

# Panel Potentiometer

## Model P09x Series



### Features:

- Multi-ganged—up to 6 gangs
- Excellent 100,000 cycles life
- Rotary and Momentary Switch options
- Push-lock options
- Concentric shaft option
- Center tap option
- PCB pins



### Description:

9mm Rotary Potentiometer, with metal shaft and bushing. Options include audio and linear tapers; knurled, flatted and slotted shafts.

### Applications:

- Audio / video equipment / Amplifiers / Mixers
- TV and multimedia sound systems / Portable electronics

### Model Styles Available:

- Side Adjust, 1 to 6 gangs P09xN
- Side Adjust, 1 to 4 gangs, w/Rotary switch P09xS
- Side Adjust, 1 to 4 gangs, w/Momentary switch P09xM
- Side Adjust, 1 gang, w/ Rotary and Momentary switches P091B
- Top Adjust, 1 or 2 gangs P09x5N
- Top Adjust, 1 gang w/Rotary switch P0915S
- Side Adjust, with Push-Lock, 1 or 2 gangs P09xP
- With Concentric shaft, 2 to 4 gangs P09xC
- With Center Tap, 2 gangs only P092T

## Electrical Characteristics

T<sub>A</sub> = 25°C unless otherwise noted

Resistance Range	1KΩ to 1MΩ
Standard Resistance Tolerance	± 20%
Residual Resistance	20 ohms max
Resistance Taper	Audio (10A, 15A, 15C), Linear (1B) - see note 3
Maximum Operating Voltage	50Vac
Rated Power	Linear Taper B: 0.05W Other Tapers: 0.025W
Dielectric Strength	300 Vac , 1 minute
Rotational Noise	100mV max
Insulation Resistance	>100M ohms at 250 Vdc
Gang Error (Multi-ganged)	-40dB to 0dB, ±3dB

#### General Note

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### Rotary Switch Characteristics

T<sub>A</sub> = 25°C unless otherwise noted

Switch Circuit	SPST
Contact Resistance	<100mohms
Rated Power	3.0A at 16Vdc
Switch Torque	100-350 gf.cm
Switch Rotational Angle	50° Max.
Switch Life	15,000 cycles min.

### Momentary Switch Characteristics

T<sub>A</sub> = 25°C unless otherwise noted

Switch Circuit	SPST
Contact Resistance	<100mohms
Rated Power	0.5A at 12Vdc
Switch Torque	250-550 gf.cm
Switch Push Stroke Length	0.5 +0.5/-0.3 mm
Switch Life	15,000 cycles min.

### Mechanical Characteristics

T<sub>A</sub> = 25°C unless otherwise noted

Mechanical Travel (Rotational angle)	300° ± 10°
Rotational Torque	35 to 90 gf.cm
Rotational Stop Strength, Minimum	3.0kgf.cm
Shaft Pull Strength, Minimum	6.0 kgf
Detent Torque	50 to 200 gf.cm
Nut Tightening Strength, Minimum	8.0 kgf
Rotational Life	100,000 cycles

### Environmental Characteristics

T<sub>A</sub> = 25°C unless otherwise noted

Operating Temperature	-10°C to 70°C
IP Rating	IP50
Soldering Condition	Compatible with Industry standard soldering processes: Manual: SAC 270 °C max. for 3 seconds. Wave: SAC 260 °C max. for 5 seconds.
RoHS	<a href="#">Please refer to TT Electronics Website</a>
REACH	<a href="#">Please refer to TT Electronics Website</a>

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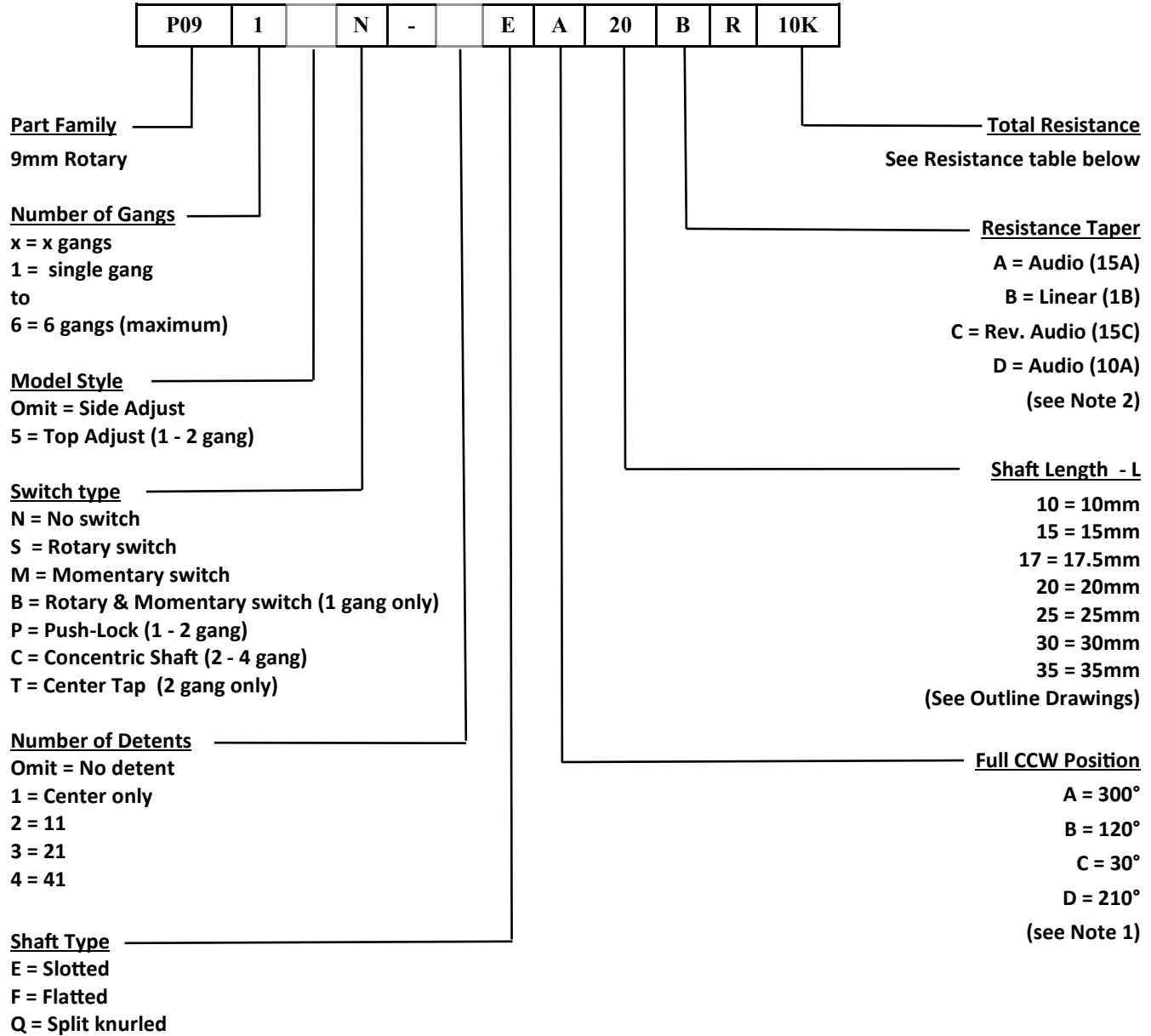
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### Ordering Information



Resistance table										
Resistance (Ohms)	1,000	2,000	5,000	10,000	20,000	50,000	100,000	200,000	500,000	1,000,000
Code	1K	2K	5K	10K	20K	50K	100K	200K	500K	1MEG

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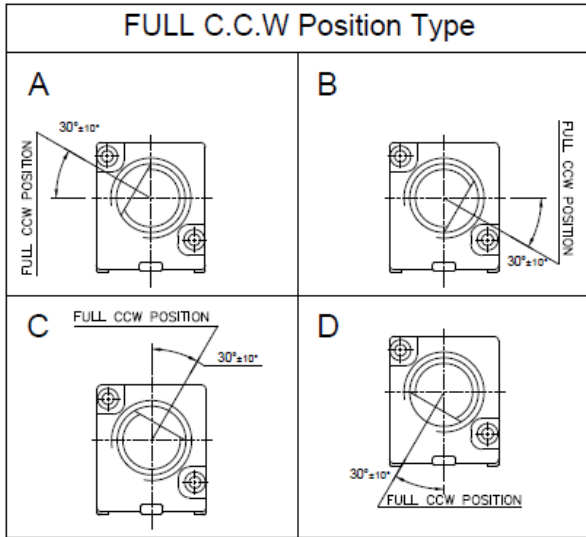
## Model P09x Series



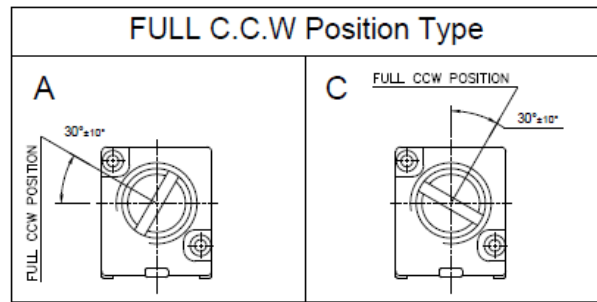
### Note 1: Shaft Position

Models: P09xN, P09xS, P09xM, P091B, P09x5N, P0915S, P09xP, P09xT

#### F Shaft Type

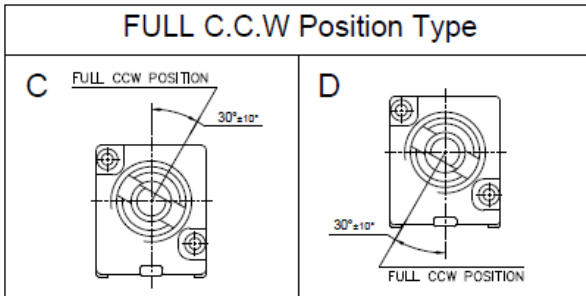


#### E /Q Shaft Type

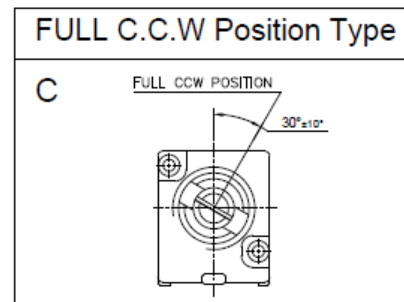


### Models: P09xC

#### F Shaft Type



#### E /Q Shaft Type



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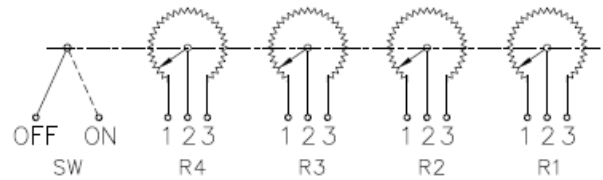
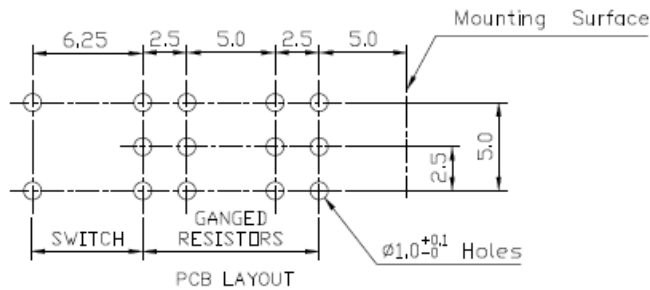
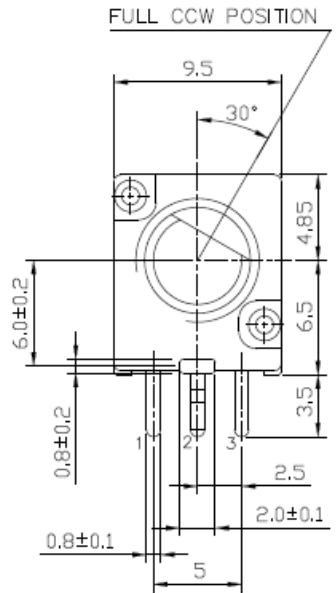
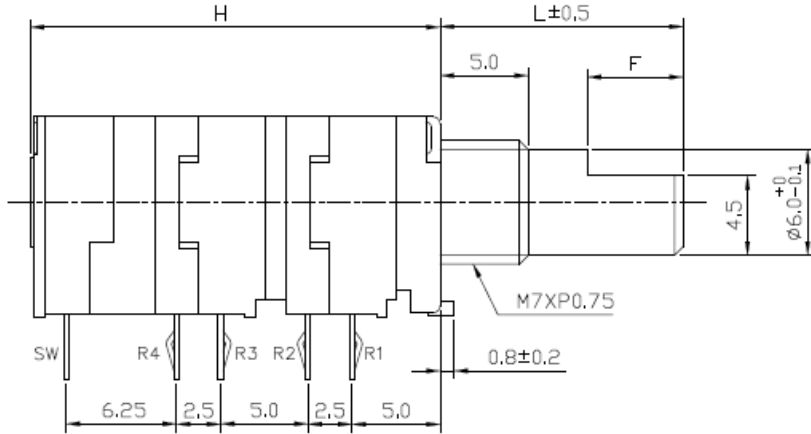


### Outline Drawings

Model P09xS (Side Adjust, PCB pins, up to 4 gangs with Rotary Switch)

X = Number of Gangs + 1 Switch

X	1	2	3	4
H	13.3	15.8	20.8	23.3



CIRCUIT DIAGRAM

E-TYPE		F-TYPE		Q-TYPE	
L	10 15 20 25 30	L	10 15 20 25 30	L	10 15 20 25 30
		F	4 7 12 12 12	P	4 7 13 14 14
				T	4 6 12 12 12
				M	1 1 2 2 4

General Note

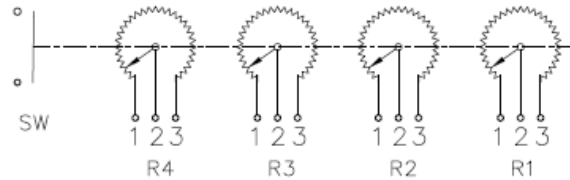
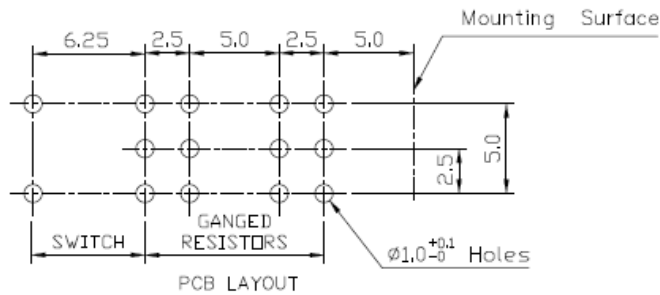
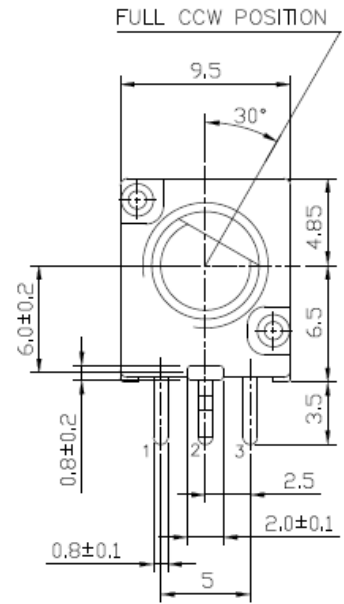
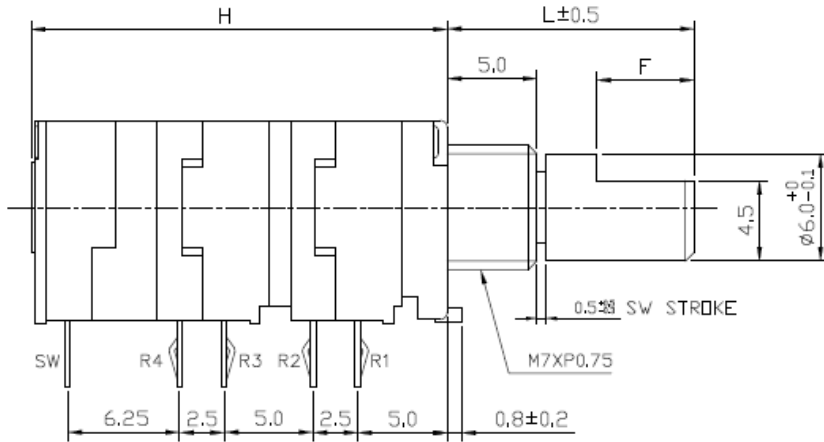
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### Outline Drawings

#### Model P09xM (Side Adjust, PCB pins, up to 4 gangs with Momentary Switch)

X = Number of Gangs + 1 Switch

X	1	2	3	4
H	13.3	15.8	20.8	23.3



CIRCUIT DIAGRAM

E-TYPE		F-TYPE		Q-TYPE	
L	SW STROKE	L	SW STROKE	L	SW STROKE
10	5	10	3	10	1
15	1.5	15	7	15	1
20	1.0	20	12	20	2
25	1.0	25	12	25	2
30	1.0	30	12	30	4
				18 TEETH	

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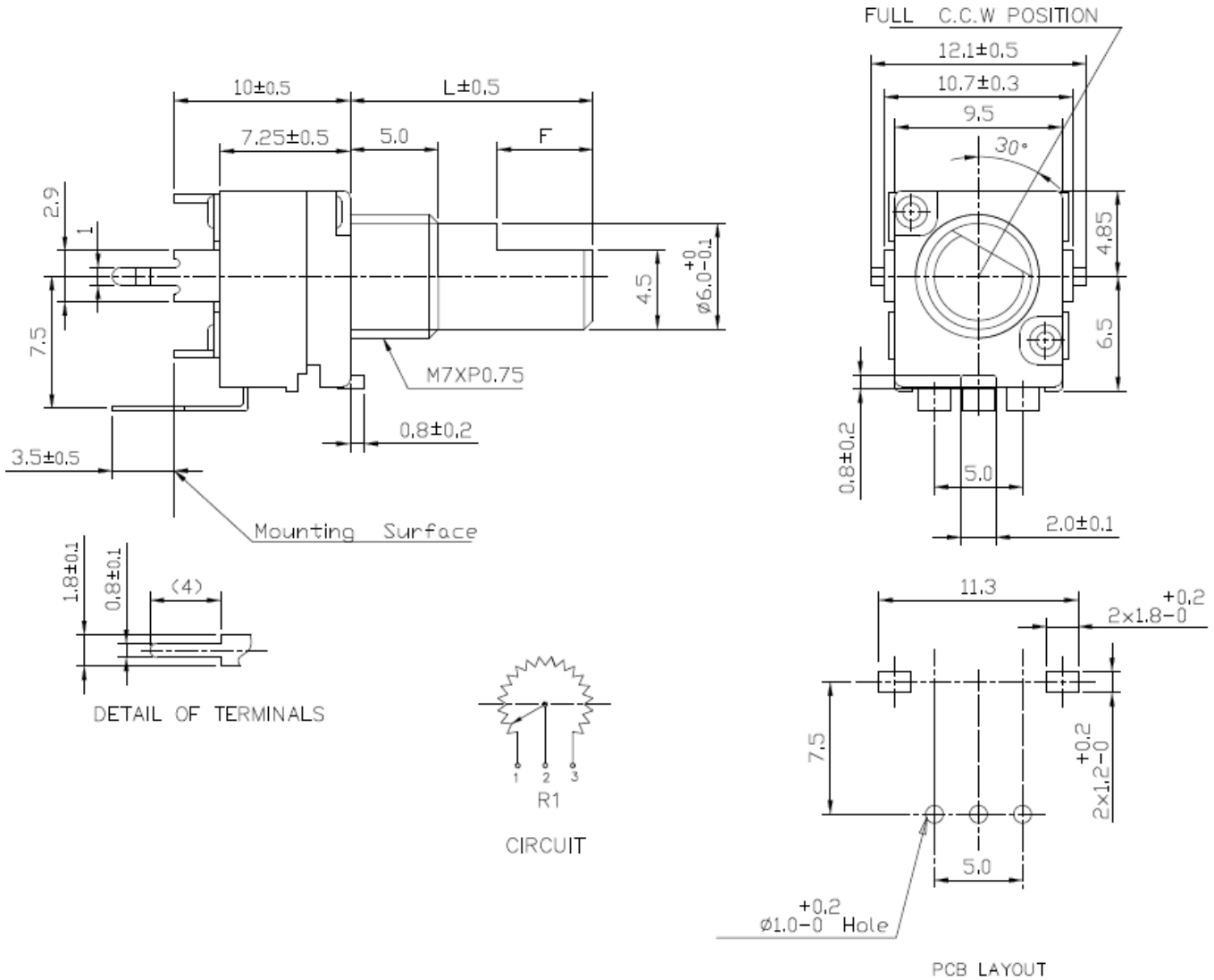
# Panel Potentiometer

## Model P09x Series



### Outline Drawings

Model P0915N (Top Adjust, PCB pins, 1 gang)



E-TYPE						F-TYPE						Q-TYPE					
L	10	15	20	25	30	L	10	15	20	25	30	L	10	15	20	25	30
						F	4	7	12	12	12	P	4	7	13	14	14
												T	4	6	12	12	12
												M	1	1	2	2	4

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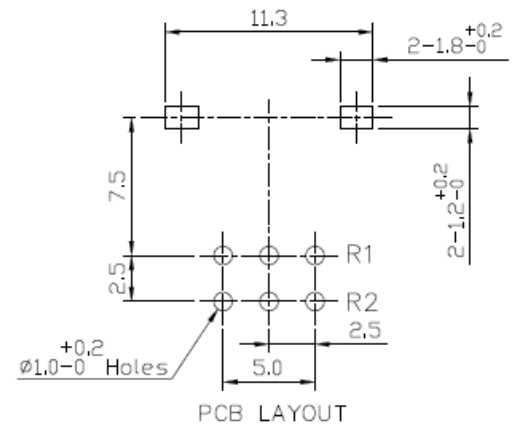
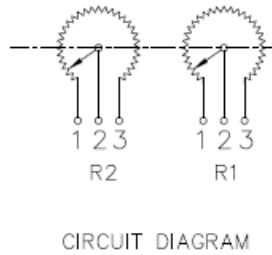
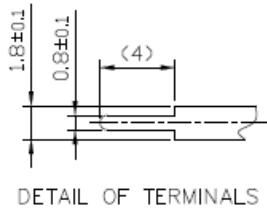
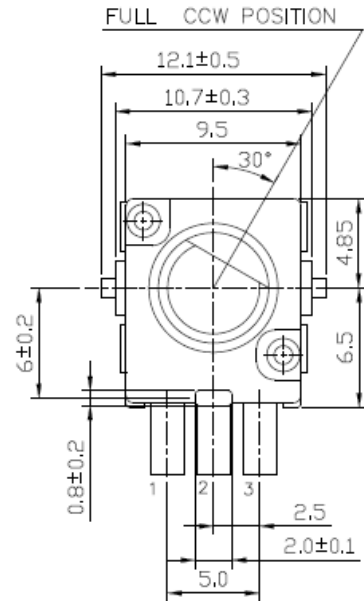
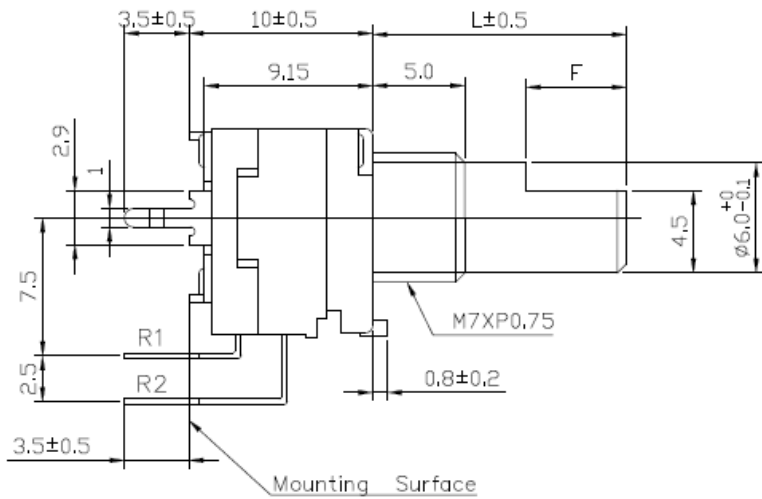
# Panel Potentiometer

## Model P09x Series



### Outline Drawings

Model P0925N (Top Adjust, PCB pins, 2 gangs)



E-TYPE		F-TYPE		Q-TYPE			
L	F	L	F	L	P	T	M
10	4	10	4	10	4	4	1
15	7	15	7	15	7	6	1
20	12	20	12	20	13	12	2
25	12	25	12	25	14	12	2
30	12	30	12	30	14	12	4

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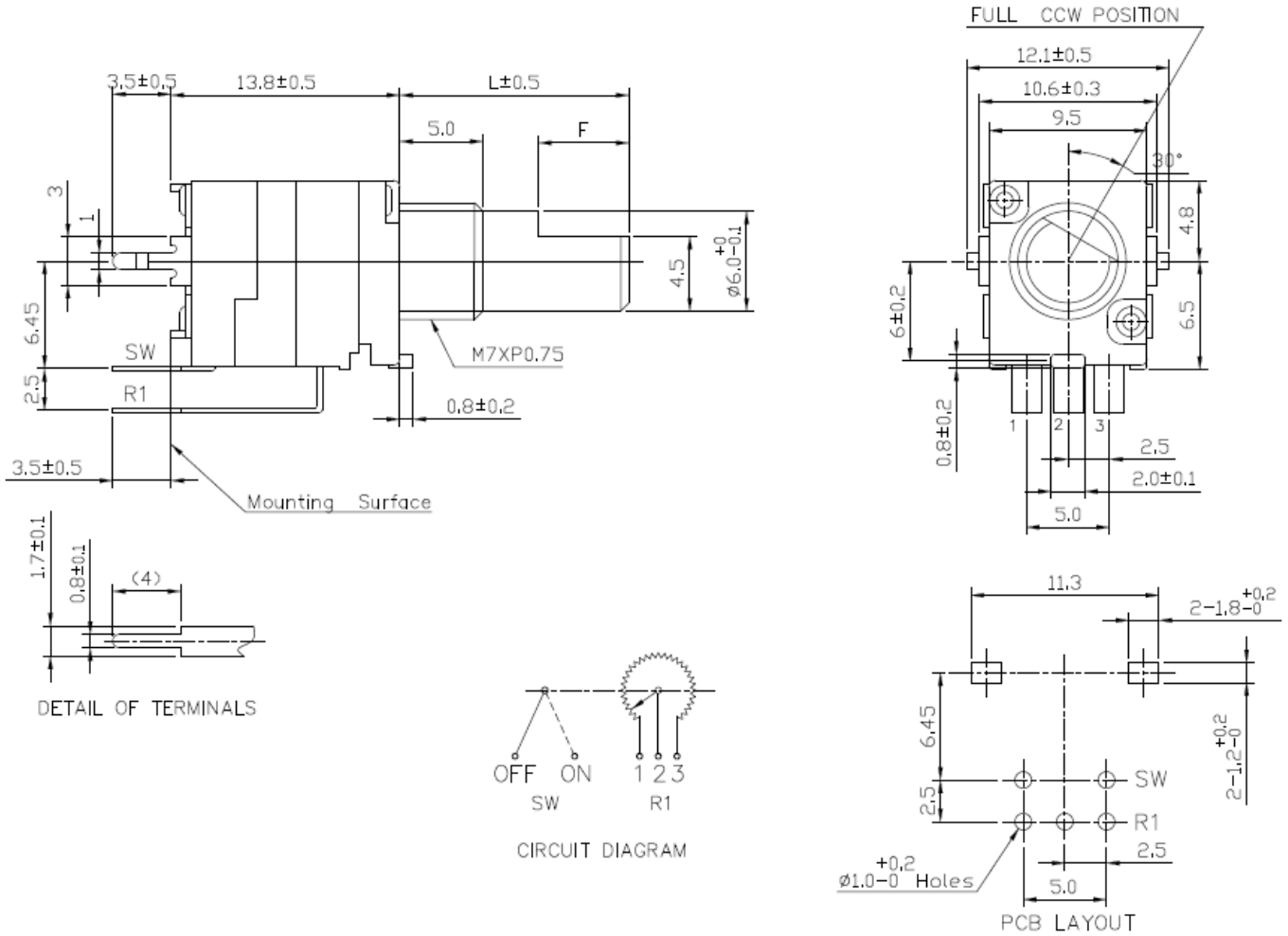
# Panel Potentiometer

## Model P09x Series



### Outline Drawings

Model P0915S (Top Adjust, PCB pins, with Rotary Switch, 1 gang only)



E-TYPE		F-TYPE		Q-TYPE	
L	10 15 20 25 30	L	10 15 20 25 30	L	10 15 20 25 30
		F	4 7 12 12 12	P	4 7 13 14 14
				T	4 6 12 12 12
				M	1 1 2 2 4

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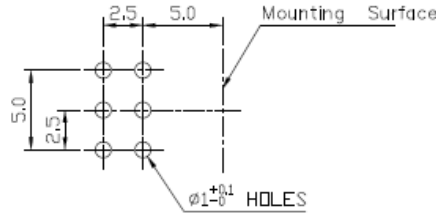
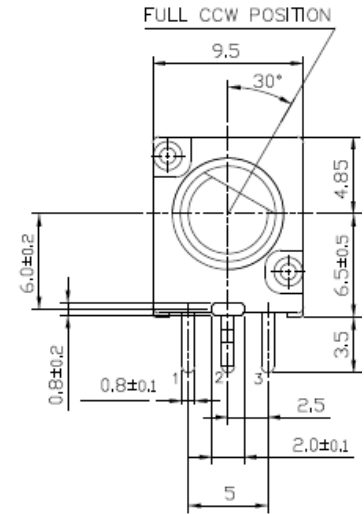
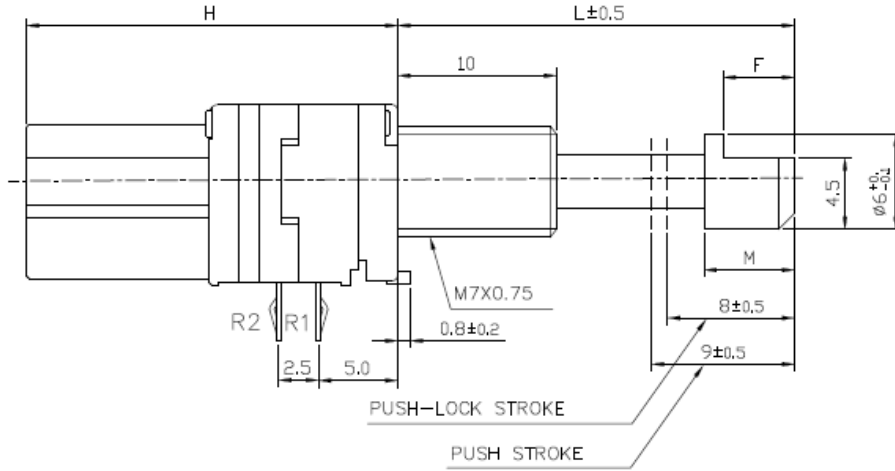
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### Outline Drawings

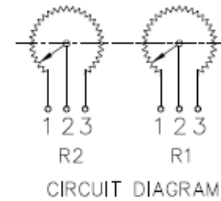
#### Model P09xP (Side Adjust, PCB pins, with Push-Lock, up to 2 gangs)

X = Number of Gangs

X	1	2
H	20.75	23.25



PCB LAYOUT



CIRCUIT DIAGRAM

E-TYPE		F-TYPE		Q-TYPE	
L	25 30 35	L	25 30 35	L	25 30 35
M	5.7 10.7 15.7	F	4.5 7 12	P	4 7 13
		M	5.7 10.7 15.7	T	3 6 12
				M	5.7 10.7 15.7

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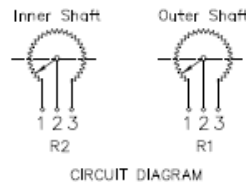
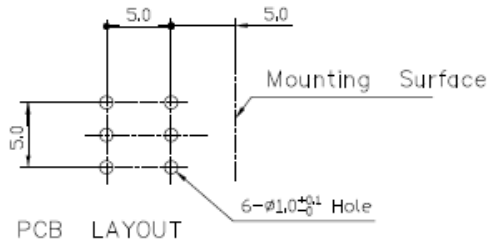
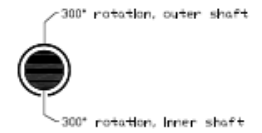
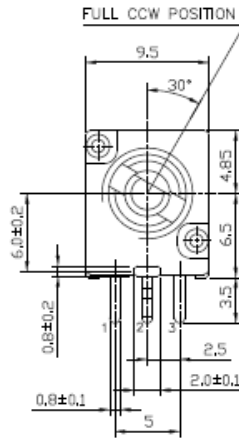
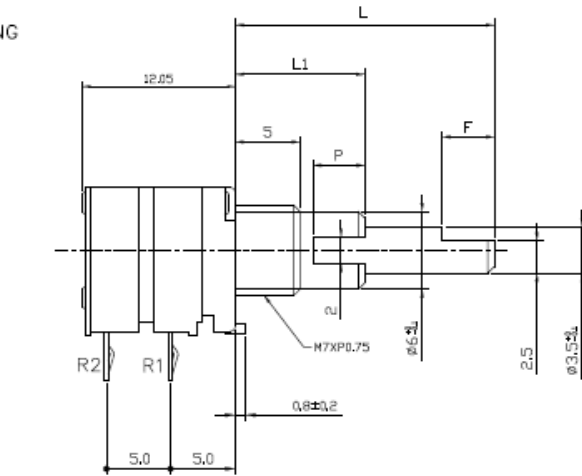
## Model P09x Series



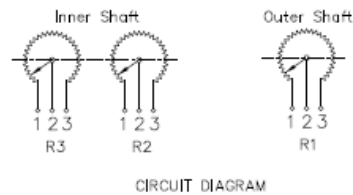
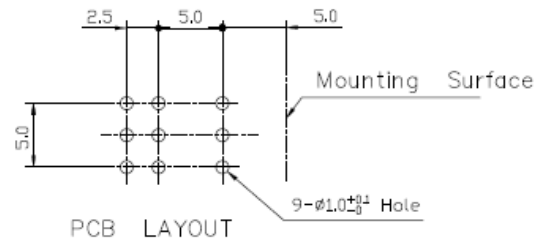
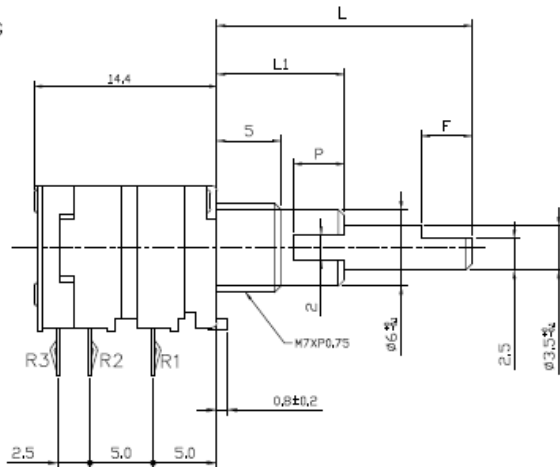
### Outline Drawings

#### Model P09xC (Side Adjust, PCB pins with Concentric Shaft, 2 to 4 gangs)

2 GANG



3 GANG



#### General Note

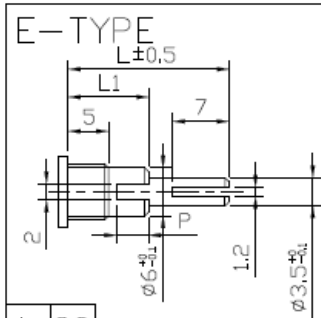
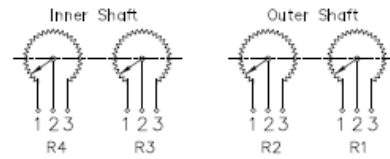
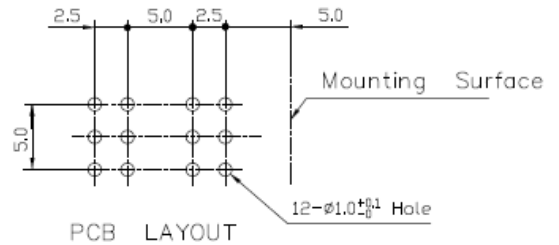
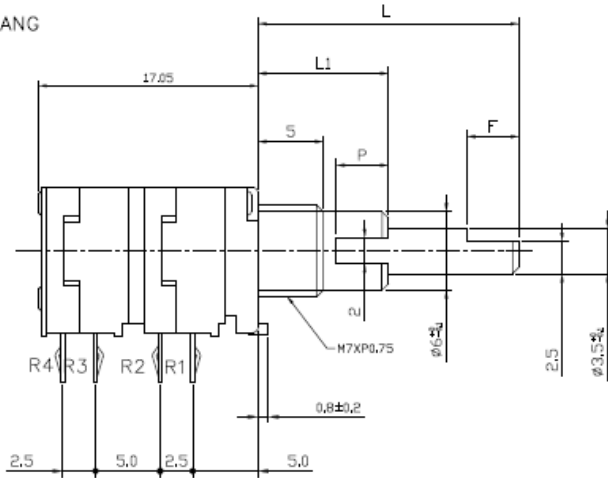
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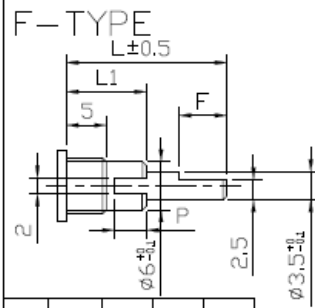
### Outline Drawings

#### Model P09xC (Side Adjust, PCB pins with Concentric Shaft, 2 to 4 gangs), continued

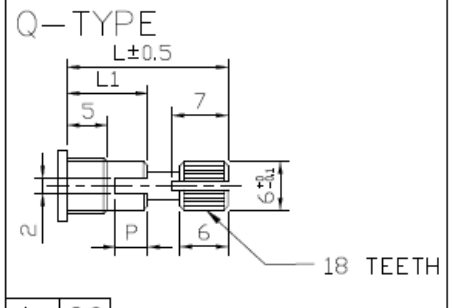
4 GANG



L	20
L1	10
P	4



L	15	17	20	25
L1	10	10	10	15
F	5	5	6	7
P	4	4	4	5



L	20
L1	10
P	4

Note: L = 17 is 17.5mm

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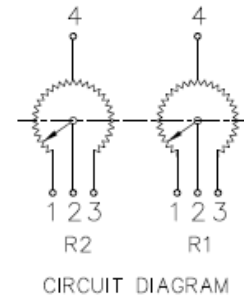
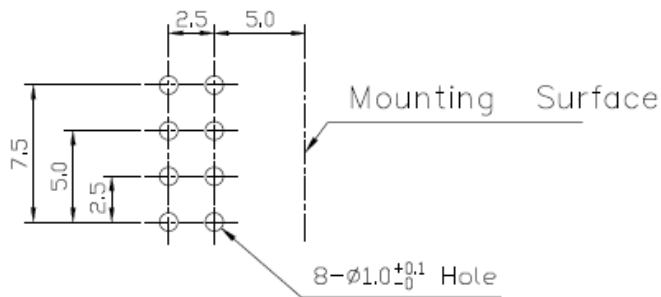
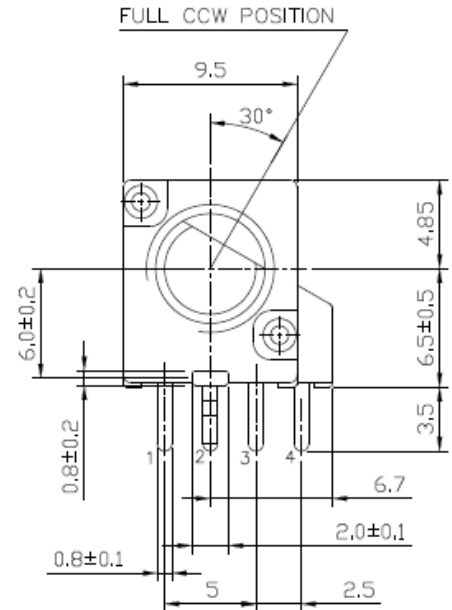
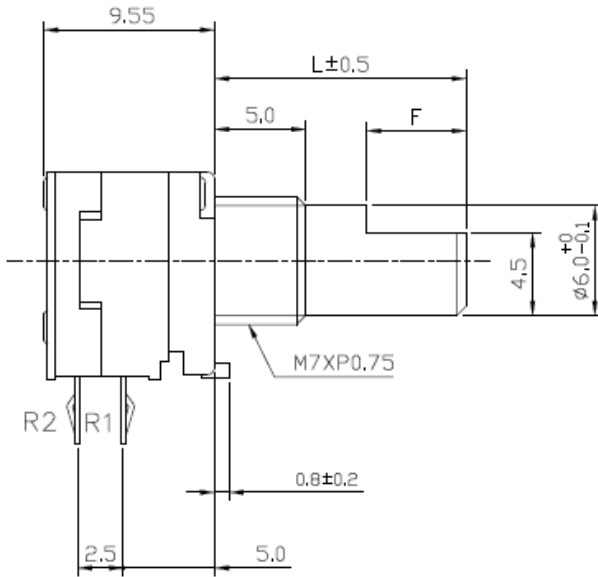
# Panel Potentiometer

## Model P09x Series



### Outline Drawings

Model P092T (Side Adjust, PCB pins, with Center Tap, 2 gangs only)



E-TYPE		F-TYPE		Q-TYPE			
L	F	L	F	L	P	T	M
10	4	10	4	10	4	4	1
15	7	15	7	15	7	6	1
20	12	20	12	20	13	12	2
25	12	25	12	25	14	12	2
30	12	30	12	30	14	12	4

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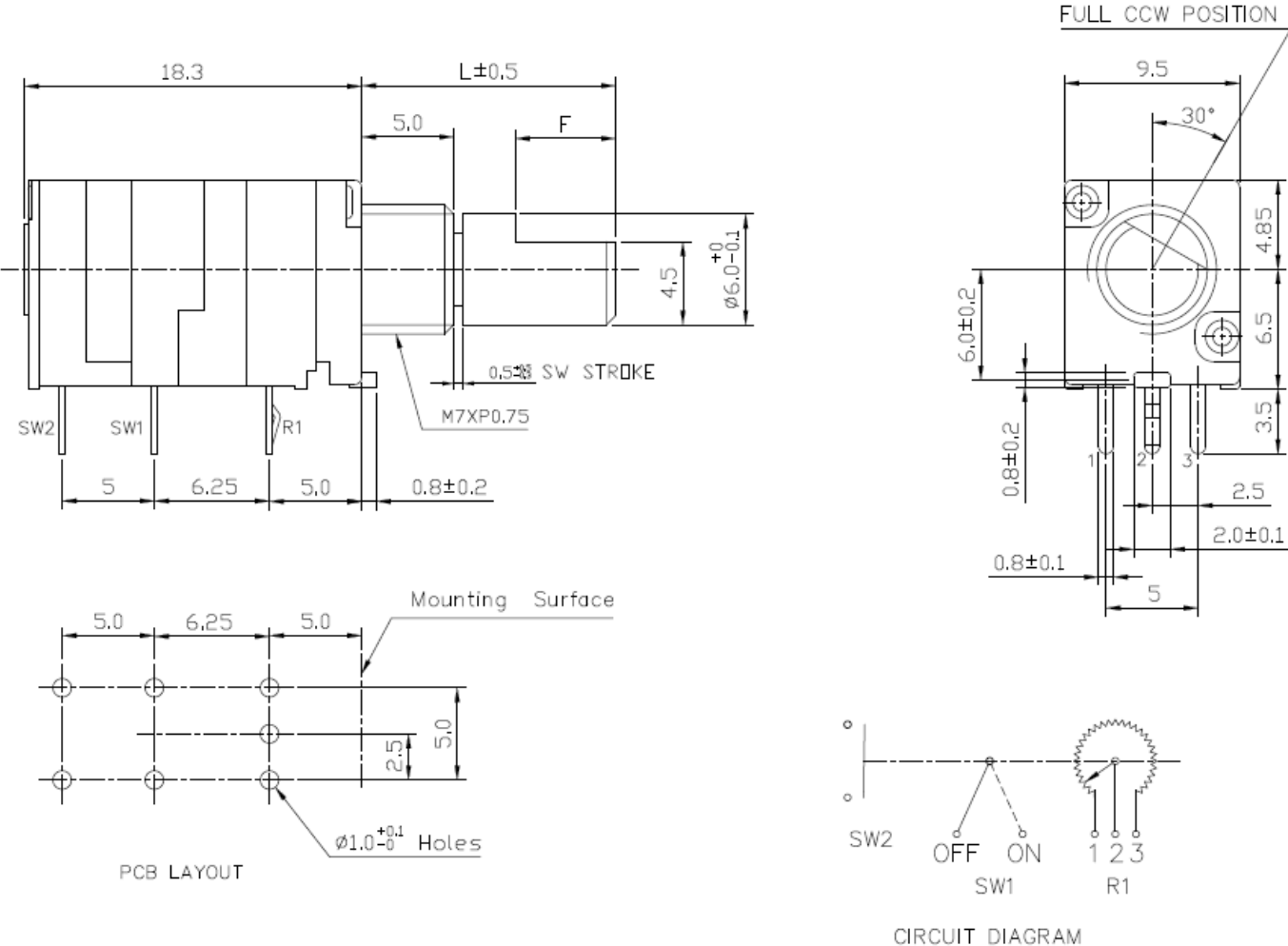
# Panel Potentiometer

## Model P09x Series



### Outline Drawings

Model P091B (Side Adjust, PCB pins, with Rotary and Momentary Switches, 1 gang only)



E-TYPE		F-TYPE		Q-TYPE	
$L \pm 0.5$	$\phi 6.0^{+0.1}$	$L \pm 0.5$	$\phi 6.0^{+0.1}$	$L \pm 0.5$	$\phi 6.0^{+0.1}$
5	1.0	5	4.5	5	1.0
1.5		F		P	
0.5mm SW STROKE		0.5mm SW STROKE		0.5mm SW STROKE	18 TEETH
L	10 15 20 25 30	L	10 15 20 25 30	L	10 15 20 25 30
		F	3 7 12 12 12	P	3.2 7 13 14 14
				T	3.2 6 12 12 12
				M	1 1 2 2 4

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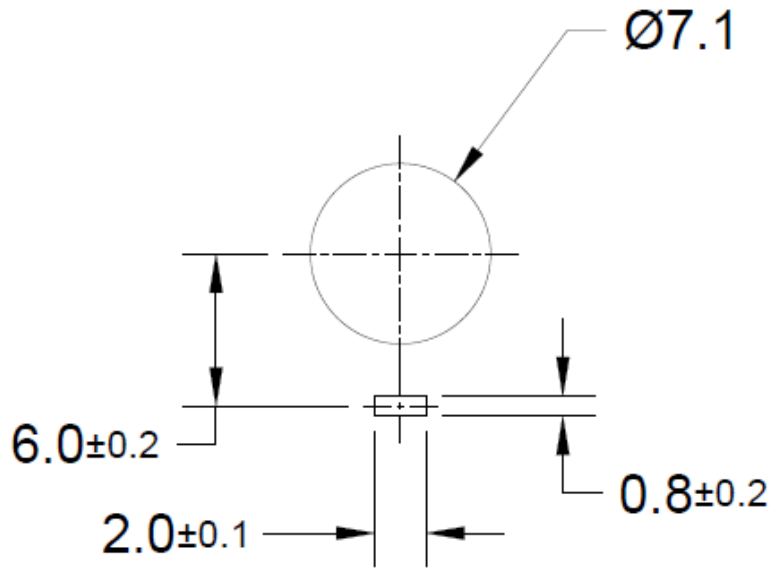
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# Panel Potentiometer

## Model P09x Series



### Panel Layout



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