

SPECIFICATIONS

$T_A = 25^\circ\text{C}$, $V_S = 2.5\text{ V}$, $V_{DD\text{I/O}} = 1.8\text{ V}$, acceleration = 0 g, $C_S = 10\ \mu\text{F}$ tantalum, $C_{\text{I/O}} = 0.1\ \mu\text{F}$, output data rate (ODR) = 800 Hz, unless otherwise noted. All minimum and maximum specifications are guaranteed. Typical specifications are not guaranteed.

Table 1.

Parameter	Test Conditions	Min	Typ ¹	Max	Unit
SENSOR INPUT	Each axis				
Measurement Range	User selectable		$\pm 2, \pm 4, \pm 8, \pm 16$		g
Nonlinearity	Percentage of full scale		± 0.5		%
Inter-Axis Alignment Error			± 0.1		Degrees
Cross-Axis Sensitivity ²			± 1		%
OUTPUT RESOLUTION	Each axis				
All g Ranges	10-bit resolution		10		Bits
$\pm 2\text{ g}$ Range	Full resolution		10		Bits
$\pm 4\text{ g}$ Range	Full resolution		11		Bits
$\pm 8\text{ g}$ Range	Full resolution		12		Bits
$\pm 16\text{ g}$ Range	Full resolution		13		Bits
SENSITIVITY	Each axis				
Sensitivity at $X_{\text{OUT}}, Y_{\text{OUT}}, Z_{\text{OUT}}$	All g-ranges, full resolution	230	256	282	LSB/g
	$\pm 2\text{ g}$, 10-bit resolution	230	256	282	LSB/g
	$\pm 4\text{ g}$, 10-bit resolution	115	128	141	LSB/g
	$\pm 8\text{ g}$, 10-bit resolution	57	64	71	LSB/g
	$\pm 16\text{ g}$, 10-bit resolution	29	32	35	LSB/g
Sensitivity Deviation from Ideal	All g-ranges		± 1.0		%
Scale Factor at $X_{\text{OUT}}, Y_{\text{OUT}}, Z_{\text{OUT}}$	All g-ranges, full resolution	3.5	3.9	4.3	mg/LSB
	$\pm 2\text{ g}$, 10-bit resolution	3.5	3.9	4.3	mg/LSB
	$\pm 4\text{ g}$, 10-bit resolution	7.1	7.8	8.7	mg/LSB
	$\pm 8\text{ g}$, 10-bit resolution	14.1	15.6	17.5	mg/LSB
	$\pm 16\text{ g}$, 10-bit resolution	28.6	31.2	34.5	mg/LSB
Sensitivity Change Due to Temperature			± 0.01		%/ $^\circ\text{C}$
0 g OFFSET	Each axis				
0 g Output for $X_{\text{OUT}}, Y_{\text{OUT}}$		-150	0	+150	mg
0 g Output for Z_{OUT}		-250	0	+250	mg
0 g Output Deviation from Ideal, $X_{\text{OUT}}, Y_{\text{OUT}}$			± 35		mg
0 g Output Deviation from Ideal, Z_{OUT}			± 40		mg
0 g Offset vs. Temperature for X-, Y-Axes			± 0.4		mg/ $^\circ\text{C}$
0 g Offset vs. Temperature for Z-Axis			± 1.2		mg/ $^\circ\text{C}$
NOISE					
X-, Y-Axes	ODR = 100 Hz for $\pm 2\text{ g}$, 10-bit resolution or all g-ranges, full resolution		0.75		LSB rms
Z-Axis	ODR = 100 Hz for $\pm 2\text{ g}$, 10-bit resolution or all g-ranges, full resolution		1.1		LSB rms
OUTPUT DATA RATE AND BANDWIDTH	User selectable				
Output Data Rate (ODR) ^{3, 4, 5}		0.1		3200	Hz
SELF-TEST ⁶					
Output Change in X-Axis		0.20		2.10	g
Output Change in Y-Axis		-2.10		-0.20	g
Output Change in Z-Axis		0.30		3.40	g
POWER SUPPLY					
Operating Voltage Range (V_S)		2.0	2.5	3.6	V
Interface Voltage Range ($V_{DD\text{I/O}}$)		1.7	1.8	V_S	V
Supply Current	ODR $\geq 100\text{ Hz}$		140		μA
	ODR $< 10\text{ Hz}$		23		μA
Standby Mode Leakage Current			0.1		μA
Turn-On and Wake-Up Time ⁷	ODR = 3200 Hz		1.4		ms