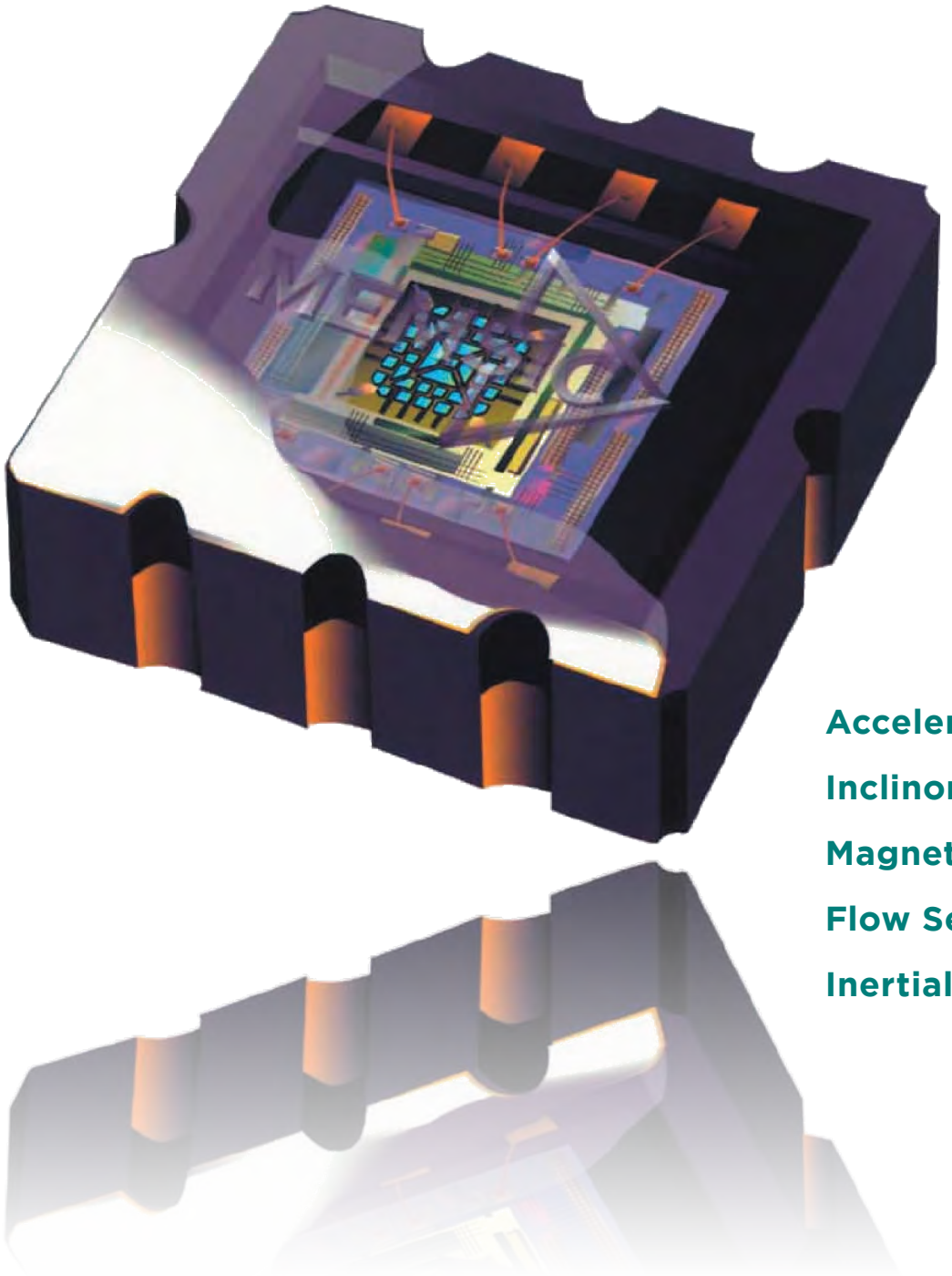
MEMSIC

Powerful Sensing Solutions

www.memsic.com



Accelerometers

Inclinometers

Magnetometers

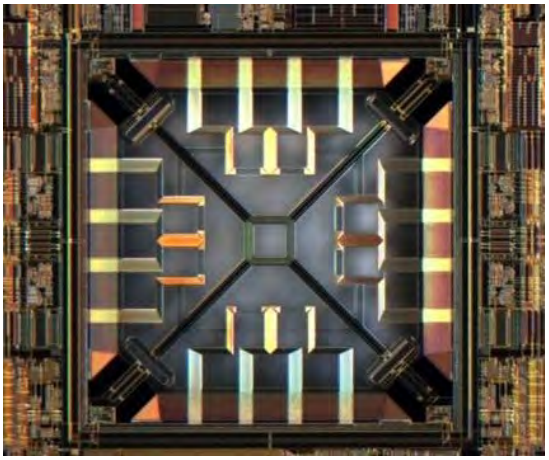
Flow Sensors

Inertial Systems

MEMSIC

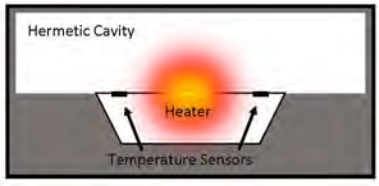
Powerful Sensing Solutions

www.memsic.com



Accelerometers

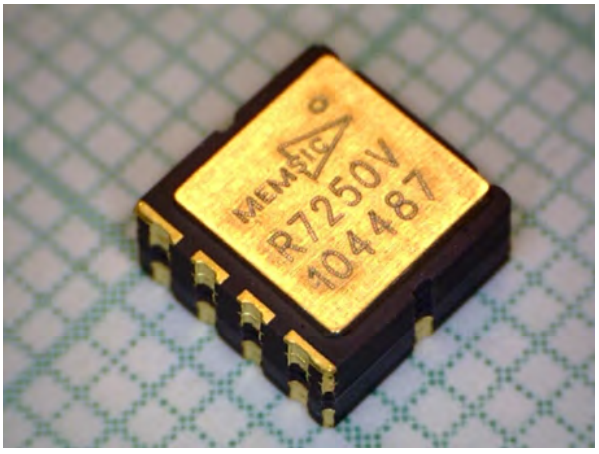
Patented Thermal Accelerometer Technology



Thermal accelerometer uses heated gas as "proof mass"

Typical Applications:

- Inclination Sensing
- Electronic Stability Control
- Motorcycle Tip-Over
- Car Alarm
- Headlight Leveling
- Navigation Assist
- Digital Cameras
- Keystone Correction
- Display Orientation
- Platform Stabilization
- . . . and many more



	Part Number	Axes	Range (+/- g)	Output
NEW	MXD6240AU	2 (XY)	8	1-pin
NEW	MXC6244AU	2 (XY)	8	I2C
	MXP7205VF	2 (XY)	5	SPI
	MXP7205VW	2 (XZ)	5	SPI
	MXR7305VF	2 (XY)	5	Analog
	MXR7250VW	2 (XZ)	5	Analog
	MXR9150MZ	3 (XYZ)	5	Analog
NEW	MXC6245XU	2 (XY)	2	I2C
	MXC6232xMP	2 (XY)	2	I2C
	MXC6255XU	2 (XY)	2	I2C
	MXC6255XC	2 (XY)	2	I2C
	MXC6235xQB	2 (XY)	1.5	I2C
	MXC6232xEP	2 (XY)	1.5	I2C
	MXR6500MP	2 (XY)	1.7	Analog
	MXR9500MZ	3 (XYZ)	1.7	Analog
	MXR7900CF	2 (XY)	1	Analog
	MXA2500EL	2 (XY)	1	Analog
	MXR2999EL	2 (XY)	0.5	Analog

** Partial Product List – For more complete list go to: http://www.memsic.com/accelerometers/*

Powerful Sensing Solutions

www.memsic.com

MEMSIC's unique thermal technology uses heated gas molecules to detect acceleration and is the fundamental principle behind our accelerometer IC products. This technology offers several advantages over the solid proof-mass structure, including:

- No measurable resonance (immunity to vibration)
- Virtually indestructible (50,000g shock tolerance)
- No stiction
- No detectable hysteresis
- Excellent zero-g offset stability
- Sensor & electronics integrated onto monolithic IC

Sensitivity	Offset Drift (mg/°C)	Bandwidth (Hz)	Noise (mg rms)	Supply Voltage (V)	Size (mm)	Temp. Comp. (ON OFF)	Other Features
N/A (Tip Over Comparator, 8 prog. angles)				2.7 – 5.5	3 x 3	On	Vibration Filter
1024 c/g	0.1	11	1.5	2.7 – 5.5	3 x 3	On	Prog Vibration Filter
800 c/g	0.1	29	2.7	4.5 - 5.2	5 x 5	On	AEC-Q100
800 c/g	0.1	29	2.7	4.5 - 5.3	5.5 x 5.5	On	AEC-Q100
0.25 V/g	0.3	27	3.1	4.5 - 5.3	5 x 5	On	AEC-Q100
0.25 V/g	0.3	27	3.1	4.5 - 5.3	5.5 x 5.5	On	AEC-Q100
0.15 V/g	1.0	17	2.5	2.7 - 3.6	7 x 7	On	True 3-axis perf.
1024 c/g	0.1	11	1.5	2.7 – 3.6	3 x 3	On	Low Offset T.C.
512 c/g	0.8	17	0.7	2.7 - 3.6	5 x 5	On	Temp Output
64 c/g	0.3	10	0.6	2.5 - 5.5	3 x 3	On	Low Cost 8-bit
64 c/g	0.6	10	0.9	2.5 - 5.5	1.2 x 1.7	On	Ultra-small size
512 c/g	0.1	8	0.4	2.7 - 3.6	5 x 5	Off	Temp Output
512 c/g	0.8	17	2.9	2.7 - 3.6	5.5 x 5.5	Off	Temp Output
0.5 V/g	1.5	17	1.6	2.7 - 3.6	5 x 5	On	
0.5 V/g	1.0	17	2.5	2.7 - 3.6	7 x 7	On	True 3-axis perf.
0.9 V/g	0.1	19	1.3	4.5 - 5.3	5 x 5	Off	AEC-Q100
0.5 V/g	0.4	17	0.8	3.0 - 5.5	5 x 5	Off	Temp Output
1 V/g	0.4	17	0.8	3.0 - 5.3	5 x 5	Off	Temp Output

** For more complete info go to: http://www.memsic.com/accelerometers/*

MEMSIC

Powerful Sensing Solutions

www.memsic.com

Magnetometers

MEMSIC offers magnetic sensor components for high performance OEM applications, as well as rugged magnetic modules for applications where a turnkey solution is required. MEMSIC magnetometers are used in millions of cell phones and tablets, due to their exceptional noise, wide dynamic range, and low power consumption.

MEMSIC's family of magnetometer components are available in both dual-axis and three-axis versions. They are based on anisotropic magnetoresistive (AMR) Permalloy technology sensors, which have superior accuracy and response time characteristics, while consuming significantly less power than alternative technologies. The MEMSIC magnetometers are ideal for electronic compass, GPS navigation and magnetic field detection applications.

MEMSIC simplifies sensor integration by providing calibration and Electronic Compass libraries, reducing design complexity and accelerating time-to-market.

The Electronic Compass libraries provide a highly accurate tilt compensated electronic compass with calibration that supports MEMSIC's latest generation of ultra low noise, low power magnetometers. High compass accuracy is enabled by the high performance and low noise of MEMSIC's AMR sensors.

These libraries leverage MEMSIC's many years of experience as an IMU developer to provide a high performance Electronic Compass that will address the most demanding applications.

FROST & SULLIVAN

2015 BEST PRACTICES AWARD

NORTH AMERICAN ANISOTROPIC MAGNEOTORESISTANCE SENSOR TECHNOLOGY INNOVATION AWARD

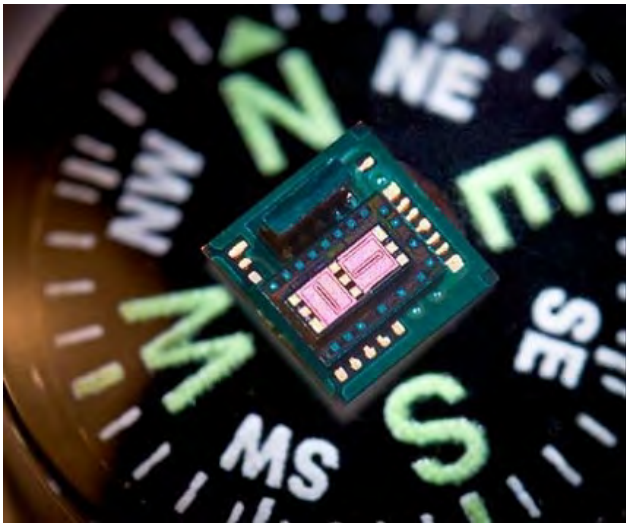
	Part Number	Axes	FSR (+/- G)	Interface	Sensitivity	Noise (mG rms)	Supply Voltage (V)	Supply Current* (mA)
	MMC246xMT	2	6	I2C	4096 c/G	0.8	1.62 - 3.6	0.05
NEW	MMC328xMA	3	8	I2C	512 c/G	1.0	1.62 - 3.6	0.3
	MMC5883MA	3	8	I2C	4096 c/G	0.6	1.62 - 3.6	0.1
	MMC3416xPJ	3	16	I2C	2048 c/G	1.5	1.62 - 3.6	0.02
	MMC3524xPJ	3	24	I2C	1024 c/G	2.0	1.62 - 3.6	0.02
	MMC3530KJ	3	30	I2C	1024 c/G	1.5	1.62 - 3.6	0.02

** Measured @ 7 conv/sec*

MEMSIC

Powerful Sensing Solutions

www.memsic.com



Typical Applications:

- Mobile Handsets/Tablets
- Wearables
- Head-Mounted Displays
- PND's
- Electronic Compass
- Detecting small magnetic fields
- ...and many more

Sleep Mode	Size (mm)	Automotive Qualified	S/R Offset Nulling
X	2 x 2	Call	X
X	2 x 2		
X	3 x 3	Call	X
X	1.6 x 1.6		X
X	1.6 x 1.6		X
X	1.4 x 1.4		X

MEMSIC

Powerful Sensing Solutions

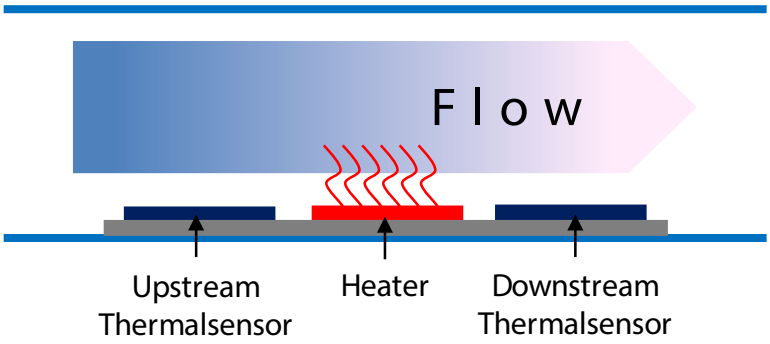
www.memsic.com

Flow Sensors

MEMSIC's flow sensors offer class leading dynamic range, power consumption, ease-of-use and integration. These sensors are designed to serve the need for mass flow sensing in applications such as process control, HVAC, medical, chemical, food and beverage, natural gas metering, and others. The MEMS mass flow sensing technology offers many advantages over traditional diaphragm gas flow measurement, including but not limited to:

- High rangeability (turn-down ratio)
- High accuracy
- Excellent low flow sensitivity
- Direct mass flow sensing
- Low pressure drop
- Very low power consumption
- No moving parts for long term reliability

MEMSIC's mass flow sensing module is based on patented MEMS thermal technology.



We are pleased to introduce two flow sensor product lines: MFC2000 and MFM2000. The MFC2000 is a rugged flow sensor capable of high inlet pressure up to 8 bar and available in PPSU or Aluminum. The MFM2000 is a low pressure drop sensor intended for low pressure medical ventilation and natural gas metering applications and can be configured with different types of inlet and outlet. Both can be offered with I2C or SPI interface.

MFC2000 bi-directional flow sensor.

Modular MFM2000 bi-directional flow sensor.

Part Number	Flow Range	Accuracy	Pressure Drop	Oper. Mode	Supply Voltage
	(SLM)	(% m.v.)	(mbar)	(mA)	(V)
MFC2000	+/- 30	3%	4	5	2.7 to 5.5
MFM2070	+/-70	3%	1.5	5	2.7 to 5.5
MFM2100	+/- 100	3%	1.5	5	2.7 to 5.5
MFM2250	+/- 250	3%	6.4	5	2.7 to 5.5

MEMSIC

Powerful Sensing Solutions

www.memsic.com

Differential Pressure Sensors

MEMSIC's new MDP200 product family of thermal differential pressure sensors has excellent performance for a wide variety of applications.

Features include:

- +/- 500 Pa (Custom Range Available)
- Digital I2C
- 16 bit Resolution
- 31.5% Accuracy Full Scale or
- +/- 3.0% of reading
- Barb Fittings or Manifold Mount
- Straight or Right Angle Pins
- > 0.25% Linearity

The MDP200 has high accuracy, high stability, and is competitively priced. The MDP200 is perfect for medical, industrial, and HVAC applications.

MEMSIC's new MDP200 series product family is modular and highly configurable. This includes options for barb or manifold mount.

Manifold Mount
Straight Pins

Barb Mount
90 Degree Pins

Industrial Applications

Medical Applications

Part Number	Flow Range	Accuracy	Output	Oper. Mode	Supply Voltage
	(Pa)	(% m.v.)		(mA)	(V)
MDP200	+/-500	3%	I2C/Analog	5	2.7 to 5.5

MEMSIC

Powerful Sensing Solutions

www.memsic.com

Inertial Measurement Units

- Patented SmartSensingTM Technology enables high accuracy and low bias drift
- Selection of 6-axis (gyro/accel) and 9-axis (gyro/accel/mag) sensor configurations
- Standard interfaces support remote mount (RS-232/422) and embedded (SPI/UART) applications
- Rugged enclosures for demanding environments and miniature modules for direct μP integration

IMU800

IMU440

IMU350

IMU380

	Part Number	Gyro Range (+/- °/s)	Accel Range (+/- g)	Mag Range (+/- G)	Gyro Bias (°/hr)	Accel Bias (μg)	Interface	Package
	IMU800CA-200	200	2	-	3	10	RS-232 RS-422	Standalone
	IMU800CA-210	200	10	-	3	10	RS-232 RS-422	Standalone
NEW	IMU480ZA-400	400	8	-	5	10	SPI UART	Embedded
NEW	IMU480ZA-409	400	8	4	5	10	SPI UART	Embedded
	IMU440CA-200	200	4	-	10	10	RS-232	IP66 Rated
	IMU440CA-400	400	10	-	20	10	RS-232	IP66 Rated
	IMU380ZA-200	200	4	-	10	20	SPI UART	Embedded
	IMU380ZA-209	200	4	4	10	20	SPI UART	Embedded
	IMU380ZA-400	400	8	-	10	20	SPI UART	Embedded
	IMU380ZA-409	400	8	4	10	20	SPI UART	Embedded
	IMU350CA-300	300	3	-	12	50	RS-232 RS-422	Standalone
NEW	IMU280ZA-200	200	4	-	30	50	SPI UART	Embedded Module

MEMSIC

Powerful Sensing Solutions

www.memsic.com

Attitude Heading Reference Systems (AHRS) Inertial Navigation Systems (INS)

- Patented SmartSensingTM technology combines EKF algorithms to achieve highest accuracy
- Flexible AHRS and INS system configurations with internal and external GPS receiver options
- Standard interfaces support remote mount (RS-232/422) and embedded (SPI/UART) applications
- Rugged enclosures for demanding environments and miniature modules for direct μP integration

AHRS500

NAV440

INS380

AHRS380

Attitude and Heading Reference System (AHRS)							
Part Number	Attitude Accuracy (°)	Heading Accuracy (°)	Gyro Range (+/- °/s)	Accel Range (+/- g)	Mag Range (+/- G)	Interface	Package
AHRS500CA-324	1.0	2.0	200	10	1	RS-232 RS-422	IP67 Rated
AHRS440CA-200	0.2	1.0	200	4	1	RS-232	IP66 Rated
AHRS440CA-400	0.2	1.0	400	10	1	RS-232	IP66 Rated
NEW AHRS380SA-200	0.2	1.0	200	4	4	RS-232 RS-422	Standalone
NEW AHRS380SA-400	0.2	1.0	400	8	4	RS-232 RS-422	Standalone
AHRS380ZA-200	0.2	1.0	200	4	4	SPI UART	Embedded
AHRS380ZA-400	0.2	1.0	400	8	4	SPI UART	Embedded

Inertial Navigation Systems (GPS/INS)							
Part Number	Position Accuracy (m CEP)	Velocity Accuracy (m/s)	Attitude Accuracy (°)	Heading Accuracy (°)	GPS Receiver	Interface	Package
NAV440CA-200	2.5	0.4	0.2	1.0	Internal	RS-232	IP66 Rated
NEW INS380SA-200	2.5	0.1	0.2	1.0	Internal	RS-232 RS-422	Standalone
NEW INS380ZA-200	2.5	0.1	0.2	1.0	External	SPI UART	Embedded

MEMSIC

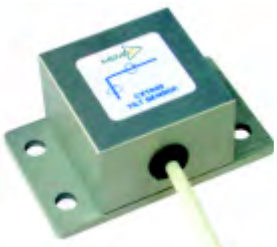
Powerful Sensing Solutions

www.memsic.com

Inclinometers

- Patented SmartSensingTM technology enables high accuracy in static and dynamic conditions
- Programmable Tilt Alarm features for safety system applications
- Analog and digital interfaces for easy integration into control systems
- Selection of enclosures to support a wide variety of operating environments

CXTLA01



CXTLA02-AL

CXTILT02-EC

MTLT1xxD

	Part Number	# of Axes	Operating Condition	Range (+/- °)	Resolution (° rms)	Output	Vin (V)	Interface	Enclosure
NEW	MTLT101D	2(XY)	Dynamic	180	0.1	Digital	9-32	RS-232	IP67 Plastic
NEW	MTLT105D	2(XY)	Dynamic	180	0.5	Digital	9-32	RS-232	IP67 Plastic
NEW	MTLT101S	2(XY)	Static	180	0.1	Digital	9-32	RS-232	IP67 Plastic
NEW	MTLT105S	2(XY)	Static	180	0.5	Digital	9-32	RS-232	IP67 Plastic
NEW	MTLT110S	2(XY)	Static	180	1.0	Digital	9-32	RS-232	IP67 Plastic
	CXTILT02EC	2(XY)	Static	75	0.05	Digital	8-30	RS-232	Aluminium
	CXTA02-AL-T	2(XY)	Static	75	0.05	Analog	6-30	Analog	Aluminium
	CXTA02-T	2(XY)	Static	75	0.05	Analog	6-30	Analog	Nylon
	CXTLA02-AL-T	2(XY)	Static	20	0.03	Analog	6-30	Analog	Aluminium
	CXTA01-T	1(XY)	Static	75	0.05	Analog	6-30	Analog	Nylon
	CXTLA02-T	2(XY)	Static	20	0.03	Analog	6-30	Analog	Nylon
	CXTLA01-T	1(XY)	Static	20	0.03	Analog	6-30	Analog	Nylon

MEMSIC

Powerful Sensing Solutions

www.memsic.com

Inertial Systems Applications

Precision
Farming

Mobile
Surveying

Stability
Control

Green
Energy

Ruggedized
Construction

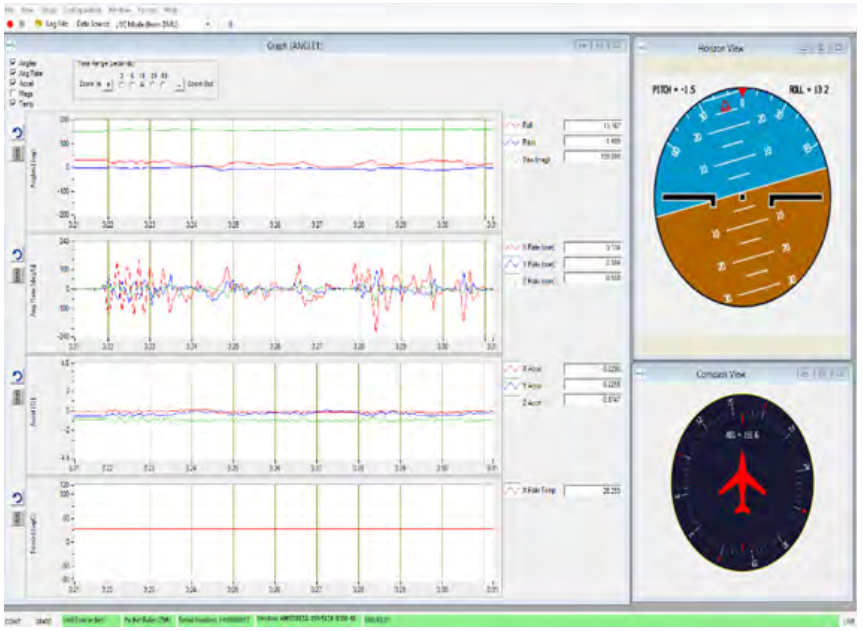
MEMSIC

Powerful Sensing Solutions

www.memsic.com

About Memsic

Founded in 1997, MEMSIC is focused on the development of products and solutions based on highly differentiated MEMS technology. We combine this MEMS technology with system integration and algorithms to deliver Powerful Sensing Solutions, which enable our customers to develop world-class products for a wide range of industrial, automotive, avionics, medical and consumer applications.



Customer Support:

MEMSIC offers world-class support to help our customers achieve their design goals and reduce time to market. Our application engineers and experts are available to solve complex sensor designs, and to provide complete turnkey solutions.

We also offer powerful design tools and evaluation systems for our products.

Quality Certifications and Policies:

MEMSIC's Quality Management System is certified to ISO 9001:2008 and to ISO/TS 16949:2009.
The Environmental Management System is certified to ISO 14001:2004.
Product/Process Change Notice (PCN) policy is in compliance with JESD46C.
Product Discontinuance Notice (PDN) policy is in compliance with JESD48A.

Corporate Locations:

Corporate Headquarters: One Tech Drive, Andover MA 01810
Systems Division: 3180 De La Cruz Blvd., Santa Clara CA 95054

For a complete list of sales and distribution locations and contacts please see our web site.

Learn more @ www.memsic.com