Performance Characteristics

Vdd=3.3 V and ambient temperature unless otherwise specified.

Parameter	Condition	Min	Typ	Max	Units
Analog and digital Vdd		3.0		3.6	V
Current consumption	Active mode		3	5	mA
	Power down mode		0.05		mA
Measurement range [1]	Measurement axes (XYZ)	-6		6	g
Saturation warning limit [2]	Measurement axes (XYZ)		6.3		g
Operating temperature		-40		125	°C
Offset total error [3]	Temperature range -40 ... +125 °C	-100		100	mg
	RT 25 °C ±5°C	-50		50	mg
Offset temperature dependency [4]	Temperature range -40 ... +125 °C	-70		70	mg
Sensitivity	13 bit output		650		Count/g
Total sensitivity error		-3		3	% FS
Linearity error	+1g ... -1g range	-20		20	mg
	+3g...+1g, -1g...-3g	-40		40	mg
	+5g..+3g, -3g..-5g	-60		60	mg
Cross-Axis sensitivity				±3.5	%
Zero acceleration output	2-complement		0		Counts
Amplitude response [5]	-3dB frequency	30		55	Hz
Noise				10	mg RMS
Power on setup time				0.1	s
Output data rate			2000		Hz
Output load				50	pF
SPI clock rate				8	MHz
ESD protection	Human Body Model			2	kV
	Charged Device Model			1	kV
Moisture sensitivity level	IPC/JEDEC J-STD-020C, Level 3				
Mechanical shock				20 000	g
ID register value	Customer readable ID register (27hex)		C4		

1) Range defined as ball sphere $\sqrt{x^2+y^2+z^2} \leq 6g$
2) See product family specification for details on SAT-bit handling
3) Includes offset deviation from 0g value including calibration error and change over lifetime, temperature, and supply voltage.
4) Offset dependency due to temperature. Value is a relative value and has not to be centered to zero.
5) See figure 5.

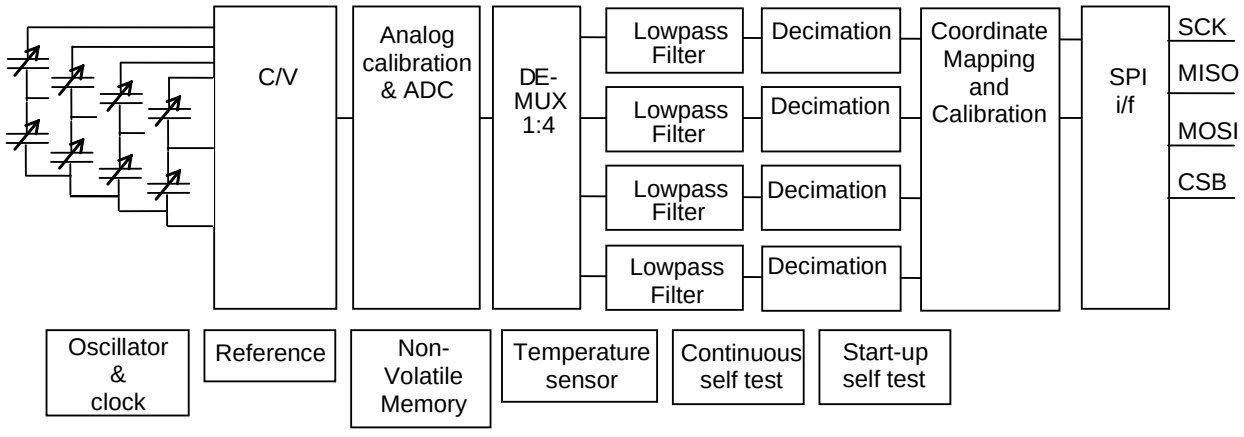

Figure 1. SCA3100-D07 Block diagram

Pin Description

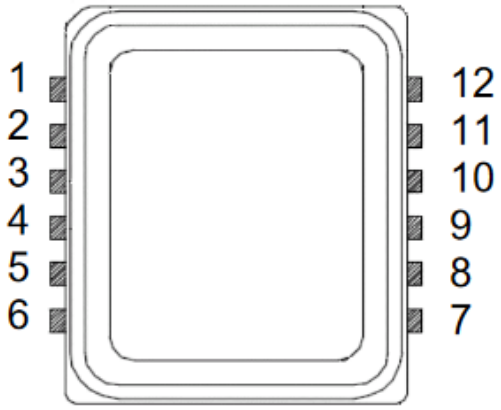

Figure 2. Component pinout

Table 1. Component pinout

No.	Name	Type[1)]	PD/PU[2)]	Function	Connect
1	Reserved			Not used	Gnd
2	Reserved		PD	Factory use	Gnd
3	AVSS	AI		Negative power supply (analog)	Gnd
4	AVDD	AI		Positive power supply (analog)	Vdd
5	CSB	DI	PU	Chip select	CSB
6	MISO	ZO		Data output	MISO
7	SCK	DI	PD	Serial clock	SCK
8	MOSI	DI	PD	Data input	MOSI
9	Reserved		PD	Factory use	Not connected
10	DVDD	AI		Positive power supply (digital)	Vdd
11	DVSS	AI		Negative power supply (digital)	Gnd
12	EGnd	AI		EMC ground	Gnd

1) A = Analog, D = Digital, I = Input, O = Output, Z = Tristate Output
2) PU = internal pullup, PD = internal pulldown

Further description of recommended circuit diagram and PWB layout can be found from company website.
Documentation: **SCA8X0 21X0 3100 Product Family Specification**

Measurement Directions

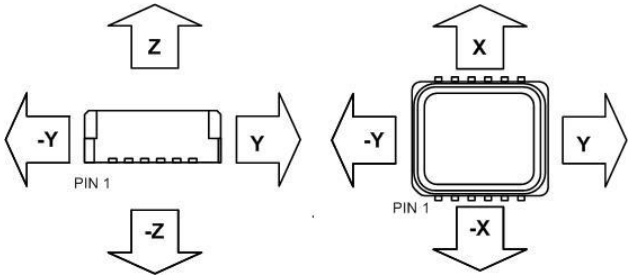

Figure 3. Accelerometer measuring directions

Housing Dimensions

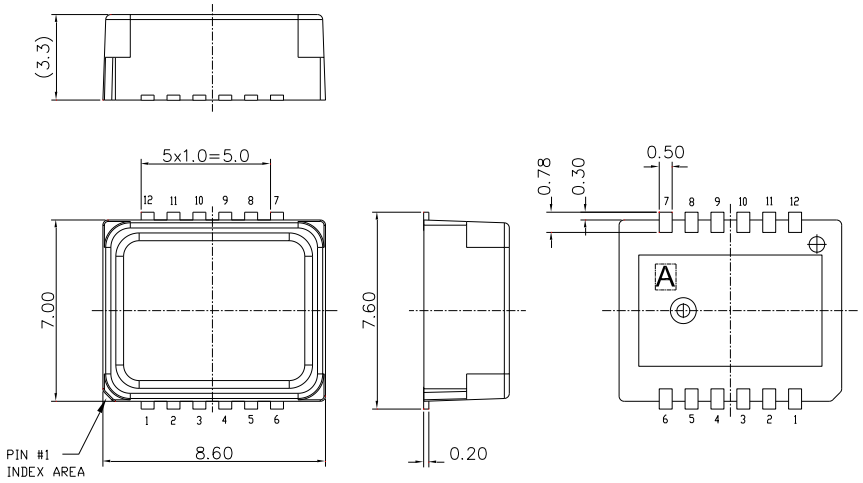

Figure 4. Housing dimensions

Frequency Response

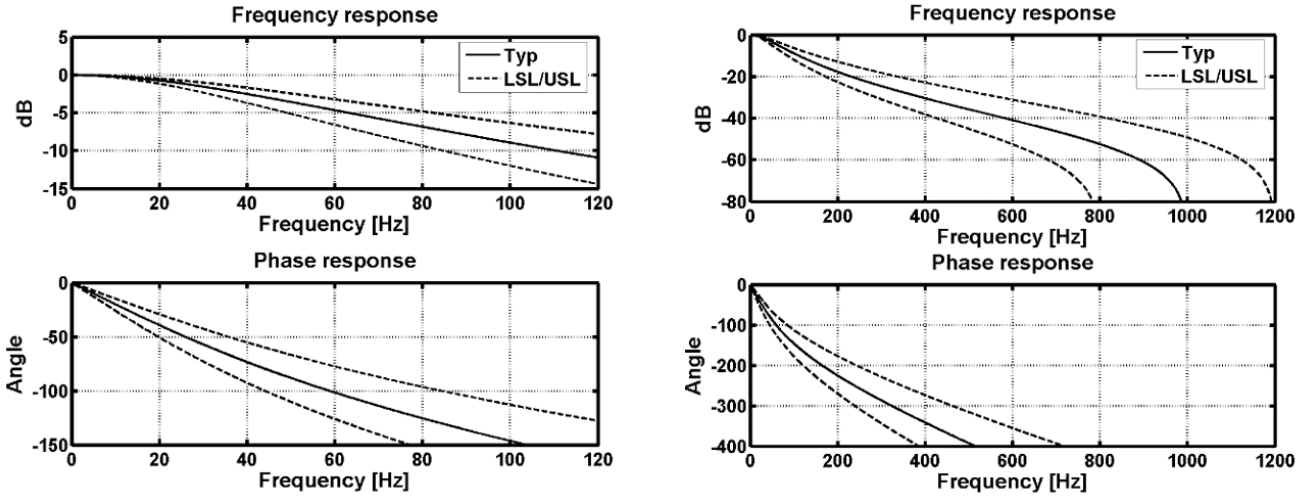

Figure 5. Frequency response curves

Order Information

Table 2. Order codes for SCA3100-D07

Order code	Description	Measurement Range (g)	Packing	Qty
SCA3100-D07-004	3-axis high performance accelerometer with digital SPI interface	±6 g	Bulk	4 pcs
SCA3100-D07-1	3-axis high performance accelerometer with digital SPI interface	±6 g	T&R	100 pcs
SCA3100-D07-10	3-axis high performance accelerometer with digital SPI interface *This order code is used for automotive customers after customer has approved the product for production*	±6 g	T&R	1000 pcs