



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																														
		<table><tr><th>Code</th><th>Spec.</th></tr><tr><td>M</td><td>Horizontal/Side Mount Bushingless, PC Pins, 6.5mm Height</td></tr><tr><td>B</td><td>Horizontal/Side Mount Sleeve Bushing, PC Pins, 6.5mm Height</td></tr><tr><td>S</td><td>Horizontal/Side Mount Thread Bushing, PC Pins, 6.5mm Height</td></tr><tr><td>H</td><td>Vertical/Rear Mount Thread Bushing, PC Pins</td></tr><tr><td>K</td><td>Vertical/Rear Mount Sleeve Bushing, PC Pins</td></tr><tr><td>U</td><td>Vertical/Rear Mount Bushingless, PC Pins</td></tr></table>	Code	Spec.	M	Horizontal/Side Mount Bushingless, 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 Bushingless, PC Pins			<table><tr><th>Code</th><th>Spec.</th></tr><tr><td>B</td><td>Knurled (18 teeth)</td></tr><tr><td>F</td><td>Flatted</td></tr><tr><td>L</td><td>Knurled (40 teeth)</td></tr></table>	Code	Spec.	B	Knurled (18 teeth)	F	Flatted	L	Knurled (40 teeth)			<table><tr><th>Code</th><th>Spec.</th></tr><tr><td>N</td><td>No Detent</td></tr><tr><td>C</td><td>Center Detent</td></tr></table>	Code	Spec.	N	No Detent	C	Center Detent		
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* See shaft trim options for available lengths.

** Other JIS tapers are available. See charts.

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		M Ω
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
Weight	2 grams

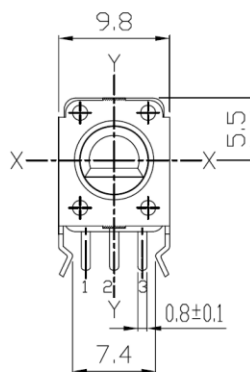
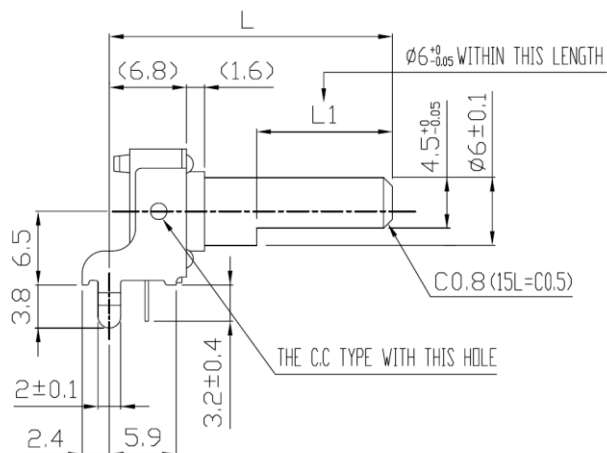
Environmental

	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	350°C ± 5°C for 3 sec max.; Sn95Ag5 no clean solder			
Wash	Not recommended			
Moisture Sensitivity Level	1			
ESD Classification (HBM)	Not applicable			

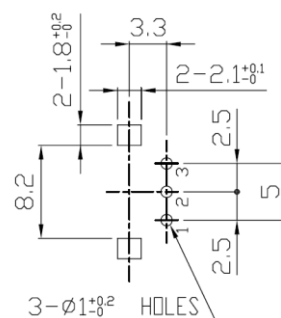
All testing is performed at room ambient conditions except as noted. Users should verify device actual performance in their specific applications .
This product is compliant to RoHS3 Directive 2015/863 Amendments of Annex II on 31 March 2015, and REACH SVHC Directive EC 1907/2006 Amendments of Annex XIV & Annex XVII on 15 January 2018.
Custom and value-added options available on request. Please contact your sales representative for additional information.

Mechanical Specifications

Series 09VR Horizontal/Side Mount Bushingless

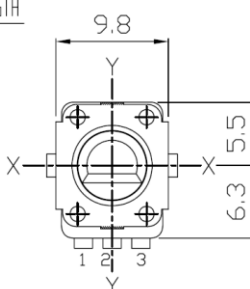
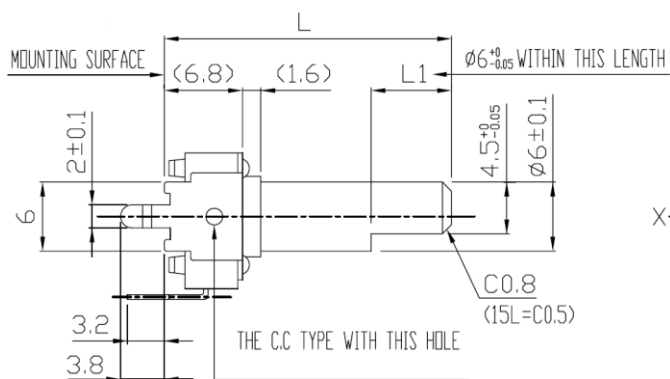


PCB MOUNTING DETAIL
(TOLERANCE ± 0.1)

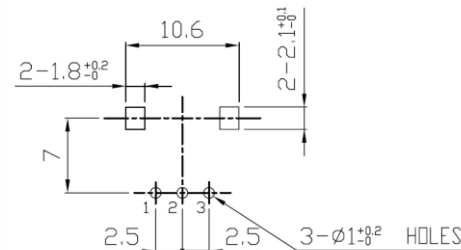


SHAFT SHOWN IN CENTER POSITION
OR CENTER CLICK POSITION

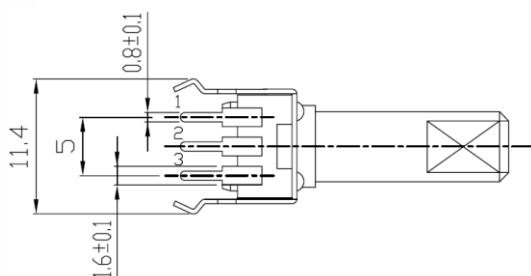
Series 09VR Vertical/Rear Mount Bushingless



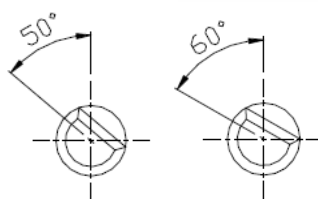
PCB MOUNTING DETAIL
(TOLERANCE ± 0.1)



SHAFT SHOWN IN CENTER POSITION
OR CENTER CLICK POSITION



Unit: mm

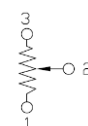


280° ROTATION

300° ROTATION

SHAFT SHOWN IN FULL CCW POSITION

CIRCUIT DIAGRAM

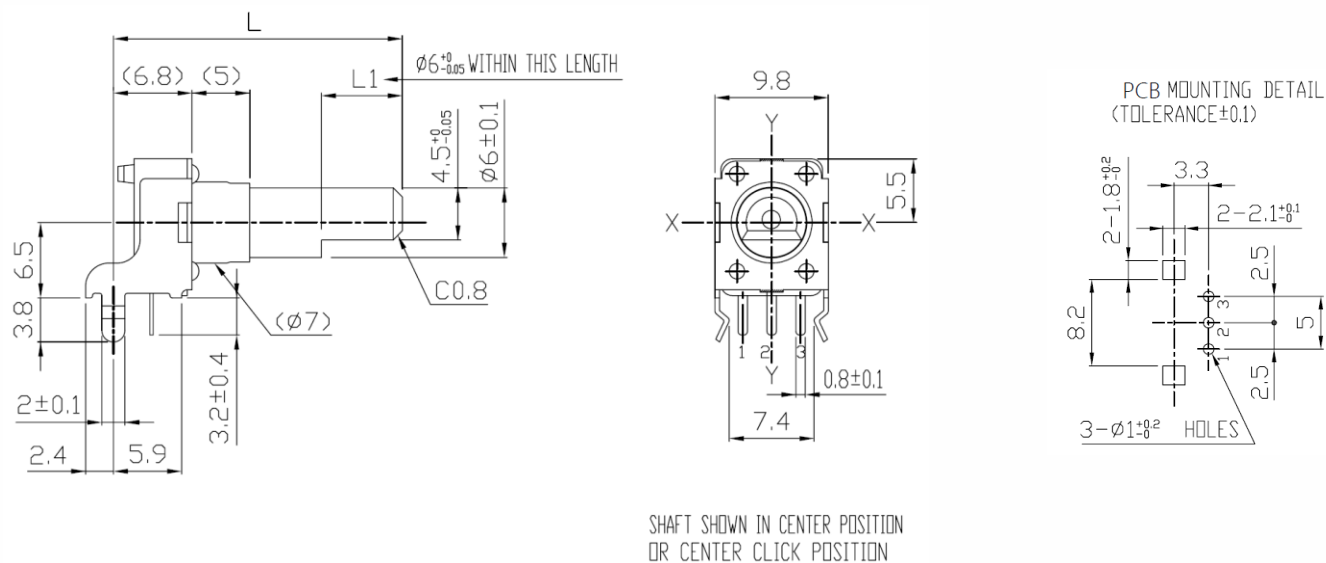


LENGTH	
L	L1
15	6
20	7
25	12
30	12

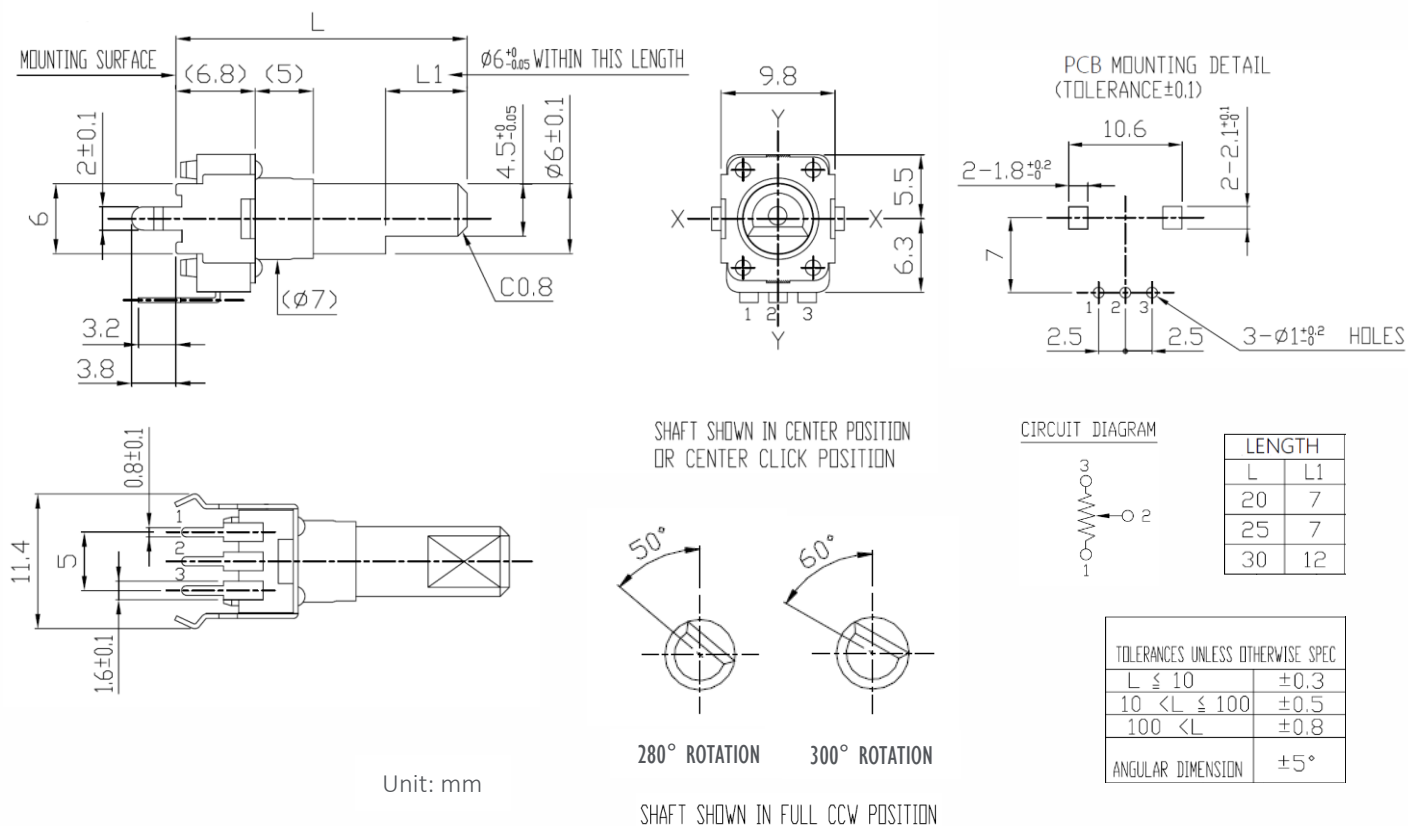
TOLERANCES UNLESS OTHERWISE SPEC	
$L \leq 10$	± 0.3
$10 < L \leq 100$	± 0.5
$100 < L$	± 0.8
ANGULAR DIMENSION	$\pm 5^\circ$

Mechanical Specifications

Series 09VR Horizontal/Side Mount Sleeve Bushing

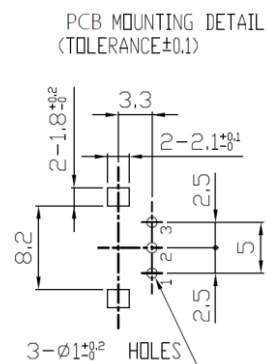
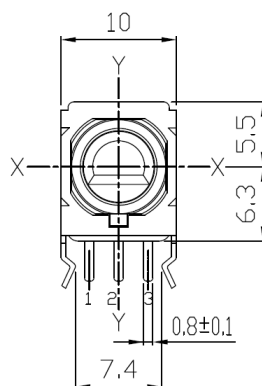
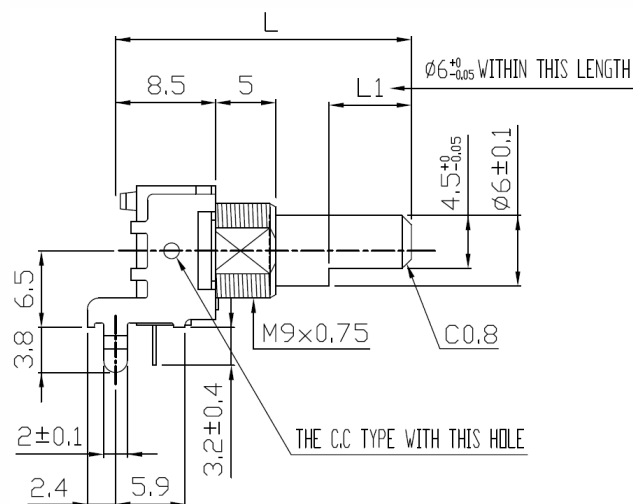


Series 09VR Vertical/Rear Mount Sleeve Bushing



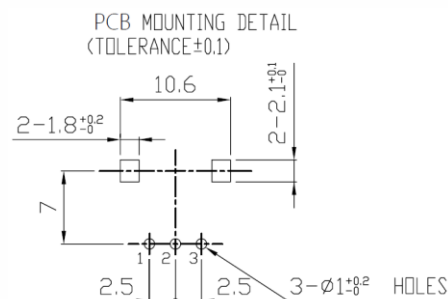
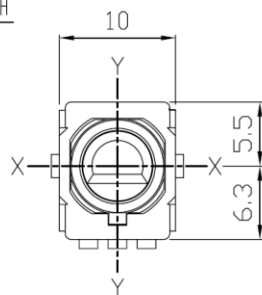
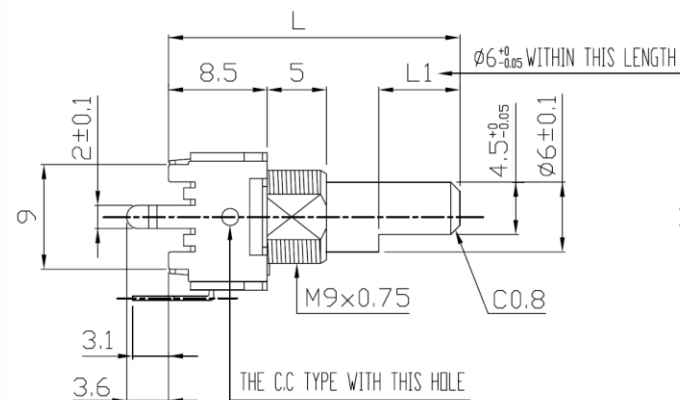
Mechanical Specifications

Series 09VR Horizontal/Side Mount with Threaded Bushing

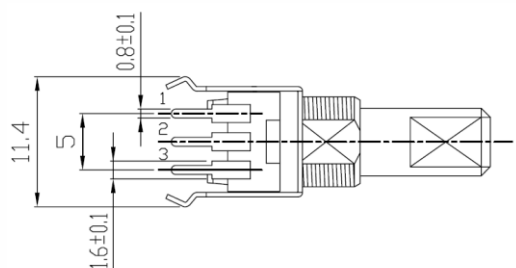


SHAFT SHOWN IN CENTER POSITION
OR CENTER CLICK POSITION

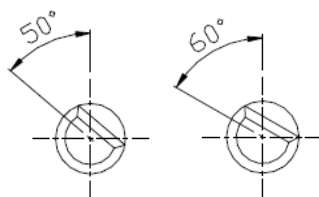
Series 09VR Vertical/Rear Mount with Threaded Bushing



SHAFT SHOWN IN CENTER POSITION
OR CENTER CLICK POSITION



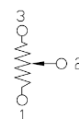
Unit: mm



280° ROTATION 300° ROTATION

SHAFT SHOWN IN FULL CCW POSITION

CIRCUIT DIAGRAM

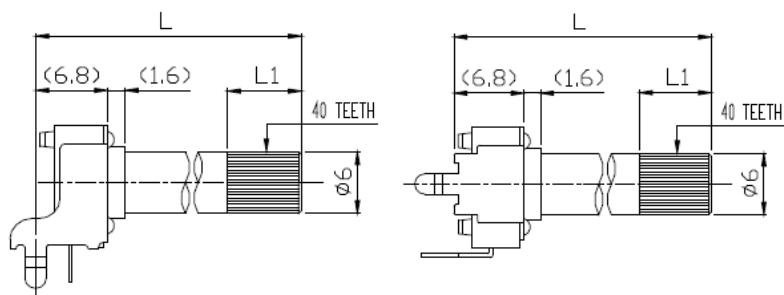


LENGTH	
L	L1
25	7
30	12

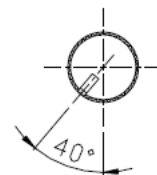
TOLERANCES UNLESS OTHERWISE SPEC	
$L \leq 10$	± 0.3
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ANGULAR DIMENSION	$\pm 5^\circ$

Mechanical Specifications

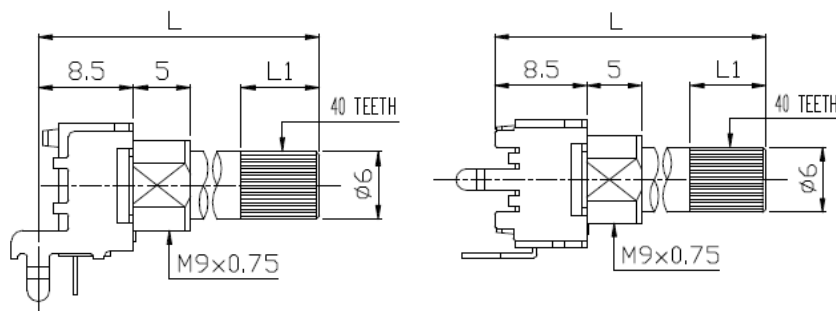
40 Tooth Knurl Shaft Trim Option



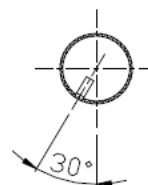
LENGTH	
L	L1
15	6
20	7
25	7
30	7



280° ROTATION



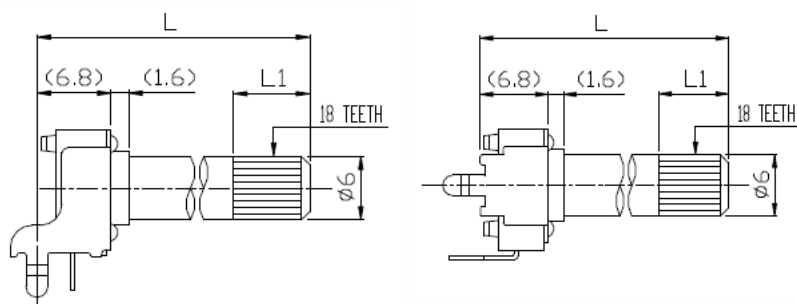
LENGTH	
L	L1
25	7
30	7



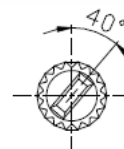
300° ROTATION

SHAFT SHOWN IN FULL CCW POSITION

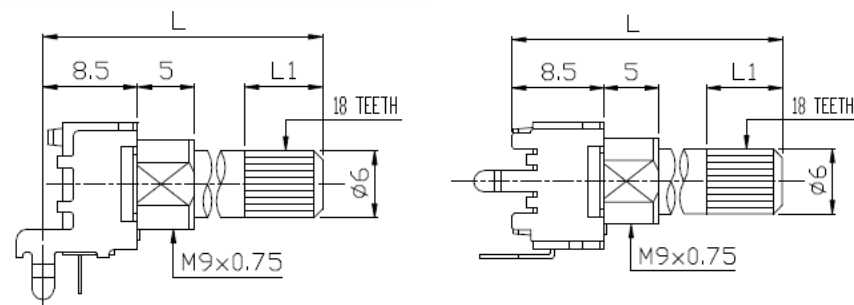
18 Tooth Knurl Shaft Trim Option



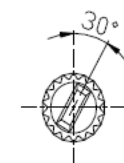
LENGTH	
L	L1
20	7
25	7



280° ROTATION



LENGTH	
L	L1
25	7



300° ROTATION

Unit: mm

SHAFT SHOWN IN FULL CCW POSITION



Electrical Specification

Series 09VR Taper Graphs

