Model P09x Series

Features:

- Multi-ganged—up to 8 gangs
- Excellent 100,000 cycles life
- Rotary and Momentary Switch options
- Push-lock options
- Concentric shaft option
- Centre 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



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Model Styles Available:

•	Side Adjust, 1 to 8 gangs	P09xN
•	Side Adjust, 1 to 4 gangs, w/Rotary switch	P09xS
•	Side Adjust, 1 to 4 gangs, w/Momentary switch	P09xM
•	Top Adjust, 1 or 2 gangs	P09x5N
•	Side Adjust, with Push-Lock, 1 or 2 gangs	P09xP
•	With Concentric shaft, 2 to 4 gangs	P09xC
•	With Centre Tap, 2 gangs only	P09xT

Electrical Characteristics

T_A = 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					
Deted Device	Linear Taper B: 0.05W					
Rated Power	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, ±30					

General Note

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Model P09x Series



Switch Characteristics

T_A = 25°C unless otherwise noted

Switch Circuit	SPST
Contact Resistance	<100mohms
Rated Power	3.0A at 16Vdc
Switch Life	15,000 cycles min.

Mechanical Characteristics

T_A = 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_A = 25°C unless otherwise noted

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

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Model P09x Series

Ordering Information

Part Family		200			Ŧ		Б		•		D	4077	1
9mm Rotary See Resistance table below Number of Gangs Resistance Taper x = x gangs A = Audio (15A) to B = Linear (1B) 8 = 8 gangs (maximum) C = Rev. Audio (15C) Model Style D = Audio (10A) Omit = Side Adjust (see Note 3) 5 = Top Adjust (1-2 gang) Shaft Length - L Switch type 10 = 10mm N = No switch 17 = 17.5mm S = Rotary switch 17 = 17.5mm P = Push-Lock (1-2 gang) 20 = 20mm C = concentric Shaft (2 or 4 gang only) 30 = 30mm T = Center Tap (2 gang only) 30 = 30mm Number of Detents (See Note 1) Omit = No detent Full CCW Position 1 = Center only A = 300° 2 = 11 A = 300° 3 = 21 B = 120° 4 = 41 C = 30° Shaft Type Detent 3	P	209	1		N	-	 E	A	20	B	R	10K	
9mm Rotary See Resistance table below Number of Gangs Resistance Taper x = x gangs A = Audio (15A) to B = Linear (1B) 8 = 8 gangs (maximum) C = Rev. Audio (15C) Model Style D = Audio (10A) Omit = Side Adjust (see Note 3) 5 = Top Adjust (1-2 gang) Shaft Length - L Switch type 10 = 10mm N = No switch 17 = 17.5mm S = Rotary switch 17 = 17.5mm P = Push-Lock (1-2 gang) 20 = 20mm C = concentric Shaft (2 or 4 gang only) 30 = 30mm T = Center Tap (2 gang only) 30 = 30mm Number of Detents (See Note 1) Omit = No detent Full CCW Position 1 = Center only A = 300° 2 = 11 A = 300° 3 = 21 B = 120° 4 = 41 C = 30° Shaft Type Detent 3													
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x = x gangs 1 = single gang 1 = single gang A = Audio (15A) b B = Linear (1B) C = Rev. Audio (15C) D = Audio (10A) Omit = Side Adjust (see Note 3) 5 = Top Adjust (1-2 gang) Shaft Length - L Switch type 10 = 10mm N = No switch 10 = 10mm S = Rotary switch 17 = 17.5mm P = Push-Lock (1-2 gang) 20 = 20mm C = Concentric Shaft (2 or 4 gang only) 25 = 25mm T = Center Tap (2 gang only) 30 = 30mm Number of Detents (See Note 1) Omit = No detent 5 = 211 1 = 211 B = 120° 4 = 41 C = 30° D = 210° D = 210°	9mm Rotary												See Resistance table below
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Switch type 10 = 10mm N = No switch 15 = 15mm S = Rotary switch 17 = 17.5mm M = Momentary switch 20 = 20mm P = Push-Lock (1-2 gang) 20 = 20mm C = Concentric Shaft (2 or 4 gang only) 25 = 25mm T = Center Tap (2 gang only) 30 = 30mm Number of Detents (See Note 1) Omit = No detent Full CCW Position 1 = 210° A = 300° 3 = 21 B = 120° 4 = 41 C = 30° D = 210° D = 210°	5 = Top Adjust (1-	2 gang)										
N = No switch 10 = 10mm S = Rotary switch 15 = 15mm M = Momentary switch 17 = 17.5mm P = Push-Lock (1-2 gang) 20 = 20mm C = Concentric Shaft (2 or 4 gang only) 25 = 25mm T = Center Tap (2 gang only) 30 = 30mm Number of Detents (See Note 1) Omit = No detent Eull CCW Position 1 = 210° A = 300° 4 = 41 C = 30° Shaft Type (are Nutre 3)													Shaft Length - L
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M = Momentary switch 17 = 17.5mm P = Push-Lock (1-2 gang) 20 = 20mm C = Concentric Shaft (2 or 4 gang only) 30 = 30mm T = Center Tap (2 gang only) 35 = 35mm Omit = No detent (See Note 1) 1 = Center only Full CCW Position 2 = 11 A = 300° 3 = 21 A = 300° 4 = 41 C = 30° Shaft Type (acc Nate 2)													15 = 15mm
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Number of Detents		-	-		,								
Number of Detents Full CCW Position Omit = No detent Full CCW Position 1 = Center only A = 300° 2 = 11 A = 300° 3 = 21 B = 120° 4 = 41 C = 30° Shaft Type D = 210°													
1 = Center only Full CCW Position 2 = 11 A = 300° 3 = 21 B = 120° 4 = 41 C = 30° Shaft Type D = 210°	Number of Deten	<u>ts</u> —											(See Note 1)
1 - center only A = 300° 2 = 11 A = 300° 3 = 21 B = 120° 4 = 41 C = 30° D = 210° D = 210°													
3 = 21 B = 120° 4 = 41 C = 30° Shaft Type D = 210° (con Note 2)	=												
4 = 41 <u>Shaft Type</u> (222 Note 2)													
C = 30° D = 210°													B = 120°
Shaft Type (ass Note 2)	4 = 41												C = 30°
	Chaft Taura												D = 210°
E = Slottod (see Note 2)	E = Slotted												(see Note 2)
F = Flatted													
Q = Split knurled													
(see Note 1)	-												

				Resista	nce 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

General Note

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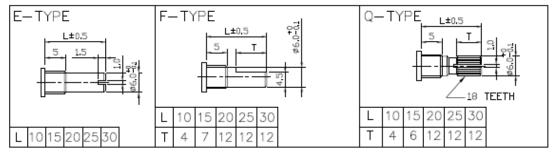
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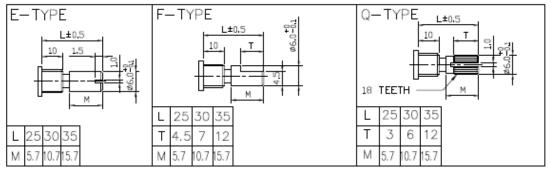
Model P09x Series

Note 1: Shaft type and Length

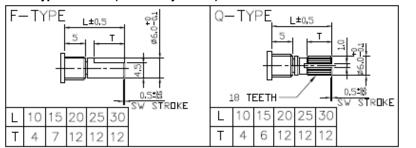
Shaft Types: P09xN, P09xS, P09x5N, P09xT



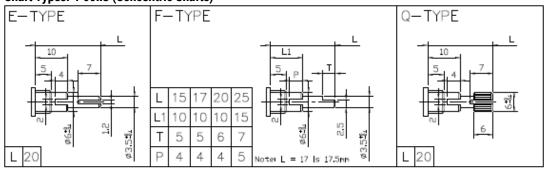
Shaft Types: P09xP (Push-Lock)



Shaft Types: P09xM (Momentary Switch)



Shaft Types: P09xC (Concentric Shafts)



General Note

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Model P09x Series

A

POSITION

CCW

FUL

С

30°-

FULL COW POSITION

30°±10*

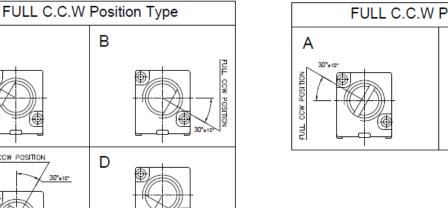


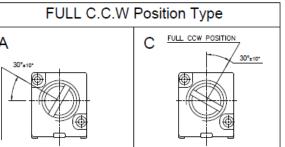
Note 2: Shaft Position

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

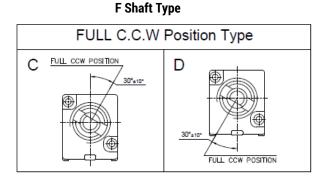
F Shaft Type







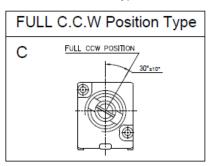
Models: P09xC



30

FULL CCW POSITION

E /Q Shaft Type



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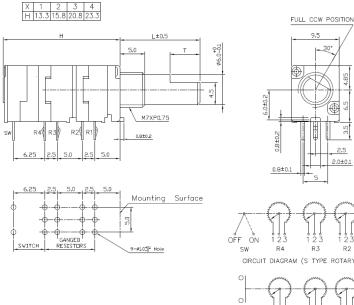




Outline Drawings

Model P09xN (Side Adjust, PCB pins, up to 8 gangs) X = Number of Gangs 3 4 5 6 8 FULL COW POSITION Н 22.05 24.55 29.55 9.5 н $L \pm 0.5$ 5.0 ŦÏ 30 Т ŝ € ű 6.0±0.2 ¢ M7XP0.75 R8 R6(R5 R4 R3 R2 R7 R1 0.8±0.2 0,8±0,2 2.5 2.0±0.1 0,8±0,3 Mounting Surface 5.0 5.0 2.0 GANGED RESISTOR: CIRCUIT DIAGRAM Ø1.0⁺⁰¹ Holes PCB LAYOUT

Model P09xS and P09xM (Side Adjust, PCB pins, up to 4 gangs with Switch)



ŝ 2,5 2.0±0.1 R3 R2 R1 CIRCUIT DIAGRAM (S TYPE ROTARY SWITCH)

30

23 SW R4 R3 R2 R1 CIRCUIT DIAGRAM (M TYPE MOMENTARY SWITCH)

General Note

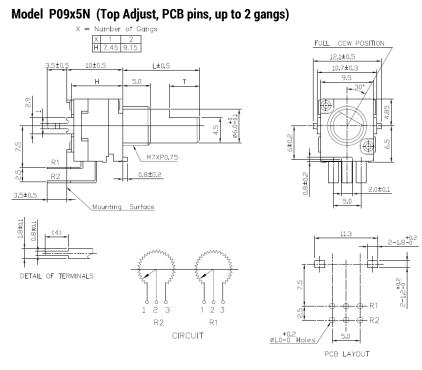
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X = NUMBER OF GANGS + 1 SWITCH

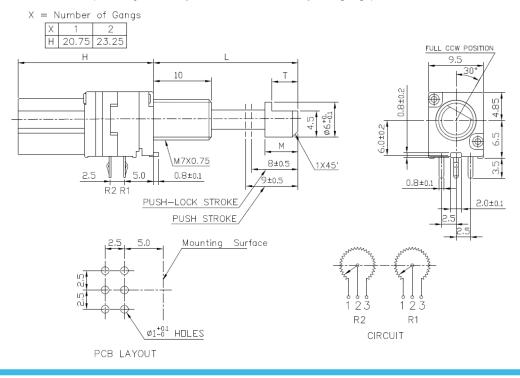




Outline Drawings



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



General Note

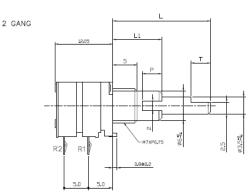
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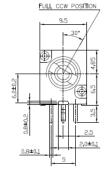


Model P09x Series

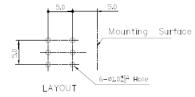
Outline Drawings

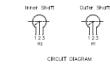
Model P09xC (Side Adjust, PCB pins with Concentric Shaft, 2 to 4 gangs)

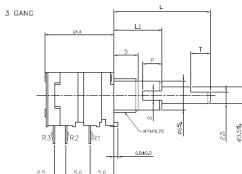






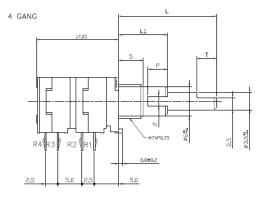


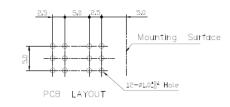




PCB LAYOUT







Inner Shaft Outer Shaft 123 123 123 123 123 123 R4 R3 R3 R2 R1 CIRCUIT DIAGRAM

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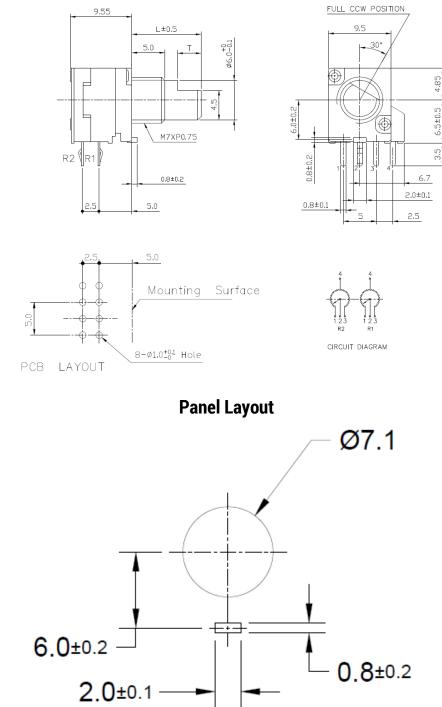
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Model P09x Series



Outline Drawings

Model P09xT (Side Adjust, PCB pins, with Center Tap, 2 gangs only)



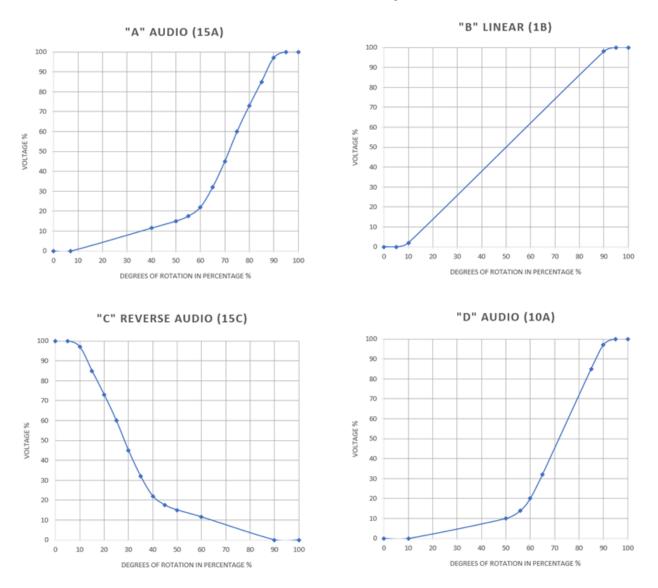
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Model P09x Series





Note 3: Standard Tapers

Packaging

Standard Packaging	Plastic Trays
Hardware	Flat washer and mounting nut

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