

Compact-sized Snap Action Switches

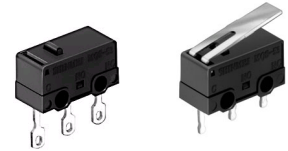
MQS-53/-53A Series

Features

- ◇ Flux-resistant construction with integrally molded terminals.
- ◇ 3 variations with low operating force (0.39N) to high operating force (1.47N).
- ◇ PC board terminal, Lead wire terminal, Self-standing terminal are available.
- ◇ UL, CSA (C-UL) approved. File No. : E90211

Applications

- ◇ PC peripheral equipment
- ◇ Home appliances



Actual size

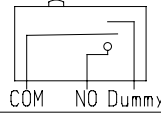
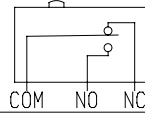
Products Number system

MQS-53 [] - [] [] [] - []

Contact form

Blank : Transfer type

A : COM-NO type



Operating force (Pin plunger type)

1: MAX0.39N(40gf)

5: MAX1.47N(150gf)

3: MAX0.74N(75gf)

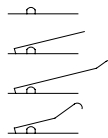
Actuator

Blank : Pin plunger type

L : Hinge lever

D : Simulated hinge lever

G : Simulated hinge short lever



Contact

Blank : Silver alloy

PT : PGS alloy

Terminal

Blank : PC board terminal

K : Self-standing
PC board terminal

L : Lead wire terminal

UL, CSA(C-UL) Ratings

| Contacts | Operating force code | UL, CSA(C-UL) Ratings |
|---------------------------|----------------------|------------------------|
| Silver alloy contact type | 1 type | 0.1A 30V DC |
| | 3, 5 type | 1A 125V AC / 1A 30V DC |
| PGS alloy contact type | 1, 3, 5 type | 0.1A 30V DC |

Please see the approved standard list.

□ Range of current

| Contacts specification | Range of current | | | | Operating force (MAX) (Pin plunger type) | | |
|------------------------|------------------|------|-------|----|--|-------------|--------------|
| | 1mA | 10mA | 100mA | 1A | 0.39N(40gf) | 0.74N(75gf) | 1.47N(150gf) |
| Silver alloy | | ↔ | | | ● | | |
| | | | ↔ | | | ● | ● |
| PGS alloy | ↔ | | | | ● | ● | ● |

□ Typical Specifications

| Item | Specifications | | | | | |
|---|---|-------------------------|-------------------|---|------------------|-------------------|
| Contact | Silver alloy contact type | | | PGS alloy contact type | | |
| Operating force (Pin plunger type) | MAX 0.39N (40gf) | MAX 0.74N (75gf) | MAX 1.47N (150gf) | MAX 0.39N (40gf) | MAX 0.74N (75gf) | MAX 1.47N (150gf) |
| Ratings (Resistive load) | 0.1A 125V AC 0.1A 30V DC | 1A 125V AC 1A 30V DC | | 0.1A 125V AC 0.1A 30V DC | | |
| Mechanical life | 300,000 cycles | | | | | |
| Electrical life | 100,000 cycles | 30,000 cycles | | 100,000 cycles | | |
| Contact resistance (Initial) | MAX 100 milliohm | MAX 30 milliohm | | MAX 100 milliohm | | |
| Insulation Resistance | MIN 100 megohm 500V DC | | | | | |
| Withstanding voltage | Between open contacts : 600V AC 1min | | | Between each terminal and non live metal part : 1500V AC 1min | | |
| | | | | Between each terminal and each : 1500V AC 1min | | |
| Resistibility to vibration (Pin plunger type) | double amplitude : 1.5mm , frequency : 10 to 55Hz Each direction Open contact shall be less than 1 ms at the above conditions. | | | | | |
| Resistibility to shock (Pin plunger type) | Open contact shall be less than 1 ms at 30G. | | | | | |
| Allowable operating speed (at no load) | 1 to 500 mm/sec. | | | | | |
| Max. operating cycle rate (at no load) | 120 times/min. | | | | | |
| Operating temperature range | -20 to +70 degree Celsius | | | | | |
| Ambient humidity | MAX 85%RH | | | | | |

□ Products line

◇ Silver alloy contact type

Transfer type : MQS-53[]-_-_- ([] is blank)

COM-NO type : MQS-53[A]-_-_- (A in [])

| Actuator | No | Operating force (MAX) | *Approved standard | PC board terminal | Lead wire terminal | Self-standing PC board terminal |
|---------------------------------|----|-----------------------|--------------------|-------------------|--------------------|---------------------------------|
| | | | C-UL | Products No. | Products No. | Products No. |
| Pin plunger type (Blank) | 1 | 0.39N(40gf) | 2 | MQS-53[]-1 | MQS-53[]-1-L | MQS-53[]-1-K |
| | | 0.74N(75gf) | 1 | MQS-53[]-3 | MQS-53[]-3-L | MQS-53[]-3-K |
| | | 1.47N(150gf) | 1 | MQS-53[]-5 | MQS-53[]-5-L | MQS-53[]-5-K |
| Hinge lever (L) | 1 | 0.16N(16gf) | 2 | MQS-53[]-1L | MQS-53[]-1L-L | MQS-53[]-1L-K |
| | | 0.39N(40gf) | 1 | MQS-53[]-3L | MQS-53[]-3L-L | MQS-53[]-3L-K |
| | | 0.78N(80gf) | 1 | MQS-53[]-5L | MQS-53[]-5L-L | MQS-53[]-5L-K |
| Simulated hinge lever (D) | 1 | 0.10N(10gf) | 2 | MQS-53[]-1D | MQS-53[]-1D-L | MQS-53[]-1D-K |
| | | 0.25N(25gf) | 1 | MQS-53[]-3D | MQS-53[]-3D-L | MQS-53[]-3D-K |
| | | 0.39N(40gf) | 1 | MQS-53[]-5D | MQS-53[]-5D-L | MQS-53[]-5D-K |
| Simulated hinge short lever (G) | 1 | 0.20N(20gf) | 2 | MQS-53[]-1G | MQS-53[]-1G-L | MQS-53[]-1G-K |
| | | 0.49N(50gf) | 1 | MQS-53[]-3G | MQS-53[]-3G-L | MQS-53[]-3G-K |
| | | 0.88N(90gf) | 1 | MQS-53[]-5G | MQS-53[]-5G-L | MQS-53[]-5G-K |

* The number represents ratings. 1 : 1A 30V DC / 1A 125V AC
 2 : 0.1A 30V DC

◇ Silver alloy contact type

Transfer type : MQS-53[]-_-PT_ ([] is blank)

COM-NO type : MQS-53[A]-_-PT_ (A in [])

| Actuator | No | Operating force (MAX) | *Approved standard | PC board terminal | Lead wire terminal | Self-standing PC board terminal |
|---------------------------------|----|-----------------------|--------------------|-------------------|--------------------|---------------------------------|
| | | | C-UL | Products No. | Products No. | Products No. |
| Pin plunger type (Blank) | 1 | 0.39N(40gf) | 2 | MQS-53[]-1PT | MQS-53[]-1PT-L | MQS-53[]-1PT-K |
| | | 0.74N(75gf) | 2 | MQS-53[]-3PT | MQS-53[]-3PT-L | MQS-53[]-3PT-K |
| | | 1.47N(150gf) | 2 | MQS-53[]-5PT | MQS-53[]-5PT-L | MQS-53[]-5PT-K |
| Hinge lever (L) | 2 | 0.16N(16gf) | 2 | MQS-53[]-1LPT | MQS-53[]-1LPT-L | MQS-53[]-1LPT-K |
| | | 0.39N(40gf) | 2 | MQS-53[]-3LPT | MQS-53[]-3LPT-L | MQS-53[]-3LPT-K |
| | | 0.78N(80gf) | 2 | MQS-53[]-5LPT | MQS-53[]-5LPT-L | MQS-53[]-5LPT-K |
| Simulated hinge lever (D) | 3 | 0.10N(10gf) | 2 | MQS-53[]-1DPT | MQS-53[]-1DPT-L | MQS-53[]-1DPT-K |
| | | 0.25N(25gf) | 2 | MQS-53[]-3DPT | MQS-53[]-3DPT-L | MQS-53[]-3DPT-K |
| | | 0.39N(40gf) | 2 | MQS-53[]-5DPT | MQS-53[]-5DPT-L | MQS-53[]-5DPT-K |
| Simulated hinge short lever (G) | 4 | 0.20N(20gf) | 2 | MQS-53[]-1GPT | MQS-53[]-1GPT-L | MQS-53[]-1GPT-K |
| | | 0.49N(50gf) | 2 | MQS-53[]-3GPT | MQS-53[]-3GPT-L | MQS-53[]-3GPT-K |
| | | 0.88N(90gf) | 2 | MQS-53[]-5GPT | MQS-53[]-5GPT-L | MQS-53[]-5GPT-K |

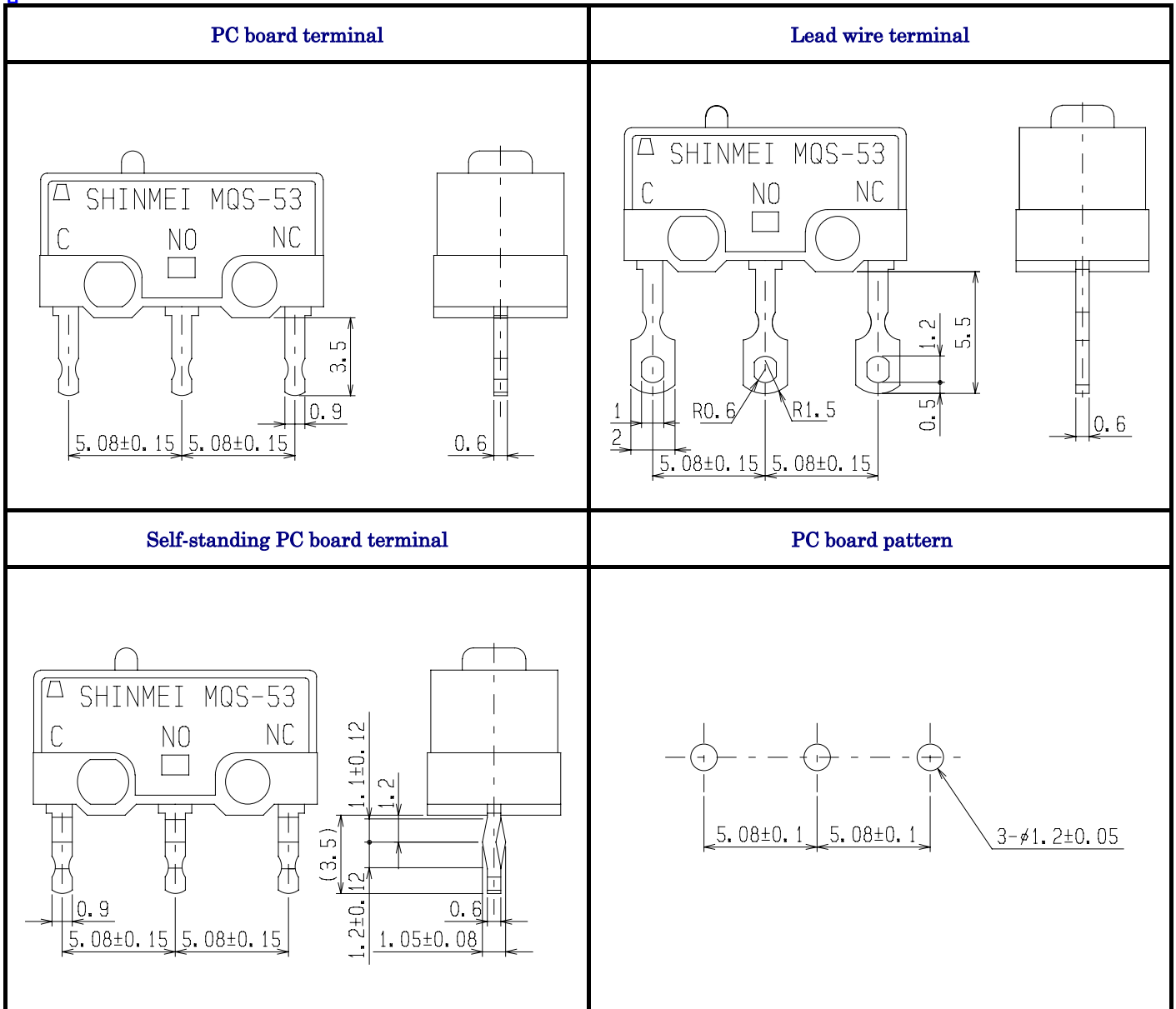
* The number represents ratings. 1 : 1A 30V DC / 1A 125V AC
 2 : 0.1A 30V DC

Operating characteristic

| Actuator | Operating force code | O.F. MAX. | R.F. MIN | P.T. MAX | M.D. MAX | O.T. MIN | O.P. |
|---------------------------------|----------------------|--------------|---------------|----------|----------|----------|-------------------------|
| Pin plunger type (Blank) | 1 | 0.39N(40gf) | 0.049N(5gf) | 0.5mm | 0.12mm | 0.2mm | 5.5 plus or minus 0.3mm |
| | 3 | 0.74N(75gf) | 0.098N(10gf) | | | | |
| | 5 | 1.47N(150gf) | 0.196N(20gf) | | | | |
| Hinge lever (L) | 1 | 0.16N(16gf) | 0.010N(1gf) | 2.1mm | 0.55mm | 0.55mm | 6.8 plus or minus 1.5mm |
| | 3 | 0.39N(40gf) | 0.015N(1.5gf) | | | | |
| | 5 | 0.78N(80gf) | 0.049N(5gf) | | | | |
| Simulated hinge lever (D) | 1 | 0.10N(10gf) | 0.008N(0.8gf) | 3.0mm | 0.8mm | 0.55mm | 8.1 plus or minus 1.8mm |
| | 3 | 0.25N(25gf) | 0.016N(1.6gf) | | | | |
| | 5 | 0.39N(40gf) | 0.032N(3.2gf) | | | | |
| Simulated hinge short lever (G) | 1 | 0.20N(20gf) | 0.010N(1gf) | 2.1mm | 0.55mm | 0.55mm | 9.3 plus or minus 1.3mm |
| | 3 | 0.49N(50gf) | 0.015N(1.5gf) | | | | |
| | 5 | 0.88N(90gf) | 0.049N(5gf) | | | | |

Terminal dimensions

Unit : mm



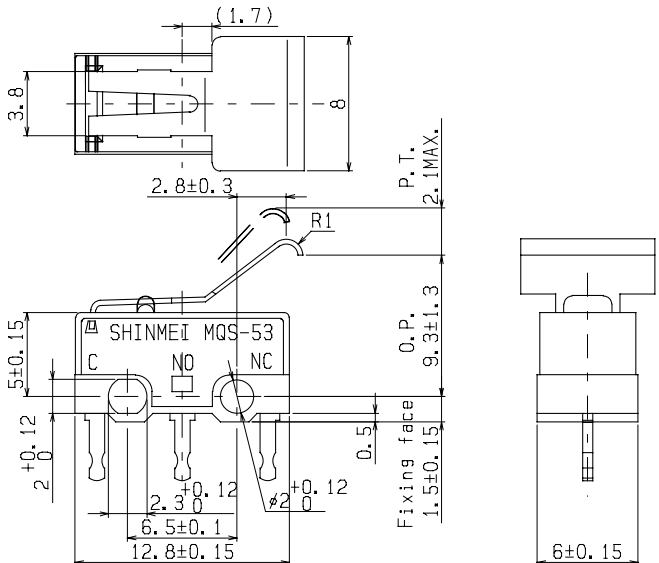
Dimension

Unit : mm

| No | Style | Operating characteristic | |
|----|------------------------------|--------------------------|----------------------------|
| 1 | <p>Pin plunger type</p> | P.T. MAX | 0.5mm |
| | | M.D. MAX | 0.12mm |
| | | O.T. MIN | 0.2mm |
| | | O.P. From fixing hole | 5.5 plus or minus 0.3mm |
| | | O.P. From fixing face | 7 plus or minus 0.3mm |
| 2 | <p>Hinge lever</p> | P.T. MAX | 2.1mm |
| | | M.D. MAX | 0.55mm |
| | | O.T. MIN | 0.55mm |
| | | O.P. From fixing hole | 6.8 plus or minus 1.5mm |
| | | O.P. From fixing face | 8.3 plus or minus 1.5mm |
| 3 | <p>Simulated hinge lever</p> | P.T. MAX | 3.0mm |
| | | M.D. MAX | 0.8mm |
| | | O.T. MIN | 0.55mm |
| | | O.P. From fixing hole | 8.1 plus or minus 1.8mm |
| | | O.P. From fixing face | 9.6 plus or minus 1.8mm |

Dimension

Unit : mm

| No | Style | Operating characteristic | |
|----|--|--------------------------|-----------------------------|
| 4 | <p>Simulated hinge short lever</p>  | P.T. MAX | 2.1mm |
| | | M.D. MAX | 0.55mm |
| | | O.T. MIN | 0.55mm |
| | | O.P. From fixing hole | 9.3 plus or minus 1.3mm |
| | | O.P. From fixing face | 10.8 plus or minus 1.3mm |

Notes

- The appearance and specifications of the product may be modified without prior notice to improve its performance.
- This catalog shows only outline specifications. When using the product, please obtain formal specifications.
- Please see appendix [Cautions in Using Switches].
- Fix the switch by M2 screw with torque less than 9.8 N-cm(1 kg-cm)
Fixing with spring washers and adhesive are recommended to avoid the loose of the screw.
- Operating force applied to push button or actuator should be zero at free position and the force shall not be applied vertically to push button during the operation.
- O.T. (Over travel) shall be set between 80% and 100% of O.T. specifications.
- In connecting lead wires, care should be taken not to apply tension to terminal.
- In case of manual-soldering, soldering should be finished within 3 seconds by soldering iron of 30 W or with maximum tip temperature of 350 degree Celsius. Please do not apply pressure for 1 minute after soldering.
- Please design usage of switch in proper operation even if any standard value of operational characteristics changes by plus or minus 20 % .
- No dust, high humidity and organic gas should be found in the storage location.
- Please confirm the performance on actual operation by simulation with actual environment environments for high reliability.

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