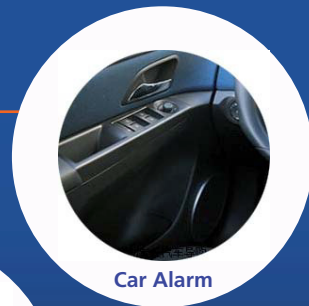


# SENSOR SWITCHES

- >> Small size & compact space
- >> Increased strength between housing and base
- >> High temperature and fire proof
- >> Suitable to IC trigger signal
- >> Complete replacement of mercury switches
- >> Meet environmental protection
- >> RoHS compliant

## Vibration Sensor Switches

NV1 Series



NV2 Series



NV3 Series



NV4 Series

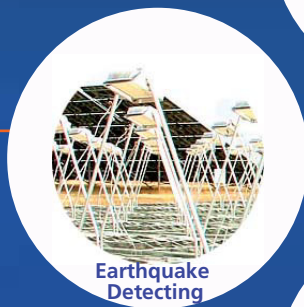


## Roll Ball Sensor Switches

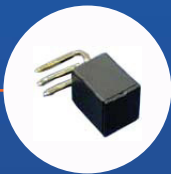
NR1 Series



NR2 Series

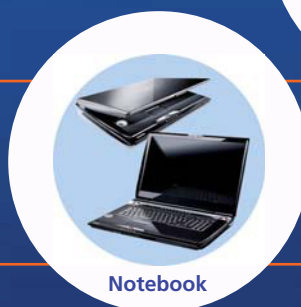


NR3 Series



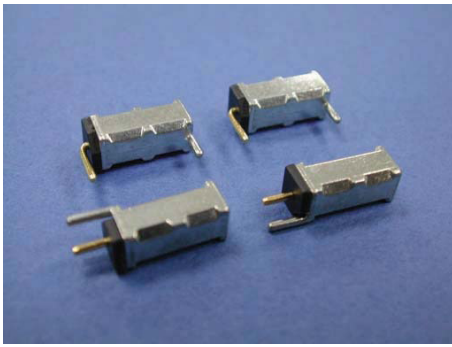
## Optical Roll Ball Sensor Switches

NP1 Series



NP2 Series

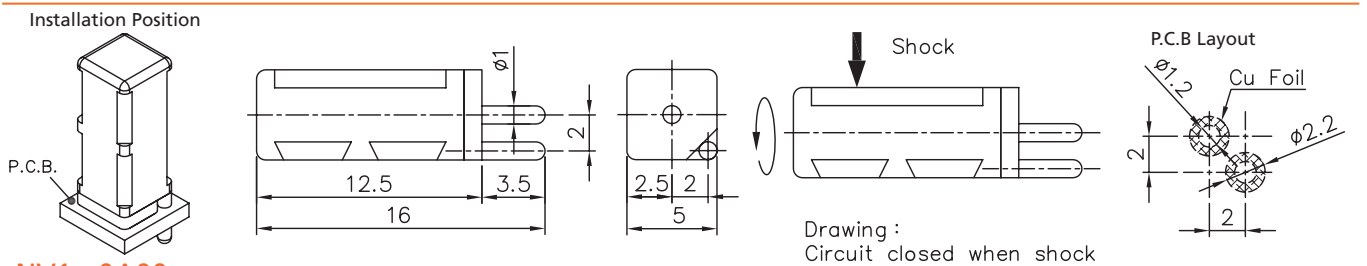




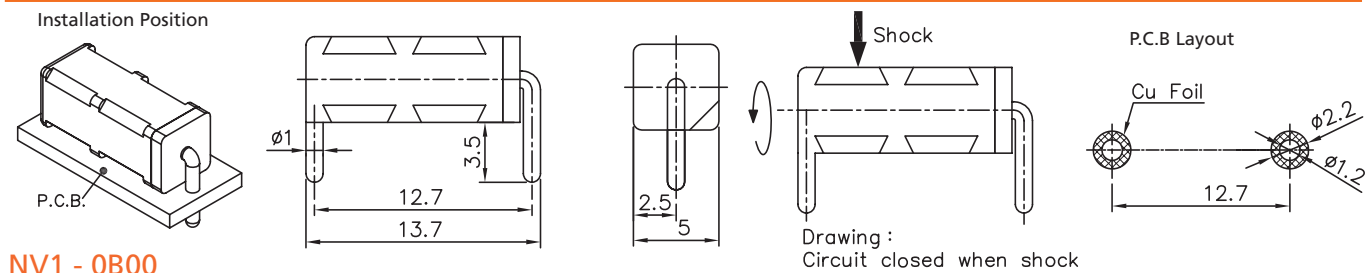
### Applications:

1. Two Axis Vibration Detecting: Toys, Sporting Shoes

Dimensions/ Operation/ P.C.B. Layout(Unit: mm,Tolerance:±0.25mm)



### NV1 - 0A00



### NV1 - 0B00

## GENERAL SPECIFICATIONS

### Features:

1. Small size & compact space.
2. Terminals gold plated to enhance the life.
3. Special structure; increased strength between housing and base.
4. All plastic material subject to industrial purpose meets high temperature and fireproof function caused by contact oxidized.
5. Suitable to IC trigger signal.
6. Complete replacement of mercury switch and meet with environmental protection.

### Bill Of Material:

1. Housing: ZINC Alloy, Tin Plated over Nickel
2. Base: Class-Fiber Polyamide
3. Terminal: Copper Alloy, Gold(3μ") plated over Nickel
4. Spring: Copper Alloy, Nickel plated
5. Steel Ball: Stainless Steel

### Electrical Characteristics:

1. Contact Rating: 25mA, 24VDC
2. Insulation Resistance: 1000MΩ min. At 100 VDC
3. Switching type: Normal Open (NO)
4. Dielectric Strength: 500 VDC min. for 1 minute
5. Capacitance: 5pF max

### Mechanical Characteristics:

1. Temperature Range: Operating: -25°C to +85°C ;  
Storage : -40°C to +85°C
2. Pull Force of Terminal: 500 gf for 1 minute
3. Operation Life: 100,000 Cycles
4. Humidity: 95% RH, 40°C for 96 hrs.
5. Solder ability : After flux 245±5°C for 5±0.5 seconds  
95% coverage

### » NOTE

1. Suggestion Contact Rating: 5 mA.
2. Conductive Rate: To test the conductivity (Switch-on Rate) of one switch individually for 100 times, if the switch conductive 95 times, we call the "conductive rate" is 95%.
3. For the continued product improvement as one of the company policy, specifications may change or update without notice. The latest information can be obtained through our sales offices. Normally, all products are supplied under our standard conditions.

### » PRECAUTIONS FOR USE

1. The product is used mainly in electronic devices such as automotive devices, visual devices, home electrical appliances, information devices and communication settings. If the products is intended to be used for other endurance equipments requiring higher safety and reliability such as life support system, space and aviations devices, disaster and safety system, it's necessary to make verification of conformity or contact us for the details before using.
2. Don't try to clean the switch with a solvent or similar substance after the soldering process.
3. The switch might be damaged if using the water-soluble flux.
4. Don't use the switch in the environment with high humidity or other bedewing possibility, as it may cause leaking among the terminals.
5. It might catch fire if the rating exceeds the specifications. Never use the switch beyond the rating.

### PACKAGE (Minimum Order Quantity: One Bag)

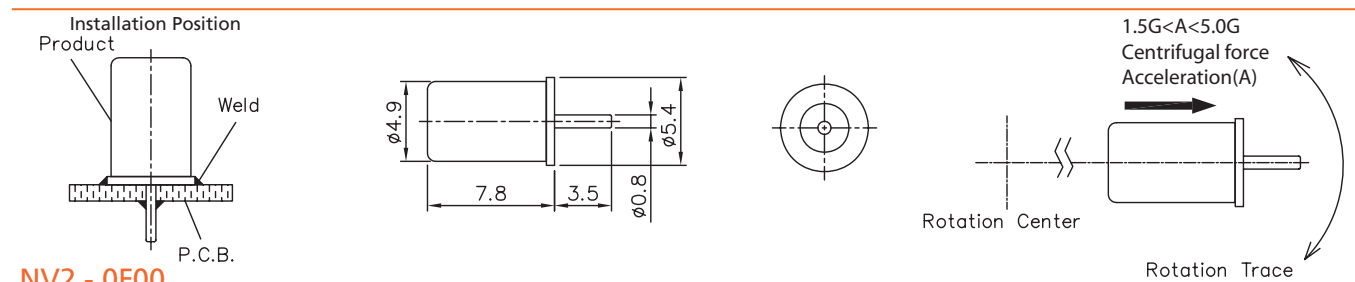
	Part Number	Package	Quantity	Tota	Size
1.	NV1-0A00	PE Bag	500 pcs	500 pcs	12.7 x 17.8 cm
		Inner Box	10 Bags	5,000 pcs	36 x 20 x 9 cm
	NV1-0B00	Carton	3 Boxes	15,000 pcs	36 x 28 x 23 cm



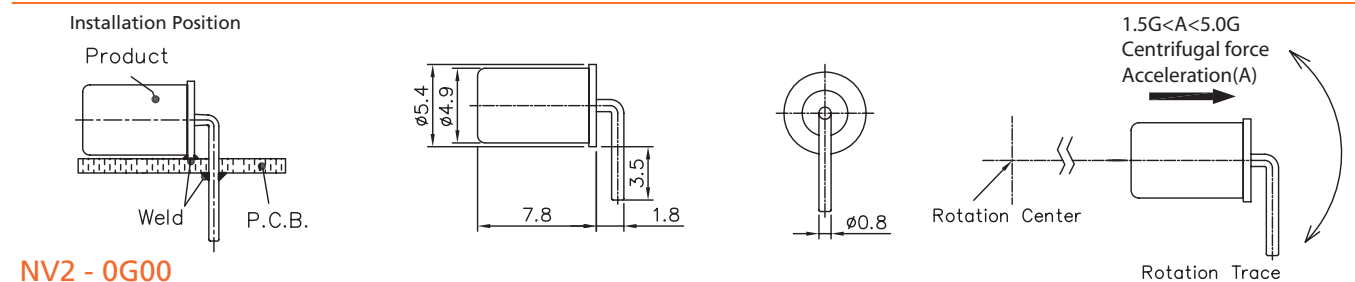
### Applications:

1. Single Axis Vibration Detecting: Step Counter
2. Centrifugal Force Detecting: Tire Pressure Monitoring System  
Elcetric Sawing Machine

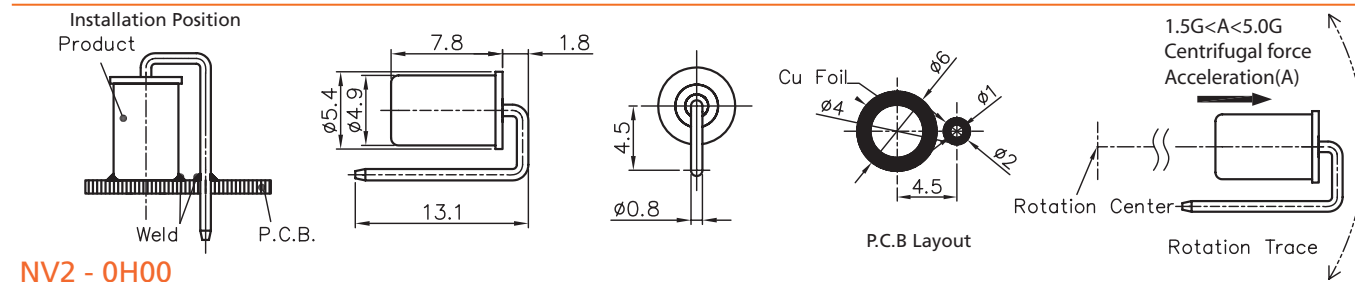
Dimensions/ Operation/ P.C.B. Layout (Unit: mm,Tolerance:±0.25mm)



### NV2 - 0F00



### NV2 - 0G00



### NV2 - 0H00

## GENERAL SPECIFICATIONS

### Features:

1. Small size & compact space.
2. With high-quality spring inside the housing.
3. Using Insert Molding Technology to increase strength between base and terminal.
4. All plastic material subject to industrial purpose meets high temperature and fireproof function.
5. Suitable to IC trigger signal.
6. Complete replacement of mercury switch and meet with environmental protection.

### Bill Of Material:

1. Housing: Copper Alloy, Tin or Gold Plated(3μ") over Nickel
2. Metal Cover: Copper Alloy, Tin or Gold Plated(3μ") over Nickel
3. Isolation Base: Glass-Fiber LCP, UL 94V-0
3. Terminal: Copper Alloy, Gold plated(3μ") over Nickel
4. Spring: Copper Alloy, Gold plated(3μ") over Nickel
5. Ball: Stainless steel, Gold Plated(3μ") over Nickel

### Eletrical Characteristics:

1. Contact Rating: 25mA, 24VDC
2. Insulation Resistance: 1000MΩ min. At 100 VDC
3. Switching type: Normal Open (NO)
4. Dielectric Strength: 500 VDC min. for 1 minute
5. Capacitance: 5pF max

### Mechanical Characteristics:

1. Temperature Range:  
Operating: -25°C to +85°C (Tin Plated)  
-40°C to +85°C (Gold Plated)  
Storage : -40°C to +85°C (Tin Plated)  
-50°C to +150°C (Gold Plated)
2. Pull Force of Terminal: 500 gf for 1 minute
3. Operation Life: 100,000 Cycles (Tin Plated)  
1,000,000 Cycles (Gold Plated)
4. Vibration: Per MIL-STD-202F, Method 204D
5. Humidity: 95% RH, 40°C for 96 hrs.
6. Solder ability : After flux 230±5°C for 5±0.5 seconds  
95% coverage

### » NOTE

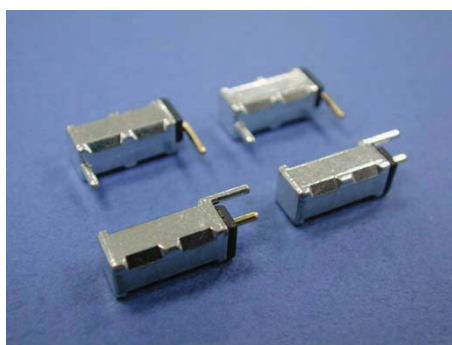
1. Suggestion Contact Rating: 5 mA.
2. For the continued product improvement as one of the company policy, specifications may change or update without notice. The latest information can be obtained through our sales offices. Normally, all products are supplied under our standard conditions.

### » PRECAUTIONS FOR USE

1. The product is used mainly in electronic devices such as automotive devices, visual devices, home electrical appliances, information devices and communication settings. If the products is intended to be used for other endurance equipments requiring higher safety and reliability such as life support system, space and aviations devices, disaster and safety system, it's necessary to make verification of conformity or contact us for the details before using.
2. Don't try to clean the switch with a solvent or similar substance after the soldering Prozess.
3. The switch might be damaged if using the water-soluble flux.
4. The switch might be apart if the so ldering condition over specification.
5. Don't use the switch in the environment with high humidity or other bedewing possibility, as it may cause leaking among the terminals.
6. It might catch fire if the rating exceeds the specifications. Never use the switch beyond the Rating.

### PACKAGE (Minimum Order Quantity: One Bag)

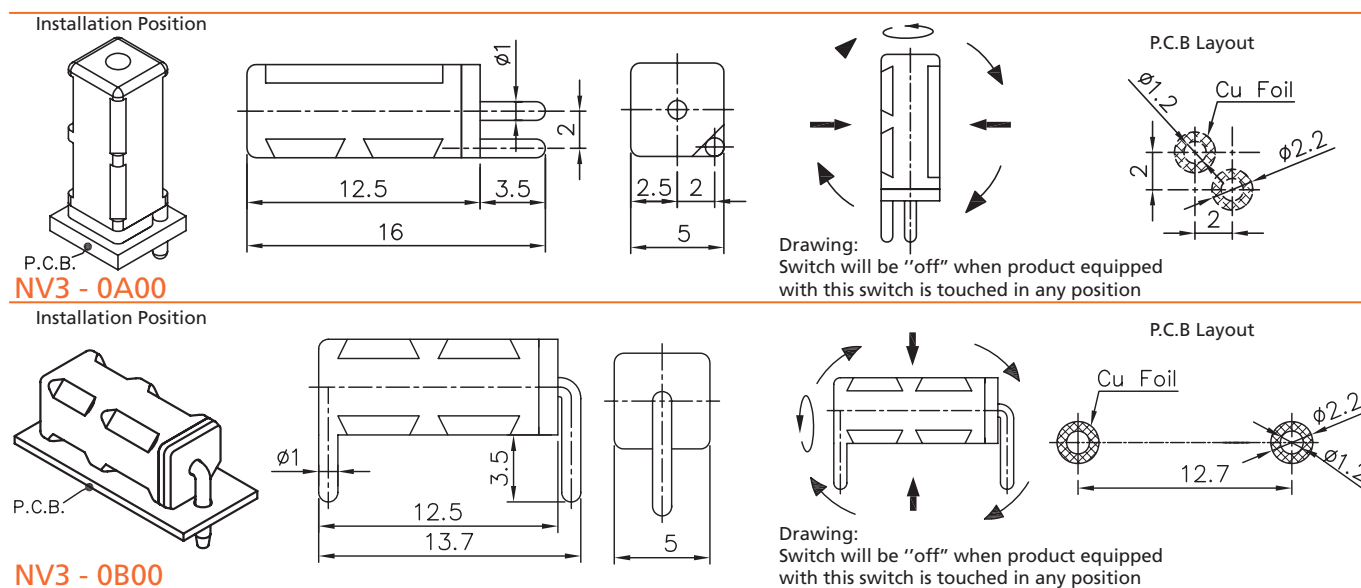
	Part Number	Package	Quantity	Total	Size
1.	NV2-0F00	PE Bag	1,000 pcs	1,000 pcs	12.7 x 17.8 cm
	NV2-0G00	Inner Box	10 Bags	10,000 pcs	36 x 20 x 9 cm
	NV2-0H00	Carton	3 Boxes	30,000 pcs	36 x 28 x 23 cm



### Applications:

1. Omni-directional vibration detecting: Remote Controller, Wireless Mouse, etc., occasions that request for vibration Power ON function
2. Centrifugal Force Detecting: Tire Pressure Monitoring System, Electric Sawing Machine

### Dimensions/ Operation/ P.C.B. Layout (Unit: mm, Tolerance: ±0.25mm)



## GENERAL SPECIFICATIONS

### Features:

1. Small size & compact space.
2. Special structure; increased strength between housing and base.
3. Ball are gold plated to enhance the life.
4. All plastic material subject to industrial purpose meets with high temperature and fireproof function.
5. Suitable to IC trigger signal.
6. Complete replacement of mercury switch and meet with environmental protection.

### Bill Of Material:

1. Housing: ZINC Alloy, Tin Plated over Nickel
2. Base: Glass-Fiber Polyamide, UL 94V-0
3. Terminal: Copper Alloy, Gold plated(3μ") over Nickel
4. Ball: Copper Alloy, Gold Plated(3μ") over Nickel

### Electrical Characteristics:

1. Contact Rating: 25mA, 24VDC
2. Insulation Resistance: 1000MΩ min. At 100 VDC
3. Switching type: Normal Open (NO)
4. Dielectric Strength: 500 VDC min. for 1 minute
5. Capacitance: 5pF max

### Mechanical Characteristics:

1. Temperature Range: Operating: -25°C to +85°C ; Storage : -40°C to +85°C
2. Pull Force of Terminal: 500 gf for 1 minute
3. Operation Life: 100,000 Cycles
4. Conductive Rate (Switch-on Rate): min. over 90%
5. Humidity: 95% RH, 40°C for 96 hrs.
6. Solder ability : After flux 245°C for 5±0.5 seconds 95% coverage

### » NOTE

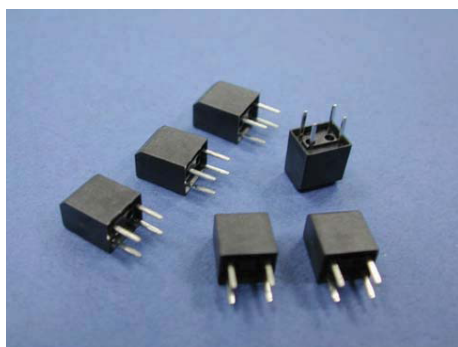
1. Suggestion Contact Rating: 5 mA.
2. For the continued product improvement as one of the company policy, specifications may change or update without notice. The latest information can be obtained through our sales offices. Normally, all products are supplied under our standard conditions.

### » PRECAUTIONS FOR USE

1. The product is used mainly in electronic devices such as automotive devices, visual devices, home electrical appliances, information devices and communication settings. If the products is intended to be used for other endurance equipments requiring higher safety and reliability such as life support system, space and aviations devices, disaster and safety system, it's necessary to make verification of conformity or contact us for the details before using.
2. Don't try to clean the switch with a solvent or similar substance after the soldering Prozess.
3. The switch might be damaged if using the water-soluble flux.
4. The switch might be apart if the soldering condition over specification.
5. Don't use the switch in the environment with high humidity or other bedewing possibility, as it may cause leaking among the terminals.
6. It might catch fire if the rating exceeds the specifications. Never use the switch beyond the Rating.

### PACKAGE (Minimum Order Quantity: One Bag)

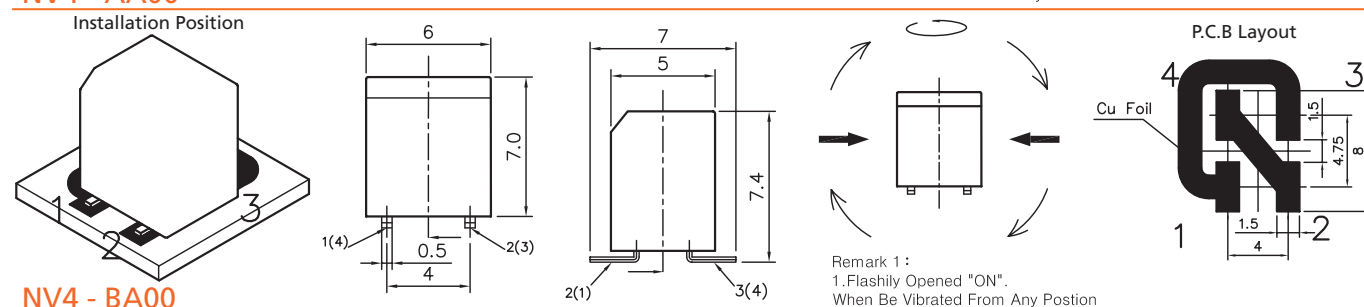
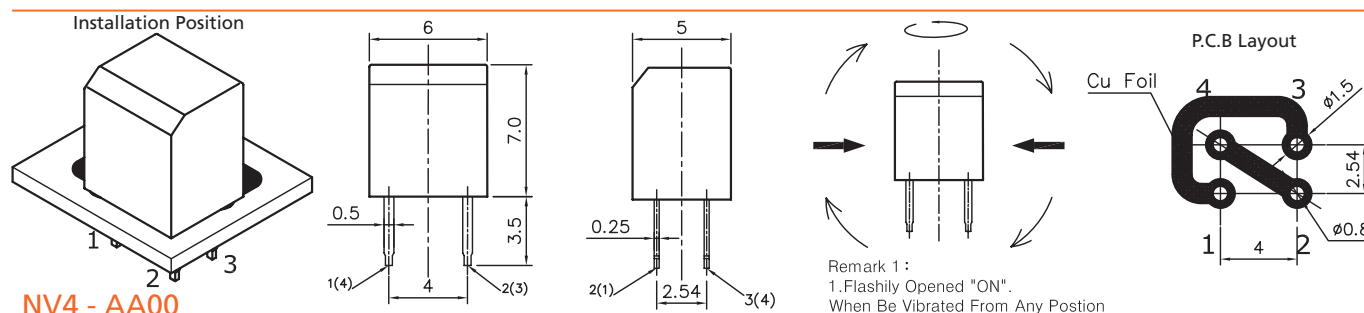
	Part Number	Package	Quantity	Total	Size
1.	NV3-0A00	PE Bag	500 pcs	500 pcs	12.7 x 17.8 cm
		Inner Box	10 Bags	5,000 pcs	36 x 20 x 9 cm
	NV3-0B00	Carton	3 Boxes	15,000 pcs	36 x 28 x 23 cm



### Applications:

1. Omni-directional vibration detecting: Remote Controller, Wireless Mouse, etc., occasions that request for vibration Power ON function
2. Suitable to stroke signal applied such as earthquake detecting system, bicycle alarms, car alarms, and home security systems, toys, sporting shoes etc.

Dimensions/ Operation/ P.C.B. Layout(Unit: mm,Tolerance:±0.25mm)



### GENERAL SPECIFICATIONS

#### Features:

1. Small size & compact space.
2. Housing made of high insulation plastic material, free from electric conduction and rust problem.
3. Terminal and balls are gold plated to enhance the life.
4. All plastic material subject to industrial purpose meets high temperature and fireproof function.
5. Suitable to IC trigger signal.
6. Complete replacement of mercury switch and meet with environmental protection.

#### Bill Of Material:

1. Housing: Glass-Fiber Liquid crystal Polymer
2. Base: Glass-Fiber Liquid crystal Polymer
3. Terminal: Copper Alloy, Gold plated(3μ") over Nickel
4. Ball: Copper Alloy, Gold Plated(3μ") over Nickel

#### Eletrical Characteristics:

1. Contact Rating: 25mA, 24VDC
2. Contact Resistance: Initial: 5Ω max;  
Afer Life Test: 10Ω max
3. Insulation Resistance: 10MΩ min. At 100 VDC
4. Switching type: Normal Close (NC)
5. Dielectric Strength: 500 VDC min. for 1 minute
6. Capacitance: 5pF max

#### Mechanical Characteristics:

1. Temperature Range: Operating: -25°C to +85°C ;  
Storage : -40°C to +85°C
2. Pull Force of Terminal: 500 gf for 1 minute
3. Operation Life: 100,000 Cycles
4. Humidity: 95% RH, 40°C for 96 hrs
5. Solder ability : After flux 260±5°C for 5±0.5 seconds 95% coverage
6. Reflow zone 260°C±5°C for 20 seconds max



### » NOTE

1. Suggestion for Application: Adding design of "ON DELAY" is recommended. Application in occasions that require vibration functions, Optical type Products are recommended.
2. Suggestion Contact Rating: 5 mA.
3. Conductive Rate: To test the conductivity (Switch-on Rate) of one switch individually for 100 times, if the switch conductive 95 times, we call the "conductive rate" is 95%.
4. For the continued product improvement as one of the company policy, specifications may change or update without notice. The latest information can be obtained through our sales offices. Normally, all products are supplied under our standard conditions.

### » PRECAUTIONS FOR USE

1. The product is used mainly in electronic devices such as automotive devices, visual devices, home electrical appliances, information devices and communication settings. If the products is intended to be used for other endurance equipments requiring higher safety and reliability such as life support system, space and aviations devices, disaster and safety system, it's necessary to make verification of conformity or contact us for the details before using.
2. Don't try to clean the switch with a solvent or similar substance after the soldering Prozess.
3. The switch might be damaged if using the water-soluble flux.
4. The switch might be apart if the soldering condition over specification.
5. Don't use the switch in the environment with high humidity or other bedewing possibility, as it may cause leaking among the terminals.
6. It might catch fire if the rating exceeds the specifications. Never use the switch beyond the Rating.

### PACKAGE (Minimum Order Quantity: One Bag / One Reel)

	Part Number	Package	Quantity	Total	Size
1.	NV4-AA00	PE Bag	500 pcs	500 pcs	12.7 x 17.8 cm
		Inner Box	8 Bags	4,000 pcs	36 x 20 x 9 cm
		Carton	3 Boxes	12,000 pcs	36 x 28 x 23 cm
2.	NV4-BA00	Reel	650 pcs	650 pcs	30 x 30 cm
		Inner Box	2 Reels	1,300 pcs	36 x 34 x 7 cm
		Carton	4 Boxes	5,200 pcs	37 x 37 x 28 cm