High Performance MEMS Sensors

Innovator in Electronics

Accelerometers

Murata is the global market leader in low-g acceleration sensors for automotive applications. The extensive accelerometer product range includes high performance analog and digital accelerometers for safety critical automotive and industrial applications.

Murata accelerometers are based on the company's proprietary 3D MEMS technology and offer a number of excellent product features for the most demanding applications. The sensing element and the measuring ASIC are assembled in a dual-in-line or dual flat lead plastic package with pins for the surface mount and re-flow soldering. They are environmentally protected with silicone gel, resulting in excellent performance and reliability in humid environments and in varying temperature. In addition, the robust sensing element design with over damped frequency response enables excellent performance even in harsh and vibrating environments.

One Axis Analog Accelerometer; Analog Output; Supply Voltage 5VDC

Part Number	Axis	Range	Temp Range	Sensitivity	-3dB point	Note	Typical Applications
SCA610-E28H1A-*	X	±1.7g	-40…+125°C	1.20V/g	50Hz		Automotive safety critical applications, IMU, industrial applications
SCA610-E23H1A-*	X	±1.5g	-40…+125°C	1.33V/g	50Hz		
SCA620-EF1V1B-*	Z	0…+2.0g	-40…+125°C	2.00V/g	50Hz		
SCA620-EF8H1A-*	X	±1.7g	-40…+125°C	1.20V/g	50Hz		
SCA630-EDCV1B-*	Y	-12.3…+13.3g	-40…+125°C	0.15V/g	400Hz		
SCA720-D01-**	Z	-1…+3.0g	-40…+125°C	0.935V/g	115Hz		

* Available Reel sizes: SCA610-E28H1A-**1** (100 pcs reel), SCA610-E28H1A-**6** (600 pcs reel)
Available Reel sizes: SCA720-D01-1** (100 pcs reel), SCA720-D01-**10** (1000 pcs reel)

Two Axis Analog Accelerometer; Analog Output; Supply Voltage 5VDC

Part Number	Axis	Range	Temp Range	Sensitivity	-3dB point	Note	Typical Applications
SCA1000-D01-*	XY	±1.7g	-40…+125°C	1.20V/g	50Hz	Also 11 bit SPI output	Automotive safety critical applications, IMU, industrial applications
SCA1020-D06-*	YZ	±1.7g	-40…+125°C	1.20V/g	50Hz	Also 11 bit SPI output	
SCA1000-N1000070-*	XY	±4g	-40…+125°C	0.55V/g	115Hz	Also 11 bit SPI output	
SCA100T-D07-*	XY	±12g	-40…+125°C	0.17V/g	400Hz	Also 11 bit SPI output	

* Available Reel sizes: SCA1000-D01-**1** (100 pcs reel), SCA1000-D01-**6** (600 pcs reel)

One Axis Digital Accelerometer; Digital (SPI) Output; Supply Voltage 3.3VDC

Part Number	Axis	Range	Temp Range	Sensitivity	-3dB point	Note	Typical Applications
SCA830-D06-*	Y	±2g	-40…+125°C	900LSB/g	50Hz	High Accuracy	
SCA820-D04-*	Z	±2g	-40…+125°C	900LSB/g	50Hz	High Accuracy	

* Available Reel sizes: SCA830-D06-**1** (100 pcs reel), SCA830-D06-**10** (1000 pcs reel)

Two Axis Digital Accelerometer; Digital (SPI) Output; Supply Voltage 3.3VDC

Part Number	Axis	Range	Temp Range	Sensitivity	-3dB point	Note	Typical Applications
SCA2120-D06-*	YZ	±2g	-40…+125°C	900LSB/g	45Hz		Automotive safety critical applications, IMU, industrial applications
SCA2110-D04-*	XZ	±2g	-40…+125°C	900LSB/g	45Hz		
SCA2100-D02-*	XY	±2g	-40…+125°C	900LSB/g	45Hz		

* Available Reel sizes: SCA2120-D07-**1** (100 pcs reel), SCA2120-D07-**10** (1000 pcs reel)

Three Axis Digital Accelerometer; Digital (SPI) Output; Supply Voltage 3.3VDC

Part Number	Axis	Range	Temp Range	Sensitivity	-3dB point	Note	Typical Applications
SCA3100-D04-*	XYZ	±2g	-40…+125°C	900LSB/g	45Hz		Automotive safety critical applications, IMU, industrial applications
SCA3100-D07-*	XYZ	±6g	-40…+125°C	650LSB/g	45Hz		

* Available Reel sizes: SCA3100-D04-**1** (100 pcs reel), SCA3100-D04-**10** (1000 pcs reel)

Inclinometers

Murata inclination sensors are an optimum choice for high accuracy leveling and inclination measurement instruments. The highest accuracy is available with the SCA103T series which uses a differential measurement principle to compensate for all common mode error and noise effects. The SCA103T output resolution is 0.0013°.

With the best shock durability available in the MEMS market, Murata inclinometers provide trouble-free measurements in moving machines, vehicles, airplanes, construction machines and handheld devices.

One Axis Inclinometer; Analog Output; Supply Voltage 5VDC

Part Number	Axis	Range	Temp Range	Sensitivity	-3dB point	Note	Typical Applications
SCA61T-FAHH1G-*	X	±30°, ±0.5g	-40…+125°C	4.0V/g	18Hz	Also 11 bit SPI output	Leveling instruments, moving machines, rotating lasers, construction levels
SCA61T-FA1H1G-*	X	±90°, ±1.0g	-40…+125°C	2.0V/g	18Hz	Also 11 bit SPI output	
SCA103T-D04-*	X	±15°, ±0.26g	-40…+125°C	16.0V/g	18Hz	HIGH PRECISION	
SCA103T-D05-*	X	±30°, ±0.5g	-40…+125°C	8.0V/g	18Hz	HIGH PRECISION	

* Available Reel sizes: SCA61T-FAHH1G-**1** (100 pcs reel), SCA61T-FAHH1G -**6** (600 pcs reel)

Two Axis Inclinometer; Analog Output; Supply Voltage 5VDC

Part Number	Axis	Range	Temp Range	Sensitivity	-3dB point	Note	Typical Applications
SCA100T-D01-*	XY	±30°, ±0.5g	-40…+125°C	4.0V/g	18Hz	Also 11 bit SPI output	Leveling instruments, moving machines, rotating lasers, construction levels
SCA100T-D02-*	XY	±90°, ±1.0g	-40…+125°C	2.0V/g	18Hz	Also 11 bit SPI output	

* Available Reel sizes: SCA100T-D01-**1** (100 pcs reel), SCA100T-D01-**6** (600 pcs reel)

One Axis Digital Inclinometer; Digital (SPI) Output; Supply voltage 3.3VDC

Part Number	Axis	Range	Temp Range	Sensitivity	-3dB point	Note	Typical Applications
SCA830-D07-*	Y	±90°, ±1.0g	-40…+125°C	32000LSB/g	6.25Hz		Automotive, moving machines

* Available Reel sizes: SCA830-D07-**1** (100 pcs reel), SCA83-D07-**10** (1000 pcs reel)

Gyroscopes and Combination MEMS

Murata develops and manufactures gyroscope components based on proven 3D MEMS technology and highly integrated electronics.

Industrial gyros offer a performance level that typically has been available only for expensive module products. The Allan Variance for the ±100°/s measuring range is less than 1°/h. The sensing elements and measuring circuitry are assembled into a pre- molded plastic dual-in-line (DIL) package, protected with silicone gel and covered with a stainless steel lid. All products are RoHS compatible and suitable for lead-free reflow soldering.

Angular Rate Sensor; Digital (SPI) Output; Supply Voltage 5VDC and 3.3VDC

Part Number	Axis	Range	Temp Range	Sensitivity	-3dB point	Note	Typical Applications
SCR1100-D02-*	X	±100°/s	-40…+125°C	50LSB /(°/s)	50Hz		Platform stabilization, motion analysis and control, guidance and navigation systems
SCR1100-D04-*	X	±300°/s	-40…+125°C	18LSB /(°/s)	50Hz		

* Available Reel sizes: SCR1100-D02-**05** (50 pcs reel), SCR1100-D02-**6** (600 pcs reel)

Angular Rate Sensor and 3-Axis Accelerometer Combo; Digital (SPI) Output; Supply Voltage 5VDC and 3.3VDC

Part Number	Axis	Range	Temp Range	Sensitivity	-3dB point	Note	Typical Applications
SCC1300-D02-*	X	±100°/s	-40…+125°C	50LSB /(°/s)	50Hz		Platform stabilization, motion analysis and control, guidance and navigation systems
	XYZ	±2.0g		1800LSB /g	45Hz		
SCC1300-D04-*	X	±300°/s	-40…+125°C	18LSB /(°/s)	50Hz		
	XYZ	±6.0g		650LSB /g	45Hz		

* Available Reel sizes: SCC1300-D02-**05** (50 pcs reel), SCC1300-D02-**6** (600 pcs reel)

For more information, please refer to the product datasheets available online at www.muratamems.fi

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