

Compact-sized Snap Action Switches

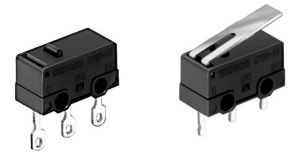
MQS-53/-53A Series

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

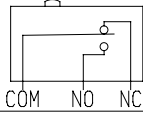
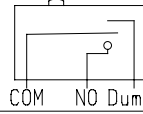




- ◇ PC peripheral equipment
- ◇ Home appliances



Actual size

Products Number system

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

<p>— Contact form</p> <p>Blank : Transfer type</p>  <p>COM NO NC</p>	<p>A : COM-NO type</p>  <p>COM NO Dummy</p>	
<p>— Operating force (Pin plunger type)</p> <p>1: MAX0.39N(40gf) 5: MAX1.47N(150gf)</p> <p>3: MAX0.74N(75gf)</p>		
<p>— Actuator</p> <p>Blank : Pin plunger type </p> <p>L : Hinge lever </p> <p>D : Simulated hinge lever </p> <p>G : Simulated hinge short lever </p>		
<p>— Contact</p> <p>Blank : Silver alloy PT : PGS alloy</p>		
<p>— Terminal</p> <p>Blank : PC board terminal K : Self-standing PC board terminal</p> <p>L : Lead wire terminal</p>		

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

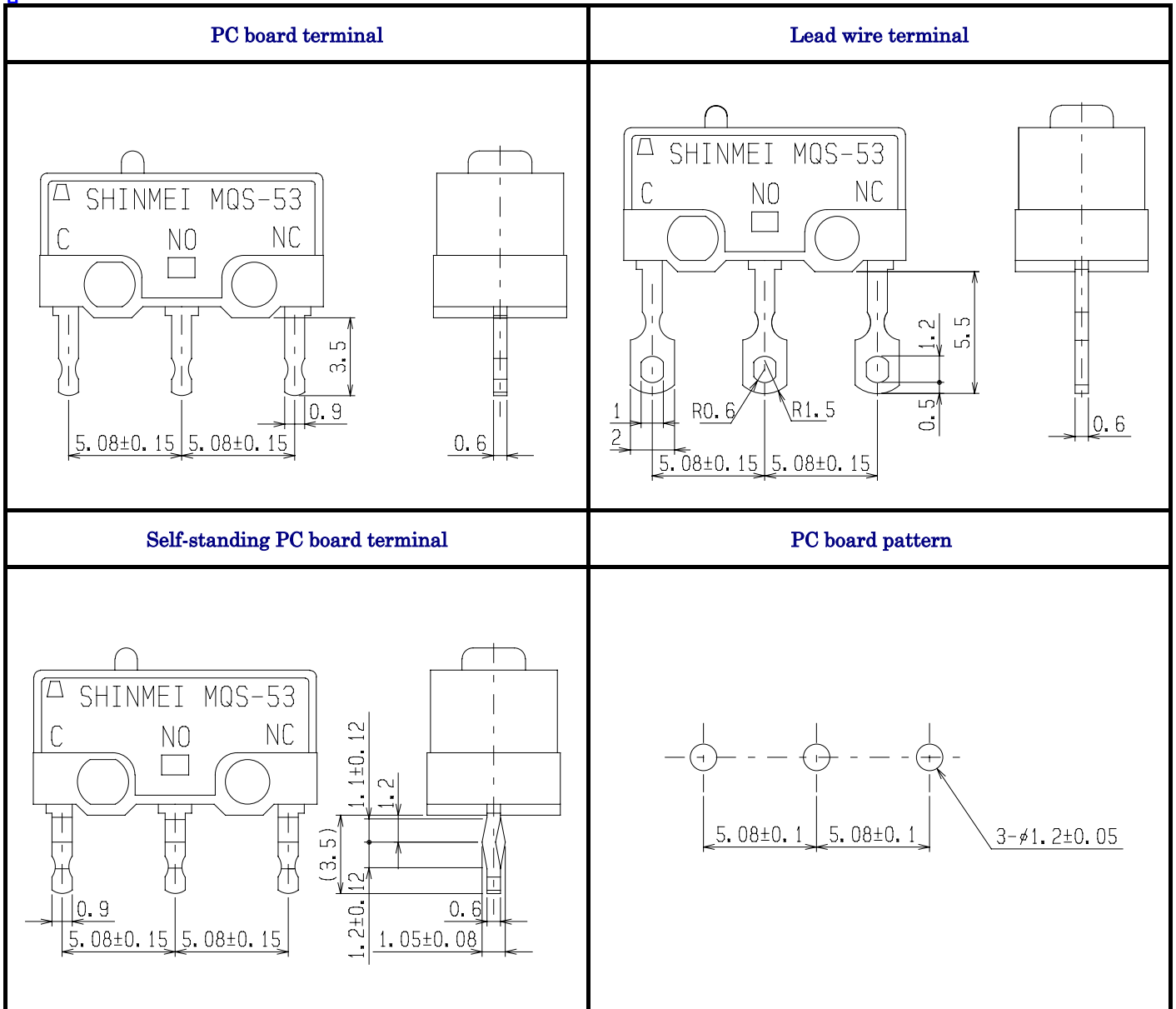
Item	Specifications					
Contact	Silver alloy contact type			PGS alloy contact type		
Operating force (Pin plunger type)	MAX 0.39N (40gf)	MAX 0.74N (75gf)	MAX 1.47N (150gf)	MAX 0.39N (40gf)	MAX 0.74N (75gf)	MAX 1.47N (150gf)
Ratings (Resistive load)	0.1A 125V AC 0.1A 30V DC	1A 125V AC 1A 30V DC		0.1A 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					

▣ 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

1. The appearance and specifications of the product may be modified without prior notice to improve its performance.
2. This catalog shows only outline specifications. When using the product, please obtain formal specifications.
3. Please see appendix [Cautions in Using Switches].
4. 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.
5. 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.
6. O.T. (Over travel) shall be set between 80% and 100% of O.T. specifications.
7. In connecting lead wires, care should be taken not to apply tension to terminal.
8. 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.
9. Please design usage of switch in proper operation even if any standard value of operational characteristics changes by plus or minus 20 % .
10. No dust, high humidity and organic gas should be found in the storage location.
11. Please confirm the performance on actual operation by simulation with actual environment environments for high reliability.