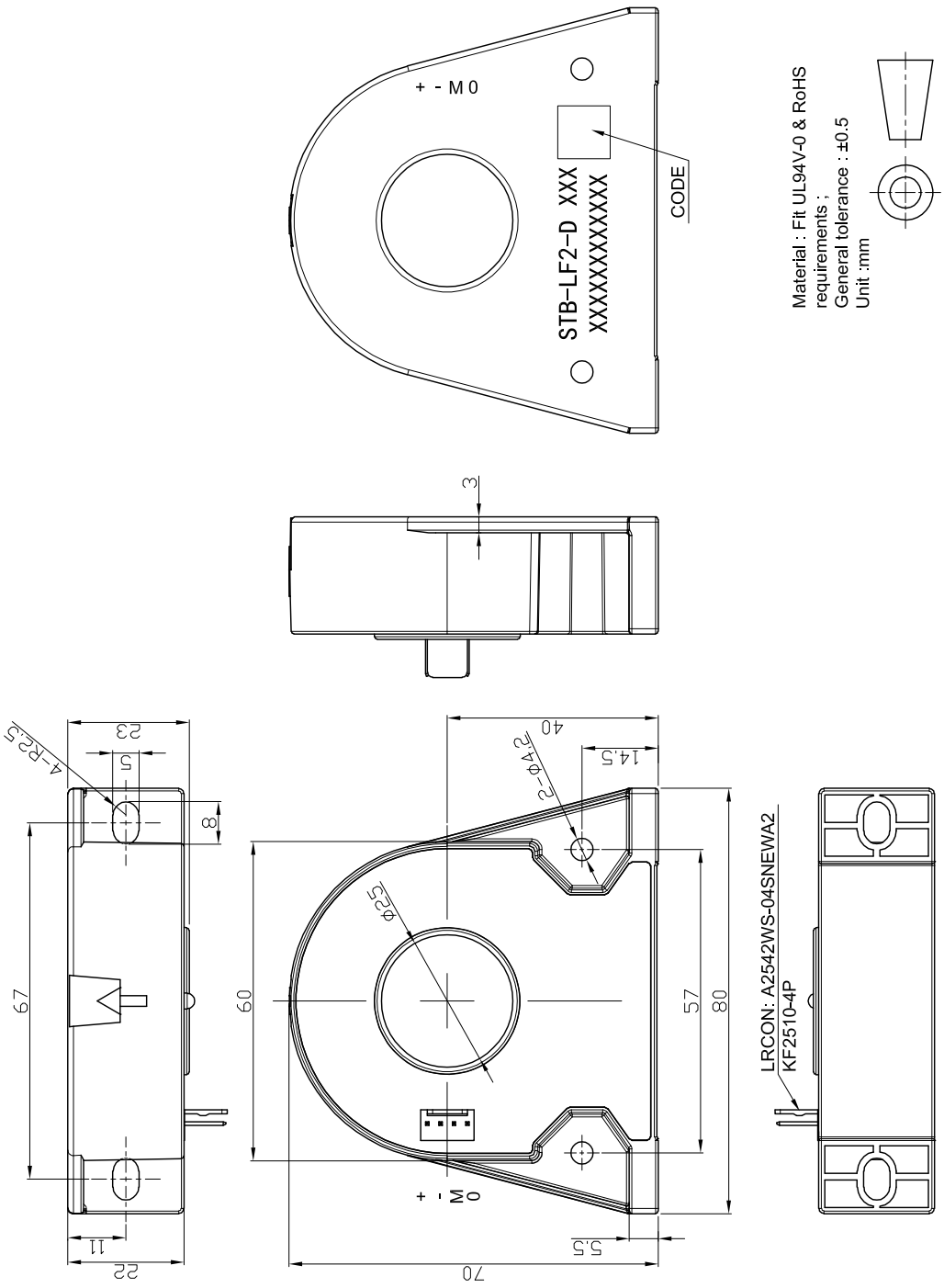
| Parameters | Symbol | Unit | Min | Typ | Max | Remark |
|---|---|---|---|---|---|---|
| Primary nominal current | $I_{PN}$ | A | | ±200 | | |
| Primary current measuring range | $I_{PM}$ | A | -500 | | 500 | $V_{CC}$ =±15V |
| Measuring resistance | $R_M$ | Ω | 0 | | 10 | $I_P$: ±300 |
| | | | 0 | | 5 | $I_P$: ±500 |
| Secondary nominal current | $I_{SN}$ | A | -0.1 | | 0.1 | $I_P$=±200 |
| Secondary current measuring range | $I_S$ | A | -0.25 | | 0.25 | $I_P$=±500 |
| Supply voltage | $V_{CC}$ | V | ±12 | | ±15 | |
| Current consumption | $I_{CC}$ | mA | | 16 + $I_S$ | | $I_S$=$I_P$/$N_S$ |
| Turns ratio | $N_S$ | NT | | 2000 | | |
| Nominal sensitivity | $S_N$ | mA/A | | 0.5 | | |
| Offset current | $I_{OE}$ | mA | -0.1 | | 0.1 | |
| Offset current temperature drift | $I_{OT}$ | mA | -0.2 | | 0.2 | -40℃ ~ 90℃ |
| Linearity error | $\varepsilon_L$ | % of $I_{PN}$ | -0.1 | | 0.1 | |
| Delay time @ 10 % of $I_{PN}$ | $t_{d\,10}$ | μs | | | 1 | 10% of $I_{PN}$ |
| Delay time @ 90 % of $I_{PN}$ | $t_{d\,90}$ | μs | | | 1 | 90% of $I_{PN}$ |
| -3 dB band width | BW | kHz | | | 100 | |
| Accuracy@ $I_{PN}$ | X | % | -0.3 | | 0.3 | $T_A$=25℃ |
| Total error at $I_{PN}$ | $\varepsilon_{tot}$ | % of $I_{PN}$ | -0.3 | | 0.3 | -40℃…90℃ |
| Resistance of secondary winding | $R_S$ | Ω | | 17 | | $T_A$ = 70 °C |
| | | | | 14 | | $T_A$ = 25 °C |

## 3. STB-300LF2 & STB-300LF2-LG3 & STB-300LF2-LA4 Electrical parameters

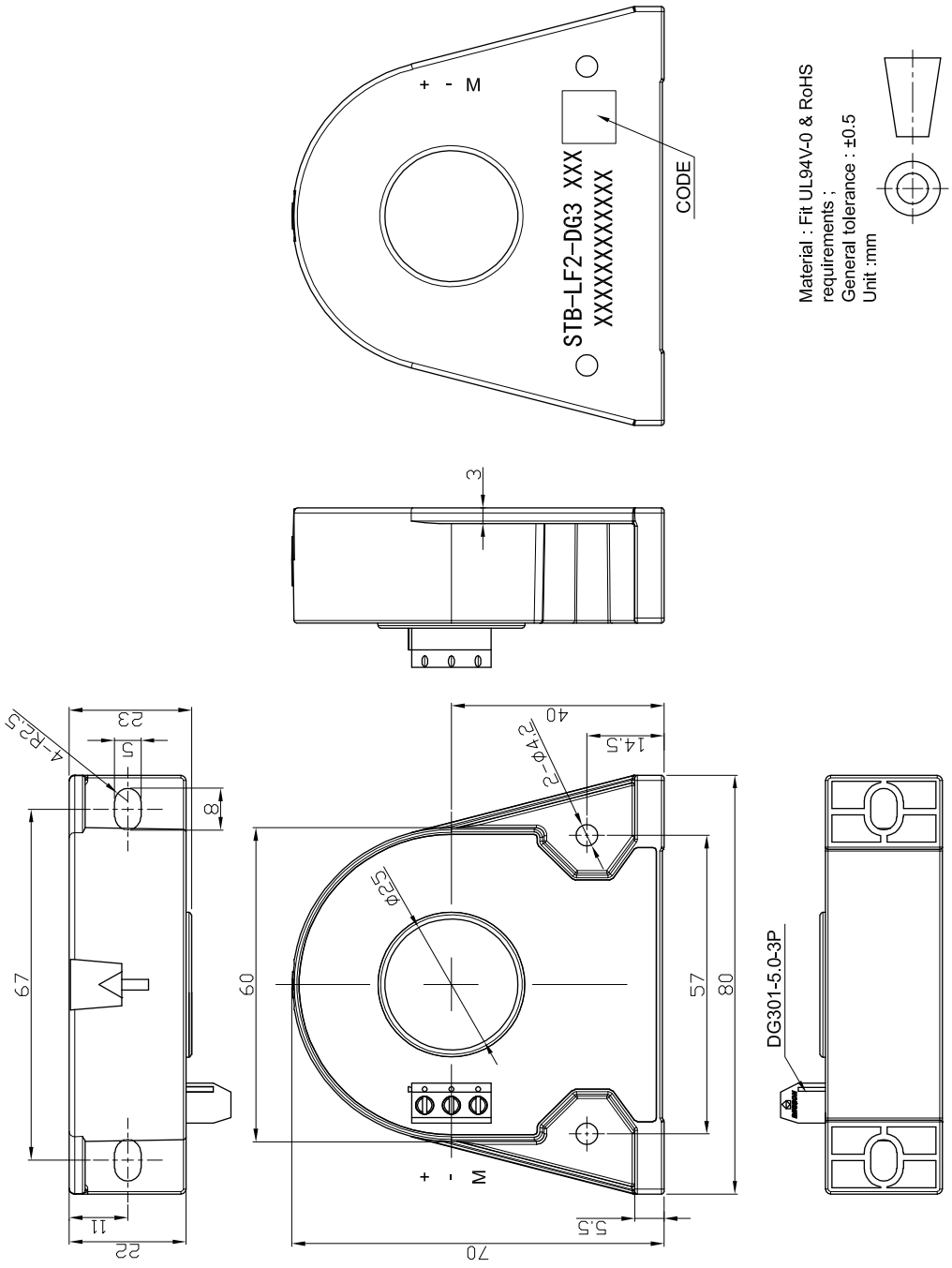
Condition: Vcc = ±15V, , $T_A$ = 25℃ unless specified.

| Parameters | Symbol | Unit | Min | Typ | Max | Remark |
|---|---|---|---|---|---|---|
| Primary nominal current | $I_{PN}$ | A | | ±300 | | |
| Primary current measuring range | $I_{PM}$ | A | -600 | | 600 | $V_{CC}$=±15V |
| Measuring resistance | $R_M$ | Ω | 0 | | 10 | $I_P$： ±300 |
| | | | 0 | | 5 | $I_P$： ±600 |
| Secondary nominal current | $I_{SN}$ | A | -0.15 | | 0.15 | $I_P$=±300 |
| Secondary current measuring range | $I_S$ | A | -0.3 | | 0.3 | $I_P$=±600 |
| Supply voltage | $V_{CC}$ | V | ±12 | | ±15 | |
| Current consumption | $I_{CC}$ | mA | | 16 + $I_S$ | | $I_S$=$I_P$/$N_S$ |
| Turns ratio | $N_S$ | NT | | 2000 | | |
| Nominal sensitivity | $S_N$ | mA/A | | 0.5 | | |
| Offset current | $I_{OE}$ | mA | -0.1 | | 0.1 | |
| Offset current temperature drift | $I_{OT}$ | mA | -0.2 | | 0.2 | -40℃ ~ 70℃ |
| Linearity error | $\varepsilon_L$ | % of $I_{PN}$ | -0.01 | | 0.01 | |
| Delay time @ 10 % of I_PN | $t_{d\,10}$ | μs | | | 1 | 10% of $I_{PN}$ |
| Delay time @ 90 % of I_PN | $t_{d\,90}$ | μs | | | 1 | 90% of $I_{PN}$ |
| -3 dB band width | BW | kHz | | | 100 | |
| Accuracy | X | % | -0.3 | | 0.3 | $T_A$=25℃ |
| Total error at $I_{PN}$ | $\varepsilon_{tot}$ | % | -0.3 | | 0.3 | -40℃…70℃ |
| Resistance of secondary winding | $R_S$ | Ω | | 17 | | $T_A$= 70 °C |
| | | | | 14 | | $T_A$ = 25 °C |

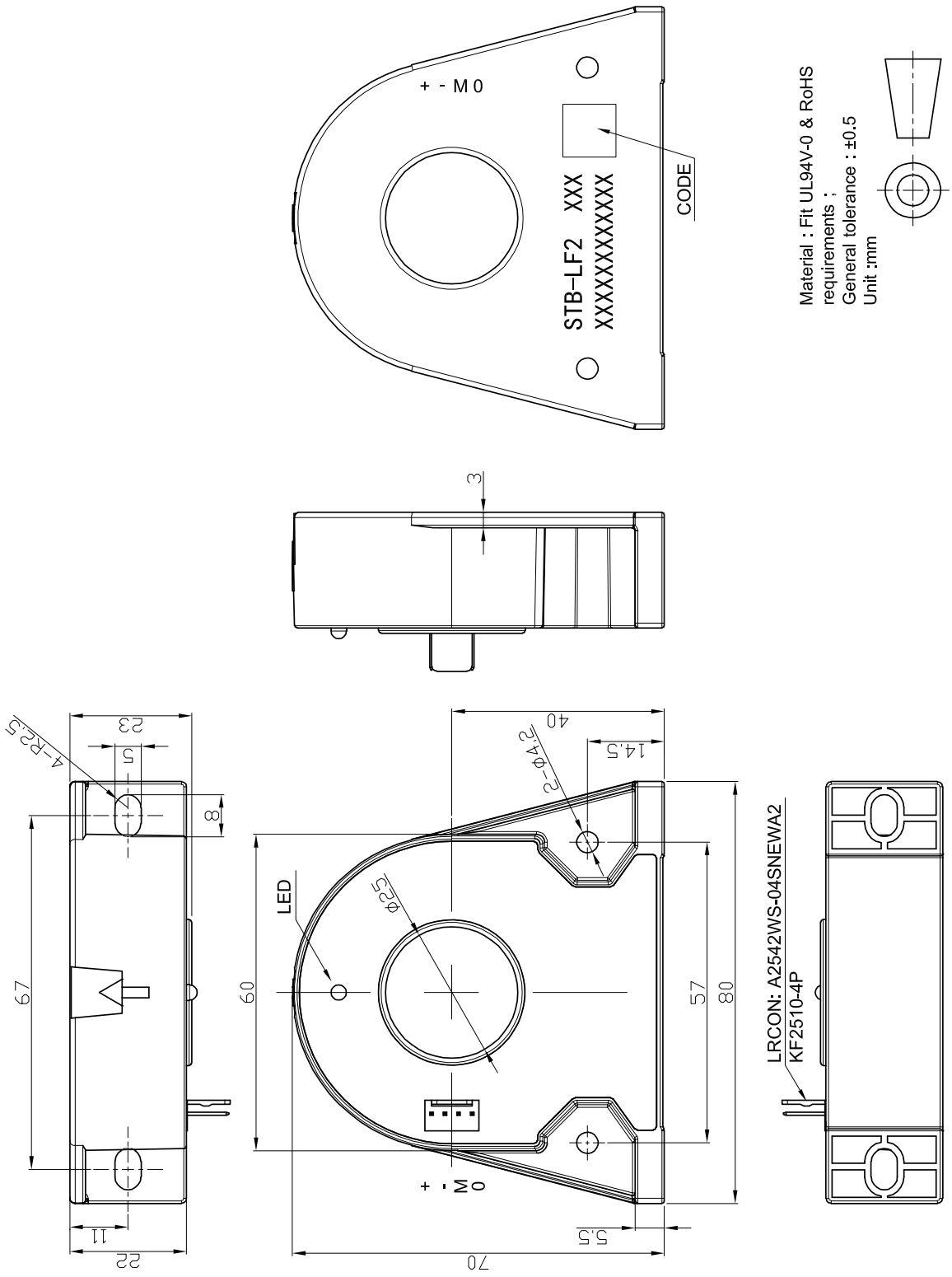
## 4. STB-200LF2-D Dimensions:



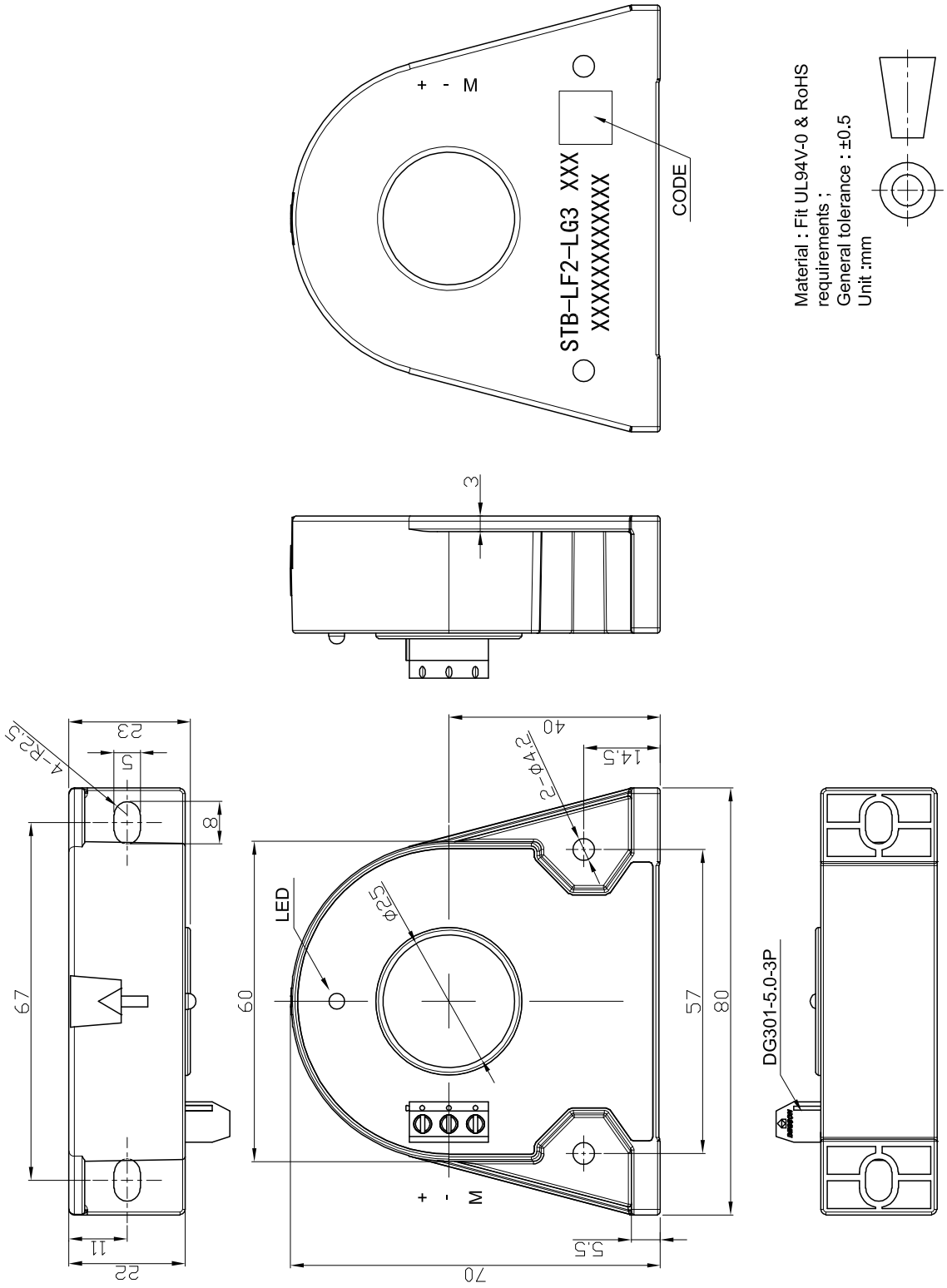
## 5. STB-200LF2-DG3 Dimensions:



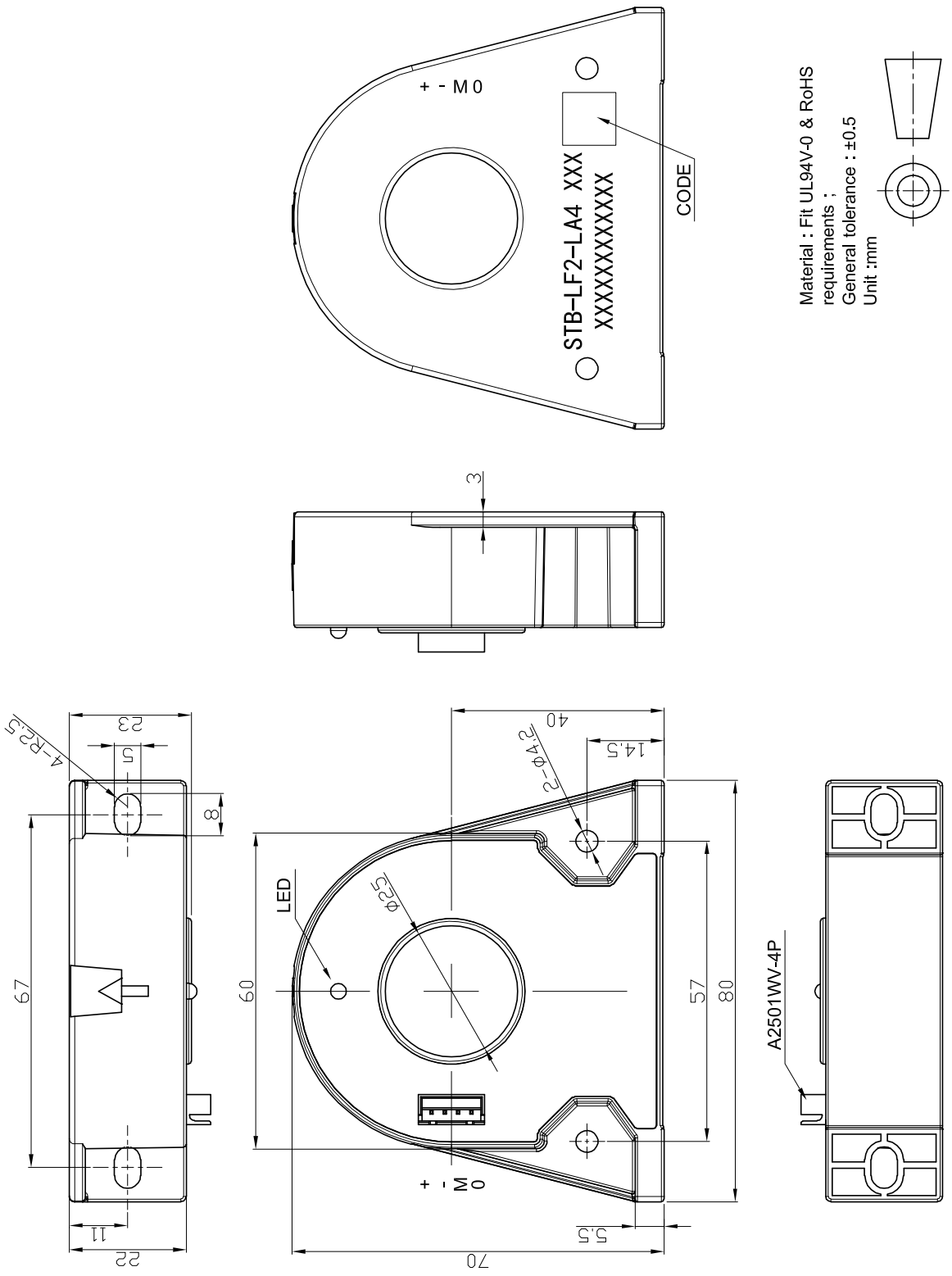
## 6. STB-300LF2 Dimensions



## 7. STB-300LF2-LG3 Dimensions



## 8. STB-300LF2-LA4 Dimensions:



# 9. Mechanical characteristics

- General tolerance ±0.5 mm
- Primary through-hole ⌀ 25 mm
- Transducer fastening
  Horizontal position 2 holes ⌀4.2 mm
  2 M4 steel screws
  Recommended fastening torque 2.1 N·m (±10 %)
- Transducer fastening
  Vertical position 2 holes ⌀ 5 mm
  2 M4 steel screws
  Recommended fastening torque 2.1 N·m (±10 %)
- Connection of secondary

| Product model | Connector | Connector plating |
|---|---|---|
| STB-200LF2-DG3 | DG301-5.0-3P | tin |
| STB-200LF2-D | A2542WS-04SNEWA2 | tin |
| STB-300LF2 | A2542WS-04SNEWA2 | tin |
| | Molex 22-29-2041 | gold |
| STB-300LF2-LG3 | DG301-5.0-3P | tin |
| STB-300LF2-LA4 | A2501WV-4P | tin |