Accelerometer ACH-01

Piezoelectric Accelerometer
Wide Bandwidth; AC Coupled
Ultra Low Power
High G Ranges

The ACH-01 is an inexpensive, general purpose accelerometer with outstanding performance characteristics. The use of piezoelectric polymer film in the ACH-01 provides many cost/performance advantages that allow it to be used in a wide range of applications where the use of traditional accelerometer technology is impractical. It is specifically designed for high volume applications which require the permanent installation of an accelerometer.

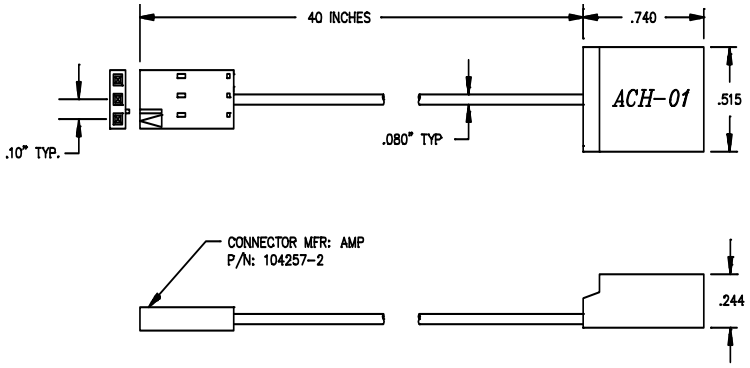
FEATURES

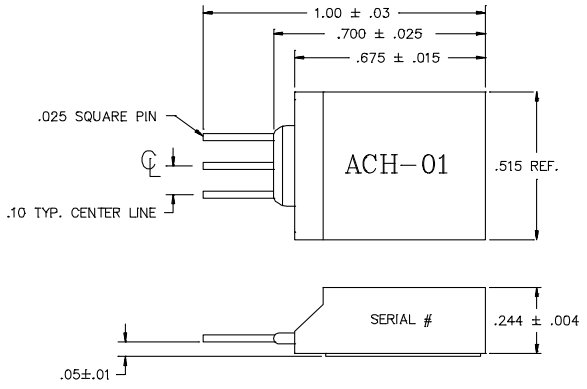
- Wide Frequency Response
- Excellent Phase Response
- Small Temperature Dependence
- Wide Supply Voltage Range
- Excellent Linearity
- Very High Resonant Frequency
- Wide Dynamic Range
- Low Transverse Sensitivity
- Wide Temperature Range
- Low Impedance Output
- Ultra Low Power

APPLICATIONS

- Machine Health Monitoring
- Model Analysis
- Automotive Sensors
- Appliances
- Feedback Control Systems

dimensions

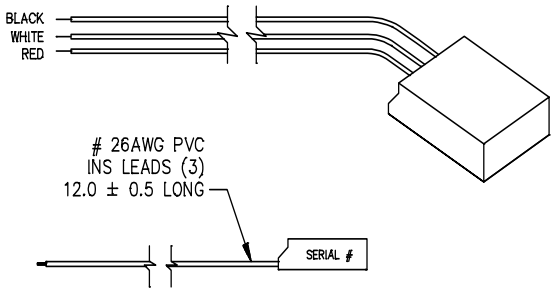




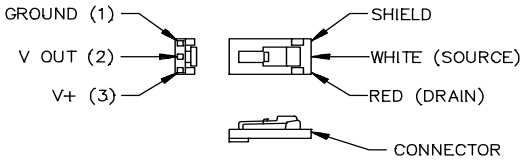
ACH-01-02 WITH PINS

Accelerometer ACH-01

dimensions (con't)



ACH-01-04 WITH WIRES



CONNECTOR DETAIL

performance specifications

PERFORMANCE (T=25EC)	Symbol	Min	Typ	Max	Units
Sensitivity	M_o	7	9	11	mV/g
Lower Frequency Limit (1)	f_l	--	2	5	Hz
Upper Frequency Limit(1)	f_u	10	20	--	kHz
Equivalent Noise Floor 10Hz 100Hz 1kHz		 -- -- --	 130 20 6	 -- -- --	$\mu g/\sqrt{Hz}$
Dynamic Range	--	∀150	--	--	g
Linearity	--	--	0.1	1.0	%
Transverse Sensitivity	M_t	--	2.0	5	%
Resonant Frequency	f_o	--	35	--	kHz
Phase Deviation (∀5E Limit)(6)	θ	10	--	10	kHz
Drain Voltage (6)	V+	3	--	40	Volts
Supply Current (6)	I_{dss}	30	--	90	µA
Output Impedance (6)	--	--	20	--	kΩ
ENVIRONMENTAL CHARACTERISTICS					
Operating Temperature (2)	T_o	-40	--	85	EC
Storage Temperature	T_s	-40	--	85	EC
Maximum Shock Level	A_m	1000	--	--	g
Base Strain Sensitivity (3)	--	--	0.3	--	g/µε
Transient Temp Sensitivity (4)	--	--	0.35	--	g/EC
PHYSICAL CHARACTERISTICS					
Weight (5) Cable	W	--	8	--	grams

(1) ∀3 dB limit (3) @ 250µε in base plane (5) Includes 40" cable and connector
(2) ∀2 dB from nominal M_o at 1kHz (4) @ 3Hz LLF (6) Typical Value

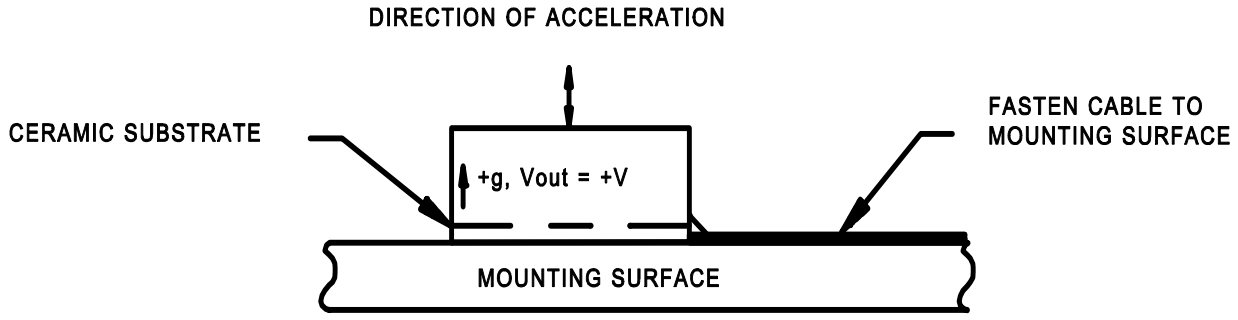
mounting requirements

Mounting methods play a critical role in determining the overall performance of any accelerometer. The ACH-01 is no exception. An improperly mounted accelerometer can give erroneous results. We recommend using an Adhesive Mounting Method.

The surface should be flat. The area where the ACH-01 is to be mounted should be thoroughly cleaned to remove any dirt or oil present on the surface. Use a quick setting, viscous methyl cyanoacrylate adhesive such as Loctite's Black Max or any epoxy such as Devcon's 5-Minute epoxy. Apply the adhesive sparingly to one surface following the manufacturer's directions. Apply pressure and allow the adhesive to set. Soft adhesives, such as double-sided tape or pressure sensitive adhesives, should not be used since they can adversely affect the ACH-01's performance. Cable should be adhered to the surface.

There is an interface amplifier available to simplify connection to the ACH-01, the IB-ACH-01. Please see the appropiate data sheet.

In an effort to keep the product cost low, the ACH-01 uses a ceramic substrate as the mounting base. Because of this, the ACH-01 is susceptible to base strain and temperature transient effects. A mechanically rigid and thermally non-conductive mounting surface is highly recommended to limit these effects. MEAS application engineers are available to recommend various mounting arrangements for your specific application.



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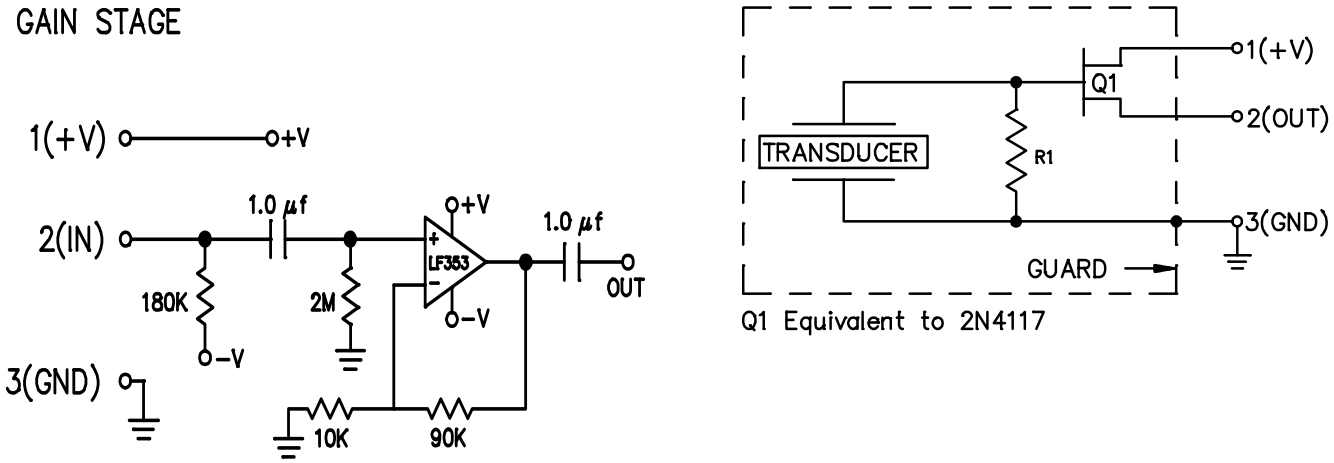
electrical interface circuits

The accelerometer ACH-01 accommodates various electrical interface circuits. A typical example is provided in the following figure. The ACH-01 equivalent electrical schematic is also shown.



ordering information

Description	Interface	Model No.	Part No.
Accelerometer	Pins	ACH-01-02	0-1000985-0
	Shielded Cable	ACH-01-03	1-1001220-0
	Discrete Wires	ACH-01-04	1-1001497-0
Amplifier	Amplifier Box	IB-ACH-01	1003058

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