ADXL202/ADXL210–SPECIFICATIONS

($T_A = T_{MIN}$ to T_{MAX}, T_A = +25°C for J Grade only, V_{DD} = +5 V, R_{SET} = 125 kΩ, Acceleration = 0 *g*, unless otherwise noted)

Parameter	Conditions	ADXL202/JQC/AQC Min	Typ	Max	ADXL210/JQC/AQC Min	Typ	Max	Units
SENSOR INPUT	Each Axis							
Measurement Range[1]		±1.5	±2		±8	±10		*g*
Nonlinearity	Best Fit Straight Line		0.2			0.2		% of FS
Alignment Error[2]			±1			±1		Degrees
Alignment Error	X Sensor to Y Sensor		±0.01			±0.01		Degrees
Transverse Sensitivity[3]			±2			±2		%
SENSITIVITY	Each Axis							
Duty Cycle per *g*	T1/T2 @ +25°C	10	12.5	15	3.2	4.0	4.8	%/*g*
Sensitivity, Analog Output	At Pins X_{FILT}, Y_{FILT}		312			100		mV/*g*
Temperature Drift[4]	Δ from +25°C		±0.5			±0.5		% Rdg
ZERO *g* BIAS LEVEL	Each Axis							
0 *g* Duty Cycle	T1/T2	25	50	75	42	50	58	%
Initial Offset			±2			±2		*g*
0 *g* Duty Cycle vs. Supply			1.0	4.0		1.0	4.0	%/V
0 *g* Offset vs. Temperature[4]	Δ from +25°C		2.0			2.0		m*g*/°C
NOISE PERFORMANCE								
Noise Density[5]	@ +25°C		500	1000		500	1000	μ*g*/√Hz
FREQUENCY RESPONSE								
3 dB Bandwidth	Duty Cycle Output		500			500		Hz
3 dB Bandwidth	At Pins X_{FILT}, Y_{FILT}		5			5		kHz
Sensor Resonant Frequency			10			14		kHz
FILTER								
R_{FILT} Tolerance	32 kΩ Nominal		±15			±15		%
Minimum Capacitance	At X_{FILT}, Y_{FILT}	1000			1000			pF
SELF TEST								
Duty Cycle Change	Self-Test "0" to "1"		10			10		%
DUTY CYCLE OUTPUT STAGE								
F_{SET}			125 MΩ/R_{SET}			125 MΩ/R_{SET}		
F_{SET} Tolerance	R_{SET} = 125 kΩ	0.7		1.3	0.7		1.3	kHz
Output High Voltage	I = 25 μA	V_S – 200 mV			V_S – 200 mV			mV
Output Low Voltage	I = 25 μA			200			200	mV
T2 Drift vs. Temperature			35			35		ppm/°C
Rise/Fall Time			200			200		ns
POWER SUPPLY								
Operating Voltage Range		3.0		5.25	2.7		5.25	V
Specified Performance		4.75		5.25	4.75		5.25	V
Quiescent Supply Current			0.6	1.0		0.6	1.0	mA
Turn-On Time[6]	To 99%		160 C_{FILT} + 0.3			160 C_{FILT} + 0.3		ms
TEMPERATURE RANGE								
Operating Range	JQC	0		+70	0		+70	°C
Specified Performance	AQC	–40		+85	–40		+85	°C

NOTES

[1]For all combinations of offset and sensitivity variation.

[2]Alignment error is specified as the angle between the true and indicated axis of sensitivity.

[3]Transverse sensitivity is the algebraic sum of the alignment and the inherent sensitivity errors.

[4]Specification refers to the maximum change in parameter from its initial at +25 °C to its worst case value at T_{MIN} to T_{MAX}.

[5]Noise density (μ*g*/√Hz) is the average noise at any frequency in the bandwidth of the part.

[6]C_{FILT} in μF. Addition of filter capacitor will increase turn on time. Please see the Application section on power cycling.

All min and max specifications are guaranteed. Typical specifications are not tested or guaranteed.
Specifications subject to change without notice.