## Snap Action Switch

ss

## Subminiature Snap Action Switch

- Economical, subminiature snap action switch offers long service life ( 30 million operations minimum)
- All models are free from overtravel restrictions, permit easy setting
- Wide switching capacity range from microvoltage/current loads (1 mA at 5 VDC to high-capacity loads 10.1 A at 250 VAC)
- Standard operating force, low force or super-low force models available
- RoWS Compliant



## Ordering Information

## Standard Type

Microvoltage/microcurrent load 0.1 A max. (Bifurcated crossbar contacts)


## General-Purpose

5 A max. (Standard rivet contacts)

| Actuator | Contact OF | Model |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | PCB terminal |  |  | Soldered terminal | Tab (\#110) terminal |
|  |  | Straight vertical | Parallel to left | Parallel to right |  |  |
| Pin plunger | 50 g | SS-5-FD | SS-5-FD1 | SS-5-FD2 | SS-5-F | SS-5-FT |
|  | 150 g | SS-5D | SS-5D1 | SS-5D2 | SS-5 | SS-5T |
| Hinge lever | 16 g | SS-5GL-FD | SS-5GL-FD1 | SS-5GL-FD2 | SS-5GL-F | SS-5GL-FT |
|  | 50 g | SS-5GLD | SS-5GLD1 | SS-5GLD2 | SS-5GL | SS-5GLT |
| Simulated roller lever | 16 g | SS-5GL13-FD | - | SS-5GL13-FD2 | SS-5GL13-F | SS-5GL13-FT |
|  | 50 g | SS-5GL13D | SS-5GL13D1 | SS-5GL13D2 | SS-5GL13 | SS-5GL13T |
| Formed hinge lever | 16 g | SS-5GL14-FD | SS-5GL14-FD1 | - | SS-5GL14-F | SS-5GL14-FT |
|  | 50 g | SS-5GL14D | SS-5GL14D1 | SS-5GL14D2 | SS-5GL14 | SS-5GL14T |
| Hinge roller lever | 16 g | SS-5GL2-FD | SS-5GL2-FD1 | SS-5GL2-FD2 | SS-5GL2-F | SS-5GL2-FT |
|  | 50 g | SS-5GL2D | SS-5GL2D1 | SS-5GL2D2 | SS-5GL2 | SS-5GL2T |

10.1 A max. (Standard rivet contacts)

| Actuator | Contact OF | Model |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | PCB terminal |  |  | Soldered terminal | Tab (\#110) terminal |
|  |  | Straight vertical | Parallel to left | Parallel to right |  |  |
| Pin plunger | 150 g | SS-10D | - | - | SS-10 | SS-10T |
| Hinge lever | 50 g | SS-10GLD | - | - | SS-10GL | SS-10GLT |
| Simulated roller lever | 50 g | SS-10GL13D | - | - | SS-10GL13 | SS-10GL13T |
| Formed hinge lever | 50 g | - | - | - | SS-10GL14 | - |
| Hinge roller lever | 50 g | SS-10GL2D | - | - | SS-10GL2 | SS-10GL2T |

## Specifications

## Characteristics

| Switch type |  | General-purpose |
| :---: | :---: | :---: |
| Operating speed (see note 3) |  | 0.1 mm to $1 \mathrm{~m} /$ second ( 0.004 to $39.4 \mathrm{in} /$ second) |
| Operating frequency | Mechanical | 400 operations per minute (pin plunger actuator type) |
|  | Electrical | 60 operations per minute (pin plunger actuator type) |
| Insulation resistance |  | $100 \mathrm{M} \Omega$ at 500 VDC |
| Dielectric strength | Crossbar contact type | $600 \mathrm{VAC}, 50 / 60 \mathrm{~Hz}$ for 1 minute (see note 1) |
|  | Others | 1,000 VAC, $50 / 60 \mathrm{~Hz}$ for 1 minute between terminals of same polarity 1,500 VAC, $50 / 60 \mathrm{~Hz}$ for 1 minute between current-carrying parts and ground and between each terminal and noncurrent-carrying metal parts |
| Vibration Shock | Malfunction durability | 10 to $55 \mathrm{~Hz}, 1.5 \mathrm{~mm}$ double amplitude |
|  | Mechanical durability | Low-OF type: $\quad 500 \mathrm{~m} / \mathrm{s}^{2} \mathrm{~min}$. (approx. 50 g ) Others: $\quad 1,000 \mathrm{~m} / \mathrm{s}^{2} \mathrm{~min}$. (approx. 100 g ) |
|  | Malfunction durability | Standard type: $\quad 300 \mathrm{~m} / \mathrm{s}^{2} \mathrm{~min}$. (approx. 30 g ) |
|  |  | Low-OF type: $\quad 200 \mathrm{~m} / \mathrm{s}^{2} \mathrm{~min}$. (approx. 20 g ) |
|  |  | Lever type at TTP: Contact gap, 1 ms max. |
| Ambient temperature | Operating | $-25^{\circ}$ to $85^{\circ} \mathrm{C}$ with no icing |
| Humidity |  | 85\% RH max. |
| Service life | Mechanical | 30 million operations minimum (OT: rated value) (see note 4) |
|  | Electrical | 200,000 operations minimum (rated load) (see note 2) |
| Weight |  | Approx. 1.6 g pin plunger type |

Note: 1. SS-10 series only.
2. 50,000 operations minimum for the $S S-10$ series.
3. Applies to the pin plunger type (at the pin plunger of the lever type).
4. 10 million operations for the SS-10 series.
5. Data shown are of initial value.

## ■ Operating Characteristics

| Characteristics | Part number |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- |
|  | SS-01-E | SS-01-F <br> SS-5-F | SS-01 <br> SS-5 | SS-10 | SS-01GL-E |
|  | 25 g | 50 g | 150 g | 150 g | 8 g |
| RF min. | 2 g | 4 g | 25 g | 25 g | 1 g |
| PT max. | $0.5 \mathrm{~mm}(0.020 \mathrm{in})$ | $0.5 \mathrm{~mm}(0.020 \mathrm{in})$ | $0.5 \mathrm{~mm}(0.020 \mathrm{in})$ | $0.6 \mathrm{~mm}(0.024 \mathrm{in})$ | $1.2 \mathrm{~mm}(0.047 \mathrm{in})$ |
| OT min. | $0.5 \mathrm{~mm}(0.020 \mathrm{in})$ | $0.5 \mathrm{~mm}(0.020 \mathrm{in})$ | $0.5 \mathrm{~mm}(0.020 \mathrm{in})$ | $0.4 \mathrm{~mm}(0.016 \mathrm{in})$ | $0.8 \mathrm{~mm}(0.032 \mathrm{in})$ |
| MD max. | $0.1 \mathrm{~mm}(0.004 \mathrm{in})$ | $0.1 \mathrm{~mm}(0.004 \mathrm{in})$ | $0.1 \mathrm{~mm}(0.004 \mathrm{in})$ | $0.12 \mathrm{~mm}(0.005 \mathrm{in})$ | $13.6 \mathrm{~mm}(0.535 \mathrm{in})$ |
| OP | $8.4 \pm 0.5 \mathrm{~mm}$ <br> $(0.331 \pm 0.020 \mathrm{in})$ | $8.4 \pm 0.5 \mathrm{~mm}$ <br> $(0.331 \pm 0.020 \mathrm{in})$ | $8.4 \pm 0.5 \mathrm{~mm}$ <br> $(0.331 \pm 0.020 \mathrm{in})$ | $8.4 \pm 0.5 \mathrm{~mm}$ <br> $(0.331 \pm 0.020 \mathrm{in})$ | $8.8 \pm 0.8 \mathrm{~mm}$ <br> $(0.346 \pm 0.032 \mathrm{in})$ |


| Characteristics | Part number |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{aligned} & \text { SS-01GL-F } \\ & \text { SS-5GL-F } \end{aligned}$ | $\begin{aligned} & \text { SS-01GL } \\ & \text { SS-5GL } \end{aligned}$ | SS-10GL | SS-10GL13-E | $\begin{aligned} & \text { SS-10GL13-F } \\ & \text { SS-5GL13-F } \end{aligned}$ |
| OF max. | 16 g | 50 g | 50 g | 8 g | 16 g |
| RF min. | 2 g | 6 g | 6 g | 1 g | 2 g |
| PT max. | 1.2 mm (0.047 in) | 1.2 mm (0.047 in) | 1.0 mm (0.039 in) | 1.2 mm (0.047 in) | 1.2 mm (0.047 in) |
| OT min. | 0.8 mm (0.032 in) | 0.8 mm (0.032 in) | 1.0 mm (0.039 in) | 0.8 mm (0.032 in) | 0.8 mm (0.032 in) |
| MD max. | 13.6 mm (0.535 in) | 13.6 mm (0.535 in) | 13.6 mm (0.535 in) | 15.5 mm (0.610 in) | 15.5 mm (0.610 in) |
| OP | $\begin{aligned} & 8.8 \pm 0.8 \mathrm{~mm} \\ & (0.346 \pm 0.032 \mathrm{in}) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 8.8 \pm 0.8 \mathrm{~mm} \\ & (0.346 \pm 0.032 \mathrm{in}) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 8.8 \pm 0.8 \mathrm{~mm} \\ & (0.346 \pm 0.032 \mathrm{in}) \\ & \hline \end{aligned}$ | $\begin{aligned} & 10.7 \pm 0.8 \mathrm{~mm} \\ & (0.421 \pm 0.032 \mathrm{in}) \\ & \hline \end{aligned}$ | $\begin{aligned} & 10.7 \pm 0.8 \mathrm{~mm} \\ & (0.421 \pm 0.032 \mathrm{in}) \\ & \hline \end{aligned}$ |


| Characteristics | Part number |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{aligned} & \text { SS-01GL13 } \\ & \text { SS-5GL13 } \end{aligned}$ | SS-10GL13 | SS-01GL14-E | $\begin{aligned} & \text { SS-01GL14-F } \\ & \text { SS-5GL14-F } \end{aligned}$ | $\begin{aligned} & \text { SS-01GL14 } \\ & \text { SS-5GL14 } \end{aligned}$ |
| OF max. | 50 g | 50 g | 8 g | 16 g | 50 g |
| RF min. | 6 g | 6 g | 1 g | 2 g | 6 g |
| PT max. | 1.2 mm (0.047 in) | 1.0 mm (0.039 in) | 1.2 mm (0.047 in) | 1.2 mm (0.047 in) | 1.2 mm (0.047 in) |
| OT min. | 0.8 mm (0.032 in) | 1.0 mm (0.039 in) | 0.8 mm (0.032 in) | 0.8 mm (0.032 in) | 0.8 mm (0.032 in) |
| MD max. | 15.5 mm (0.610 in) | 15.5 mm (0.610 in) | 14.9 mm (0.587 in) | 14.9 mm (0.587 in) | 14.9 mm (0.587 in) |
| OP | $\begin{aligned} & 10.7 \pm 0.8 \mathrm{~mm} \\ & (0.421 \pm 0.032 \mathrm{in}) \end{aligned}$ | $\begin{aligned} & 10.7 \pm 0.8 \mathrm{~mm} \\ & (0.421 \pm 0.032 \mathrm{in}) \end{aligned}$ | $\begin{aligned} & 10.1 \pm 0.8 \mathrm{~mm} \\ & (0.398 \pm 0.032 \mathrm{in}) \\ & \hline \end{aligned}$ | $\begin{aligned} & 10.1 \pm 0.8 \mathrm{~mm} \\ & (0.398 \pm 0.032 \mathrm{in}) \\ & \hline \end{aligned}$ | $\begin{aligned} & 10.1 \pm 0.8 \mathrm{~mm} \\ & (0.398 \pm 0.032 \mathrm{in}) \end{aligned}$ |


| Characteristics | Part number |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | SS-10GL14 | SS-01GL2-E | $\begin{aligned} & \text { SS-01GL2-F } \\ & \text { SS-5GL2-F } \end{aligned}$ | $\begin{array}{\|l\|} \hline \text { SS-01GL2 } \\ \text { SS-5GL2 } \\ \hline \end{array}$ | SS-10GL2 |
| OF max. | 50 g | 8 g | 16 g | 50 g | 50 g |
| RF min. | 6 g | 1 g | 2 g | 6 g | 6 g |
| PT max. | 1.0 mm (0.039 in) | 1.2 mm (0.047 in) | 1.2 mm (0.047 in) | 1.2 mm (0.047 in) | 1.0 mm (0.039 in) |
| OT min. | 1.0 mm (0.039 in) | 0.8 mm (0.032 in) | 0.8 mm (0.032 in) | 0.8 mm (0.032 in) | 1.0 mm (0.039 in) |
| MD max. | 14.9 mm (0.587 in) | 19.3 mm (0.760 in) | 19.3 mm (0.760 in) | 19.3 mm (0.760 in) | 19.3 mm (0.760 in) |
| OP | $\begin{array}{\|l\|} \hline 10.1 \pm 0.8 \mathrm{~mm} \\ (0.398 \pm 0.032 \mathrm{in}) \end{array}$ | $\begin{aligned} & 14.5 \pm 0.8 \mathrm{~mm} \\ & (0.571 \pm 0.032 \mathrm{in}) \end{aligned}$ | $\begin{aligned} & \hline 14.5 \pm 0.8 \mathrm{~mm} \\ & (0.571 \pm 0.032 \mathrm{in}) \end{aligned}$ | $\begin{array}{\|l\|} \hline 14.5 \pm 0.8 \mathrm{~mm} \\ (0.571 \pm 0.032 \mathrm{in}) \end{array}$ | $\begin{aligned} & 14.5 \pm 0.8 \mathrm{~mm} \\ & (0.571 \pm 0.032 \mathrm{in}) \end{aligned}$ |

## Ratings

## Microvoltage/microcurrent load type

| Contact form | General purpose/resistive load |  |
| :--- | :--- | :--- |
|  | Bifurcated crossbar contacts |  |
|  | NC | NO |
| 30 VDC | 0.1 A | 0.1 A |
| Inrush current | 1 A max. | 0.1 A |

Standard type general purpose

| Switch series: <br> Contact form | Rivet contacts |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Resistive load |  |  |  | Lamp load |  | Inductive load |  | Motor load |  |
|  | SS-5 |  | SS-10 |  | SS-5 and SS-10 |  | SS-5 and SS-10 |  | SS-5 and SS-10 |  |
|  | NC | NO | NC | NO | NC | NO | NC | NO | NC | NO |
| 125 VAC | 5 A | 5 A | 10.1 A | 10.1 A | 1.5 A | 0.7 A | 3 A | 3 A | 2.5 A | 1.3 A |
| 250 VAC | 3 A | 3 A | 10.1 A | 10.1 A | 1 A | 0.5 A | 2 A | 2 A | 1.5 A | 0.8 A |
| 8 VDC | 5 A | 5 A | 10.1 A | 10.1 A | 2 A | 2 A | 5 A | 4 A | 3 A | 3 A |
| 14 VDC | 5 A | 5 A | 10.1 A | 10.1 A | 2 A | 2 A | 4 A | 4 A | 3 A | 3 A |
| 30 VDC | 4 A | 4 A | 4 A | 4 A | 2 A | 2 A | 3 A | 3 A | 3 A | 3 A |
| 125 VDC | 0.4 A | 0.4 A | 0.4 A | 0.4 A | 0.05 A | 0.05 A | 0.4 A | 0.4 A | 0.05 A | 0.05 A |
| 250 VDC | 0.2 A | 0.2 A | 0.2 A | 0.2 A | 0.03 A | 0.03 A | 0.2 A | 0.2 A | 0.03 A | 0.03 A |
| Inrush current | 20 A max. 10 A max. 20 A max. 15 A max. (both non-inductive and inductive loads) |  |  |  |  |  |  |  |  |  |

Note: 1. The above current ratings are the values of the steady-state current.
2. Inductive load has a power factor of 0.4 min . AC ) and a time constant of 7 milliseconds max. (DC). The inductive load applicable to the SS-10 series must have a power factor of 0.75 min .
3. Lamp load has an inrush current of 10 times the steady-state current
4. Motor load has an inrush current of 6 times the steady-state current.
5. If the switch is used in a DC circuit and is subjected to inrush current or surge, connect a surge suppressor across the switch.

Contact Resistance (ms max., initial)

| Contact rating: | SS-01 $\square$ | SS-5 $\square$ | SS-10 $\square$ |
| :--- | :--- | :--- | :--- |
|  | 0.1 A | 3 A or 5 A | 10.1 A |
|  | $50 \mathrm{~m} \Omega$ | $30 \mathrm{~m} \Omega$ | $30 \mathrm{~m} \Omega$ |
| Low operating force models (SS- $\square-$ F) | $100 \mathrm{~m} \Omega$ | $50 \mathrm{~m} \Omega$ | - |
| Super-low operating force models (SS- $\square-\mathbf{E})$ | - | - |  |
| Lead wire models (all OF types) | $150 \mathrm{~m} \Omega$ | $50 \mathrm{~m} \Omega$ | - |

## Contact Form

## SPDT

(common throughout the series)


## SPST-NC*

(standard models rated at 0.1 to 0.5 A )


SPST-NO*
(standard models rated at 0.1 to 5 A)


Sealed lead wire terminal models
have color coded leads.

* Consult Omron for SPST-NC and SPST-NO contact form types ordering information.


## Approvals

UL (File No. E41515), CSA (File No. LR21642), SS-5/SS-10: EN conforms 61058-1

| Type | General-purpose type | Rating |
| :--- | :--- | :--- |
| SS-10 series | General-purpose type | $10.1 \mathrm{~A}, 250$ VAC |
| SS-5 series | Super-low force type | $5 \mathrm{~A}, 125 \mathrm{~V}, 3$ A 250 VAC |
| SS-01 series | $0.1 \mathrm{~A}, 125$ VAC, 30 VDC |  |

VDE (File No. 5861-3221)

| Type | General-purpose type | Rating |
| :--- | :--- | :--- |
| SS-5 series | $5 \mathrm{~A}, 250$ VAC |  |

SEMKO (File Nos. 43-8614026/43-891609)

| Type | General-purpose type | Rating |
| :--- | :--- | :--- |
| SS-10 series | General-purpose type | $10 \mathrm{~A}, 250$ VAC |
| SS-5 series | $5 \mathrm{~A}, 250$ VAC |  |

Note: The rated values approved by each of the safety standards (e.g. UL, CSA) may be different from the performance characteristics individually defined in this catalog.

## Engineering Data

## Mechanical service life

Standard type (SS-5, SS-10 series)


## Electrical service life

Standard type (SS-5 series)


## Dimensions

Unit: mm (inch)

## Pin Plunger

SS-01 (-E, -F)
SS-5 (-F)
SS-10


Hinge Lever
SS-01GL (-E, -F)
SS-5GL (-F)
SS-10GL


## ■ Simulated Roller Lever

SS-01GL13 (-E, -F)
SS-5GL13 (-F)
SS-10GL13


Formed Hinge Lever
SS-01GL14 (-E, -F)
SS-5GL14 (-F)
SS-10GL14


Note: 1. Unless otherwise specified, a tolerance of $\pm 0.4 \mathrm{~mm}$ applies to all dimensions.
2. Straight vertical PCB terminal models are shown above. Soldered terminal, Tab (\#110) terminal, lead wire terminal, PCB terminal parallel to left and PCB terminal parallel to right are shown in the Terminals section.

## Hinge Roller Lever

SS-01GL2 (-E, -F)
SS-5GL2 (-F)
SS-10GL2


Note: Unless otherwise specified, a tolerance of $\pm 0.4 \mathrm{~mm}$ applies to all dimensions.

## Mounting holes

## Standard types

Mounting holes below are for reference only


Note: Unless otherwise specified, a tolerance of $\pm 0.4 \mathrm{~mm}$ applies to all dimensions.

Unit: mm (inch)

## Terminals

General-Purpose Type

## PCB terminal, straight vertical (D)



PCB terminal, parallel to left (D1)


Note: Thickness of all the terminals is 0.5 mm .

## Soldered terminal (blank)



PCB terminal, parallel to right (D2)


## Quick-connect tab (\#110) terminal (T)



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10. Shipping; Delivery. Unless otherwise expressly agreed in writing by Seller: 1. Shipments shall be by a carrier selected by Seller;
11. Such carrier shall act as the agent of Buyer and delivery to such carrier shall constitute delivery to Buyer;
12. All sales and shipments of Products shall be FOB shipping point (unless otherwise stated in writing by Seller), at which point title to and all risk of loss of the Products shall pass from Seller to Buyer, provided that Seller shall retain a security interest in the Products until the full purchase price is paid by Buyer;
13. Delivery and shipping dates are estimates only.
14. Seller will package Products as it deems proper for protection against normal handling and extra charges apply to special conditions.
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16. Warranties. (a) Exclusive Warranty. Seller's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Seller (or such other period expressed in writing by Seller). Seller disclaims all other warranties, express or implied. (b) Limitations. SELLER MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS. BUYER ACKNOWLEDGES THAT IT ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. Seller further disclaims all warranties and responsibility of any type for claims or expenses based on infringement by the Products or otherwise of any intellectual property right. (c) Buyer Remedy. Seller's sole obligation hereunder shall be to replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the noncomplying Product or, at Seller's election, to repay or credit Buyer an amount equal to the purchase price of the Product; provided that in no event shall Seller be responsible for warranty, repair, indemnity or any other claims or expenses regarding the Products unless Seller's analysis confirms that the Products were properly handled, stored, installed and maintained and not subject to contamination, abuse, misuse or inappropriate modification. Return of any Products by Buyer must be approved in writing by Seller before shipment. Seller shall not be liable for the suitability or unsuitability or the results from the use of Products in combination with any electrical or electronic components, circuits, system assemblies, or any other materials or substances or environments. Any advice, recommendations or information given orally or in writing are not to be construed as an amendment or addition to the above warranty.
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