



## PRODUCT SELECTION GUIDE

Start your product selection on page 2

# Zero-Power MIL-SPEC G-Switches for Aerospace & Defense

Zero power consumed until triggered by the acceleration signal



### PassiveMicro®

*"When Power & Size Are Not An Option"*



| Impact

| Spin

| Launch

ITAR Certified US Government Defense Contractor and ISO 9001:2015 Certified



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# Selecting MIL-SPEC Inertial G-Switches for Aerospace & Defense

**START HERE**


## Features

Small Size -  
Approx. 1.84 x 1.84 x 1.3 mm

Lightweight - 20 milligrams

Fast Response Time -  
< 50 to 650  $\mu$ s

Shock Survival -  
> 65,000 + g

Environmental Seal

Surface Mount -  
Au over Ni Pads

Multiple Acceleration Sensing  
Options

Tape and Reel Packaging

ROHS Compliant

**Selection by Acceleration Orientation** - Determine your specs and then go to the page.

BOTTOM CONTACT			
Model	Contact Acceleration Threshold	Contact Orientation	Page #
Model AT-15-B	10 to 20 g	Bottom Contact	4
Model AT-22-B	18 to 27 g	Bottom Contact	5
Model AT-65-B	50 to 80 g	Bottom Contact	6
Model AT-225-B	150 to 300 g	Bottom Contact	7
Model AT-500-B	350 to 650 g	Bottom Contact	8
Model AT-1300-B	1000 to 1600 g	Bottom Contact	9
Model AT- 2700-B	2400 to 3000 g	Bottom Contact	10
Model AT- 5000-B	3000 to 6000 g	Bottom Contact	11
SIDE & BOTTOM CONTACT			
Model	Contact Acceleration Threshold	Contact Orientation	Page #
Model AT-65-SB	50 to 80 g	Side & Bottom Contact	12
Model AT-500-SB	350 to 650 g	Side & Bottom Contact	13
SIDE CONTACT			
Model	Contact Acceleration Threshold	Contact Orientation	Page #
Model AT-25-S	15 to 30 g	Side Contact	14
Model AT-850-S	700 to 1000 g	Side Contact	15
Model AT-1300-S	1000 to 1300 g	Side Contact	16
Model AT-12000-S	11000 to 13000 g	Side Contact	17
Model AT-300-S7	150 to 300 g	Spin Detection Contact	18
Model AT-12000-S7	11000 to 13000 g	Spin Detection Contact	19
TOP CONTACT			
Model	Contact Acceleration Threshold	Contact Orientation	Page #
Model AT-50-T	40 to 70 g	Top Contact	20
Model AT-1500-T	1000 to 2000 g	Top Contact	21
Model AT-5000-T	3000 to 6000 g	Top Contact	22
TOP & SIDE CONTACT			
Model	Contact Acceleration Threshold	Contact Orientation	Page #
Model AT-65-TS	50 to 80 g	Top & Side Contact	23
OMNI CONTACT			
Model	Contact Acceleration Threshold	Contact Orientation	Page #
Model AT-500-O	350 to 750 g	Top Contact	24

NOTE: Listed response times are typical. See application note "Response time calculations" for more details.



**Application Notes Coming Soon**

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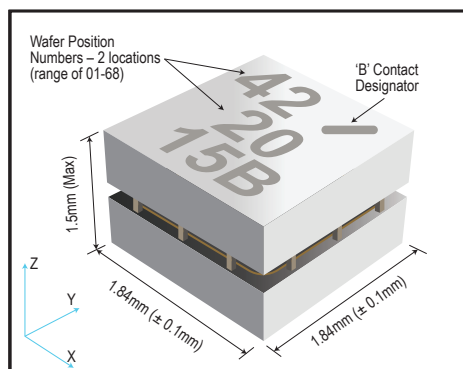
## MIL-SPEC Inertial G-Switches

## BOTTOM CONTACT

## Model AT-15-B



## Dimensions



## Features

- Small and Lightweight • 3.4 mm<sup>2</sup>
- Extremely Fast Response Times
- High Shock Survivability • 65,000+ g
- Surface Mount • Au over Ni Pads
- Tape and Reel Packaging
- Environmental Seal

## Applications

- Target Detection
- Arming / Fuzing
- Launch Detection

## Specifications

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## OPERATING CHARACTERISTICS

Sensitivity	+Z (normal to PCB)
Contact Acceleration Threshold	10 to 20 g
Contact Type (3)	Normally Open, Non-Latching
Response Time (2)	< 550 µs
Reset	Automatic with g decay

## ELECTRICAL CHARACTERISTICS

Contact Resistance (1)	< 10 ohms
Insulation Resistance	>1000 Mohm
Breakdown Voltage	>200 VDC

## ENVIRONMENTAL CHARACTERISTICS

Operate Temperature Range	-55 to +125 °C
Storage Temperature Range	-55 to +125 °C
PCB/Pad Shear Force	> 20 N
Shock Survival (4)	>65000 g

## PHYSICAL CHARACTERISTICS

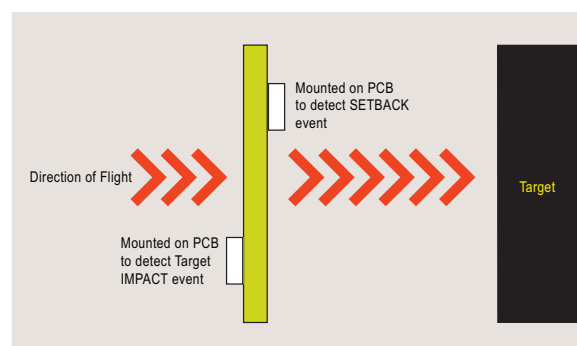
Nominal Dimensions (LxWxH)	1.84 x 1.84 x 1.3 mm
Volume	3.7 mm <sup>3</sup>
Mass	20 milligrams
ROHS Compliant?	Yes

- (1) Contact resistance is dependent on input pulse acceleration level.
- (2) Response time is for a 500g half-sine pulse with 500 microsecond duration. Response time is measured from the start of the acceleration pulse.
- (3) Electrical connections between pads 'C'(common) and and 'B' (bottom) are normally open and will close while acceleration is greater than the contact acceleration threshold.
- (4) The Micro G Switch devices are designed to survive the extreme high shock environments associated with artillery launch events.

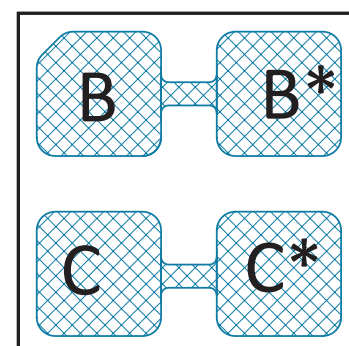


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This diagram provides guidance on how to mount the switch for setback or impact detection.



AT-15-B Pad View

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MIL-SPEC Inertial G-Switches

**BOTTOM CONTACT**

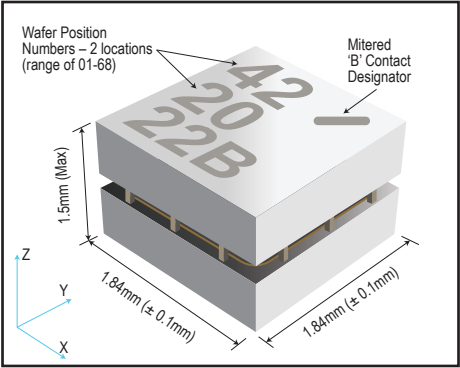
**Model AT-22-B**



**PassiveMicro®**

“When Power & Size Are Not An Option”

**Dimensions**



**Features**

- Small and Lightweight • 3.4 mm<sup>2</sup>
- Extremely Fast Response Times
- High Shock Survivability • 65,000+ g
- Surface Mount • Au over Ni Pads
- Tape and Reel Packaging
- Environmental Seal

**Applications**

- Target Detection
- Arming / Fuzing
- Launch Detection

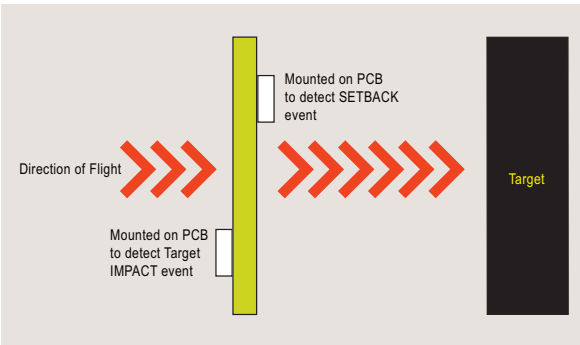
**Specifications**

OPERATING CHARACTERISTICS	
Sensitivity	+Z (normal to PCB)
Contact Acceleration Threshold	15 to 28 g
Response Time (2)	< 600 µs
Contact Type (3)	Normally Open, Non-Latching
Reset	Automatic with g decay
ELECTRICAL CHARACTERISTICS	
Contact Resistance (1)	< 10 ohms
Insulation Resistance (min.)	1000 Mohm
Breakdown Voltage	> 200 VDC
ENVIRONMENTAL CHARACTERISTICS	
Operate Temperature Range	-55 to +125°C
Storage Temperature Range	-55 to +125°C
PCB/Pad Shear Force	> 20 N
Package Shear Force	> 5 N
Shock Survival (4)	> 65000 g
PHYSICAL CHARACTERISTICS	
Nominal Dimensions (LxWxH)	1.84 x 1.84 x 1.3 mm
Volume	3.7 mm <sup>3</sup>
Mass	< 25 milligrams
ROHS Compliant?	Yes

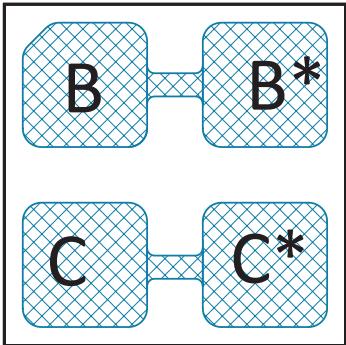
- (1) Contact resistance is dependent on input pulse acceleration level.
- (2) Response time is for a 500g half-sine pulse with 500 microsecond duration. Response time is measured from the start of the acceleration pulse.
- (3) Electrical connections between pads 'C'(common) and and 'B' (bottom) are normally open and will close while acceleration is greater than the contact acceleration threshold.
- (4) The Micro G Switch devices are designed to survive the extreme high shock environments associated with artillery launch events.

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This diagram provides guidance on how to mount the switch for setback or impact detection.



AT-22-B Pad View

Aerospace & Defense

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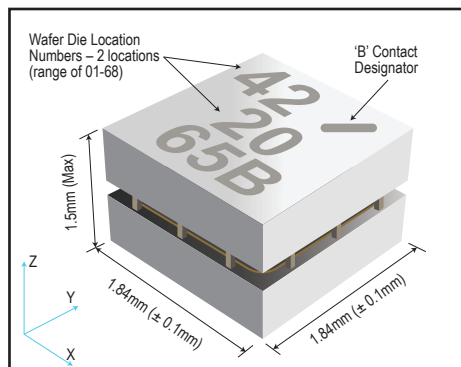
## MIL-SPEC Inertial G-Switches

## BOTTOM CONTACT

## Model AT-65-B



## Dimensions



## Features

- Small and Lightweight • 3.4 mm<sup>2</sup>
- Extremely Fast Response Times
- High Shock Survivability • 65,000+ g
- Surface Mount • Au over Ni Pads
- Tape and Reel Packaging
- Environmental Seal

## Applications

- Target Detection
- Arming / Fuzing
- Launch Detection

## Specifications

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## OPERATING CHARACTERISTICS

Sensitivity	+Z (normal to PCB)
Contact Acceleration Threshold	50 to 80 g
Contact Type (3)	Single Pole, Normally Open, Non-Latching
Response Time (2)	< 50 µs
Reset	Automatic with g decay

## ELECTRICAL CHARACTERISTICS

Contact Resistance (1)	< 10 ohms
Insulation Resistance (min.)	1000 Mohm
Breakdown Voltage	>230 VDC

## ENVIRONMENTAL CHARACTERISTICS

Operate Temperature Range	-55 to +125 °C
Storage Temperature Range	-55 to +125 °C
PCB/Pad Shear Force	> 20 N
Shock Survival (4)	>65000 g

## PHYSICAL CHARACTERISTICS

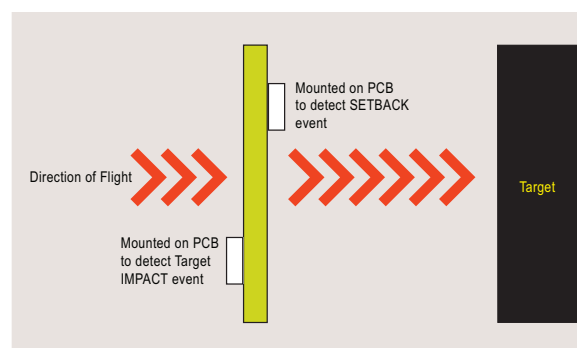
Dimensions (LxWxH)	1.84 x 1.84 x 1.10 mm
Volume	3.7 mm <sup>3</sup>
Mass	20 milligrams
ROHS Compliant?	Yes

- (1) Contact resistance is dependent on input pulse acceleration level.
- (2) Response time is for a 500g half-sine pulse with 500 microsecond duration. Response time is measured from the start of the acceleration pulse.
- (3) Electrical connections between pads 'C'(common) and and 'B' (bottom) are normally open and will close while acceleration is greater than the contact acceleration threshold.
- (4) The Micro G Switch devices are designed to survive the extreme high shock environments associated with artillery launch events.

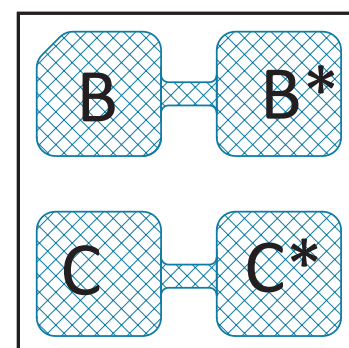


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AT-65-B Pad View

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MIL-SPEC Inertial G-Switches

**BOTTOM CONTACT**

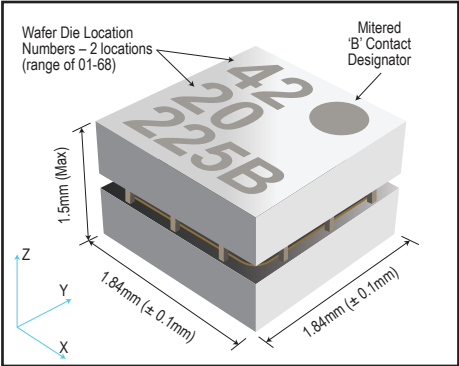
**Model AT-225-B**



**PassiveMicro®**

"When Power & Size Are Not An Option"

**Dimensions**



**Features**

- Small and Lightweight • 3.4 mm<sup>2</sup>
- Extremely Fast Response Times
- High Shock Survivability • 65,000+ g
- Surface Mount • Au over Ni Pads
- Tape and Reel Packaging
- Environmental Seal

**Applications**

- Target Detection
- Arming / Fuzing
- Launch Detection

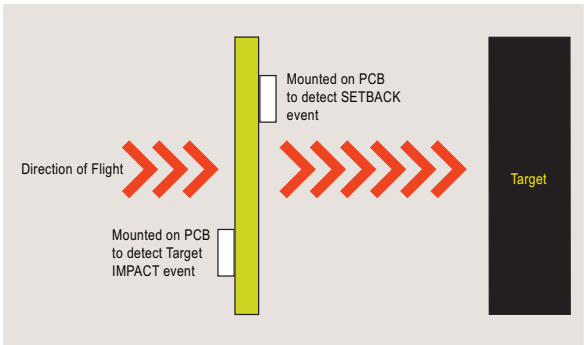
**Specifications**

OPERATING CHARACTERISTICS	
Sensitivity	+Z (normal to PCB)
Contact Acceleration Thresholds (nominal)	50 to 80 g
Contact Type (3)	Normally Open, Non-Latching
Response Time (2)	<350 µs
Reset	Automatic with acceleration decay
ELECTRICAL CHARACTERISTICS	
Contact Resistance (1)	<100 ohms
Insulation Resistance (min.)	1000 Mohm
Breakdown Voltage	>200 VDC
ENVIRONMENTAL CHARACTERISTICS	
Operate Temperature Range	-55 to +125 °C
Storage Temperature Range	-55 to +125 °C
PCB/Pad Shear Force	>20 N
Shock Survival (4)	>65000 g
Maximum Temperature (Reflow / Rework)	280 °C
PHYSICAL CHARACTERISTICS	
Nominal Dimensions (LxWxH)	1.84 x 1.84 x 1.3 mm
Volume	3.7 mm <sup>3</sup>
Mass	~20 milligrams
ROHS Compliant?	Yes

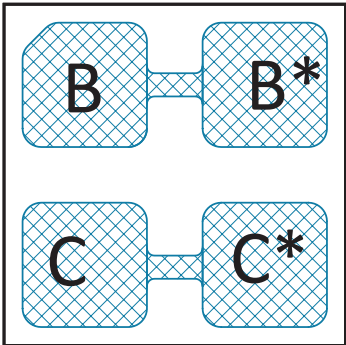
- (1) Contact resistance is dependent on input pulse acceleration level.
- (2) Response time is for a 500g half-sine pulse with 500 microsecond duration. Response time is measured from the start of the acceleration pulse.
- (3) Electrical connections between pads 'C'(common) and and 'B' (bottom) are normally open and will close while acceleration is greater than the contact acceleration threshold.
- (4) The Micro G Switch devices are designed to survive the extreme high shock environments associated with artillery launch events.

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AT-225-B Pad View

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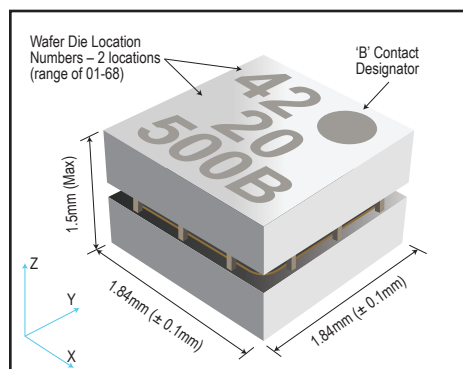
# MIL-SPEC Inertial G-Switches

## BOTTOM CONTACT

### Model AT-500-B



## Dimensions



## Features

- Small and Lightweight • 3.4 mm<sup>2</sup>
- Extremely Fast Response Times
- High Shock Survivability • 65,000+ g
- Surface Mount • Au over Ni Pads
- Tape and Reel Packaging
- Environmental Seal

## Applications

- Target Detection
- Arming / Fuzing
- Launch Detection

## Specifications

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### OPERATING CHARACTERISTICS

Sensitivity	+Z (normal to PCB)
Contact Acceleration Thresholds (nominal)	350 to 650 g
Contact Type (3)	Normally Open, Non-Latching
Response Time (2)	<250 $\mu$ s
Reset	Automatic with acceleration decay

### ELECTRICAL CHARACTERISTICS

Contact Resistance (1)	<100 ohms
Insulation Resistance (min.)	1000 Mohm
Breakdown Voltage	>200 VDC

### ENVIRONMENTAL CHARACTERISTICS

Operate Temperature Range	-55 to +125 °C
Storage Temperature Range	-55 to +125 °C
PCB/Pad Shear Force	>20 N
Shock Survival (4)	>65000 g
Maximum Temperature (Reflow / Rework)	280 °C

### PHYSICAL CHARACTERISTICS

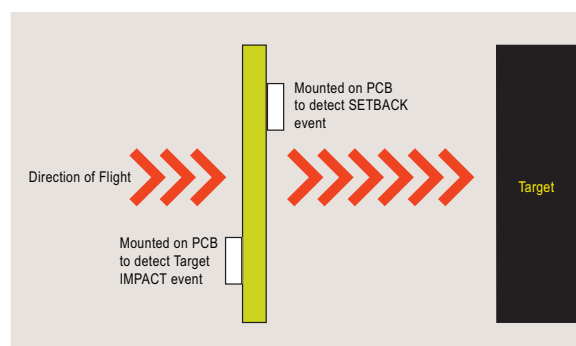
Nominal Dimensions (LxWxH)	1.84 x 1.84 x 1.3 mm
Volume	3.7 mm <sup>3</sup>
Mass	~20 milligrams
ROHS Compliant?	Yes

- (1) Contact resistance is dependent on input pulse acceleration level.
- (2) Response time is for a 500g half-sine pulse with 500 microsecond duration. Response time is measured from the start of the acceleration pulse.
- (3) Electrical connections between pads 'C'(common) and and 'B' (bottom) are normally open and will close while acceleration is greater than the contact acceleration threshold.
- (4) The Micro G Switch devices are designed to survive the extreme high shock environments associated with artillery launch events.

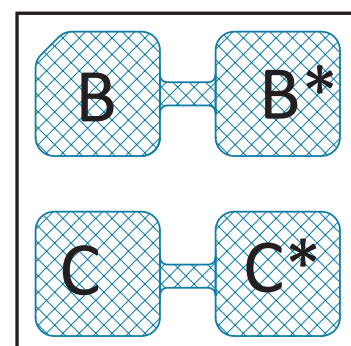


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This diagram provides guidance on how to mount the switch for setback or impact detection.



AT-500-B Pad View

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MIL-SPEC Inertial G-Switches

**BOTTOM CONTACT**

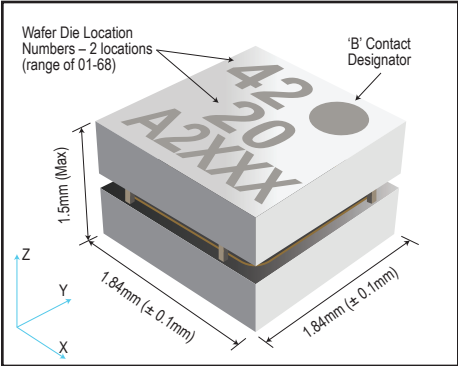
**Model AT-1300-B**



**PassiveMicro®**

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**Dimensions**



**Features**

- Small and Lightweight • 3.4 mm<sup>2</sup>
- Extremely Fast Response Times
- High Shock Survivability • 65,000+ g
- Surface Mount • Au over Ni Pads
- Tape and Reel Packaging
- Environmental Seal

**Applications**

- Target Detection
- Arming / Fuzing
- Launch Detection

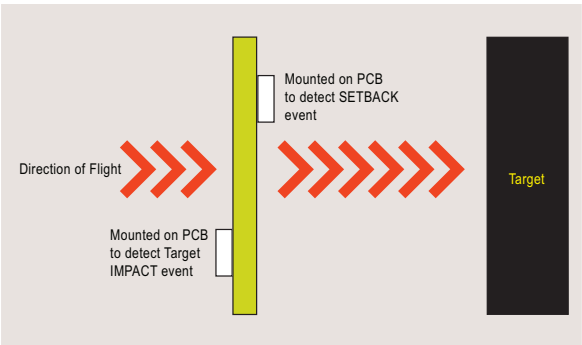
**Specifications**

OPERATING CHARACTERISTICS	
Sensitivity	+Z (normal to PCB)
Contact Acceleration Threshold	1000 to 1600 g
Contact Type (3)	Normally Open, Non-Latching
Response Time (2)	< 220 µs
Reset	Automatic with g decay
ELECTRICAL CHARACTERISTICS	
Contact Resistance (1)	< 10 ohms
Insulation Resistance (min.)	1000 Mohm
Breakdown Voltage	>200 VDC
ENVIRONMENTAL CHARACTERISTICS	
Operate Temperature Range	-55 to +125 °C
Storage Temperature Range	-55 to +125 °C
PCB/Pad Shear Force	>20 N
Package Shear Force	>5 N
Shock Survival (4)	>65000 g
PHYSICAL CHARACTERISTICS	
Nominal Dimensions (LxWxH)	1.84 x 1.84 x 1.3 mm
Volume	3.7 mm <sup>3</sup>
Mass	<25 milligrams
ROHS Compliant?	Yes

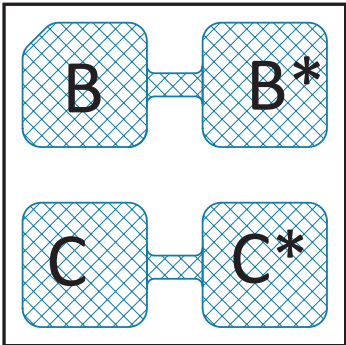
- (1) Contact resistance is dependent on input pulse acceleration level.
- (2) Response time is for a 500g half-sine pulse with 500 microsecond duration. Response time is measured from the start of the acceleration pulse.
- (3) Electrical connections between pads 'C'(common) and and 'B' (bottom) are normally open and will close while acceleration is greater than the contact acceleration threshold.
- (4) The Micro G Switch devices are designed to survive the extreme high shock environments associated with artillery launch events.

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AT-1300-B Pad View

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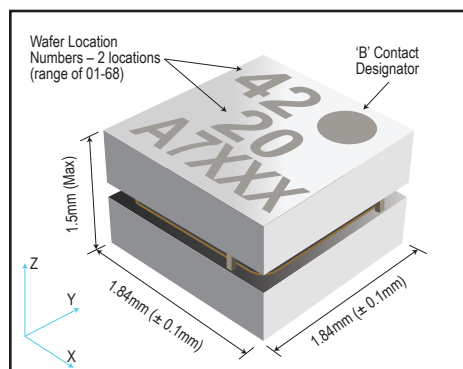
# MIL-SPEC Inertial G-Switches

## BOTTOM CONTACT

### Model AT-2700-B



## Dimensions



## Features

- Small and Lightweight • 3.4 mm<sup>2</sup>
- Extremely Fast Response Times
- High Shock Survivability • 65,000+ g
- Surface Mount • Au over Ni Pads
- Tape and Reel Packaging
- Environmental Seal

## Applications

- Target Detection
- Arming / Fuzing
- Launch Detection

## Specifications

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### OPERATING CHARACTERISTICS

Sensitivity	+Z (normal to PCB)
Contact Acceleration Threshold Range	2400 to 3000 g
Contact Type (3)	Normally Open, Non-Latching
Response Time (2)	< 50 $\mu$ s
Reset	Automatic with g decay

### ELECTRICAL CHARACTERISTICS

Contact Resistance (1)	< 10 ohms
Insulation Resistance (min.)	1000 Mohm
Breakdown Voltage	>200 VDC

### ENVIRONMENTAL CHARACTERISTICS

Operate Temperature Range	-55 to +125 °C
Storage Temperature Range	-55 to +125 °C
PCB/Pad Shear Force	>20 N
Shock Survival (4)	>65000 g

### PHYSICAL CHARACTERISTICS

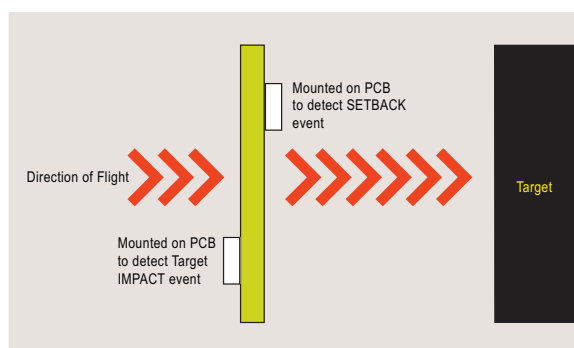
Nominal Dimensions (LxWxH)	1.84 x 1.84 x 1.3 mm
Volume	3.7 mm <sup>3</sup>
Mass	20 milligrams
ROHS Compliant?	Yes

- (1) Contact resistance is dependent on input pulse acceleration level.
- (2) Response time is for a 500g half-sine pulse with 500 microsecond duration. Response time is measured from the start of the acceleration pulse.
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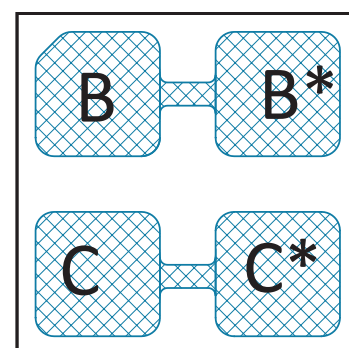


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AT-2700-B Pad View

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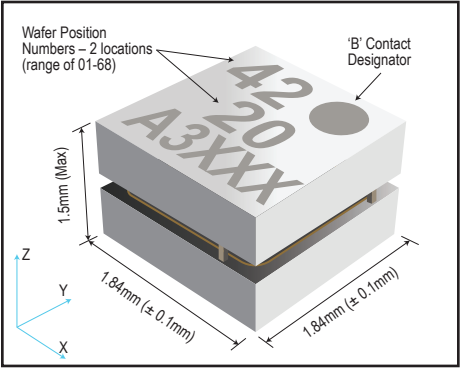
MIL-SPEC Inertial G-Switches  
BOTTOM CONTACT  
Model AT-5000-B



PassiveMicro®

"When Power & Size Are Not An Option"

Dimensions



Features

- Small and Lightweight • 3.4 mm<sup>2</sup>
- Extremely Fast Response Times
- High Shock Survivability • 65,000+ g
- Surface Mount • Au over Ni Pads
- Tape and Reel Packaging
- Environmental Seal

Applications

- Target Detection
- Arming / Fuzing
- Launch Detection

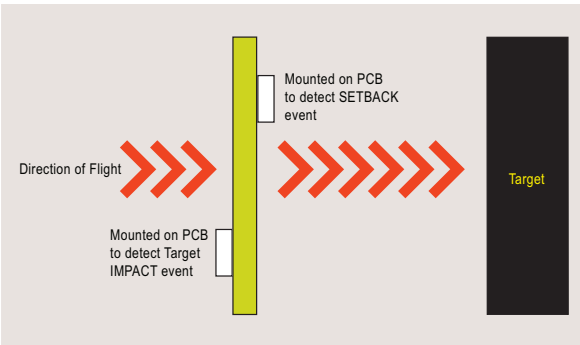
Specifications

OPERATING CHARACTERISTICS	
Sensitivity	+Z (normal to PCB)
Contact Acceleration Threshold Range	3000 to 6000 g
Contact Type (3)	Normally Open, Non-Latching
Response Time (2)	< 50 µs
Reset	Automatic with g decay
ELECTRICAL CHARACTERISTICS	
Contact Resistance (1)	< 10 ohms
Insulation Resistance (min.)	1000 Mohm
Breakdown Voltage	>200 VDC
ENVIRONMENTAL CHARACTERISTICS	
Operate Temperature Range	-55 to +125 °C
Storage Temperature Range	-55 to +125 °C
PCB/Pad Shear Force	>20 N
Shock Survival (4)	>65000 g
PHYSICAL CHARACTERISTICS	
Nominal Dimensions (LxWxH)	1.84 x 1.84 x 1.3 mm
Volume	3.7 mm <sup>3</sup>
Mass	20 milligrams
ROHS Compliant?	Yes

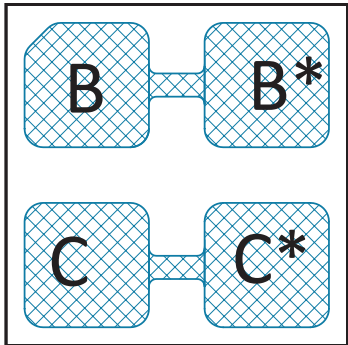
- (1) Contact resistance is dependent on input pulse acceleration level.
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AT-5000-B Pad View

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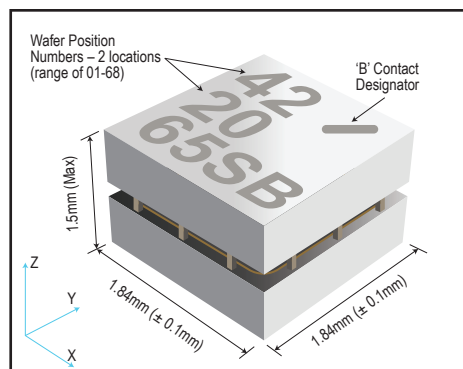
# MIL-SPEC Inertial G-Switches

## SIDE & BOTTOM CONTACT

### Model AT-65-SB



## Dimensions



## Features

- Small and Lightweight • 3.4 mm<sup>2</sup>
- Extremely Fast Response Times
- High Shock Survivability • 65,000+ g
- Surface Mount • Au over Ni Pads
- Tape and Reel Packaging
- Hermetic Seal

## Applications

- Impact Detection
- Arming / Fuzing / Launch
- More

## Specifications

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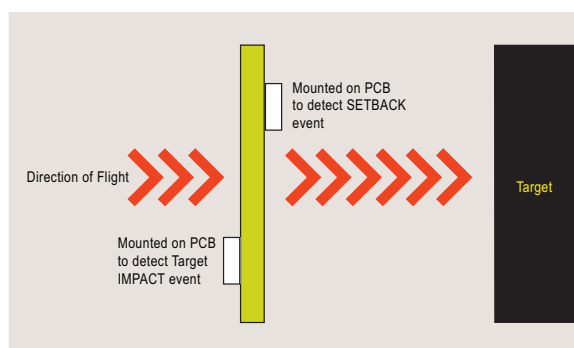
OPERATING CHARACTERISTICS	
Sensitivity	+Z (normal to PCB), XY plane (parallel to PCB)
Contact Acceleration Threshold Range	50 to 80 g
Contact Type (3)	Normally Open, Non-Latching
Response Time (2)	< 350 $\mu$ s
Reset	Automatic with acceleration decay
ELECTRICAL CHARACTERISTICS	
Contact Resistance (1)	< 10 ohms
Insulation Resistance (min.)	1000 Mohm
Breakdown Voltage	>200 VDC
ENVIRONMENTAL CHARACTERISTICS	
Operate Temperature Range	-55 to +125 °C
Storage Temperature Range	-55 to +125 °C
PCB/Pad Shear Force	>20 N
Package Shear Force	>5 N
Shock Survival (5)	>65000 g
PHYSICAL CHARACTERISTICS	
Nominal Dimensions (LxWxH)	1.84 x 1.84 x 1.3 mm
Volume	3.7 mm <sup>3</sup>
Mass	20 milligrams
ROHS Compliant?	Yes

- (1) Contact resistance is dependent on input pulse acceleration level.
- (2) Response time shown is for a 250g half-sine pulse with 500 microsecond duration. Response time is measured from the start of the acceleration pulse.
- (3) Electrical connection between pads 'C'(common) & 'SB' (combined side bottom) is normally open and is closed while acceleration is greater than the contact acceleration threshold in either sensitivity direction
- (4) Contact Acceleration Threshold is approximately 40% greater at a theta angle of 45 degrees
- (5) The Micro G Switch devices are designed to survive the extreme high shock environments associated with artillery launch events.

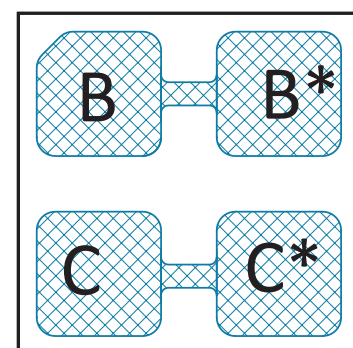


Note that the information on this data sheet is for reference only.

As each application may have unique requirements, please verify the specifications as well as suitability of using our products in your applications by consulting our engineering department.



This diagram provides guidance on how to mount the switch for setback or impact detection.



AT-65-SB Pad View

Rev 251222

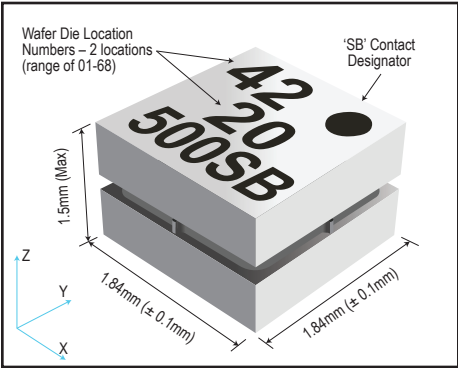
MIL-SPEC Inertial G-Switches  
SIDE & BOTTOM CONTACT  
Model AT-500-SB



PassiveMicro®

"When Power & Size Are Not An Option"

Dimensions



Features

- Small and Lightweight • 3.4 mm<sup>2</sup>
- Extremely Fast Response Times
- High Shock Survivability • 65,000+ g
- Surface Mount • Au over Ni Pads
- Tape and Reel Packaging
- Environmental Seal

Applications

- Target Detection
- Arming / Fuzing
- Launch Detection

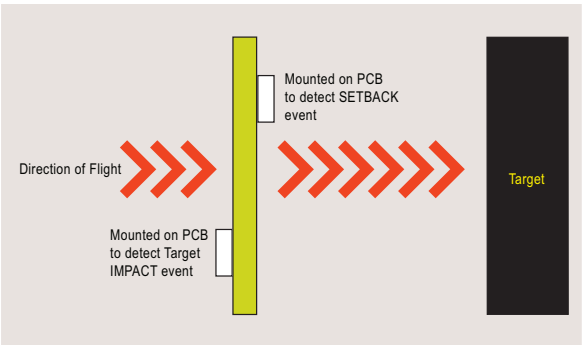
Specifications

OPERATING CHARACTERISTICS	
Sensitivity Directions	+Z (normal to PCB), XY plane (parallel to PCB)
Contact Acceleration Threshold Range	350 to 650 g
Contact Type (3)	Normally Open, Non-Latching
Response Time (2)	< 100 µs
Reset	Automatic with acceleration decay
ELECTRICAL CHARACTERISTICS	
Contact Resistance (1)	< 10 ohms
Insulation Resistance (min.)	1000 Mohm
Breakdown Voltage	>200 VDC
ENVIRONMENTAL CHARACTERISTICS	
Operate Temperature Range	-55 to +125°C
Storage Temperature Range	-55 to +125°C
PCB/Pad Shear Force	> 20 N
Shock Survival (4)	> 65000 g
PHYSICAL CHARACTERISTICS	
Nominal Dimensions (LxWxH)	1.84 x 1.84 x 1.3 mm
Volume	3.7 mm <sup>3</sup>
Mass	20 milligrams
ROHS Compliant?	Yes

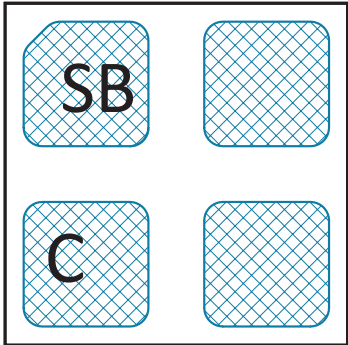
- (1) Contact resistance is dependent on input pulse acceleration level.
- (2) Response time is for a 500g half-sine pulse with 500 microsecond duration. Response time is measured from the start of the acceleration pulse.
- (3) Electrical connections between pads 'C'(common) and and 'B' (bottom) are normally open and will close while acceleration is greater than the contact acceleration threshold.
- (4) The Micro G Switch devices are designed to survive the extreme high shock environments associated with artillery launch events.

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This diagram provides guidance on how to mount the switch for setback or impact detection.



AT-500-SB Pad View

Aerospace & Defense

Rev 251222



## MIL-SPEC Inertial G-Switches

## SIDE CONTACT

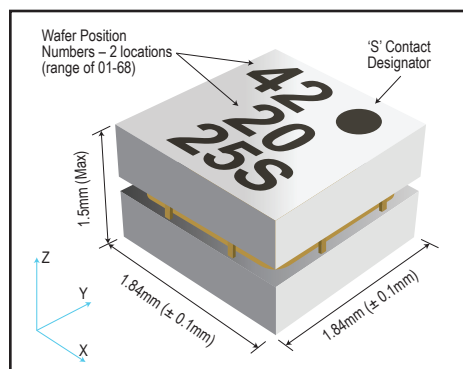
## Model AT-25-S



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## Dimensions



## Features

- Small and Lightweight • 3.4 mm<sup>2</sup>
- Extremely Fast Response Times
- High Shock Survivability • 65,000+ g
- Surface Mount • Au over Ni Pads
- Tape and Reel Packaging
- Environmental Seal

## Applications

- Target Detection
- Arming / Fuzing
- Launch Detection

## Specifications

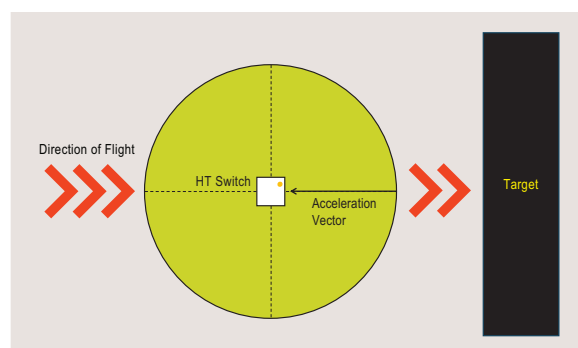
OPERATING CHARACTERISTICS	
Sensitivity	XY plane (parallel to PCB)
Contact Acceleration Threshold	15 to 35 g
Contact Type (3)	Normally Open, Non-Latching
Response Time (2)	< 650 μs
Reset	Automatic with g decay
ELECTRICAL CHARACTERISTICS	
Contact Resistance @ 35g acceleration (1)	< 4 ohms
Insulation Resistance (min.)	1000 Mohm
Breakdown Voltage	> 200 VDC
ENVIRONMENTAL CHARACTERISTICS	
Operate Temperature Range	-55 to +125°C
Storage Temperature Range	-55 to +125°C
PCB/Pad Shear Force	> 20 N
Shock Survival (4)	> 65000 g
PHYSICAL CHARACTERISTICS	
Nominal Dimensions (LxWxH)	1.84 x 1.84 x 1.3 mm
Volume	3.7 mm <sup>3</sup>
Mass	20 milligrams
ROHS Compliant?	Yes

- (1) Contact resistance is dependent on input pulse acceleration level.
- (2) Response time is for a 500g half-sine pulse with 500 microsecond duration. Response time is measured from the start of the acceleration pulse.
- (3) Electrical connections between pads 'C'(common) and 'B' (bottom) are normally open and will close while acceleration is greater than the contact acceleration threshold.
- (4) The Micro G Switch devices are designed to survive the extreme high shock environments associated with artillery launch events.

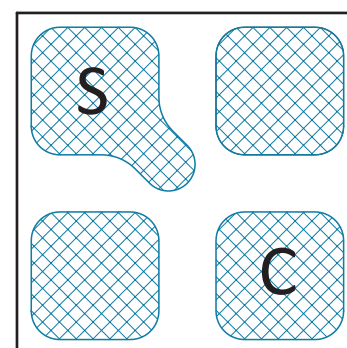


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This diagram provides guidance on how to mount the switch for setback or impact detection.



AT-25-S Pad View

Rev 251222

MIL-SPEC Inertial G-Switches

SIDE CONTACT

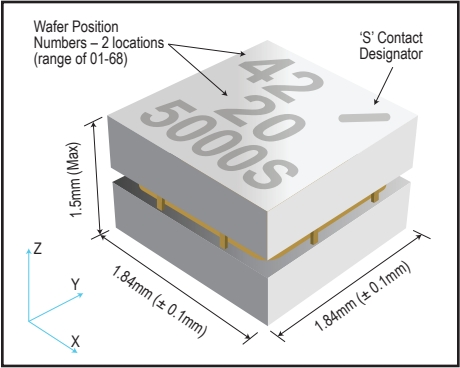
Model AT-850-S



PassiveMicro®

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Dimensions



Features

- Small and Lightweight • 3.4 mm<sup>2</sup>
- Extremely Fast Response Times
- High Shock Survivability • 65,000+ g
- Surface Mount • Au over Ni Pads
- Tape and Reel Packaging
- Environmental Seal

Applications

- Target Detection
- Arming / Fuzing
- Launch Detection

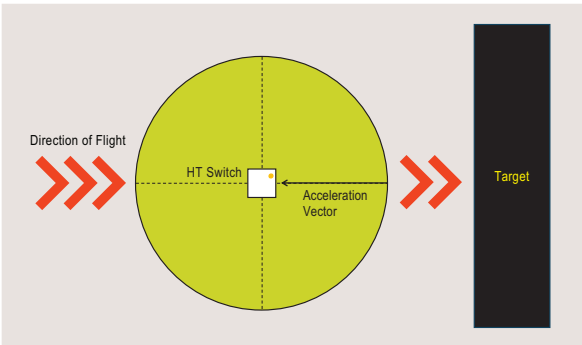
Specifications

OPERATING CHARACTERISTICS	
Sensitivity	XY plane (parallel to PCB)
Contact Acceleration Threshold	700 to 1000 g
Contact Type (3)	Normally Open, Non-Latching
Response Time (2)	< 125 µs
Reset	Automatic with g decay
ELECTRICAL CHARACTERISTICS	
Contact Resistance (1)	< 10 ohms
Insulation Resistance (min.)	1000 Mohm
Breakdown Voltage	> 200 VDC
ENVIRONMENTAL CHARACTERISTICS	
Operate Temperature Range	-55 to +125°C
Storage Temperature Range	-55 to +125°C
PCB/Pad Shear Force	> 20 N
Shock Survival (4)	> 65000 g
PHYSICAL CHARACTERISTICS	
Nominal Dimensions (LxWxH)	1.84 x 1.84 x 1.3 mm
Volume	3.7 mm <sup>3</sup>
Mass	20 milligrams
ROHS Compliant?	Yes

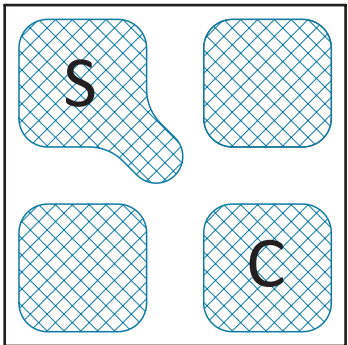
- (1) Contact resistance is dependent on input pulse acceleration level.
- (2) Response time is for a 500g half-sine pulse with 500 microsecond duration. Response time is measured from the start of the acceleration pulse.
- (3) Electrical connections between pads 'C'(common) and and 'B' (bottom) are normally open and will close while acceleration is greater than the contact acceleration threshold.
- (4) The Micro G Switch devices are designed to survive the extreme high shock environments associated with artillery launch events.

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This diagram provides guidance on how to mount the switch for setback or impact detection.



AT-850-S Pad View

Aerospace & Defense

Rev 251222

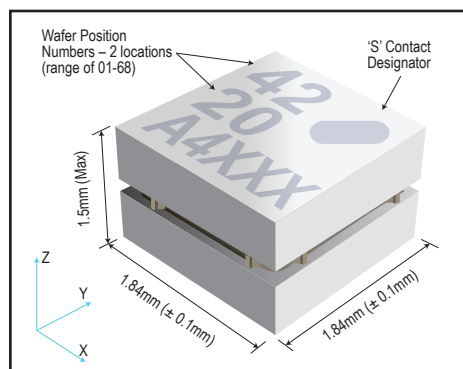
## MIL-SPEC Inertial G-Switches

## SIDE CONTACT

## Model AT-1300-S



## Dimensions



## Features

- Small and Lightweight • 3.4 mm<sup>2</sup>
- Extremely Fast Response Times
- High Shock Survivability • 65,000+ g
- Surface Mount • Au over Ni Pads
- Tape and Reel Packaging
- Hermetic Seal

## Applications

- Impact Detection
- Arming/Fuzing
- Artillery, Launch
- More

## Specifications

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## OPERATING CHARACTERISTICS

Sensitivity	XY plane (parallel to PCB)
Contact Acceleration Threshold	1000 to 1600 g
Contact Type (3)	Normally Open, Non-Latching
Response Time (2)	< 50 $\mu$ s
Reset	Automatic with g decay

## ELECTRICAL CHARACTERISTICS

Contact Resistance (1)	< 10 ohms
Insulation Resistance (min.)	1000 Mohm
Breakdown Voltage	> 200 VDC

## ENVIRONMENTAL CHARACTERISTICS

Operate Temperature Range	-55 to +125°C
Storage Temperature Range	-55 to +125°C
PCB/Pad Shear Force	> 20 N
Shock Survival (4)	> 65000 g

## PHYSICAL CHARACTERISTICS

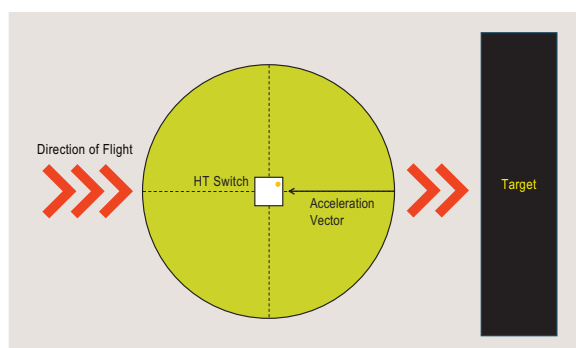
Nominal Dimensions (LxWxH)	1.84 x 1.84 x 1.3 mm
Volume	3.7 mm <sup>3</sup>
Mass	20 milligrams
ROHS Compliant?	Yes

- (1) Contact resistance is dependent on input pulse acceleration level.
- (2) Response time is for a 500g half-sine pulse with 500 microsecond duration. Response time is measured from the start of the acceleration pulse.
- (3) Electrical connections between pads 'C'(common) and 'B' (bottom) are normally open and will close while acceleration is greater than the contact acceleration threshold.
- (4) The Micro G Switch devices are designed to survive the extreme high shock environments associated with artillery launch events.

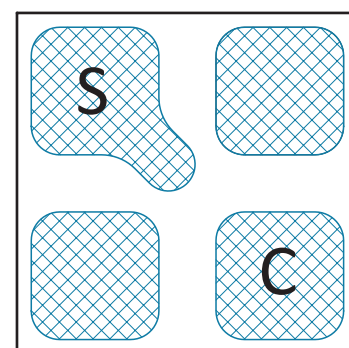


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This diagram provides guidance on how to mount the switch for setback or impact detection.



AT-1300-S Pad View

Rev 251222

MIL-SPEC Inertial G-Switches

SIDE CONTACT

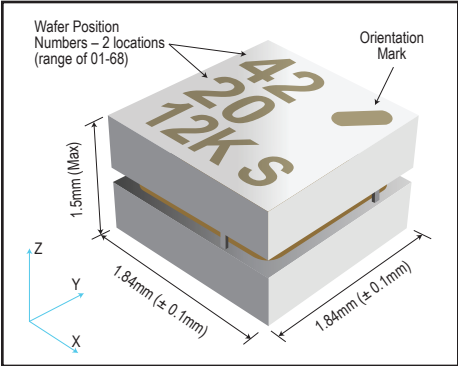
Model AT-12000-S



PassiveMicro®

"When Power & Size Are Not An Option"

Dimensions



Features

- Small and Lightweight • 3.4 mm<sup>2</sup>
- Extremely Fast Response Times
- High Shock Survivability • 65,000+ g
- Surface Mount • Au over Ni Pads
- Tape and Reel Packaging
- Environmental Seal

Applications

- Target Detection
- Arming / Fuzing
- Launch Detection

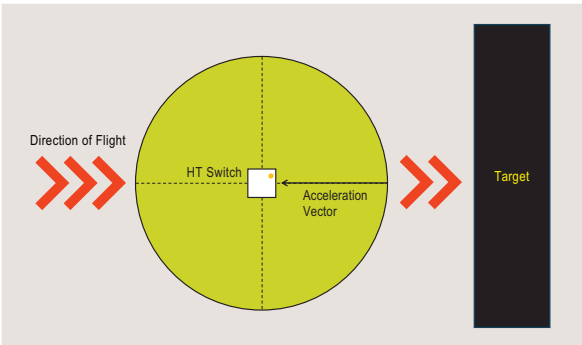
Specifications

OPERATING CHARACTERISTICS	
Sensitivity	XY (parallel to PCB)
Contact Acceleration Threshold Range	11,000 to 13,000 g
Contact Type (3)	Normally Open, Non-Latching
Response Time (2)	< 35 $\mu$ s
Reset	Automatic with g decay
ELECTRICAL CHARACTERISTICS	
Contact Resistance (1)	< 100 ohms
Insulation Resistance (min.)	1000 Mohm
Breakdown Voltage	> 200 VDC
DC capacitance (open switch)	<1 pF
ENVIRONMENTAL CHARACTERISTICS	
Operate Temperature Range	-55 to +125°C
Storage Temperature Range	-55 to +125°C
PCB/Pad Shear Force	> 20 N
Shock Survival (4)	> 65000 g
PHYSICAL CHARACTERISTICS	
Nominal Dimensions (LxWxH)	1.84 x 1.84 x 1.3 mm
Volume	3.7 mm <sup>3</sup>
Mass	20 milligrams
ROHS Compliant?	Yes

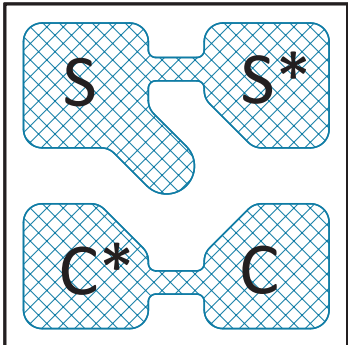
- (1) Contact resistance is dependent on input pulse acceleration level.
- (2) Response time is for a 500g half-sine pulse with 500 microsecond duration. Response time is measured from the start of the acceleration pulse.
- (3) Electrical connections between pads 'C'(common) and and 'B' (bottom) are normally open and will close while acceleration is greater than the contact acceleration threshold.
- (4) The Micro G Switch devices are designed to survive the extreme high shock environments associated with artillery launch events.

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This diagram provides guidance on how to mount the switch for setback or impact detection.



AT-12000-S Pad View

Aerospace & Defense

Rev 251222

## MIL-SPEC Inertial G-Switches

## SPIN DETECTION SIDE CONTACT

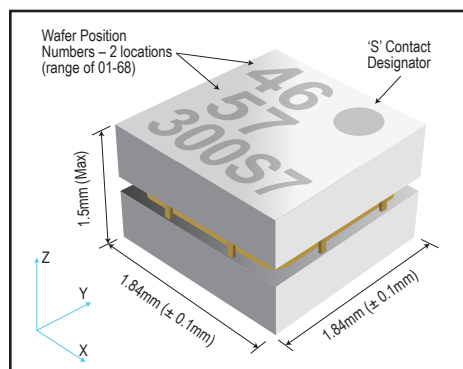
## Model AT-300-S7



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## Dimensions



## Features

- Small and Lightweight • 3.4 mm<sup>2</sup>
- Extremely Fast Response Times
- High Shock Survivability • 65,000+ g
- Surface Mount • Au over Ni Pads
- Tape and Reel Packaging
- Environmental Seal

## Applications

- Target Detection
- Arming / Fuzing
- Launch Detection

## Specifications

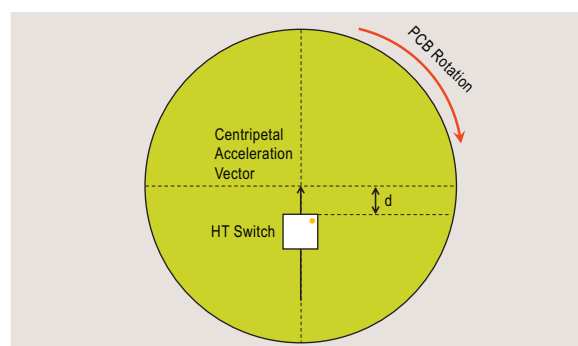
OPERATING CHARACTERISTICS	
Sensitivity	+Y axis ± 35 degrees (parallel to XY Plane/PCB)
Contact Acceleration Threshold	225 to 375 g
Contact Type (3)	Normally Open, Non-Latching
Response Time (2)	< 225 μs
Reset	Automatic with g decay
ELECTRICAL CHARACTERISTICS	
Contact Resistance (1)	< 10 ohms
Insulation Resistance (min.)	1000 Mohm
Breakdown Voltage	> 200 VDC
ENVIRONMENTAL CHARACTERISTICS	
Operate Temperature Range	-55 to +125°C
Storage Temperature Range	-55 to +125°C
PCB/Pad Shear Force	> 20 N
Shock Survival (4)	> 65000 g
PHYSICAL CHARACTERISTICS	
Nominal Dimensions (LxWxH)	1.84 x 1.84 x 1.3 mm
Volume	3.7 mm <sup>3</sup>
Mass	20 milligrams
ROHS Compliant?	Yes

- (1) Contact resistance is dependent on input pulse acceleration level.
- (2) Response time is for a 500g half-sine pulse with 500 microsecond duration. Response time is measured from the start of the acceleration pulse.
- (3) Electrical connections between pads 'C'(common) and and 'B' (bottom) are normally open and will close while acceleration is greater than the contact acceleration threshold.
- (4) The Micro G Switch devices are designed to survive the extreme high shock environments associated with artillery launch events.

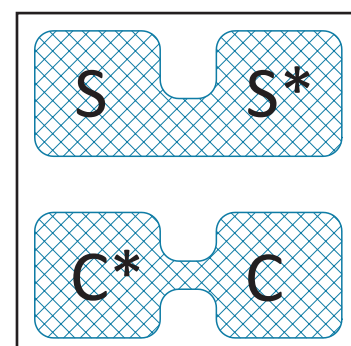


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This diagram provides guidance on how to mount the switch for setback or impact detection.



AT-300-S7 Pad View

Rev 251222



# MIL-SPEC Inertial G-Switches

## SPIN DETECTION SIDE CONTACT

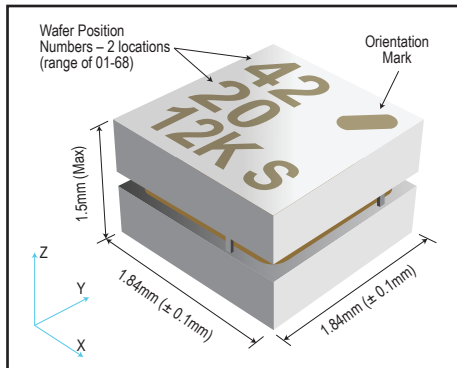
### Model AT-12000-S7



**PassiveMicro®**

"When Power & Size Are Not An Option"

## Dimensions



## Features

- Small and Lightweight • 3.4 mm<sup>2</sup>
- Extremely Fast Response Times
- High Shock Survivability • 65,000+ g
- Surface Mount • Au over Ni Pads
- Tape and Reel Packaging
- Environmental Seal

## Applications

- Target Detection
- Arming / Fuzing
- Launch Detection

## Specifications

### OPERATING CHARACTERISTICS

Sensitivity	+Y axis $\pm 35$ degrees (parallel to XY Plane/PCB)
Contact Acceleration Threshold Range	11000 to 13000 g
Contact Type (3)	Normally Open, Non-Latching
Response Time (2)	< TBD $\mu$ s
Reset	Automatic with g decay

### ELECTRICAL CHARACTERISTICS

Contact Resistance (1)	< 100 ohms
Insulation Resistance (min.)	1000 Mohm
Breakdown Voltage	> 200 VDC
DC capacitance (open switch)	<1 pF

### ENVIRONMENTAL CHARACTERISTICS

Operate Temperature Range	-55 to +125°C
Storage Temperature Range	-55 to +125°C
PCB/Pad Shear Force	> 20 N
Shock Survival (4)	> 65000 g

### PHYSICAL CHARACTERISTICS

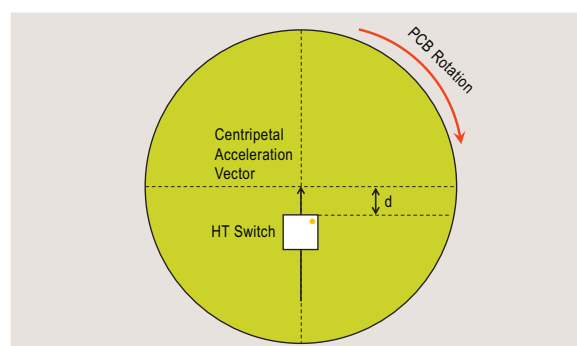
Nominal Dimensions (LxWxH)	1.84 x 1.84 x 1.3 mm
Volume	3.7 mm <sup>3</sup>
Mass	20 milligrams
ROHS Compliant?	Yes

- (1) Contact resistance is dependent on input pulse acceleration level.
- (2) Response time is for a 500g half-sine pulse with 500 microsecond duration. Response time is measured from the start of the acceleration pulse.
- (3) Electrical connections between pads 'C'(common) and and 'B' (bottom) are normally open and will close while acceleration is greater than the contact acceleration threshold.
- (4) The Micro G Switch devices are designed to survive the extreme high shock environments associated with artillery launch events.

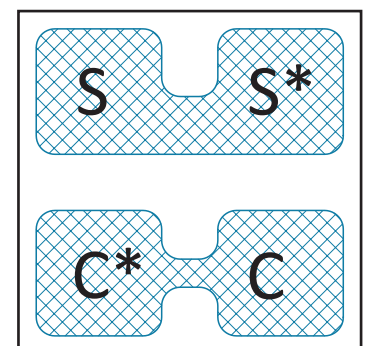


Note that the information on this data sheet is for reference only.

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This diagram provides guidance on how to mount the switch for setback or impact detection.



AT-12000-S7 Pad View

Aerospace & Defense

Rev 251222

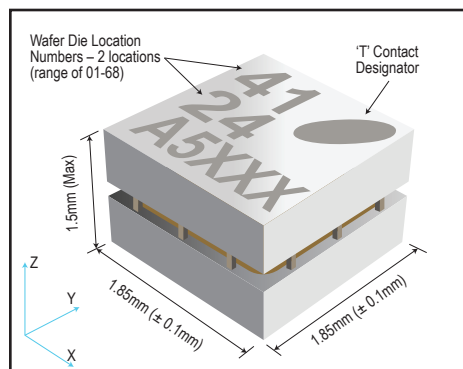
## MIL-SPEC Inertial G-Switches

## TOP CONTACT

## Model AT-50-T



## Dimensions



## Features

- Small and Lightweight • 3.4 mm<sup>2</sup>
- Extremely Fast Response Times
- High Shock Survivability • 65,000+ g
- Surface Mount • Au over Ni Pads
- Tape and Reel Packaging
- Environmental Seal

## Applications

- Target Detection
- Arming / Fuzing
- Launch Detection

## Specifications

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## OPERATING CHARACTERISTICS

Sensitivity Direction	-Z (normal to PCB)
Contact Acceleration Threshold	40 to 70 g
Working Gap	> 70 μs
Response Time (2)	< 400 μs
Contact Type (3)	Normally Open, Non-Latching
Reset	Automatic with acceleration decay

## ELECTRICAL CHARACTERISTICS

Contact Resistance (1)	< 10 ohms
Insulation Resistance (min.)	1000 Mohm
Breakdown Voltage	> 200 VDC

## ENVIRONMENTAL CHARACTERISTICS

Operate Temperature Range	-55 to +125°C
Storage Temperature Range	-55 to +125°C
PCB/Pad Shear Force	> 20 N
Package Shear Force	> 5 N
Shock Survival (4)	> 65000 g

## PHYSICAL CHARACTERISTICS

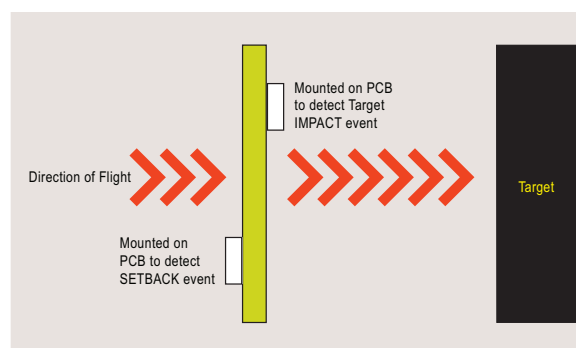
Nominal Dimensions (LxWxH)	1.84 x 1.84 x 1.3 mm
Volume	4.4 mm <sup>3</sup>
Mass	< 25 milligrams
ROHS Compliant?	Yes

- (1) Contact resistance is dependent on input pulse acceleration level.
- (2) Response time is for a 500g half-sine pulse with 500 microsecond duration. Response time is measured from the start of the acceleration pulse.
- (3) Electrical connections between pads 'C'(common) and and 'B' (bottom) are normally open and will close while acceleration is greater than the contact acceleration threshold.
- (4) The Micro G Switch devices are designed to survive the extreme high shock environments associated with artillery launch events.

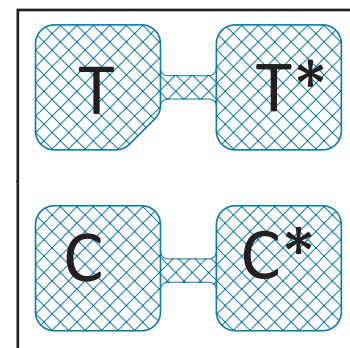


Note that the information on this data sheet is for reference only.

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This diagram provides guidance on how to mount the switch for setback or impact detection.



AT-50-T Pad View

Rev 251222

MIL-SPEC Inertial G-Switches

TOP CONTACT

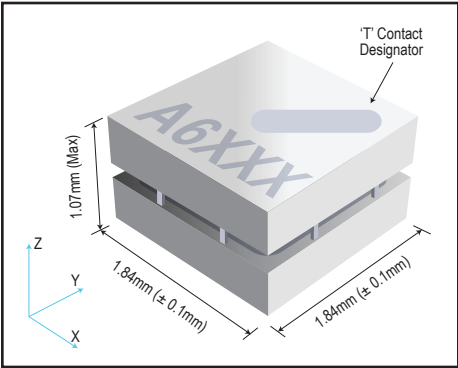
Model AT-1500-T



PassiveMicro®

"When Power & Size Are Not An Option"

Dimensions



Features

- Small and Lightweight • 3.4 mm<sup>2</sup>
- Extremely Fast Response Times
- High Shock Survivability • 65,000+ g
- Surface Mount • Au over Ni Pads
- Tape and Reel Packaging
- Environmental Seal

Applications

- Target Detection
- Arming / Fuzing
- Launch Detection

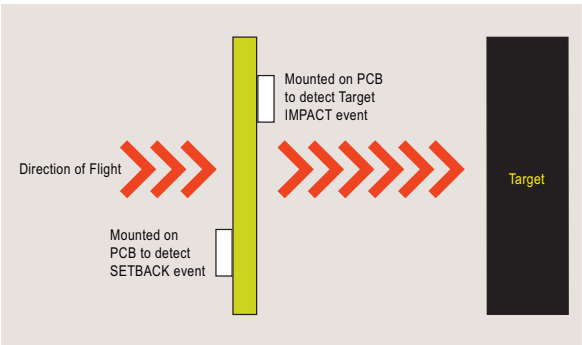
Specifications

OPERATING CHARACTERISTICS	
Sensitivity	-Z (normal to PCB)
Contact Acceleration Threshold (nominal)	1000 to 2000 g
Contact Type (3)	Normally Open, Non-Latching
Response Time (2)	< 230 µs
Reset	Automatic with acceleration decay
ELECTRICAL CHARACTERISTICS	
Contact Resistance (1)	< 10 ohms
Insulation Resistance (min.)	1000 Mohm
Breakdown Voltage	> 200 VDC
ENVIRONMENTAL CHARACTERISTICS	
Operate Temperature Range	-55 to +125°C
Storage Temperature Range	-55 to +125°C
PCB/Pad Shear Force	> 20 N
Shock Survival (4)	> 65000 g
PHYSICAL CHARACTERISTICS	
Nominal Dimensions (LxWxH)	1.84 x 1.84 x 1.04 mm
Volume	3.7 mm <sup>3</sup>
Mass	20 milligrams
ROHS Compliant?	Yes

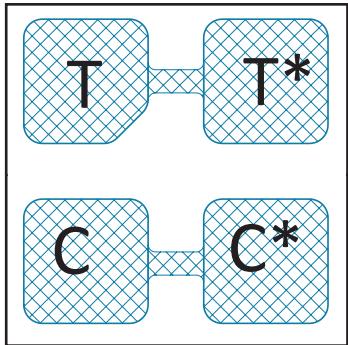
- (1) Contact resistance is dependent on input pulse acceleration level.
- (2) Response time is for a 500g half-sine pulse with 500 microsecond duration. Response time is measured from the start of the acceleration pulse.
- (3) Electrical connections between pads 'C'(common) and and 'B' (bottom) are normally open and will close while acceleration is greater than the contact acceleration threshold.
- (4) The Micro G Switch devices are designed to survive the extreme high shock environments associated with artillery launch events.

➔ Note that the information on this data sheet is for reference only.

As each application may have unique requirements, please verify the specifications as well as suitability of using our products in your applications by consulting our engineering department.



This diagram provides guidance on how to mount the switch for setback or impact detection.



AT-5000 Pad View

Aerospace & Defense

Rev 251222

## MIL-SPEC Inertial G-Switches

## TOP CONTACT

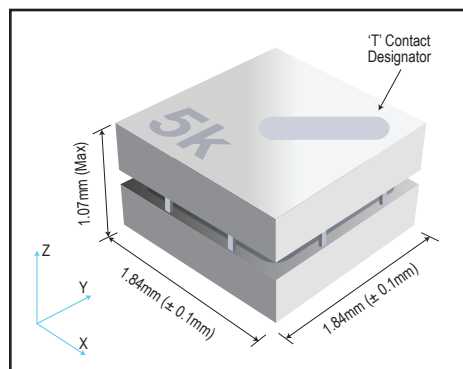
## Model AT-5000-T



PassiveMicro®

"When Power &amp; Size Are Not An Option"

## Dimensions



## Features

- Small and Lightweight • 3.4 mm<sup>2</sup>
- Extremely Fast Response Times
- High Shock Survivability • 65,000+ g
- Surface Mount • Au over Ni Pads
- Tape and Reel Packaging
- Environmental Seal

## Applications

- Target Detection
- Arming / Fuzing
- Launch Detection

## Specifications

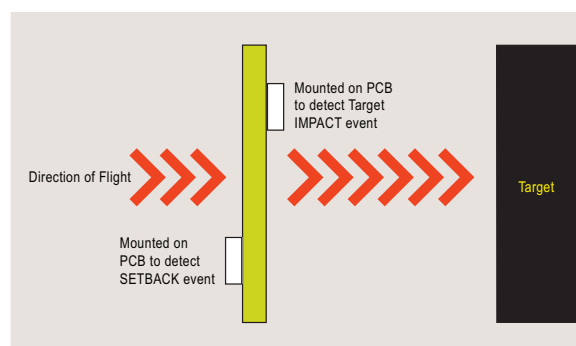
OPERATING CHARACTERISTICS	
Sensitivity	-Z (normal to PCB)
Contact Acceleration Threshold (nominal)	3000 to 6000 g
Contact Type (3)	Normally Open, Non-Latching
Response Time (2)	< 50 µs
Reset	Automatic with acceleration decay
ELECTRICAL CHARACTERISTICS	
Contact Resistance (1)	< 10 ohms
Insulation Resistance (min.)	1000 Mohm
Breakdown Voltage	> 200 VDC
ENVIRONMENTAL CHARACTERISTICS	
Operate Temperature Range	-55 to +125°C
Storage Temperature Range	-55 to +125°C
PCB/Pad Shear Force	> 20 N
Shock Survival (4)	> 65000 g
PHYSICAL CHARACTERISTICS	
Nominal Dimensions (LxWxH)	1.84 x 1.84 x 1.04 mm
Volume	3.7 mm <sup>3</sup>
Mass	20 milligrams
ROHS Compliant?	Yes

- (1) Contact resistance is dependent on input pulse acceleration level.
- (2) Response time is for a 500g half-sine pulse with 500 microsecond duration. Response time is measured from the start of the acceleration pulse.
- (3) Electrical connections between pads 'C'(common) and 'B' (bottom) are normally open and will close while acceleration is greater than the contact acceleration threshold.
- (4) The Micro G Switch devices are designed to survive the extreme high shock environments associated with artillery launch events.

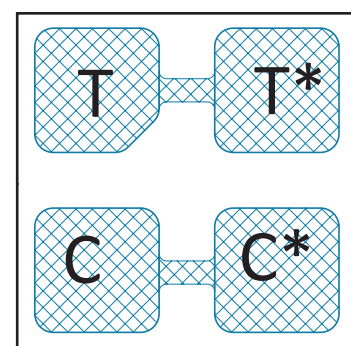


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This diagram provides guidance on how to mount the switch for setback or impact detection.



AT-5000 Pad View

Rev 251222

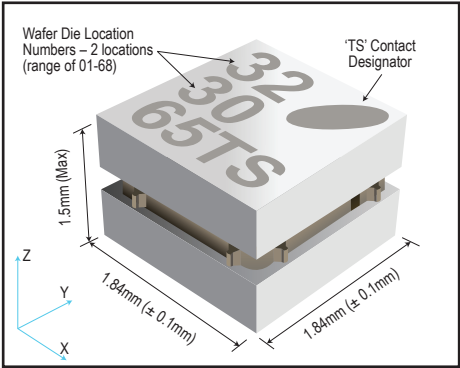
MIL-SPEC Inertial G-Switches  
TOP & SIDE CONTACT  
Model AT-65-TS



PassiveMicro®

"When Power & Size Are Not An Option"

Dimensions



Features

- Small and Lightweight • 3.4 mm<sup>2</sup>
- Extremely Fast Response Times
- High Shock Survivability • 65,000+ g
- Surface Mount • Au over Ni Pads
- Tape and Reel Packaging
- Environmental Seal

Applications

- Target Detection
- Arming / Fuzing
- Launch Detection

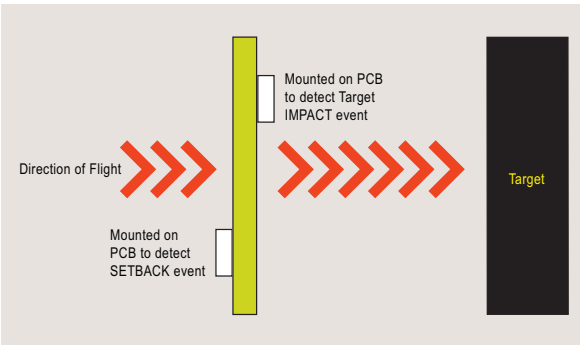
Specifications

OPERATING CHARACTERISTICS	
Sensitivity	-Z (normal to PCB) XY Plane (parallel to PCB)
Contact Acceleration Threshold	50 to 80 g
Contact Type (3)	Single Pole, Normally Open, Non-Latching
Response Time (2)	< 600 µs
Reset	Automatic with g decay
ELECTRICAL CHARACTERISTICS	
Contact Resistance (1)	< 100 ohms
Insulation Resistance (min.)	1000 Mohm
Breakdown Voltage	>230 VDC
ENVIRONMENTAL CHARACTERISTICS	
Operate Temperature Range	-55 to +125°C
Storage Temperature Range	-55 to +125°C
PCB/Pad Shear Force	> 20 N
Shock Survival (4)	> 65000 g
PHYSICAL CHARACTERISTICS	
Dimensions (LxWxH)	1.84 x 1.84 x 1.15 mm
Volume	3.9 mm <sup>3</sup>
Mass	20 milligrams
ROHS Compliant?	Yes

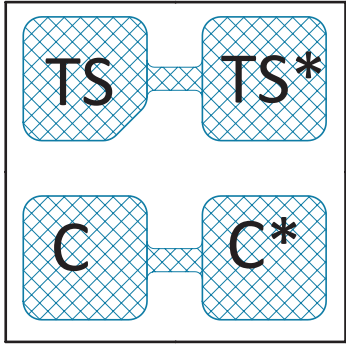
- (1) Contact resistance is dependent on input pulse acceleration level.  
(2) Response time is for a 500g half-sine pulse with 500 microsecond duration. Response time is measured from the start of the acceleration pulse.  
(3) Electrical connections between pads 'C'(common) and and 'B' (bottom) are normally open and will close while acceleration is greater than the contact acceleration threshold.  
(4) The Micro G Switch devices are designed to survive the extreme high shock environments associated with artillery launch events.

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AT-65-TS Pad View

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MIL-SPEC Inertial G-Switches

OMNI CONTACT

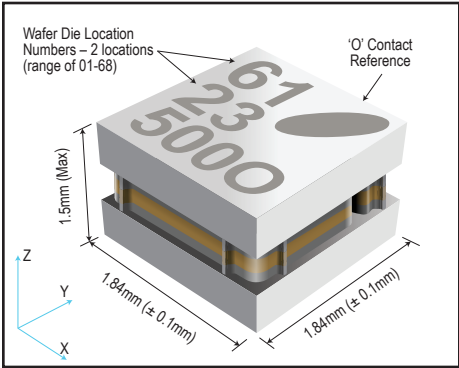
Model AT-500-O



PassiveMicro®

"When Power & Size Are Not An Option"

Dimensions



Features

- Small and Lightweight • 3.4 mm<sup>2</sup>
- Extremely Fast Response Times
- High Shock Survivability • 65,000+ g
- Surface Mount • Au over Ni Pads
- Tape and Reel Packaging
- Environmental Seal

Applications

- Target Detection
- Arming / Fuzing
- Launch Detection

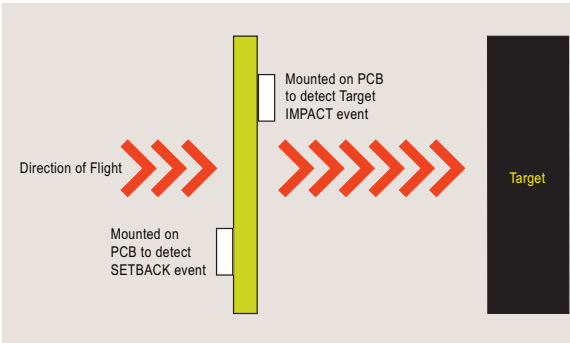
Specifications

OPERATING CHARACTERISTICS	
Sensitivity Directions	+Z, -Z (normal to PCB), XY plane (parallel to PCB)
Contact Acceleration Threshold Range	350 to 550 g
Contact Type (3)	Normally Open, Non-Latching
Response Time (2)	< 175 µs
Reset	Automatic with acceleration decay
ELECTRICAL CHARACTERISTICS	
Contact Resistance (1)	< 10 ohms
Insulation Resistance (min.)	1000 Mohm
Breakdown Voltage	>200 VDC
ENVIRONMENTAL CHARACTERISTICS	
Operate Temperature Range	-55 to +125°C
Storage Temperature Range	-55 to +125°C
PCB/Pad Shear Force	> 20 N
Shock Survival (4)	> 65000 g
PHYSICAL CHARACTERISTICS	
Nominal Dimensions (LxWxH)	1.84 x 1.84 x 1.3 mm
Volume	3.7 mm <sup>3</sup>
Mass	20 milligrams
ROHS Compliant?	Yes

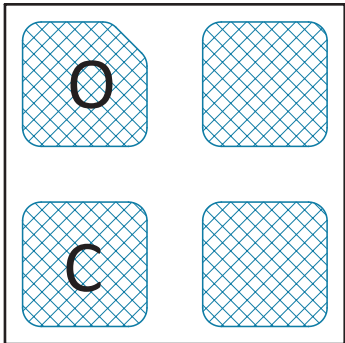
- (1) Contact resistance is dependent on input pulse acceleration level.
- (2) Response time is for a 500g half-sine pulse with 500 microsecond duration. Response time is measured from the start of the acceleration pulse.
- (3) Electrical connections between pads 'C'(common) and and 'B' (bottom) are normally open and will close while acceleration is greater than the contact acceleration threshold.
- (4) The Micro G Switch devices are designed to survive the extreme high shock environments associated with artillery launch events.

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This diagram provides guidance on how to mount the switch for setback or impact detection.



AT-500-O Pad View



## Extreme sensing for the world's most challenging Aerospace & Defense applications

# PassiveMicro®

*"When Power & Size Are Not An Option"*

HT Micro's PassiveMicro® technology is the foundation for the smallest, most reliable, zero-power acceleration switches on the market. The MIL-SPEC G-Switch **consumes zero power** until triggered by the acceleration signal, making it ideal for remote applications.

### ITAR Certified US Government Defense Contractor

HT Micro's MIL-SPEC Inertial G-Switches passively sense acceleration thresholds in Aerospace and Defense applications. The sensor is a key component in the Department of Defense objective to supply a portfolio of smart, precision munitions that are reliable and safe to the warfighter, result in less collateral damage, and eliminate unexploded ordnance (UXO). HT's inertial switch is qualified for DoD applications and, with an area of 3.4 mm<sup>2</sup>, replaces conventional products that are significantly larger.



**"With HT Micro's products, we can enable next generation products that better protect America and its allies."**

— Defense Contractor

HT Micro is available to take your calls. We will talk with you about what you need and work with you to develop a solution to meet your specific application requirements. Give us a call at (505) 341-0466.



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Contact HT Micro at 505.341.0466 or [info@htmicro.com](mailto:info@htmicro.com)



Rev 251222