

# Sensors

Quarter 4, 2009  
SG1010Q42009 Rev 0

Datasheet.Live



## ACCELERATION SENSORS

### Low g Digital Output Consumer Acceleration Sensors

Product	Sensing Range (±g)	Sensing Axis	High Sensitivity (LSB/g)	I <sub>DD</sub> (µA)	Sleep Mode Response Time (Typ) (ms)	Start Up Response Time (Typ) (ms)	I <sub>DD</sub> for Modes Off/Power Down/Standby (µA)	V <sub>DD</sub> Supply Voltage (Typ) (V) V <sub>DD</sub> /V <sub>DD</sub>	Digital I/O Pins V <sub>DD</sub> Supply Voltage (Typ) (V)	Communication	Packaging
MMA7660FC	1.5	XYZ	21	47 at 1 sample/second	0.5	1/ODR (s)	0.4/2/2	2.8/1.8	1.8	I <sup>2</sup> C	3 x 5 x 0.9mm DFN
MMA7455L	2/4/8	XYZ	64	400	0.5	1.0	—/—/2.5	2.8/1.8	1.8	I <sup>2</sup> C/SPI	3 x 5 x 1.0 mm LGA

### Low g Analog Output Consumer Acceleration Sensors

Product	Sensing Range (±g)	Sensing Axis	Sensitivity (mV/V/g)	I <sub>DD</sub> (Typ) (mA)	Sleep Mode (Typ) I <sub>DD</sub> (µA)	Sleep Mode Response Time (Typ) (ms)	Start Up Response Time (Typ) (ms)	Rolloff Frequency (Hz)	V <sub>DD</sub> Supply Voltage (V)	Zero g Output (Typ) (V)	Packaging
MMA7361L	1.5/6	XYZ	800/200	0.4	3.0	0.5	1.0	400 (XY)/300 (Z)	2.2 – 3.6	1.65	3 x 5 x 1.0 mm LGA
MMA7368L	1.5	XYZ	800	0.4	3.0	0.5	1.0	400 (XY)/300 (Z)	2.2 – 3.6	1.65	3 x 5 x 1.0 mm LGA
MMA7341L	3/11	XYZ	440/118	0.4	3.0	0.5	1.0	400 (XY)/300 (Z)	2.2 – 3.6	1.65	3 x 5 x 1.0 mm LGA
MMA7331L	4/12	XYZ	308/84	0.4	3.0	0.5	1.0	400 (XY)/300 (Z)	2.2 – 3.6	1.4	3 x 5 x 1.0 mm LGA

### Low g Automotive and Industrial Acceleration Sensors

Product	Sensing Range (±g)	Sensing Axis	Sensitivity (mV/V/g)	Rolloff Frequency (Hz)	V <sub>DD</sub> Supply Voltage (Typ) (V)	Zero g Output (Typ) (V)	Output	Packaging
MMA2260EG	1.5	X	240	50	5.0	2.5	Analog	16-pin SOIC
MMA2240EG	7.0	X	60	400	5.0	2.5	Analog	16-pin SOIC
MMA1260EG	1.5	Z	240	50	5.0	2.5	Analog	16-pin SOIC
MMA1270EG	2.5	Z	150	50	5.0	2.5	Analog	16-pin SOIC
MMA1250EG	5.0	Z	80	50	5.0	2.5	Analog	16-pin SOIC
MMA1220EG	8.0	Z	50	250	5.0	2.5	Analog	16-pin SOIC

### Medium g Automotive and Industrial Acceleration Sensors

Product	Sensing Range (±g)	Sensing Axis	Sensitivity (mV/V/g)	Rolloff Frequency (Hz)	V <sub>DD</sub> Supply Voltage (Typ) (V)	Zero g Output (Typ) (V)	Output	Communication	Packaging
MMA6222EG	20/20	XY	24 counts/g	400	5.0	2.5	Digital	SPI	20-pin SOIC
MMA6222AEG	20/20	XY	23.4/23.4	400	5.0	2.5	Analog	—	20-pin SOIC
MMA3201EG	40	XY	10	400	5.0	2.5	Analog	—	20-pin SOIC
MMA2201EG	40	X	10	400	5.0	2.5	Analog	—	16-pin SOIC
MMA6255EG	50/50	XY	9.76 counts/g	400	5.0	2.5	Digital	SPI	20-pin SOIC
MMA6255AEG	50/50	XY	9.37/9.37	400	5.0	2.5	Analog	—	20-pin SOIC
MMA2202EG	50	X	8	400	5.0	2.5	Analog	—	16-pin SOIC
MMA3204EG	100/30	XY	4/13	400	5.0	2.5	Analog	—	20-pin SOIC
MMA3202EG	100/50	XY	4/8	400	5.0	2.5	Analog	—	20-pin SOIC
MMA621010EG	100/100	XY	4.88 counts/g	400	5.0	2.5	Digital	SPI	20-pin SOIC
MMA621010AEG	100/100	XY	4.68/4.68	400	5.0	2.5	Analog	—	20-pin SOIC
MMA2204EG	100	X	4	400	5.0	2.5	Analog	—	16-pin SOIC
MMA1213EG	50	Z	40	400	5.0	2.5	Analog	—	16-pin SOIC
MMA1210EG	100	Z	20	400	5.0	2.5	Analog	—	16-pin SOIC

### High g Automotive and Industrial Acceleration Sensors

Product	Sensing Range (±g)	Sensing Axis	Sensitivity (mV/V/g)	Rolloff Frequency (Hz)	V <sub>DD</sub> Supply Voltage (Typ) (V)	Zero g Output (Typ) (V)	Output	Packaging
MMA1211EG	150	Z	13	400	5.0	2.5	Analog	16-pin SOIC
MMA2301EG	200	X	10	400	5.0	2.5	Analog	16-pin SOIC
MMA1212EG	200	Z	10	400	5.0	2.5	Analog	16-pin SOIC
MMA2300EG	250	X	8.0	400	5.0	2.5	Analog	16-pin SOIC
MMA1200EG	250	Z	8.0	400	5.0	2.5	Analog	16-pin SOIC

## PRESSURE SENSORS

### Digital Pressure Sensors

Product Family <sup>1</sup>	Operating Supply Voltage (V)	Supply Current (µA)	Pressure Range (kPa)	Accuracy (kPa)	Compensated Temperature Range	Digital Interface	Package	Pressure Type <sup>2</sup>				
								A	D	G	V	
MPL115A1	2.4 - 5.5	10	50 - 115	±1	-20°C - 85°C	SPI	8-pin LGA	•				
MPL115A2	2.4 - 5.5	10	50 - 115	±1	-20°C - 85°C	I <sup>2</sup> C	8-pin LGA	•				

### Integrated Pressure Sensors

Product Family <sup>1</sup>	Pressure Rating Maximum (PSI)	Pressure Rating Maximum (kPa)	Pressure Rating Maximum (in H <sub>2</sub> O)	Pressure Rating Maximum (cm H <sub>2</sub> O)	Pressure Rating Maximum (mm Hg)	Full Scale Span (Typ) (Vdc)	Sensitivity (mV/kPa)	Accuracy 0°C to 85°C (% of VFSS)	Pressure Type <sup>2</sup>				
									A	D	G	V	
MPX4080	11.6	80	321	815	600	4.3	54	±3.0		•			
MPX4100	15.2	105	422	1070	788	4.6	54	±1.8	•				
MPX4101	14.8	102	410	1040	765	4.7	54	±1.72	•				
MPXH6101	14.8	102	410	1040	765	4.7	54	±1.73	•				
MPX4105	15.2	105	422	1070	788	4.6	51	±1.8	•				
MPX4115	16.7	115	462	1174	863	4.6	46	±1.5	•				
	16.7	115	462	1174	863	4.4	38	±1.5					•
MPX6115	16.7	115	462	1174	863	4.5	46	±1.5	•				
MPX4200	29	200	803	2040	1500	4.6	26	±1.5	•				
MPX4250	36	250	1000	2550	1880	4.7	20	±1.5	•				
	36	250	1000	2550	1880	4.7	19	±1.4			•		
MPXH6250	36	250	1000	2550	1880	4.7	20	±1.5	•				
MPXV4006	0.87	6.0	24	61	45	4.6	766	±5.0		•	•		
MP3V5004	0.57	4.0	16	40	29	3.0	1000	±2.5		•	•		•
MPXV5004	0.57	4.0	16	40	29	3.0	1000	±2.5		•	•		•
MP3V5010	1.45	10	40	102	75	4.5	450	±5.0		•	•		•
MPX5010	1.45	10	40	102	75	4.5	450	±5.0		•	•		•
MPXV5010	1.45	10	40	102	75	4.5	450	±5.0		•	•		•
MP3V5050	7.25	50	201	510	375	2.7	54	±2.5		•	•		•
MPX5050	7.25	50	201	510	375	4.5	90	±2.5		•	•		•
MP3V5100	14.5	100	401	1020	750	4.5	45	±2.5	•		•		•
MPX5100	14.5	100	401	1020	750	4.5	45	±2.5		•	•		•
	16.7	115	462	1174	863	4.5	45	±2.5	•		•		•
MPXV5100	14.5	100	401	1020	750	4.5	45	±2.5	•		•		•
MPX5500	72.5	500	2000	5100	3750	4.5	9.0	±2.5		•			•
MPX5700	102	700	2810	7140	5250	4.5	6.4	±2.5	•		•		•
MPX5999	150	1000	4150	10546	7757	4.5	4.5	±2.5		•			•
MPXH6300	44	304	1220	3100	2280	4.6	16.2	±1.5	•				•
MPXH6400	60	400	1600	4000	3000	4.6	12.1	±1.5	•				•
MPXV7002	±0.3	±2	±8	±20	±15.2	4.0	1000	±2.5		•			•
MP3V7007	±1.0	±7	±28	±70	±53	4.0	286	±5.0		•	•		•
MPXV7007	±1.0	±7	±28	±70	±53	4.0	286	±5.0		•	•		•
MPXV7025	±3.5	±25	±100	±254	±190	4.5	90	±5.0		•	•		•

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## PRESSURE SENSORS (continued)

### Compensated Pressure Sensors

Product Family <sup>1</sup>	Pressure Rating Maximum (PSI)	Pressure Rating Maximum (kPa)	Pressure Rating Maximum (in H <sub>2</sub> O)	Pressure Rating Maximum (cm H <sub>2</sub> O)	Pressure Rating Maximum (mm Hg)	Offset (mV)	Full Scale Span (Typ) (mV)	Sensitivity (mV/kPa)	Linearity Minimum (% of VFSS)	Linearity Maximum (% of VFSS)	Pressure Type <sup>2</sup>			
											A	D	G	V
MPX2010	1.45	10	40	102	75	±1.0	25	2.5	-1.0	1.0		•	•	
MPX2053	7.0	50	201	510	375	±1.0	40	0.8	-0.6	0.4		•	•	
MPX2102	14.5	100	400	1020	750	±2.0	40	0.4	-1.0	1.0	•	•	•	•
	14.5	100	400	1020	750	±1.0	40	0.4	-0.6	0.4				
MPX2202	29	200	800	2040	1500	±2.0	40	0.2	-1.0	1.0	•	•	•	
	29	200	800	2040	1500	±1.0	40	0.2	-0.6	0.4				
MPX2050	7.0	50	201	510	375	±1.0	40	0.8	-0.25	0.25		•	•	
MPX2100	14.5	100	400	1020	750	±2.0	40	0.4	-1.0	1.0	•	•	•	•
	14.5	100	400	1020	750	±1.0	40	0.4	-0.25	0.25				
MPX2200	29	200	800	2040	1500	±1.0	40	0.2	-1.0	1.0	•	•	•	
	29	200	800	2040	1500	±1.0	40	0.2	-0.25	0.25				

### Compensated Medical Grade Pressure Sensors

Product Family <sup>1</sup>	Pressure Rating Maximum (PSI)	Pressure Rating Maximum (kPa)	Pressure Rating Maximum (in H <sub>2</sub> O)	Pressure Rating Maximum (cm H <sub>2</sub> O)	Pressure Rating Maximum (mm Hg)	Supply Voltage (Typ) (Vdc)	Offset Maximum (mV)	Sensitivity (mV/kPa)	Linearity Minimum (% of VFSS)	Linearity Maximum (% of VFSS)	Pressure Type <sup>2</sup>			
											A	D	G	V
MPXC2011	1.45	10	40	102	75	3.0	1.0	2.5	-1.0	1.0			•	
MPX2300DT1	5.8	40	161	408	300	6.0	0.75	0.23	-1.5	1.5			•	

### Uncompensated Pressure Sensors

Product Family	Pressure Rating Maximum (PSI)	Pressure Rating Maximum (kPa)	Pressure Rating Maximum (in H <sub>2</sub> O)	Pressure Rating Maximum (cm H <sub>2</sub> O)	Pressure Rating Maximum (mm Hg)	Offset (Typ) (mV)	Full Scale Span (Typ) (mV)	Sensitivity (mV/kPa)	Linearity Minimum (% of VFSS)	Linearity Maximum (% of VFSS)	Pressure Type <sup>2</sup>			
											A	D	G	V
MPX10	1.45	10	40	102	75	20	35	3.5	-1.0	1.0		•	•	
MPX12	1.45	10	40	102	75	20	55	5.5	-0.5	5.0		•	•	
MPX53	7.0	50	200	510	375	20	60	1.2	-0.6	0.4		•	•	

<sup>1</sup> The primary core pressure sensor families are listed above. For orderable parts, please see page 10 or [www.freescale.com/sensors](http://www.freescale.com/sensors)

<sup>2</sup> A = Absolute, D = Differential, G = Gauge, V = Vacuum, • = Available

## TOUCH SENSORS

Product	Main Attributes	Shield Driver	No. of Channels	5 V Reg. Current Limit (mA)	Operating Voltage (V)	Operating Temp Range (°C)	Communications	Packaging
MPR121	12 touch pads (12 electrodes), digital position interface, debounced outputs.	No	12	n/a	1.71 - 3.6	-40° - 85°	I <sup>2</sup> C with $\overline{\text{IRQ}}$	20-pin QFN
MPR031	Controls two electrodes with $\overline{\text{IRQ}}$ and can have 3 electrodes without $\overline{\text{IRQ}}$ , extremely small package	No	3	n/a	1.71 - 2.75	-40° - 85°	I <sup>2</sup> C with $\overline{\text{IRQ}}$	8-pin $\mu$ DFN
MPR032	Ability to be the second address on the I <sup>2</sup> C bus, the MPR032 works in daisy chain with the MPR031 to reach up to 6 pads, extremely small package	No	3	n/a	1.71 - 2.75	-40° - 85°	I <sup>2</sup> C with $\overline{\text{IRQ}}$	8-pin $\mu$ DFN
MC33941EGR2	Sensitivity scaling with output frequency variation, shield driver, 7 electrodes, 5 V regulator, RF/environmental noise resistant, End of Life	Yes	7	75	9 - 18 (12 nominal)	-40° - 110°	n/a	24-pin SOICW

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## TIRE PRESSURE MONITORING SYSTEM (TPMS)

Product	Flash	RAM	RF Transmitter Frequency	Protocols Supported	Clock Type	Timer	Pressure Range	Pressure Sensor Accuracy	Package	Temperature Range	Status	Replacement Part	Alternate Parts	Market Focus
MPXY8300A	16 KB	512 B	315/434MHz	ASK and FSK Modulation	OSC	2-CH, 16-bit PWM	100 - 800 kPa	±10 kPa	SOIC-20 WB	-40 to 125°C	EOL	n/a	MPXY8600A	Automotive Pressure Range (with XZ-Axis Accelerometer)
MPXY8300B	16 KB	512 B	315/434MHz	ASK and FSK Modulation	OSC	2-CH, 16-bit PWM	100 - 800 kPa	±10 kPa	SOIC-20 WB	-40 to 125°C	EOL	n/a	MPXY8500B MPXY8500D	Automotive Pressure Range (with Z-Axis Accelerometer)
MPXY8300C	16 KB	512 B	315/434MHz	ASK and FSK Modulation	OSC	2-CH, 16-bit PWM	100 - 800 kPa	±10 kPa	SOIC-20 WB	-40 to 125°C	EOL	n/a	MPXY8500C	Automotive Pressure Range (without an Accelerometer)
MPXY8310A	16 KB	512 B	315/434MHz	ASK and FSK Modulation	OSC	2-CH, 16-bit PWM	100 - 450 kPa	±7 kPa	SOIC-20 WB	-40 to 125°C	EOL	n/a	MPXY8610A	Automotive Pressure Range (with XZ-Axis Accelerometer)
MPXY8310B	16 KB	512 B	315/434MHz	ASK and FSK Modulation	OSC	2-CH, 16-bit PWM	100 - 450 kPa	±7 kPa	SOIC-20 WB	-40 to 125°C	EOL	n/a	MPXY8510B MPXY8510D	Automotive Pressure Range (with Z-Axis Accelerometer)
MPXY8310C	16 KB	512 B	315/434MHz	ASK and FSK Modulation	OSC	2-CH, 16-bit PWM	100 - 450 kPa	±7 kPa	SOIC-20 WB	-40 to 125°C	EOL	n/a	MPXY8510C	Automotive Pressure Range (without an Accelerometer)
MPXY8320A	16 KB	512 B	315/434MHz	ASK and FSK Modulation	OSC	2-CH, 16-bit PWM	100 - 1500 kPa	±20 kPa	SOIC-20 WB	-40 to 125°C	EOL	n/a	MPXY8620A	Truck Tire Pressure Range (with XZ-Axis Accelerometer)
MPXY8320B	16 KB	512 B	315/434MHz	ASK and FSK Modulation	OSC	2-CH, 16-bit PWM	100 - 1500 kPa	±20 kPa	SOIC-20 WB	-40 to 125°C	EOL	n/a	MPXY8620B	Truck Tire Pressure Range (with Z-Axis Accelerometer)
MPXY8320C	16 KB	512 B	315/434MHz	ASK and FSK Modulation	OSC	2-CH, 16-bit PWM	100 - 1500 kPa	±20 kPa	SOIC-20 WB	-40 to 125°C	EOL	n/a	MPXY8620C	Truck Tire Pressure Range (without an Accelerometer)

## ZigBee® TECHNOLOGY PRODUCTS

The Freescale Semiconductor ZigBee Technology Products offer a comprehensive, scalable platform designed for a variety of monitoring, automation, and control applications in the home, commercial, industrial, and medical environments. The platform enables cost-effective, low-power applications ranging from simple point-to-point networks through fully compliant ZigBee mesh networks. Freescale is a complete one-stop-shop for wireless connectivity designs offering the MC1320x family of transceivers and the MC1321x family of System in a Package or SiP solutions (which contain both the MCU and transceiver in a single package). All solutions are supported by the easy to use BeeKit™ GUI-based software and the 1321x development hardware. The product offerings can be used to implement a variety of MAC options including the proprietary Simple MAC (SMAC), IEEE® 802.15.4 MAC, and the BeeStack™ fully compliant ZigBee stack. The Generation II MC1320x transceivers offer designers the alternative to select Freescale microcontrollers from the HCS08GB, HCS08GT, and HCS08QE series which connect to the transceivers through a 4-wire serial peripheral interface or SPI. Flexibility, easy to use products, software and hardware design tools, and the right performance at the right price provide embedded designers the optimized solution to meet their wireless personal area network (WPAN) application objectives.

### MC1320x Transceivers

Product	Supply Voltage (V)	Supply Current @ 1% Duty Cycle (Typ) mA	Standby Current (Typ) µA	Frequency Band GHz	Sensitivity @ 1% PER (Typ) dBm	Serial Interface	Data Rate (Spec) kbps	Tx/RX Switch	Communication Protocol	Packaging
MC13201FC (18B)	2.0 to 3.4	30, TX 37, RX	500	2.4-2.5	-92	SPI	250	Yes	Simple MAC	1311 (32 QFN)
MC13202FC (18B)	2.0 to 3.4	30, TX 37, RX	500	2.4-2.5	-92	SPI	250	Yes	Simple MAC/IEEE®802.15.4 MAC/BeeStack™	1311 (32 QFN)

### MC1321x System in a Package

The MC1321x System in Package or SiP solutions include Freescale's 2.4 GHz RF transceiver and the HCS08 microcontroller in a single package, providing for a cost-effective solution that reduces system external component counts. Similar to the MC1320x family of transceivers, the MC1321x SiP family supports a variety of MAC options including the proprietary Simple MAC (SMAC), IEEE 802.15.4 MAC, and the BeeStack fully compliant ZigBee stack. The MC13211 is the ideal option for Simple MAC networks which require a smaller memory footprint, 16KB of MCU memory. The MC13212 best supports the Simple MAC and IEEE 802.15.4 MAC networks with its 32KB of MCU memory. The MC13213 supports the Simple MAC, IEEE 802.15.4 MAC and the BeeStack networks with its 60KB of MCU memory.

### ZigBee-Compliant SiP Products

Product	CPU	Memory	Peripherals	Supply Voltage (V)	Supply Current @ 1% Duty Cycle, CPU @ 2MHz (Typ) mA	Standby Current (Typ) µA	Frequency Band (GHz)	Sensitivity @ 1% PER (Typ) dBm	Data Rate (Spec) kbps	Tx/RX Switch	Communication Protocol	Packaging
MC13211 (18m)	HCS08	16KB Flash 1KB RAM	I <sup>2</sup> C, SCI (2), Timer/PWM(2), KBI, 8-CH 10-bit ADC, Up to 32 GPIO	2.0 to 3.4	31.1, TX 38.1, RX	0.675	2.4-2.5	-92	250	Yes	Simple MAC	1664 (71-LGA)
MC13212 (18m)	HCS08	32KB Flash 2KB RAM	I <sup>2</sup> C, SCI (2), Timer/PWM(2), KBI, 8-CH 10-bit ADC, Up to 32 GPIO	2.0 to 3.4	31.1, TX 38.1, RX	0.675	2.4-2.5	-92	250	Yes	Simple MAC/IEEE®802.15.4 MAC	1664 (71-LGA)
MC13213 (18m)	HCS08	60KB Flash 4KB RAM	I <sup>2</sup> C, SCI (2), Timer/PWM(2), KBI, 8-CH 10-bit ADC, Up to 32 GPIO	2.0 to 3.4	31.1, TX 38.1, RX	0.675	2.4-2.5	-92	250	Yes	Simple MAC/IEEE®802.15.4 MAC/BeeStack™	1664 (71-LGA)

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## SENSOR TOOLBOX



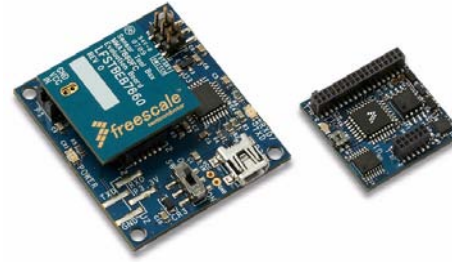
### **Plug-and-Play: Unified hardware, software and accessories for sensor applications**

Freescale's Sensor Toolbox offers a customizable selection of sensor development tools, accessories and software from Freescale's portfolio of acceleration, pressure and touch sensors. Sensors enrich designs with a broad range of capabilities in detecting real-world conditions, such as motion, touch or pressure.



#### **LFSTUSB: Accelerometer USB Communication Interface Board**

The LFSTUSB Accelerometer USB Communication Interface board is intended for use paired with the Accelerometer Development Board, purchased separately.



#### **LFSTBEB7660: MMA7660FC Accelerometer Development Board**

The LFSTBEB7660 MMA7660FC Accelerometer Development board is intended for use paired with an Accelerometer Interface Board, purchased separately.



#### **KITPRESSURE1EVB: Pressure Sensor USB Communication Interface Board**

The KITPRESSURE1EVB Pressure Sensor USB board is intended for use paired with the Accelerometer Development Board, purchased separately.



#### **KITMPXV5004DPEVB: MPXV5004DP Pressure Sensor Development Board**

The KITMPXV5004DPEVB MPXV5004DP Pressure Sensor Development board is intended for use paired with the Pressure Sensor Interface Board, purchased separately.



#### **KITMPR121EVM: MPR121 Touch Sensor Kit**

The KITMPR121EVM 12-Pad Touch Sensor Kit has electrode boards that can be used with this interface board or interchangeable with other Sensor Toolbox touch sensor kits.



#### **KITMPR03xEVM: MPR03x Touch Sensor Kit**

The KITMPR03xEVM 2 or 3-Pad Touch Sensor Kit has electrode boards that can be used with this interface board or interchangeable with other Sensor Toolbox touch sensor kits.

For a list of all Sensor Toolbox kits in the collection, visit [www.freescale.com/sensortoolbox](http://www.freescale.com/sensortoolbox)



## SENSOR DEVELOPMENT TOOLS



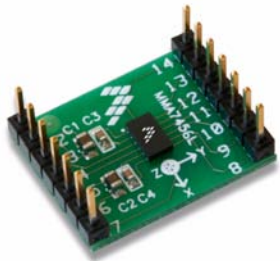
### ***RD3172MMA7456L: Multiple Wireless Sensing Triple-Axis Reference Design (ZSTAR3)***

The ZSTAR3, another successor to the popular STAR family accommodates multiple digital and analog accelerometer boards, connected through an RF ZigBee® 2.4 GHz communication to a single USB node connected to a PC.



### ***RD3803MMA7660FC: XYZ-axis Digital Accelerometer Evaluation and Development Board***

These evaluation boards can be used to demonstrate the multiple features of the MMA7660FC.



### ***KIT3468MMA745XL: XYZ-axis Digital Accelerometer Evaluation Board***

This evaluation board can be used to demonstrate key accelerometer features of the MMA7455L products.



### ***KIT3376MMA73X1L: XYZ-axis Evaluation Boards***

These evaluation boards can be used to demonstrate key accelerometer features of the MMA7361L, MMA7341L and MMA7331L products



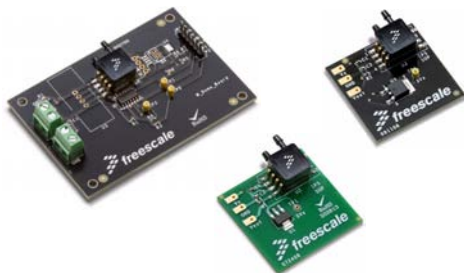
### ***KITMPL115A1SPI: MPL115A Digital Barometric Pressure Sensor Evaluation Board***

This evaluation board demonstrates the SPI communication protocol.



### ***KITMPL115A2I2C: MPL115A Digital Barometric Pressure Sensor Evaluation Board***

This evaluation board demonstrates the I<sup>2</sup>C communication protocol.



### ***KITLOPRESSMPX12: Low Pressure Evaluation Board for the MPX12 Family***

The KITLOPRESSMPX12 evaluation board accommodates all the packaging options with the MPX12 series of pressure sensors and can be used for very low pressure measurement applications.

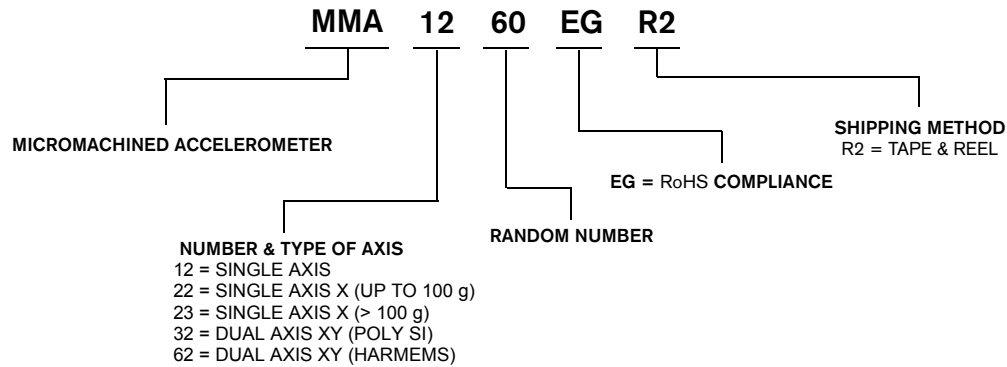


### ***Altitude Pressure EXperimental (APEX) Design: APEX Board***

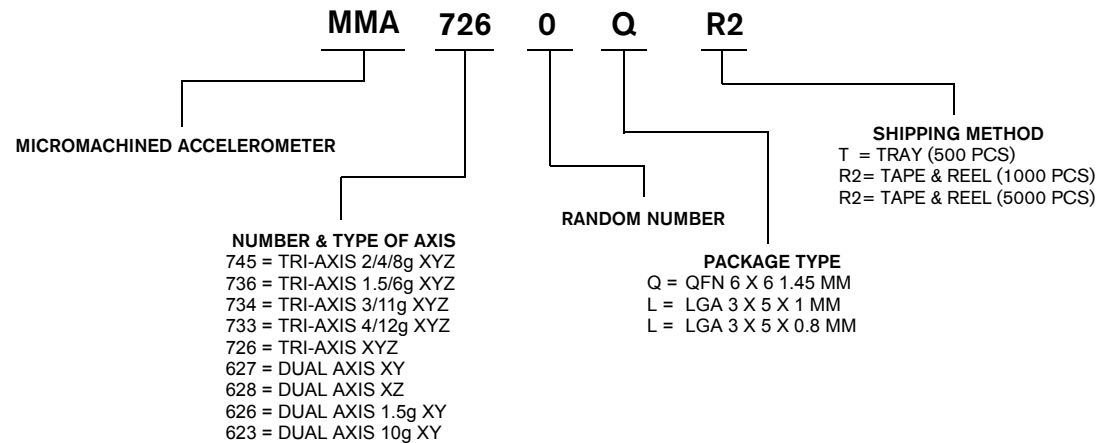
The APEX board showcases how pressure sensors can be used to detect altitude at high resolution.

# PRODUCT NUMBERING SYSTEM FOR ACCELEROMETERS

## AUTOMOTIVE DEVICES

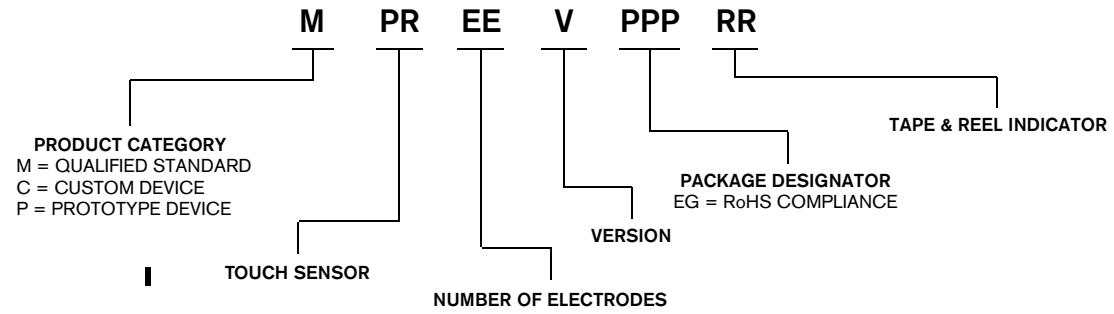


## CONSUMER DEVICES



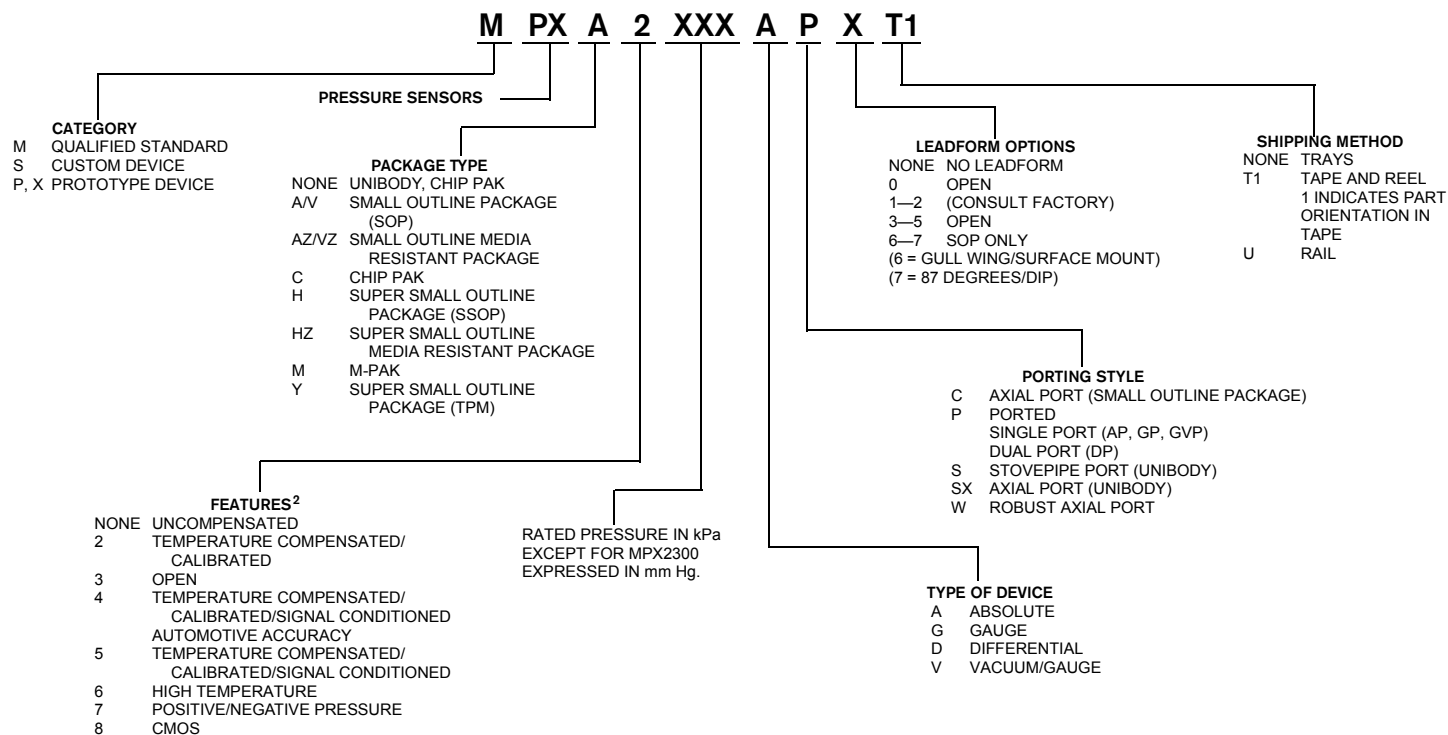


# PRODUCT NUMBERING SYSTEM FOR TOUCH SENSORS



A change bar appears in the left margin to mark the location of new or revised information.

# PRODUCT NUMBERING SYSTEM FOR PRESSURE SENSORS<sup>1</sup>



<sup>1</sup>Actual product marking may be abbreviated due to space constraints but packaging label will reflect full part number.

<sup>2</sup>Only applies to qualified and prototype products. This does not apply to custom products.

Examples:

MPX10DP 10 kPa uncompensated, differential device in minibody package, ported, no leadform, shipped in trays.

MPXA4115A6T1 115 kPa automotive temperature compensated and calibrated device with signal conditioning, SOP surface mount with gull wing leadform, shipped in tape and reel.

# PRESSURE SENSOR ORDERABLE PART NUMBERS

## Digital Pressure

MPL115A1T1
MPL115A2T1

## Integrated

MPXV7002DP
MPXV7002DPT1
MPXV7002GC6T1
MPXV7002GC6U
MPXV7002GP
MP3V5004DP
MP3V5004GC6T1
MP3V5004GC6U
MP3V5004GP
MP3V5004GVP
MPVZ5004G6T1
MPVZ5004G6U
MPVZ5004G7U
MPVZ5004GC6U
MPVZ5004GW6U
MPVZ5004GW7U
MPXV5004DP
MPXV5004GC6T1
MPXV5004GC6U
MPXV5004GC7U
MPXV5004GP
MPXV5004GPT1
MPXV5004GVP
MPVZ4006G6T1
MPVZ4006G6U
MPVZ4006G7U
MPVZ4006GW6U
MPVZ4006GW7U
MPXV4006DP
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MPXV4006GC6U
MPXV4006GC7U
MPXV4006GP
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MP3V7007GC6T1
MP3V7007GC6U

MP3V7007GP
MPXV7007DP
MPXV7007DPT1
MPXV7007G6T1
MPXV7007G6U
MPXV7007GC6T1
MPXV7007GC6U
MPXV7007GP
MPXV7007GPT1
MP3V5010DP
MP3V5010GC6T1
MP3V5010GC6U
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MPVZ5010G7U
MPVZ5010GW6U
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MPXV5010DP
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MPXV5010GC6U
MPXV5010GC7U
MPXV5010GP
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MPXV5050GC6U
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MPX5700DP
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MPX5700GP1

MPX5700GS
MPX5999D
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Compensated
MPX2300DT1
MPX2301DT1
MPX2010D
MPX2010DP
MPX2010GP
MPX2010GS
MPX2010GSX
MPXM2010D
MPXM2010DT1
MPXM2010GS
MPXM2010GST1
MPXV2010DP
MPXV2010GP
MPXC2011DT1
MPXC2012DT1
MPX2050D
MPX2050DP
MPX2050GP

MPX2050GSX
MPXM2051GS
MPXM2051GST1
MPX2053D
MPX2053DP
MPX2053GP
MPXM2053D
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MPXM2102GST1
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MPX2200D
MPX2200DP
MPX2200GP
MPX2202A
MPX2202AP

MPX2202ASX
MPX2202DP
MPX2202GP
MPXM2202A
MPXM2202AS
MPXM2202D
MPXM2202DT1
MPXM2202GS
MPXM2202GST1
MPXV2202DP
MPXV2202GC6T1
MPXV2202GC6U
MPXV2202GP

## Uncompensated

MPX10D
MPX10DP
MPX10GP
MPXV10GC6U
MPXV10GC7U
MPX12D
MPX12DP
MPX12GP
MPX12GW6U
MPX12GW7U
MPX53D
MPX53DP
MPXV53GC7U
MPX53GP

## Legend

Digital Pressure Sensors
Integrated
Compensated
Uncompensated

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