# SUB-SUBMINIATURE MICROSWITCHES - HIGH ACCURACY

## 83141

- › High precision flexible leaf snap-action mechanism with wiping contacts
- › Very small size - Robust contruction
- › High resistance to shock and vibration
- › Ratings from 1 mA 4 V⎓ to 5 A 250 V∿
- › Tight tolerance and high repeat accuracy on operating and release positions
- › Low switching hysteresis (short differential travel)
- › Operating temperature -55 °C to +150 °C
- › Long mechanical life
- › Wide choice of actuators on 2 possible fixing positions : flexible, hinged, hinged with added overtravel

## Main specifications

| Function | Connections | 83141 Standard | Dual-current (DORE) |
|---|---|---|---|
| I (changeover) | W2 (solder) | 83141001 | 83141046 |
| **Electrical characteristics** | | | |
| Rating nominal / 250 V AC (A) | | 5 | 1* |
| Rating thermal / 250 V AC (A) | | 8.5 | 8.5 |
| **Mechanical characteristics** | | | |
| Maximum operating force (N) | | 2 | 2 |
| Min. Release force (N) | | 0.4 | 0.4 |
| Maximum total travel force (N) | | 2.3 | 2.3 |
| Max. Allowable overtravel force (N) | | 10 | 10 |
| Rest position max. (mm) | | 8.75 | 8.75 |
| Operating position (mm) | | $8.4^{\pm0.15}$ | $8.4^{\pm0.15}$ |
| Differential travel (mm) | | $0.04^{\pm0.02}$ | $0.04^{\pm0.02}$ |
| Min. overtravel (mm) | | 0.1 | 0.1 |
| Ambient operating temperature (°C) | | -55 → +150 | -55 → +150 |
| Mechanical life (operations) | | $2 \times 10^6$ | $2 \times 10^6$ |
| Contact gap (mm) | | 0.3 | 0.3 |
| Weight (g) | | 1 | 1 |

## Additional specifications

- Case, Button: PA6T/66 (PPA) GF (UL 94-V0 / GWFI 960 °C)
- Moving blade: beryllium copper
- Contacts: silver, gold-plated silver (dual-current)
- Terminals: gold-plated brass
- Levers: stainless steel, polyamide roller

- Degree of protection: IP40 (mechanism)
- Recommended min actuating speed: 0.01 mm/s
- Repeat accuracy of operating and release positions: < ±0,01 mm

- Certification marks: ☐ ☐☐

## Product adaptations

- › High operating temperature: max 200 °C
- › Solid gold contacts for high reliability in critical applications at low energy
- › Special levers: special shapes and lengths
- › 2-pole DPDT high precision switch assembly with adjustable actuator, for synchronized or staggered switchings
- › Applications in irradiated environment
- › cURus approval

## Principles

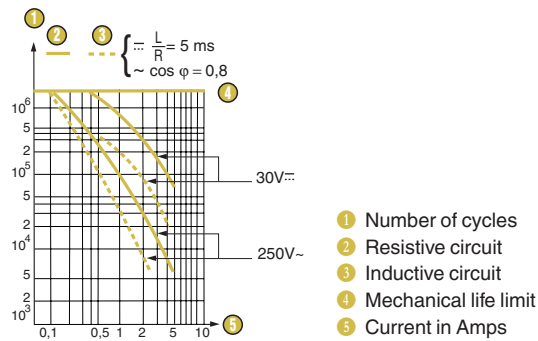**Single break snap-action switch**

**Changeover - SPDT (form C)**



1   4 2
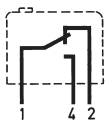
| | Standard product | | Product made to order | ● | Contact us |

## Curves

**Operating curve for type 83141**



$$\frac{L}{R} = 5 \text{ ms}$$

$\sim \cos \varphi = 0,8$

① Number of cycles
② Resistive circuit
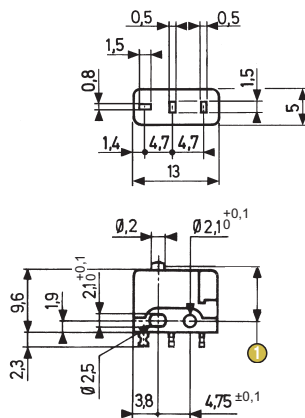③ Inductive circuit
④ Mechanical life limit
⑤ Current in Amps

\* Dual-current models are designed to operate equally well on low-current (1 mA 4 V minimum recommended) or medium-current (1 A maximum) circuits. However, a given product should only be used to switch one type of circuit during its working life.
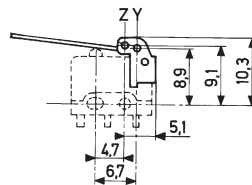
## Dimensions

### Product

**83141**



① Operating position

### Actuator mounting positions



Standard mounting = Z

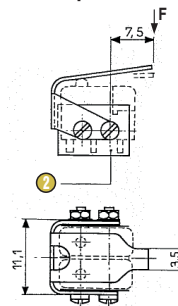### Actuators

**Flexible actuators**

**55A  single pole direct**
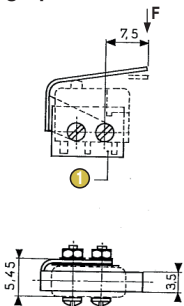


**55AS  single pole reverse**
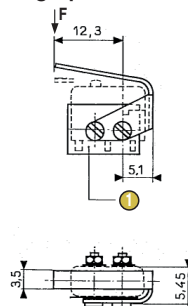


**55A2  double pole direct**



**55A2S  double pole reverse**



① Insulating plate

② 3 insulating plates
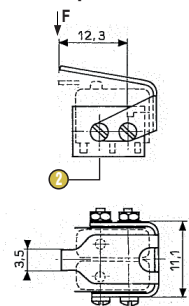
**Hinged actuators**

**55B  flat**
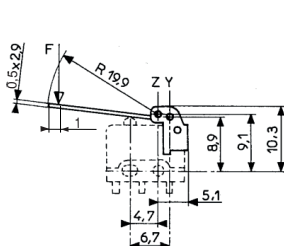


**55B2  adjustable**
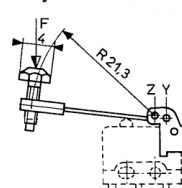


**55B3  roller**
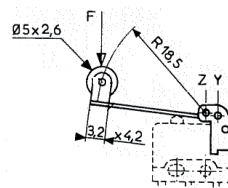
**55C** large overtravel, flat    **55C2** large overtravel, adjustable    **55C3** large overtravel, roller
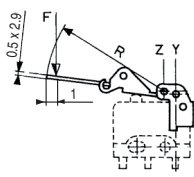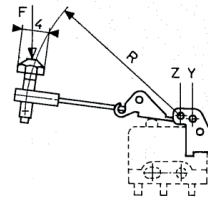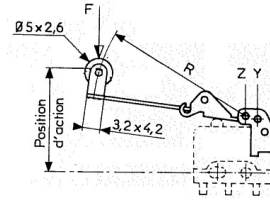


## Actuators and mounting accessories

| Actuators | **Flexible** | Single pole direct **55A** | Single pole reverse **55AS** | Double pole direct **55A2** | Double pole reverse **55A2S** | **Hinged** | | Flat **55B** R19.9 | | Adjustable **55B2** R21.3 | | Roller **55B3** R18.5 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Y | Z | Y | Z | Y | Z |
| Fixing positions | | - | - | - | - | | | | | | | | |
| Operating force max. | N | 2 | 2.5 | 2.5 | 4 | | N | 1 | 0.8 | 1 | 0.8 | 1 | 0.8 |
| Release force min. | N | 0.6 | 0.7 | 0.7 | 1 | | N | 0.2 | 0.15 | 0.2 | 0.15 | 0.2 | 0.15 |
| Total travel force max. | N | 3 | 4 | 4 | 6 | | N | 2 | 2 | 2 | 2 | 2 | 2 |
| Rest position max. | mm | - | - | - | - | | mm | 11 | 11 | 14-19 | 14-19 | 17 | 17 |
| Operating position | mm | 9 | 8.5 | 9 | 8.5 | | mm | $9.4^{\pm0.5}$ | $9.2^{\pm0.7}$ | $12.2\text{-}17.2^{\pm0.6}$ | $12\text{-}17^{\pm0.8}$ | $15.4^{\pm0.6}$ | $15.2^{\pm0.8}$ |
| Differential travel | mm | - | - | - | - | | mm | $0.17^{\pm0.09}$ | $0.25^{\pm0.11}$ | $0.2^{\pm0.1}$ | $0.27^{\pm0.12}$ | $0.17^{\pm0.09}$ | $0.25^{\pm0.11}$ |
| Overtravel min. | mm | - | - | - | - | | mm | 0.45 | 0.6 | 0.45 | 0.6 | 0.45 | 0.6 |

| Actuators | **Hinged, Large overtravel** | Flat **55C** R19.9 | | Flat **55C** R30 | | Adjustable **55C2** R21.3 | | Adjustable **55C2** R31.4 | | Roller **55C3** R18.5 | | Roller **55C3** R28.6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Y | Z | Y | Z | Y | Z | Y | Z | Y | Z | Y | Z |
| Fixing positions | | Y | Z | Y | Z | Y | Z | Y | Z | Y | Z | Y | Z |
| Operating force max. | N | 1 | 0.8 | 0.8 | 0.6 | 1 | 0.8 | 0.8 | 0.6 | 1 | 0.8 | 0.8 | 0.6 |
| Release force min. | N | 0.2 | 0.15 | 0.15 | 0.1 | 0.2 | 0.1 | 0.15 | 0.1 | 0.2 | 0.15 | 0.15 | 0.1 |
| Total travel force max. | N | 3 | 3 | 2 | 2 | 3 | 3 | 2 | 2 | 3 | 3 | 2 | 2 |
| Rest position max. | mm | 12 | 12 | 13.5 | 13.5 | 15-20 | 15-20 | 16.5-21.5 | 16.5-21.5 | 18 | 18 | 19.5 | 19.5 |
| Operating position | mm | $10.3^{\pm0.6}$ | $10.1^{\pm0.8}$ | $10.7^{\pm0.8}$ | $10.4^{\pm1.2}$ | $13.1\text{-}18.1^{\pm0.7}$ | $12.9\text{-}17.9^{\pm0.9}$ | $13.5\text{-}18.5^{\pm0.9}$ | $13.2\text{-}18.2^{\pm1.3}$ | $16.3^{\pm0.7}$ | $16.1^{\pm0.9}$ | $16.7^{\pm0.9}$ | $16.4^{\pm1.3}$ |
| Differential travel | mm | $0.15^{\pm0.11}$ | $0.22^{\pm0.13}$ | $0.22^{\pm0.16}$ | $0.33^{\pm0.19}$ | $0.18^{\pm0.11}$ | $0.24^{\pm0.13}$ | $0.27^{\pm0.16}$ | $0.36^{\pm0.19}$ | $0.15^{\pm0.11}$ | $0.22^{\pm0.13}$ | $0.22^{\pm0.16}$ | $0.33^{\pm0.19}$ |
| Overtravel min. | mm | 1.7 | 2 | 4.5 | 4.9 | 2.4 | 2.7 | 4.6 | 5 | 1.7 | 2 | 4.5 | 4.9 |

Hinged actuators are always factory mounted.
Unless otherwise requested, hinged actuators are mounted on Z position.

### 83141 microswitches with referenced actuators

| | | Flexible actuators | | | | | Hinged actuators | | | Hinged large overtravel actuators | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | **55C** | | **55C2** | | **55C3** | |
| | | **55A** | **55AS** | **55A2** | **55A2S** | **Pos** | **55B** | **55B2** | **55B3** | R19.9 | R30 | R21.3 | R31.4 | R18.5 | R28.6 |
| **Actuator kits** | | 70515250 | | 70515248 | | | - | - | - | - | - | - | - | - | - |
| 83141   I W2 **Standard** | | 83141004 | 83141005 | ● | ● | Z | 83141015 | 83141019 | 83141016 | 83141014 | ● | ● | ● | 83141023 | ● |
| | | | | | | Y | 83141008 | ● | 83141010 | ● | ● | 83141040 | ● | 83141029 | ● |
| 83141   I W2 DORE **Dual-current** | | ● | ● | ● | ● | Z | 83141060 | ● | ● | ● | ● | ● | ● | ● | ● |
| | | | | | | Y | ● | ● | ● | ● | ● | ● | ● | ● | ● |

## Installation recommendations

See "Basic technical concepts"

## How to order

Use the 8 digit part numbers when they are defined

Other cases, precise: Type of microswitch - Function - Connection - Contact* - Actuator* - Fixing position*
\* if needed
Example: 83141 I W2 DORE 55C2 R21.3 Y

■ Standard product    ■ Product made to order    ● Contact us

## Examples of special adaptations

Large overtravel model with
prestressed flexible lever
(reverse actuation): OT = 5 mm

2-pole DPDT high precision
switch assembly with adjustable
actuator, for synchronized or
staggered switchings