



SFS01 (Silicon Flow Sensor)

Thermal mass flow sensor

Optimal for fast measuring of gas flow and direction

Characteristics & Applications

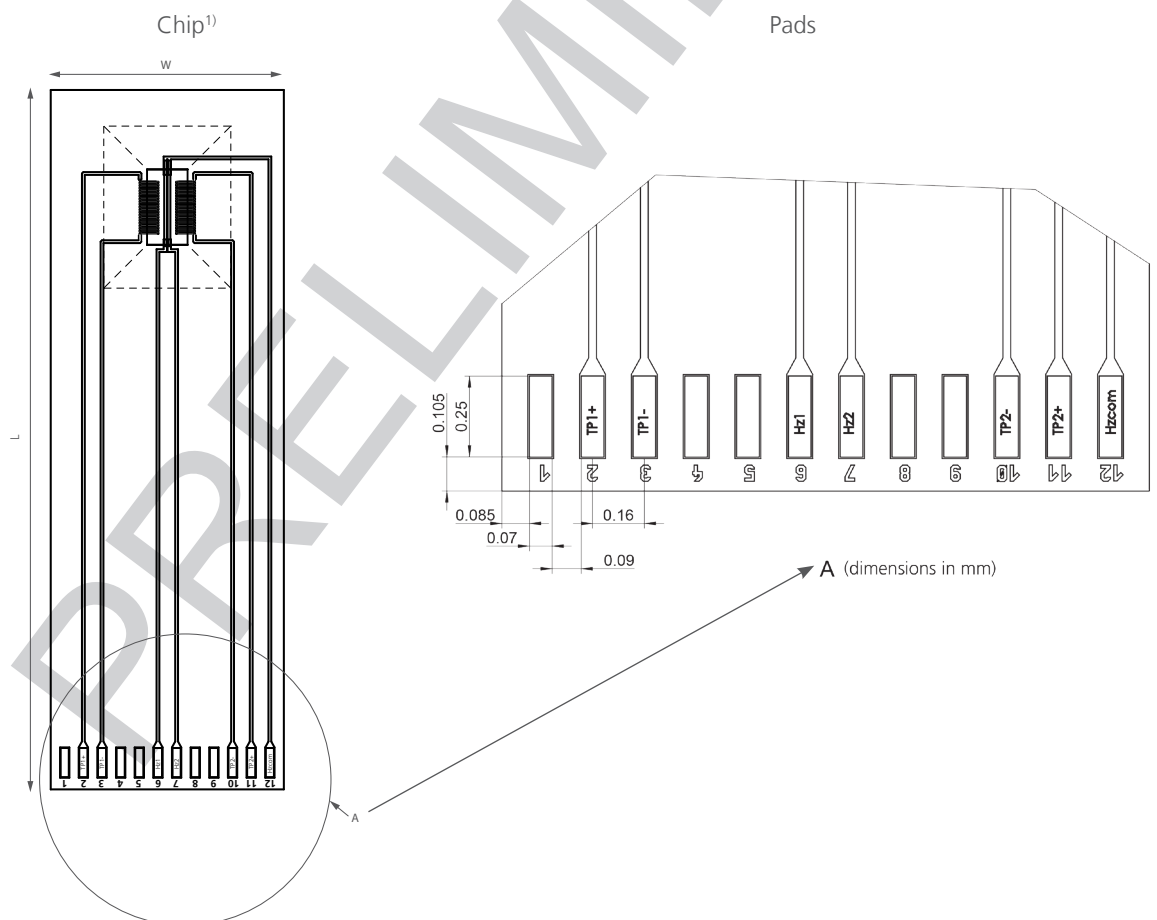
Characteristics:

- Measurement from 0.0 to 3.5 m/s (Gas)
- Detection of flow direction
- Very fast response time
- Very low power requirement
- Easy system integration

Applications:

- Automation technology
- Process and regulation technology
- Medicinal and biological technology
- Air conditioning
- Battery-operated applications in portable devices

Illustration



1) For exact size see measurements



Technical Sensor Data

| | |
|---------------------------------|--|
| Measurements (L x B x H in mm): | 6.00 (± 0.05) x 2.00 (± 0.02) x 0.525 (± 0.01) |
| Temperature range: | 0 °C to +80 °C |
| Storage temperature: | -20 °C to +80 °C |
| Compressive load: | up to 1 bar (one-sided on membrane for a duration of 10 years) |

Electrical Sensor Data

| | |
|---|--|
| Connection: | Bond pads (recommended bonding process: wedge-wedge with aluminum wires) |
| Heater resistance: | 1'000 $\Omega \pm 20 \%$ |
| Thermopile resistance: | < 40 k Ω |
| Thermopile sensitivity: | > 5 mV/mW |
| Thermopile synchronization sensitivity: | < 9 % |
| Thermopile voltage: | typically 5.5 mV/K |
| Heater output: | typically 3-10 mW (air), maximum tolerance: 20 mW |

Flow Performance

The following values are viewed as typical and achieved in laboratory conditions. The gas used was nitrogen.

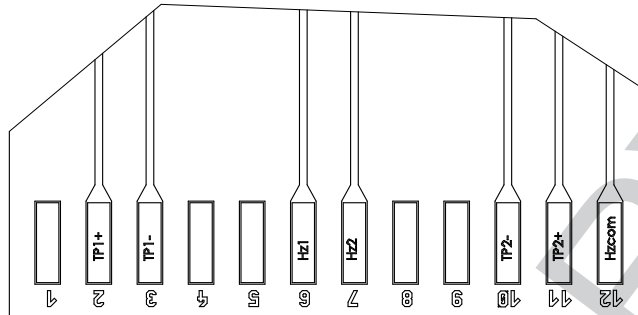
| | |
|------------------------------------|---|
| Medium: | non-aggressive gases (5-95 % rel. humidity, non-condensating) |
| Measurement range: | 0.0 to 3.5 m/s |
| Sensitivity: | 0.002 m/s* |
| Response time t_{63} : | 5 ms |
| Accuracy: | 0.2 % v.E. ** |
| Temperature sensitivity (uncomp.): | < 0.18 %/K v.E. * |
| Sensitivity to positioning: | < 0.1 % v.E. |
| Humidity sensitivity: | < 4.0 % v.E. |

* dependent on electronics

** dependent on calibration



Bondpad-configuration



| | | | | | |
|--|-----------------------------------|------------------------------------|------------------------------------|-----------------------------------|--|
| 1 | 2 | 3 | 4 | 5 | 6 |
| n.c. | TP1+ Thermopile 1 (hot end) | TP1- Thermopile 1 (cold end) | n.c. | n.c. | Hz1 - left heater (heater series connection supply voltage) |
| 7 | 8 | 9 | 10 | 11 | 12 |
| Hz2 - right heater (heater series connection supply voltage) | n.c. | n.c. | TP2- Thermopile 2 (cold end) | TP2+ Thermopile 2 (hot end) | Hzcom heater at parallel circuit/mutual connection |

Order Information

| | |
|-----------------|-----------|
| Sensor element: | SFS01 |
| Order number: | 350.00312 |

Additional Electronics

| | |
|---------------|--------------|
| EvaKit: | SFS01 EvaKit |
| Order number: | 350.00330 |



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