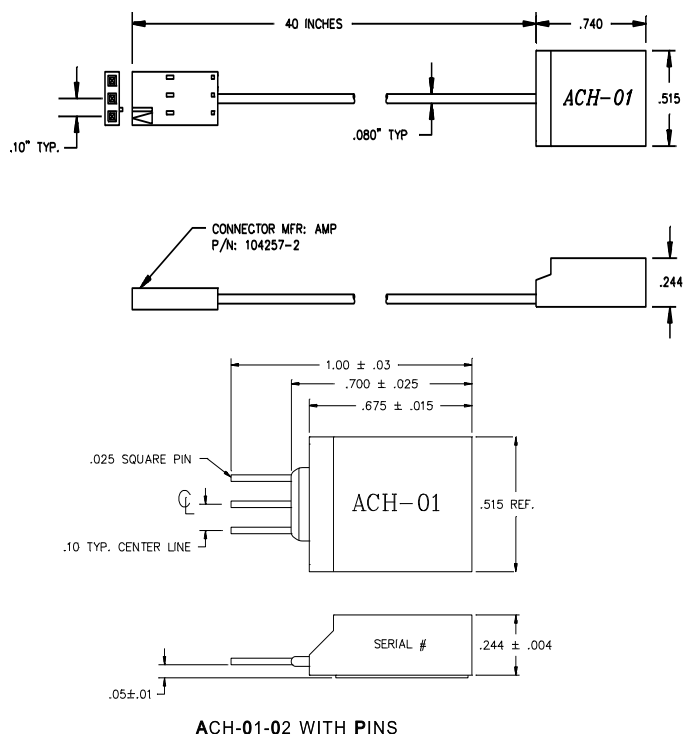


## dimensions



# ACCELEROMETER ACH-01

## SPECIFICATIONS

- ✦ 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.

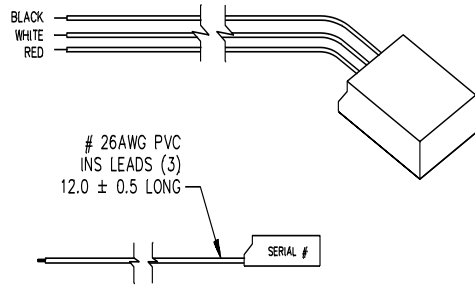
## FEATURES

- ✦ 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

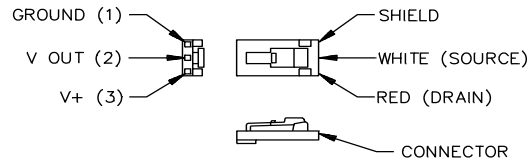
## APPLICATIONS

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

## ACCELEROMETER ACH-01



ACH-01-04 WITH WIRES



CONNECTOR DETAIL

## PERFORMANCE SPECIFICATIONS

PERFORMANCE (T=25℃)	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		--	130	--	$f/g/\sqrt{Hz}$
100Hz		--	20	--	
1kHz		--	6	--	
Dynamic Range	--	$\geq 150$	--	--	g
Linearity	--	--	0.1	1.0	%
Transverse Sensitivity	$M_t$	--	2.0	5	%
Resonant Frequency	$f_o$	--	35	--	kHz
Phase Deviation ( $\geq 5^\circ$ Limit)(6)	$\theta$	10	--	10	kHz
Drain Voltage (6)	V+	3	--	40	Volts
Supply Current (6)	$I_{dss}$	30	--	90	$\mu A$
Output Impedance (6)	--	--	20	--	k $\Omega$

### ENVIRONMENTAL CHARACTERISTICS

Operating Temperature (2)	$T_o$	-40	--	85	℃
Storage Temperature	$T_s$	-40	--	85	℃
Maximum Shock Level	$A_m$	1000	--	--	g
Base Strain Sensitivity (3)	--	--	0.3	--	g/ $\mu\epsilon$
Transient Temp Sensitivity (4)	--	--	0.35	--	g/℃

### PHYSICAL CHARACTERISTICS

Weight (5) Cable	W	--	8	--	grams
------------------	---	----	---	----	-------

(1)  $\geq 3$  dB limit

(2)  $\geq 2$  dB from nominal  $M_o$  at 1kHz

(3) @ 250 $\mu\epsilon$  in base plane

(4) @ 3Hz LLF

(5) Includes 40" cable and connector

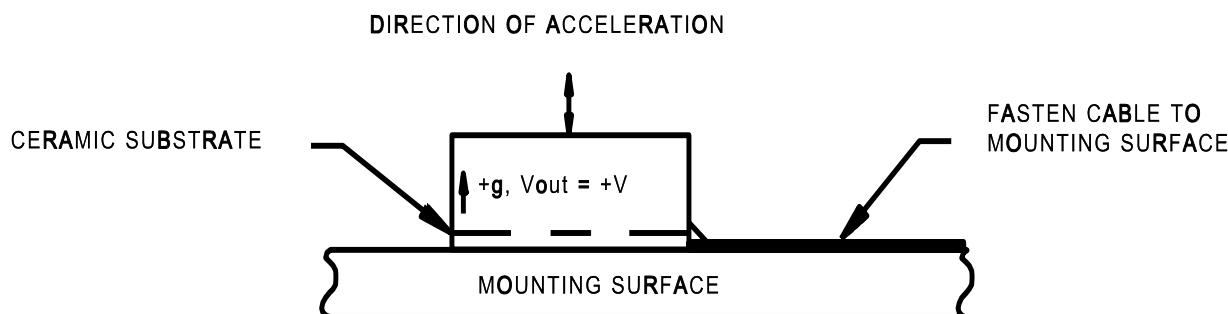
(6) Typical Value

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<sup>TM</sup> 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.

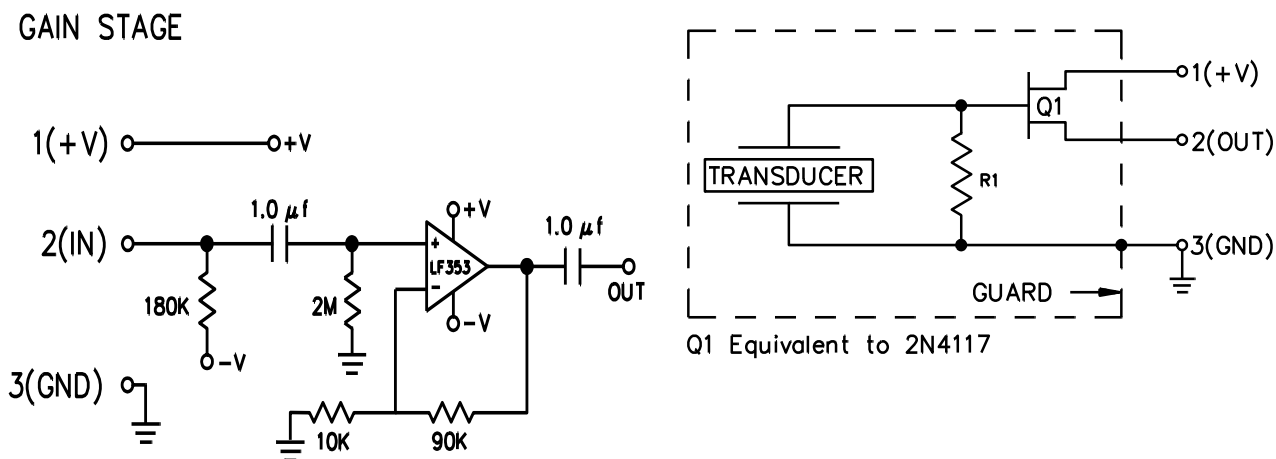
There is an interface amplifier available to simplify connection to the ACH-01, the IB-ACH-01. Please see the appropriate data sheet.

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.



## 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.



## ACCELEROMETER ACH-01

---

The information in this sheet has been carefully reviewed and is believed to be accurate; however, no responsibility is assumed for inaccuracies. Furthermore, this information does not convey to the purchaser of such devices any license under the patent rights to the manufacturer. Measurement Specialties, Inc. reserves the right to make changes without further notice to any product herein. Measurement Specialties, Inc. makes no warranty, representation or guarantee regarding the suitability of its product for any particular purpose, nor does Measurement Specialties, Inc. assume any liability arising out of the application or use of any product or circuit and specifically disclaims any and all liability, including without limitation consequential or incidental damages. Typical parameters can and do vary in different applications. All operating parameters must be validated for each customer application by customer's technical experts. Measurement Specialties, Inc. does not convey any license under its patent rights nor the rights of others.

## 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