

2.2 Temperature Specification¹

Parameter	Value
Measurement range	-20 °C to +85 °C
Resolution	16 bit
Accuracy	2 °C (-10 °C to +60 °C) 3 °C (-20 °C to +85 °C)
Repeatability	0.1 °C

2.3 Electrical Specifications

Parameter	Symbol	Condition	Min.	Typ.	Max	Units	Comments
Supply Voltage	V _{DD}		2.7	3.3	5.5	V	Recommended: 3.3V +/- 5%
Power-up/down level	V _{POR}		2.3	2.5	2.7	V	
Supply current	I _{DD}	Measuring		3.8	5.5	mA	VDD 3.3V
		Idle state			1.1	mA	
		Sleep mode			1	uA	

2.4 Timing Specifications

Parameter	Symbol	Min.	Typ.	Max.	Units	Comments
Power-up time	t _{PU}		2		ms	Time to sensor ready
Soft reset time	t _{SR}			2	ms	Time between soft reset command or exit sleep mode and sensor ready
Warm-up time	t _w		30		ms	To reach accuracy spec after first measurement command
I ² C SCL frequency	f _{I2C}		400	1000	kHz	
Update rate flow value		1800	2000	2200	Hz	
Update rate temperature value		112.5			Hz	Temperature value is updated at least every 16 flow values

¹ The measured temperature is the temperature of the bulk silicon in the sensor. This temperature value is not only depending on the gas temperature, but also on the sensor's surroundings. Using the signal to measure solely the gas temperature will need special precautions, such as isolating the sensor from external temperature influences.

2.5 Mechanical Specifications

Parameter	Symbol	Min.	Typ.	Max.	Units	Condition/Comment
Operating pressure range		0.7		1.3	bar	absolute
Allowable overpressure	P_{max}	-0.2		0.2	bar	gauge
Rated burst pressure	P_{burst}			>1	bar	gauge
Weight	W			14.6	g	

2.6 Materials

Parameter	
Wetted materials	PPE+PS blend, Si, glass (Si_3N_4 , SiO_x), gold, FR4, copper alloy, lead-free solder, epoxy, polyurethane, stainless steel (annealed)
REACH, RoHS	REACH and RoHS compliant

2.7 Absolute Minimum and Maximum Ratings

Parameter	Rating	Units
Supply Voltage V_{DD}	-0.3 to 5.5	V
Max Voltage on pins (SDA, SCL)	-0.3 to $V_{DD}+0.3$	V
Input current on any pin	± 70	mA
Operating temperature range ¹	0 to +60	°C
Storage temperature range	-20 to +70	°C
Max. humidity for long term exposure	40°C dew point	
ESD HBM (human body model)	2	kV

2.8 Pin Assignment

The pin assignments of the SFM3019 series can be found in Table 1. The cap of the SFM3019 is compatible with DuraClik™ Wire-to-Board Receptacle Housing, Single Row, 4 Circuits. (Molex product number: 502351-0400).

Pin no.	Name	Description	digital:
1	SCL	Serial Clock (I ² C Interface)	
2	VDD	VDD Supply	
3	GND	Connect to ground	
4	SDA	Bidirectional Serial Data (I ² C Interface)	

Table 1: SFM3019 series pin assignment.

¹ For Air and N₂. Long term exposure to (high concentrations of) O₂ at high temperatures can reduce the product lifetime