4 Module specifications

4.1 Mechanical characteristics

@ Vdd = 1.8 V, T = 25 °C, unless otherwise noted.

Table 2. Mechanical characteristics

Symbol	Parameter	Test conditions	Min.	Typ.(1)	Max.	Unit
LA_FS	Linear acceleration measurement range			±2		*g*
				±4		
				±8		
				±16		
G_FS	Angular rate measurement range			±125		dps
				±250		
				±500		
				±1000		
				±2000		
LA_So	Linear acceleration sensitivity(2)	FS = ±2 *g*		0.061		mg/LSB
		FS = ±4 *g*		0.122		
		FS = ±8 *g*		0.244		
		FS = ±16 *g*		0.488		
G_So	Angular rate sensitivity(2)	FS = ±125 dps		4.375		mdps/LSB
		FS = ±250 dps		8.75		
		FS = ±500 dps		17.50		
		FS = ±1000 dps		35		
		FS = ±2000 dps		70		
G_So%	Sensitivity tolerance(3)	at component level		±1		%
LA_SoDr	Linear acceleration sensitivity change vs. temperature(4)	from -40° to +85°		±0.01		%/°C
G_SoDr	Angular rate sensitivity change vs. temperature(4)	from -40° to +85°		±0.007		%/°C
LA_TyOff	Linear acceleration zero-*g* level offset accuracy(5)			±20		mg
G_TyOff	Angular rate zero-rate level(5)			±1		dps
LA_OffDr	Linear acceleration zero-*g* level change vs. temperature(4)			±0.1		mg/°C
G_OffDr	Angular rate typical zero-rate level change vs. temperature(4)			±0.010		dps/°C
Rn	Rate noise density in high-performance mode(6)			3.8		mdps/√Hz
RnRMS	Gyroscope RMS noise in normal/low-power mode(7)			75		mdps
An	Acceleration noise density in high-performance mode(8)	FS = ±2 *g*		70		µg/√Hz
		FS = ±4 *g*		75		
		FS = ±8 *g*		80		
		FS = ±16 *g*		110		

Symbol	Parameter	Test conditions	Min.	Typ.(1)	Max.	Unit
RMS	Acceleration RMS noise in normal/low-power mode(9) (10)	FS = ±2 *g*		1.8		mg(RMS)
		FS = ±4 *g*		2.0		
		FS = ±8 *g*		2.4		
		FS = ±16 *g*		3.0		
	Acceleration RMS noise in ultra-low-power mode(9)(10)	FS = ±2 *g*		5.5		
LA_ODR	Linear acceleration output data rate			1.6(11) 12.5 26 52 104 208 416 833 1666 3332 6664		Hz
G_ODR	Angular rate output data rate			12.5 26 52 104 208 416 833 1666 3332 6664		
Vst	Linear acceleration self-test output change(12)(13) (14)		50		1700	mg
	Angular rate self-test output change(15)(16)	FS = 250 dps	20		80	dps
		FS = 2000 dps	150		700	dps
Top	Operating temperature range		-40		+85	°C

1. *Typical specifications are not guaranteed.*
2. *Sensitivity values after factory calibration test and trimming.*
3. *Subject to change.*
4. *Measurements are performed in a uniform temperature setup and they are based on characterization data in a limited number of samples. Not measured during final test for production.*
5. *Values after factory calibration test and trimming.*
6. *Gyroscope rate noise density in high-performance mode is independent of the ODR and FS setting.*
7. *Gyroscope RMS noise in normal/low-power mode is independent of the ODR and FS setting.*
8. *Accelerometer noise density in high-performance mode is independent of the ODR.*
9. *Accelerometer RMS noise in normal/low-power/ultra-low-power mode is independent of the ODR.*
10. *Noise RMS related to BW = ODR/2.*
11. *This ODR is available when the accelerometer is in low-power mode.*
12. *The sign of the linear acceleration self-test output change is defined by the STx_XL bits in a dedicated register for all axes.*