



Series 09VR

9mm Panel Potentiometer

- Miniature 9 mm package size
- Rotational life (5,000 cycles)
- Wide temperature range (-10°C to +70°C)
- Mechanical travel options (280° and 300°)
- Variety of standard resistances and tapers

Applications

- Consumer portable electronics
- Commercial appliances
- Instrument amplifiers and guitar effects
- Keyboards and synthesizers
- Communications equipment



Ordering Information

Series	Element	Terminal Configuration	Shaft Length	Shaft Trim	Mechanical Travel	Detent Option	Resistance Code	Resistance Taper
09VR	1	M	20	F	2	N	103	B1

Code	Spec.
M	Horizontal/Side Mount Bushingsless, PC Pins, 6.5mm Height
B	Horizontal/Side Mount Sleeve Bushing, PC Pins, 6.5mm Height
S	Horizontal/Side Mount Thread Bushing, PC Pins, 6.5mm Height
H	Vertical/Rear Mount Thread Bushing, PC Pins
K	Vertical/Rear Mount Sleeve Bushing, PC Pins
U	Vertical/Rear Mount Bushingsless, PC Pins

Code	Spec.
B	Knurled (18 teeth)
F	Flatted
L	Knurled (40 teeth)

Code	Spec.
N	No Detent
C	Center Detent

Code	Spec.
1	280°
2	300°

Code	Spec.**
A2	10% Log
A3	15% Log
B1	linear
C3	15% Antilog

Code	Spec.
1	Single

Code	Spec.*
15	15 mm
20	20 mm
25	25 mm
30	30 mm

Code	Spec.
502	5kΩ
103	10kΩ
203	20kΩ
503	50kΩ
104	100kΩ
254	250kΩ
504	500kΩ
105	1MΩ

* See shaft trim options for available lengths on next page.

** Other JIS tapers are available. See charts.



Available Shaft Trim Combinations by Terminal Configuration And Shaft Length

	Shaft Trim Options	Shaft 15mm length	Shaft 20mm length	Shaft 25mm length	Shaft 30mm length
09VR1M	Knurled (18 teeth)		•	•	
	Flatted	•	•	•	•
	Knurled (40 teeth)	•	•	•	•
09VR1B	Knurled (18 teeth)		•	•	
	Flatted		•	•	•
	Knurled (40 teeth)		•	•	•
09VR1S	Knurled (18 teeth)			•	
	Flatted			•	•
	Knurled (40 teeth)			•	•
09VR1H	Knurled (18 teeth)			•	
	Flatted			•	•
	Knurled (40 teeth)			•	•
09VR1K	Knurled (18 teeth)		•	•	
	Flatted		•	•	•
	Knurled (40 teeth)		•	•	•
09VR1U	Knurled (18 teeth)		•	•	
	Flatted	•	•	•	•
	Knurled (40 teeth)	•	•	•	•

Electrical Specifications

		Min	Typical	Max	Unit
Total Resistance Tolerance		-20	–	+20	%
Power Rating		–	+0.05	–	watt
Operating Voltage		–	–	+20	VDC
Residual Resistance		–	+300	–	Ω
Slider Noise		–	–	+100	mV
Insulation Resistance	250 VDC for 1 min.	+100			MΩ
Dielectric Strength	250 VAC for 1 min. no arcing				
Taper	Linear and audio options (see charts)				

Mechanical

Total Mechanical Travel	280° ± 5° 300° ± 5°
Operating Torque	10 to 80 gf-cm
Starting Torque	100 gf-cm max.
Shaft Wobble	
Bushingsless	0.8 x L/20mm p-p max.; L = Shaft Length
With Bushing	0.5 x L/20mm p-p max.; L = Shaft Length
Shaft Push-Pull Strength	5 kgf for 3 sec.
Stop Strength	3 kgf-cm min.
Detent Position	
280° travel	140° ± 5°
300° travel	150° ± 5°
Detent Torque	30 to 300 gf-cm
Rotational Life	5,000 cycles
Panel Nut Tightening Torque	6 kgf-cm
IP Rating	40



Mounting Hardware	One flat washer and one mounting hex nut supplied with bushing option
Packaging	Bulk. For Thread Bushing terminal (09VR1S, 09VR1H) furnish with washer and nut in separate package.
Weight	2 grams

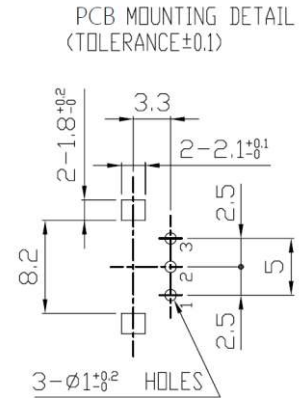
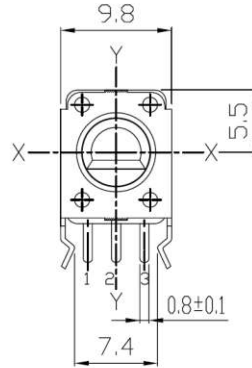
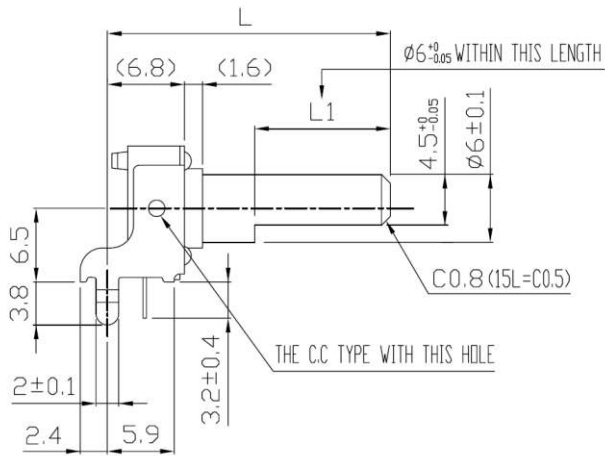
Environmental

	Min	Typical	Max	Unit
Operating Temperature	-10	–	+70	°C
Storage Temperature	-30	–	+70	°C
Soldering Conditions				
Wave Solder	Preheat: 100°C max for 2 min max; Solder temperature: 260°C ± 5°C for 5 sec max.; No clean foam flux recommended			
Manual Solder Wash	350°C ± 5°C for 3 sec max.; Sn95Ag5 no clean solder Not recommended			
Moisture Sensitivity Level	1			
ESD Classification (HBM)	Not applicable			

*All testing is performed at room ambient conditions except as noted. Users should verify device actual performance in their specific applications .
This product is compliant to RoHS3 Directive 2015/863 Amendments of Annex II on 31 March 2015, and REACH SVHC Directive EC 1907/2006 Amendments of Annex XIV & Annex XVII on 10 June 2022.
Custom and value-added options available on request. Please contact your sales representative for additional information.*

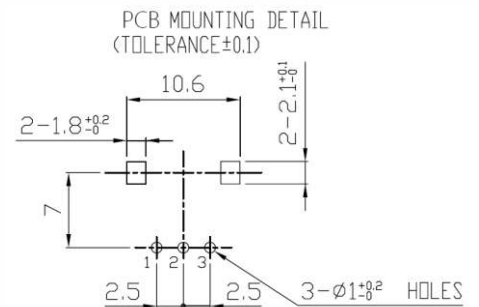
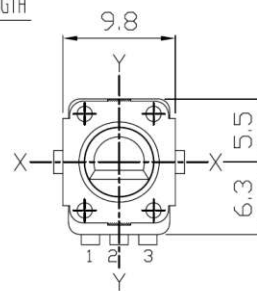
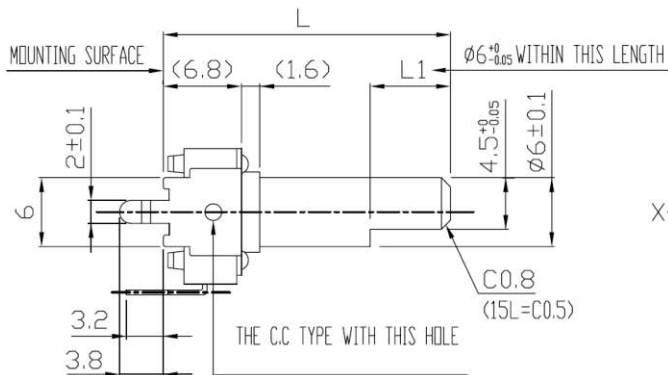
Mechanical Specifications

Series 09VR1M Horizontal/Side Mount Bushingless

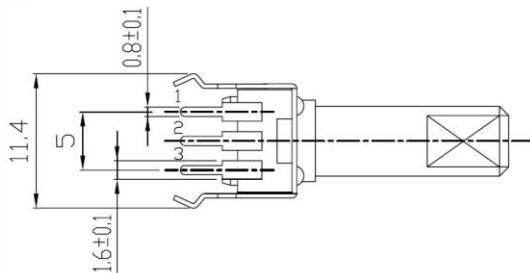


SHAFT SHOWN IN CENTER POSITION
OR CENTER CLICK POSITION

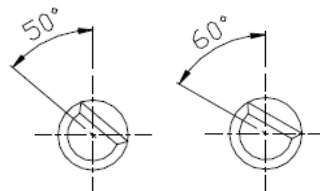
Series 09VR1U Vertical/Rear Mount Bushingless



SHAFT SHOWN IN CENTER POSITION
OR CENTER CLICK POSITION



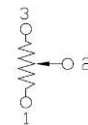
Unit: mm



280° ROTATION 300° ROTATION

SHAFT SHOWN IN FULL CCW POSITION

CIRCUIT DIAGRAM

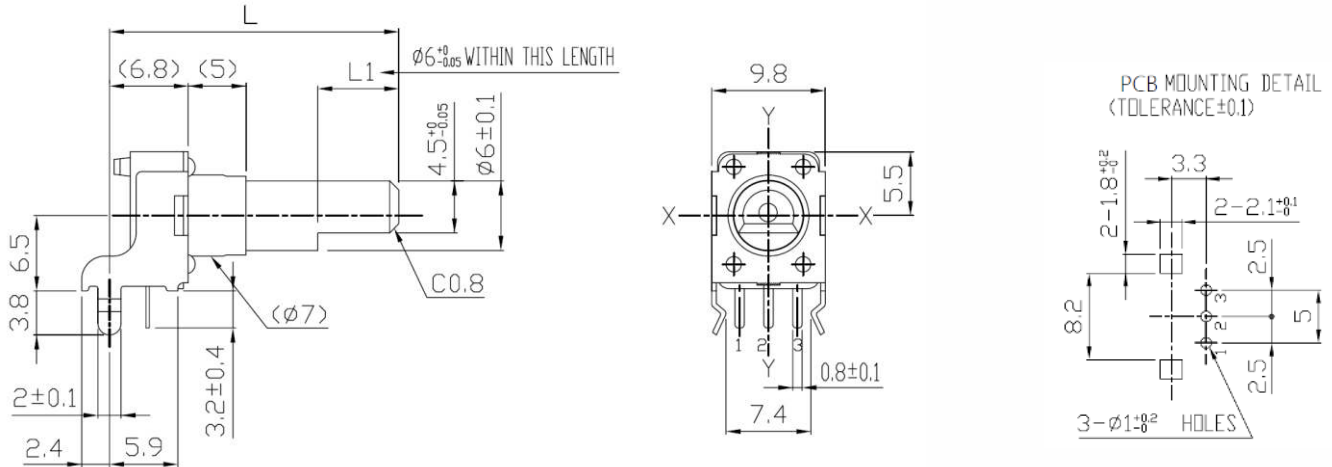


LENGTH	
L	L1
15	6
20	7
25	12
30	12

TOLERANCES UNLESS OTHERWISE SPEC	
L ≤ 10	±0.3
10 < L ≤ 100	±0.5
100 < L	±0.8
ANGULAR DIMENSION	±5°

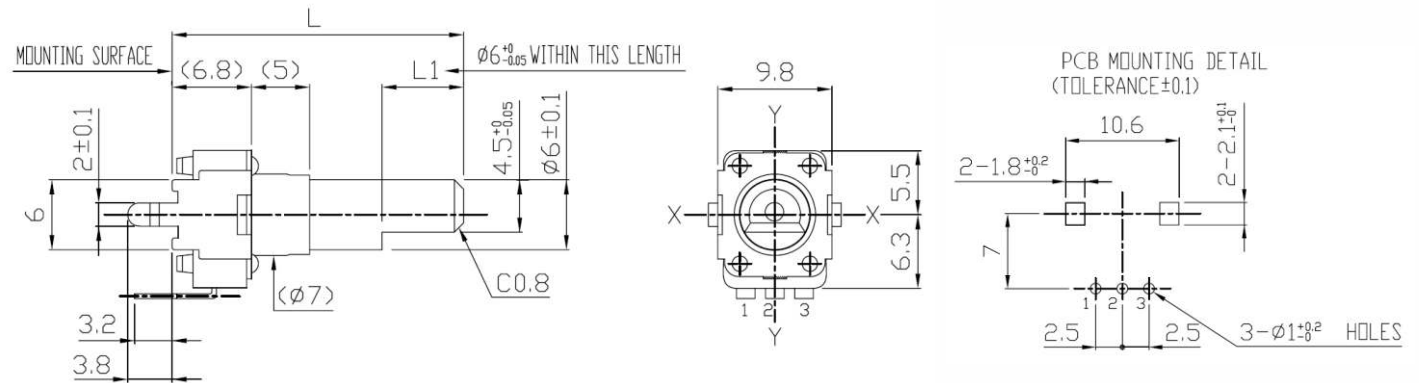
Mechanical Specifications

Series 09VR1B Horizontal/Side Mount Sleeve Bushing



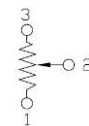
SHAFT SHOWN IN CENTER POSITION
OR CENTER CLICK POSITION

Series 09VR1K Vertical/Rear Mount Sleeve Bushing

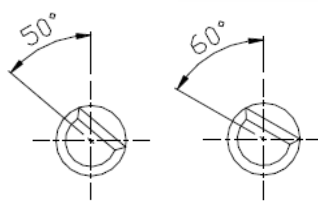
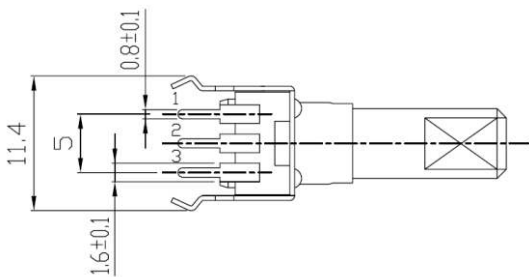


SHAFT SHOWN IN CENTER POSITION
OR CENTER CLICK POSITION

CIRCUIT DIAGRAM



LENGTH	
L	L1
20	7
25	7
30	12



280° ROTATION 300° ROTATION

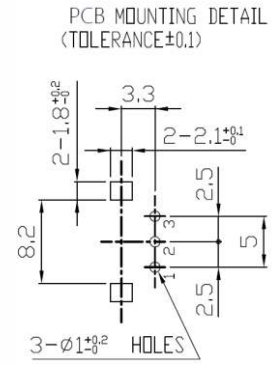
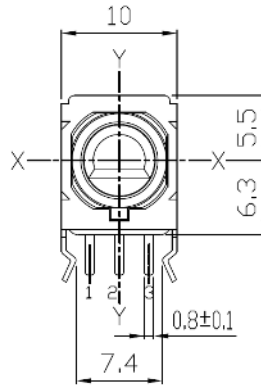
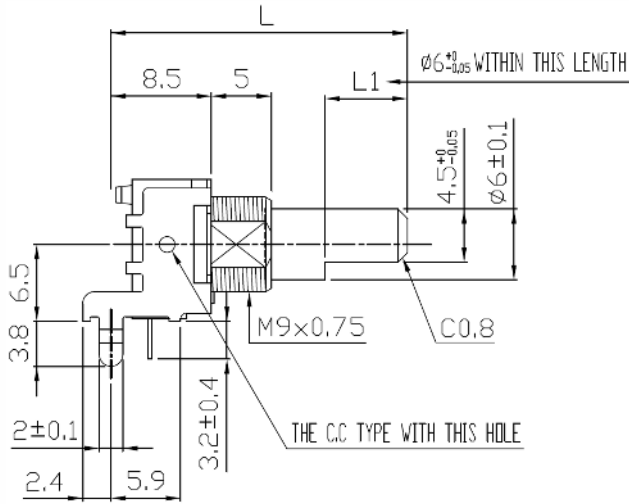
SHAFT SHOWN IN FULL CCW POSITION

Unit: mm

TOLERANCES UNLESS OTHERWISE SPEC	
L ≤ 10	±0.3
10 < L ≤ 100	±0.5
100 < L	±0.8
ANGULAR DIMENSION	±5°

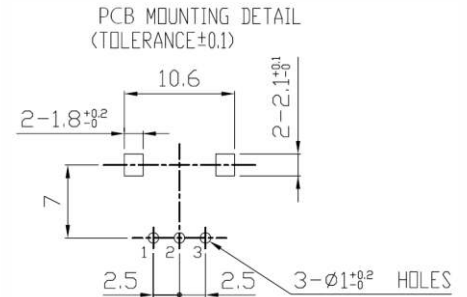
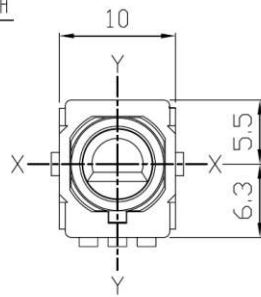
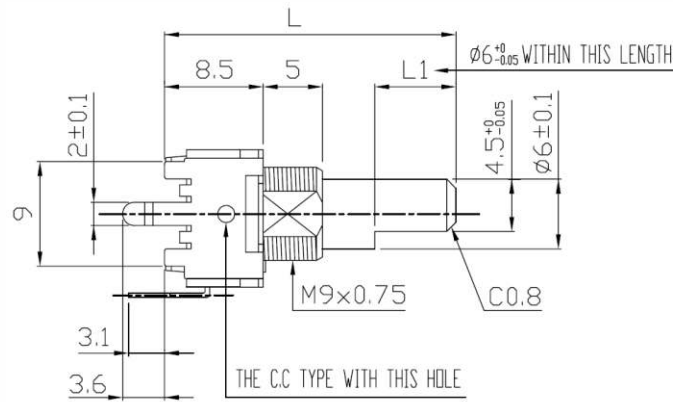
Mechanical Specifications

Series 09VR1S Horizontal/Side Mount with Threaded Bushing



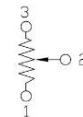
SHAFT SHOWN IN CENTER POSITION
OR CENTER CLICK POSITION

Series 09VR1H Vertical/Rear Mount with Threaded Bushing

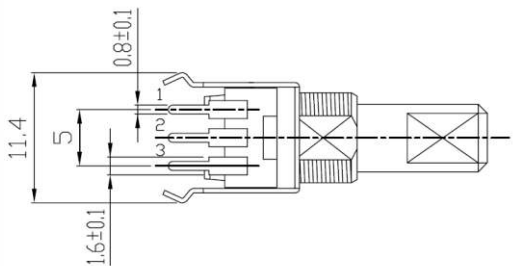


SHAFT SHOWN IN CENTER POSITION
OR CENTER CLICK POSITION

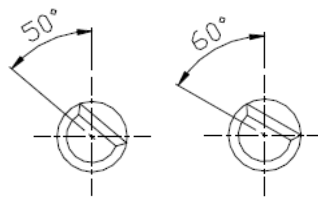
CIRCUIT DIAGRAM



LENGTH	
L	L1
25	7
30	12



Unit: mm



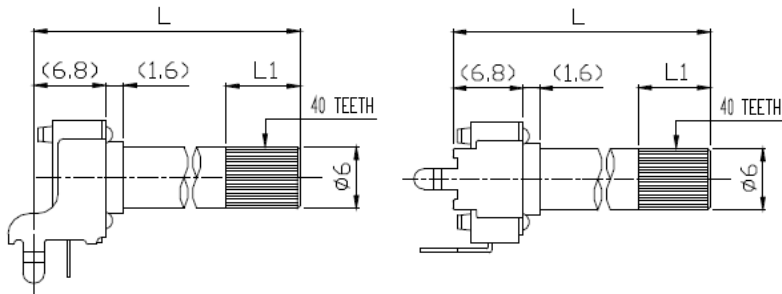
280° ROTATION 300° ROTATION

SHAFT SHOWN IN FULL CCW POSITION

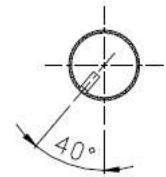
TOLERANCES UNLESS OTHERWISE SPEC	
L ≤ 10	±0.3
10 < L ≤ 100	±0.5
100 < L	±0.8
ANGULAR DIMENSION	±5°

Mechanical Specifications

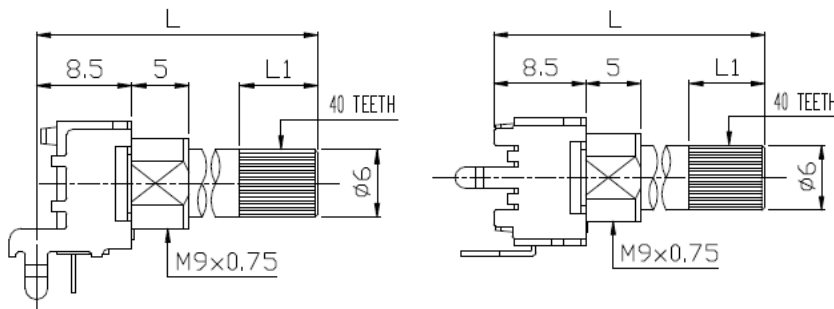
40 Tooth Knurl Shaft Trim Option



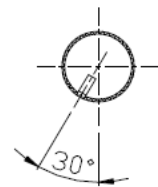
LENGTH	
L	L1
15	6
20	7
25	7
30	7



280° ROTATION



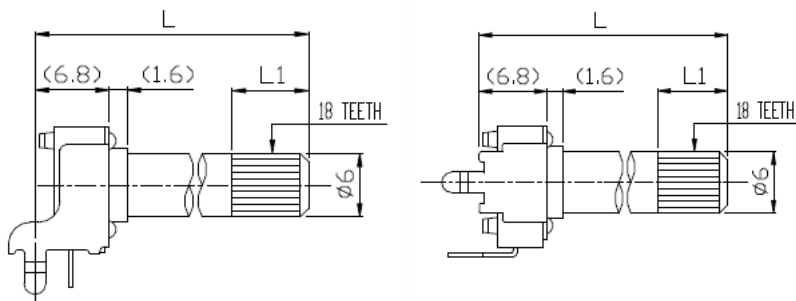
LENGTH	
L	L1
25	7
30	7



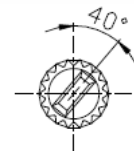
300° ROTATION

SHAFT SHOWN IN FULL CCW POSITION

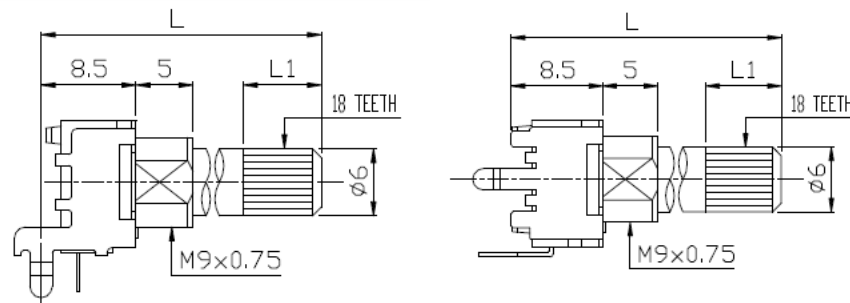
18 Tooth Knurl Shaft Trim Option



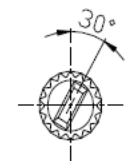
LENGTH	
L	L1
20	7
25	7



280° ROTATION



LENGTH	
L	L1
25	7



300° ROTATION

Unit: mm

SHAFT SHOWN IN FULL CCW POSITION

Electrical Specification

Series 09VR Taper Graphs

