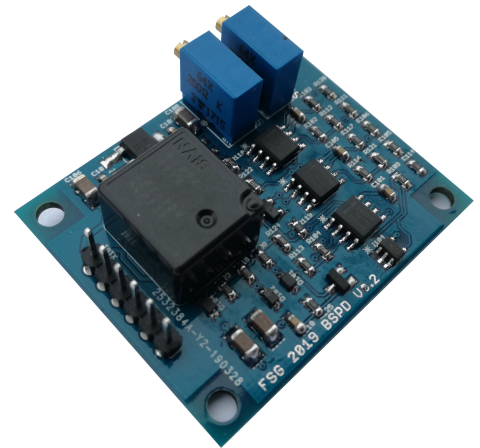


# BSPD FSG 2019 v0.3

## 1 Overview

- 2 input signal 0-5V
- Lower treshold 0,45V
- Upper treshold adjustable
- EV e CV Cars
- Auto reset after 10s



## 2 Description

- The BSPD has the role of turning off the engine in the event of sudden braking and acceleration of more than 10% at the same time.
- It compliants the 2019 rules of FSG. The circuit works with active low logic 5V.
- The BRAKE COMPARATOR checks that the pressure in the brake circuit is within an interval (0 = error).
- The THROTTLE COMPARATOR checks that the throttle is open beyond a minimum threshold but less than 10% (0 = error).
- The output signals of the two comparators are in NOR (1 = error). The resistor  $R = 39\text{ k}\Omega$  and the capacitor  $C = 10\text{ uF}$  operate a time constant of 390 ms.
- The TIME 1 COMPARATOR determines a delay of about 500ms (496ms) in the activation of the system (0 = error). The resistance  $R = 560\text{ k}\Omega$  and the capacitor  $C = 10\text{ uF}$  operate a time constant of 5600ms.
- The TIME 2 COMPARATOR determines a delay of about 9900ms after which the BSPD is deactivated (RESET CONDITION) and the engine can be restarted (0 = error). The NO RELAY performs the coupling with the car's powerline.
- Both the brake signal and the accelerator signal are compared with two thresholds, one upper and one lower.
- Lower threshold: 0.45V set via resistors R102 / R116 (100  $\Omega$ , pull-up) and R112 / R121 (10 k $\Omega$ , pull-down).
- Upper threshold: adjustable from 0.02 V to 5 V Set by a potentiometer M64X203KB40 R101 / R115 (10  $\Omega$  to 2.2 M $\Omega$ , pull-up) and a resistor (10 k $\Omega$ , pull-down).
- Diodes inversely polarized operate a protection against peaks on all the signals.
- Although in the board is written "BSPD v0.2", don't worry, the version produced is v0.3 available on the official site of FSG.

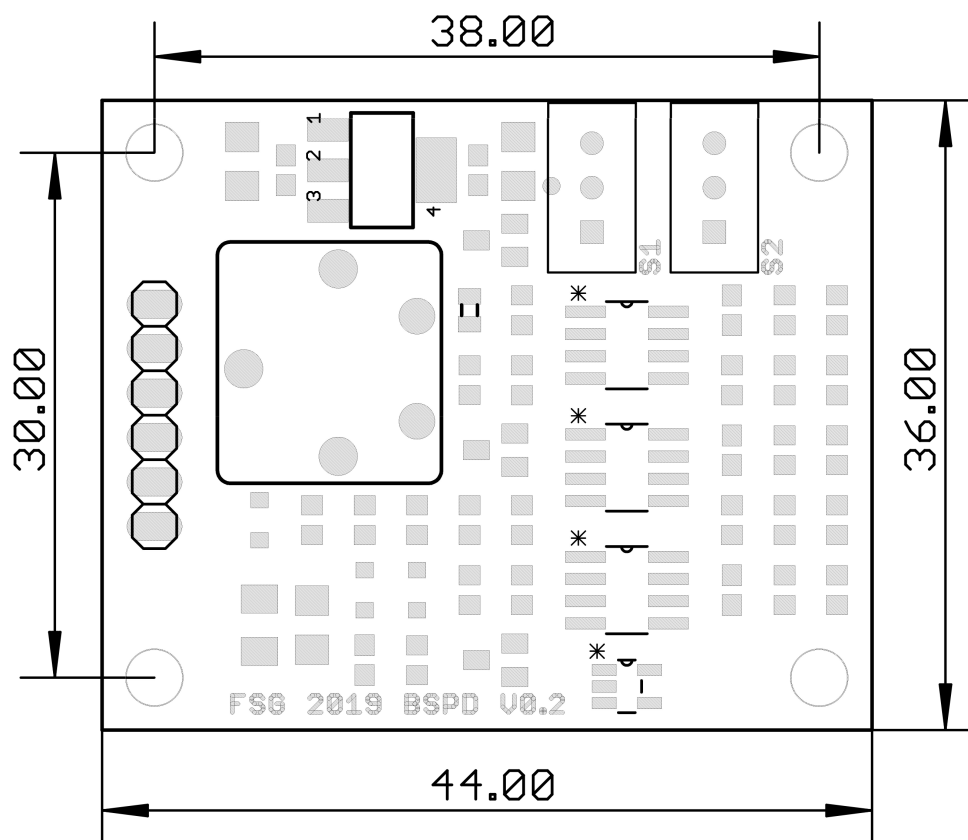
### 3 Technical specification

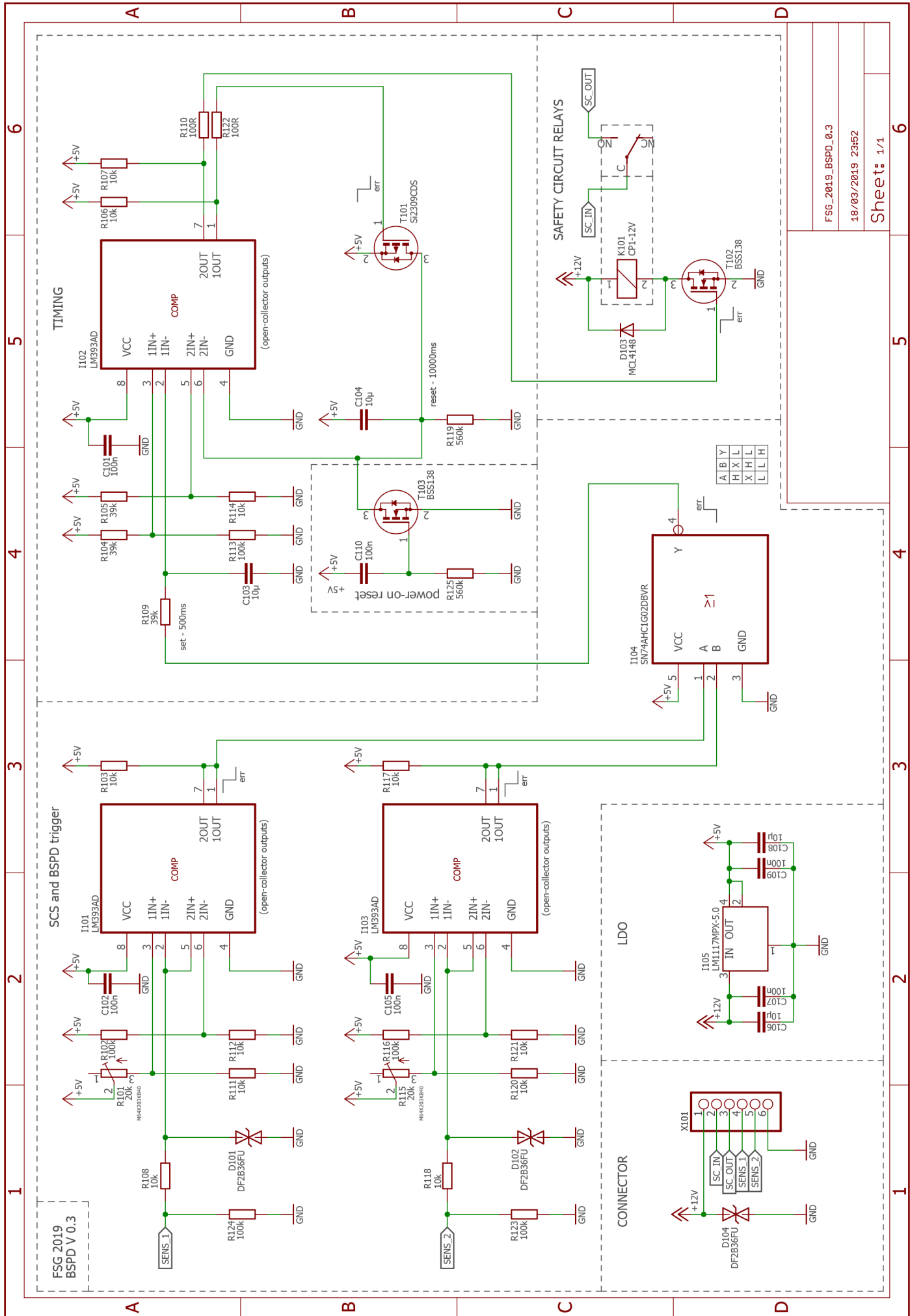
	Unit	Value
Power voltage	V	13.8
Maximum current through SC	A	3
Dimensions	mm * mm * mm	44*36*11 (without cable)
Weight	g	13
Temperature range	C	-20 ÷ 60
n° of inputs	--	2
Voltage range signal input	V	0 ÷ 5

### 4 Pinout

Pin	Signal
1	Power 13.8 V
2	SC_IN (Power line of the car)
3	SC_OUT (Power line of the car)
4	S1 (Sensor, brake or throttle)
5	S2 (Sensor, brake or throttle)
6	GND

### 5 Measures

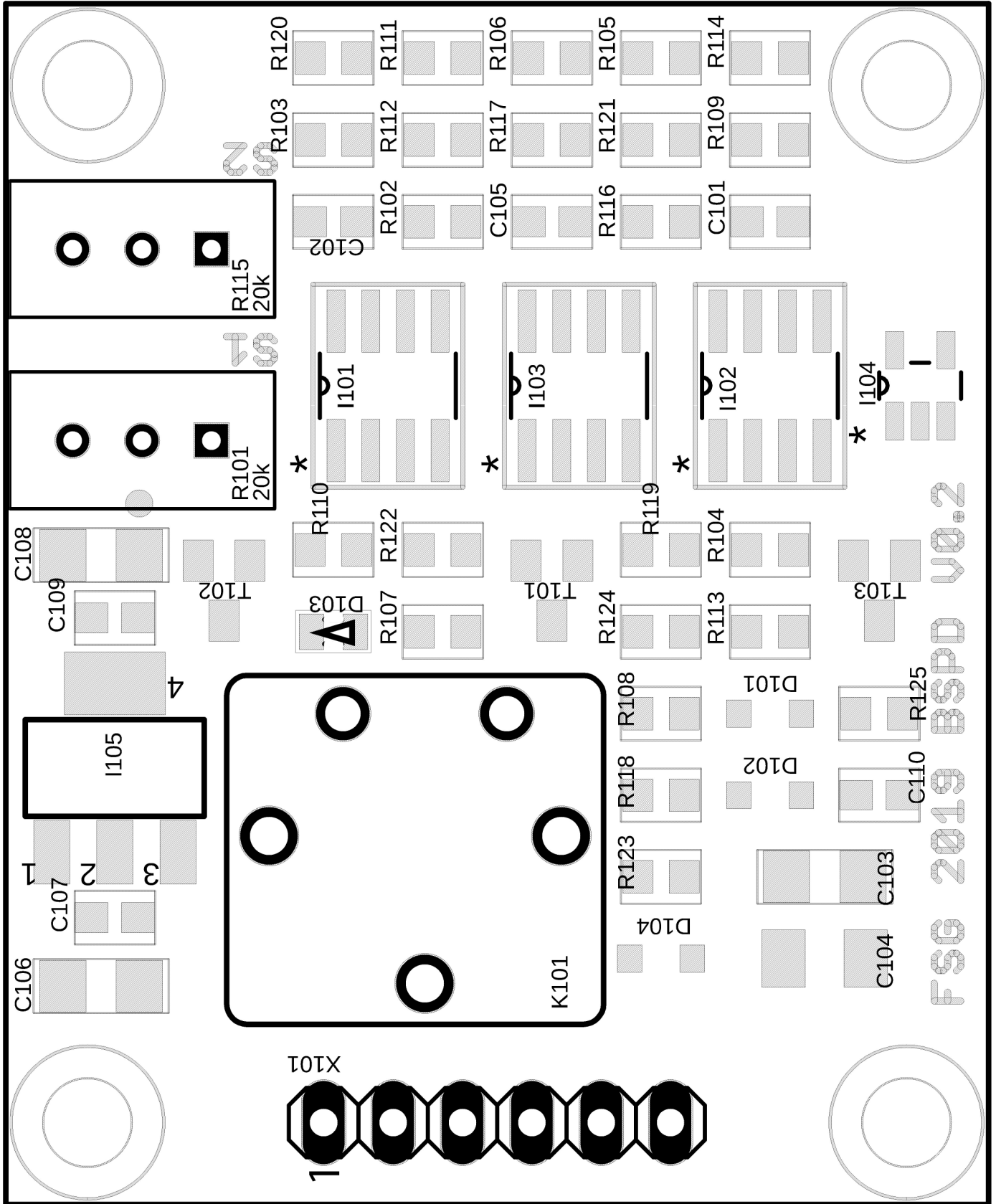




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