3.3 ELECTRICAL SPECIFICATIONS

D.C. Electrical Characteristics

Typical Operating Circuit of section 4.2, VDD = 1.8V, VDDIO = 1.8V, T_A=25°C, unless otherwise noted.

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS	NOTES
SUPPLY VOLTAGES						
VDD		1.71	1.8	3.6	V	1
VDDIO		1.71	1.8	3.6	V	1
SUPPLY CURRENTS & BOOT TIME						
Low-Noise Mode	6-Axis Gyroscope + Accelerometer		3.2		mA	1
	3-Axis Accelerometer		0.75		µA	1
	3-Axis Gyroscope		2.6		mA	1
Gyroscope Only (DMP & Accelerometer disabled)	Low-Power Mode, 102.3 Hz update rate, 1x averaging filter		1.23		mA	2, 3
Accelerometer Only (DMP & Gyroscope disabled)	Low-Power Mode, 102.3 Hz update rate, 1x averaging filter		68.9		µA	2, 3
Gyroscope + Accelerometer (DMP disabled)	Low-Power Mode, 102.3 Hz update rate, 1x averaging filter		1.27		mA	2, 3
Full-Chip Sleep Mode			8		µA	2
TEMPERATURE RANGE						
Specified Temperature Range	Performance parameters are not applicable beyond Specified Temperature Range	-40		+85	°C	1

Table 3. D.C. Electrical Characteristics

Notes:

1. Guaranteed by design
2. Derived from validation or characterization of parts, not guaranteed in production
3. The 102.3 Hz ODR value shown here is an example, please see the section below for the full list of ODRs supported and corresponding current values

Low-Power Mode Noise and Power Performance

Table 4 and Table 5 contain Gyroscope and Accelerometer noise and current consumption values for low-power mode, for various ODRs and averaging filter settings. Please refer to the ICM-20648 Register Map for further information about the registers referenced in the tables below.

	Averages	1x	2x	4x	8x	16x	32x	64x	128x
	GYRO_FCHOICE	1	1	1	1	1	1	1	1
	GYRO_AVGCFG	0	1	2	3	4	5	6	7
	Ton [ms]	1.15	1.59	2.48	4.26	7.82	14.93	29.15	57.59
	NBW [Hz]	773.5	469.8	257.8	134.8	68.9	34.8	17.5	8.8
	RMS Noise [dps-rms] TYP (based on gyroscope noise: 0.015 dps/√Hz)	0.42	0.33	0.24	0.17	0.12	0.09	0.06	0.04
GYRO_SMPLRT_DIV	ODR [Hz]	Current Consumption [mA] TYP							
255	4.4	1.04	1.05	1.05	1.06	1.09	1.14	1.24	1.45
64	17.3	1.07	1.08	1.10	1.15	1.25	1.45	1.85	N/A
63	17.6	1.07	1.08	1.11	1.16	1.26	1.46	1.87	
32	34.1	1.10	1.12	1.17	1.27	1.47	1.86	N/A	