



## motionSENSOR BS2166 Acceleration Sensor ±2g / ±50g

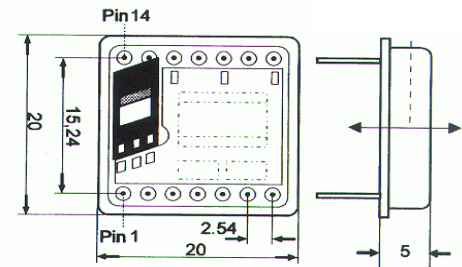
- ratiometric
- PWM Output
- single Axis
- ±2g / ±50g



Physical Parameters	min	max	min	max
Type	BS2166 ±2g		BS2166 ±50g	
Range	±2g		±50g	
Resolution	1mg		10mg	
Transverse Sensitivity	5%		5%	
Hysteresis	0g		0g	
Non-Linearity	±2%		±2%	
Zero Offset	3%		3%	
Sensitivity Error	2%		2%	
Frequency Limit (-3dB)	20Hz		100Hz	

Electrical Parameters				
Excitation Voltage	3VDC	5.5VDC	3VDC	5.5VDC
Quiescent Current	1mA		1mA	
Zero Signal	1:1		1:1	
Output Signal	PWM, basic frequency about 20kHz			
Output	CMOS compatible			

Environmental				
Operating Temperature	-40°C	+85°C	-40°C	+85°C
Range	(-40F)	(+185F)	(-40F)	(+185F)
Shock	1000g		1000g	
Case Material	stainless Steel			
Seal	IP67		IP67	
Plug	AMP Superseal 1.5			



All Specifications at +25°C (+77°F) and 5V<sub>DC</sub>, unless other defined.

We reserve to make technical alterations without prior notice.

### Designation and Ordering Information

BS2166 [ ]  
\_\_\_\_\_ [±2g] / [±50g]

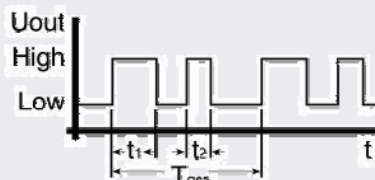
### Output ±2g:

$$\alpha = 2 * ((2 * (t_1 + t_2) / T_{ges}) - 1)$$

### Output ±50g:

$$\alpha = 50 * ((2 * (t_1 + t_2) / T_{ges}) - 1)$$

### Acceleration Signal:



Please note: Because of electronics inside two peaks (t<sub>1</sub> and t<sub>2</sub>) are necessary to calculate acceleration.

### Connections:

Pin 1, 2, 8, 14 GND  
Pin 12 Power  
Pin 11 Output

### Hints for Assembling:

- solderable at 260°C 10s max
- RoHS compliant
- don't bend pins
- cutting of pins is stress for glass-to-metal seals, please only cut after soldering