Willburger GmbH Kreativität & Handel
Auf der Schuchen 11, 82418 Seehausen/Germany

A45 MEMS ACCELEROMETER

- **Low Cost & High Performance MEMS Single Axis Accelerometer**
- **Wide G Range Option** *20g to 70g*
- **Low Noise** *0.2mg/√Hz for 20g*
- **Excellent Bias** *≤ 2mg for 20g 1σ*
- **Bias Repeatability** *3mg for 20g*
- **Axis Alignment** *< 8mrad 1σ*
- **Low Power** *< 8 mA Typical*
- **Light Weight** *< 15 grams*
- **Low Voltage** *+5V (single sided power)*
- **Bandwidth** *400Hz*
- **Voltage Output** *0 ± 4.5V*
- **Reference Voltage** *2.5V*
- **Rugged EMI Resistant Packaging**
- **Internal Temperature Sensor**
- **Self Test**
- **Shock Resistant** *500g*
- **Vibration** *6gRMS to 20 gRMS*
- **Long Life**

High g-Range, Excellent Bias, Light Weight and Low Power

Export Classification: Commerce ECCN7A001

The all new A45 MEMS High Performance Single Axis Accelerometer offers both low noise and excellent bias and low power in a small light weight form factor. Designed for commercial marine, train and aircraft applications that require high-g inputs and excellent performance, the unit utilizes standard +5V DC power and the voltage output is non-ratiometric to power. The signature features of the A45 are our low noise, impressive bias over temperature performance, low power consumption, light weight and easy pinout interface. The unit is highly durable and can withstand environmental vibration and shock typically associated with commercial aircraft requirements. The unit has no inherent wear-out modes for long life. In addition, the A45 has a rugged black anodized case for environmental sealing. The A45 MEMS Accel offers standard g ranges of ±20g up to ±70g . The A45 is designed for high-g applications including industrial instrumentation, dynamic motion monitoring, automotive crash testing, commercial marine motion monitoring systems, platform motion monitoring systems, general aviation as well as laboratory use where low noise, excellent bias, small form factor and rugged durability at low cost are required. Thermal model available - consult factory.

Gladiator Technologies
High Performance Inertial MEMS

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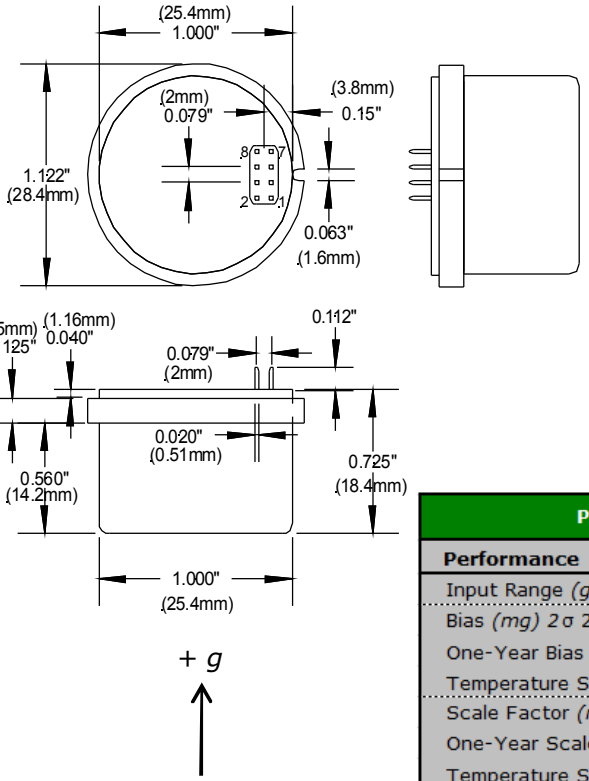

A45 Accel Std. Part Numbers
A45-20-200
A45-35-200
A45-50-200
A45-70-200

Pin No.	Pin Assignment
1	Accel Output Voltage 0V *Nominal*
2	Temperature +2.5V @ 25°C
3	Power Ground
4	+2.5V Reference Voltage Output
5	**+4.75V to +5.25V DC Input**
6	Signal Ground
7	Self Test Input
8	Case

Accel output is Pin 1 with respect to Pin 6. Temperature is Pin 2 with respect to Pin 6. Self Test On is 3.3V to 5V on Pin 7. Self Test Off is open or < 1V. Accel Load: <100pf >5kΩ Vref and Temp < 500pf >5kΩ

Preliminary Specification

PARAMETER	A45-20-200	A45-35-200	A45-50-200	A45-70-200
Performance				
Input Range *(g)*	20	35	50	70
Bias *(mg) 2σ* 20°C	2	4	5	7
One-Year Bias Repeatability *(mg) 1σ*	3	4	5	6
Temperature Sensitivity *(µg/°C) 1σ*	300.0	300.0	400.0	500.0
Scale Factor *(mV/g) Nominal*	110	65	45	30
One-Year Scale Factor Stability *(ppm)*	<1000	<1500	<1500	<2000
Temperature Sensitivity *(ppm/°C) 1σ*	<700	<700	<700	<700
Axis Alignment *(mrad) 1σ*	8	8	8	8
Vibration Rectification *(mg/g² rms) 1σ*	0.10	0.10	0.08	0.05
Intrinsic Noise *(mg/√Hz) 1σ*	0.2	0.6	0.7	0.9
Resolution/Threshold *(mg) @ 1Hz*	0.10	0.30	0.35	0.45
Bandwidth *(Hz)*	400	400	400	400
Self Test (logic "1" applied) delta g	5 ± 2g	5 ± 2g	5 ± 2g	5 ± 2g
Environments				
Operating Temperature	- 40°C to + 85°C			
Storage Temperature	- 55°C to + 100°C			
Vibration Operating	6gRMS			
Shock	500g, any axis			
Thermal Modeling				
	Available			
Electrical				
Input Voltage	+5V ± 0.25V(ratiometric)			
Power Consumption	8mA *typical*			
	10mA *maximum*			
Physical				
Weight (grams)	< 15 grams			
Size (less flange)	(25.4mm Dia. X 18.4mm)			
Case Material	Anodized Aluminum			

Specification subject to change without notice

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