

Series 09TR 9 mm Trimmer Potentiometer

- Terminals: tinned brass or tinned steel.
- Flexible gull-wing / through hole / "J" bend terminal configurations
- Various rotor types and with optional shaft & Wheel configurations
- IP 54 according to IEC 60529

Description

9 mm carbon potentiometers with plastic housing. Plastic materials can be self-extinguishable according to UL 94 V-0 upon request. This product is ideal for dimmers, volume/lighting regulation, timers and relays in industrial, electronics and automotive applications.

Ordering Information

OgTR 01 A A 101 A P R Features Accessor Rotor type (Page 4) Model type (Page 4-6) Model type (Page 4-6) Model type (Page 4-6) Resistance Value Terminal Material Extra Features Accessor 01: C-type A: H2.5 201:200Ω S: Tinned brass S: Tinned brass Track Detents 02: D-type B: H3.8 201:200Ω S: Tinned steel (Only available for Through- hole models) Detents 04: J-type D: H5 505:5MΩ Tol. Noter Wiper 06: M-type F: V7.5 Tol. Noter Noter 06: M-type G: V10 S: V10 Noter Noter Noter 08: KA-type J: VR10 C: ±20% Packaging Accessori 10: MT-type J: VR10 D: ±30% R: Tape&Reel Ref# 12: Y-type Taper A: Linear Color Flam B: Logarithmic C: Antilogarithmic Color Flam	Series	Rotor	Model	Taper	Resistance Value	Tol.	Terminal Material	Packg.	Special	Request*
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B: Logarithmic Connect C: Antilogarithmic Operating			A: Lir	near						
C: Antilogarithmic Operating			B: Lo	garithmic						
			C: Ar	tilogarithn	nic					
temperature										mperature

*Please contact CTS representatives for the special requests.

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Sense



Series 09TR

Potentiometer

Standard Configuration:	Through-hole	SMD		
Dimensions:	9mm			
Protection:	IP 54 (high level of protection against dust and also against water splashing)			
	On request: Self-extinguishable, to me	eet UL 94 V-0		
Substrate:	Carbon toobnology	Carbon technology, special for high		
	Carbon technology	temperature		
Color:	Blue housing + white rotor	Brown housing + grey rotor		
Packaging:	Bulk or Tape & Reel			
Wiper position:	at	50% ±15°		
Terminals: *	Straight, without crimping.			
Marking:	Resistive value marked on housing. Others on request.			

* By default, terminals are always straight. CTS can provide crimped terminals (with snap in, "SNP" or "SNJ") to better hold the component to the PCB during the soldering operation.



SNP



SNJ

Electrical Specifications

	Through-hole	SMD		
Range of resistance values				
Lin (A)	$100\Omega \le Rn \le 5M\Omega$	$100\Omega \le Rn \le 1M\Omega$		
Log (B) Antilog (C)	$1K\Omega \le Rn \le 2M2\Omega$	$1K\Omega \le Rn \le 1M\Omega$		
Tolerance	+50%, -30% (out of range)			
Rn < 100Ω:	±20%	-		
$100\Omega \le Rn \le 100K\Omega$		±30%		
$100K < Rn \le 1M\Omega$:	±20%	±40%		
$1M\Omega < Rn \leq 5M\Omega$:	±30%	±50%		
Rn > 5ΜΩ:	+50%, -30% (out of range)	-		
Variation laws	Lin (A), Log (B), Antilog (C). Other tapers available on request			
Residual Resistance	Rn ≤ 400Ω ≤ 2Ω; Rn > 400Ω 5*10-3* Rn			
CRV - Contact Resistance Variation	Lin (A) Electrical Angle 220°±20° ≤ 3%Rn.			
(dynamic)	Other tapers, please inquire			
	at 50°C			
Max. Power Dissipation	0.15W Lin (A)			
	0.10W Log (B) Antilog (C)			
Max Maltara	200VDC Lin (A)			
Max. Voltage	150VDC Log (B) Antilog (C)			
Operating temperature	-25°C +70°C (+85°C on request)			
Temperature Coefficient				
$100\Omega \le \text{Rn} \le 10\text{K}\Omega$	+200 / -300 ppm	+200 / -500 ppm		
$10K\Omega \le Rn \le 5M\Omega$	+200 / -500 ppm	+200 / -1000 ppm		

* Out of range ohm values and tolerances are available on request.

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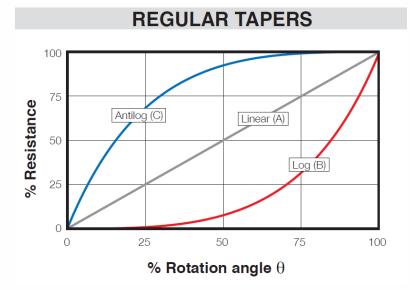
Mechanical and Environmental

Actuation Life	1,000 cycles. On Request: Long Life		
Angle of rotation (mechanical)	240° ± 5°		
Angle of rotation (electrical)	220° ± 20°		
Wiper standard delivery position	50% ± 15°		
Max. stop torque	5 Ncm		
Max. push/pull on rotor	40 N		
Winer Torque	< 2Ncm		
Wiper Torque	Potentiometer with detents: < 2.5 Ncm		

Recommended Soldering Conditions (Lead free, RoHS compliant)

Manual soldering	Reflow soldering SMD	Flow (wave) soldering
Soldering tools of 20W max.	Preheating temperature: Max 150ºC; 60-90 s	Recommended Alloy: SnAgCu
Maximum temperature of soldering tools: 280ºC	Temperature Ramp-up: 2-3ºC/s.	Preheating stage: Max 100ºC; 30-60 s.
Time: 3 s. max.	Over 220ºC:<40 s.	Temperature Ramp-up:1.2-2.5ºC/s.
	Solder temperature: 240ºC for 5 ± 1 s.	Max. wave temp.: 260ºC for 4s., (245ºC recommended)
		Time within +0º-10ºC of peak: 10s.
		Cooling rate: 5ºC/s.

Tapers

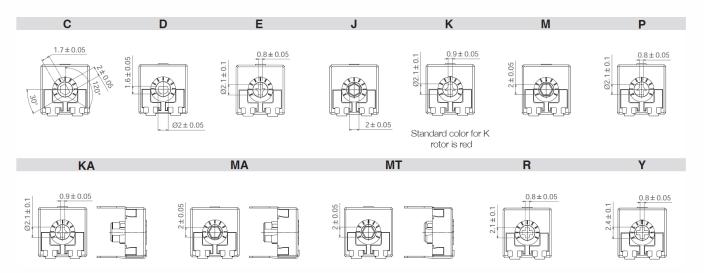


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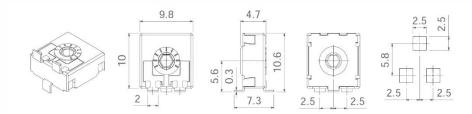
Mechanical Specifications Rotor

Rotors are drawn in their standard positioning, 50% of rotation. Alternative delivery positioning can be requested. Accessories in this catalogue are designed for the M rotor, unless otherwise stated.



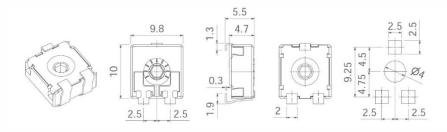
Surface Mount Gull wing Terminal

HSMD



Surface Mount J-bend Terminal

VSMD



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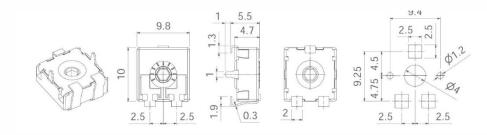
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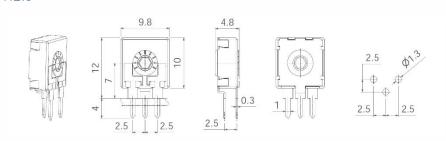
VSMD...CY

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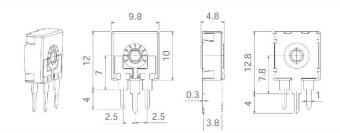
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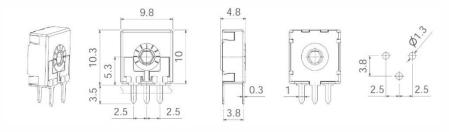
Through-Hole Terminal H2.5



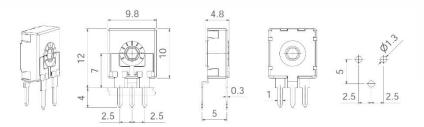
H3.8



HS3.8



H5

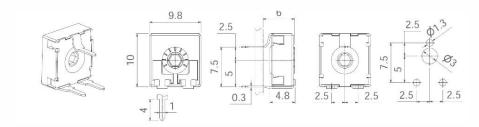


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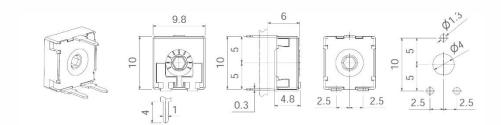
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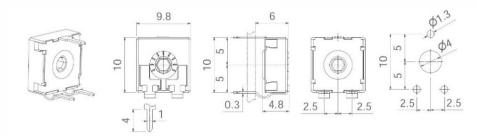




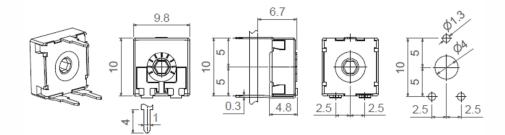
V10



VR10



VK10



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Shaft

Shafts are available in different colors and with self-extinguishable property, according to UL 94 V-0, under request. CTS can study special shaft designs.

Shafts can be sold separately or delivered already mounted on the potentiometer at CTS.

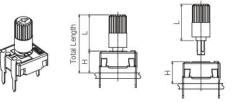
Unless otherwise stated, the arrow in the shafts is in line with the wiper and it points to 50% when assembled with M rotors.

When a shaft is mounted, the distance from the top of the potentiometer to the top of the shaft is marked with "L" in the table below, as shown in the drawings:

H potentiometer + shaft

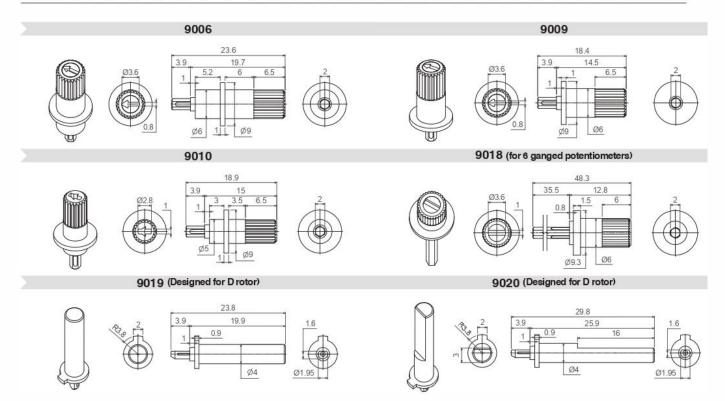
Total Length

V potentiometer + shaft



 Shaft
 9071
 9067
 9072
 9074
 9054
 9006
 9064
 9055
 9070
 9076
 9053
 9018
 9039
 9056
 9009
 9063
 9010
 9051
 9006
 9019
 9073
 9020
 9047

 L Dimension
 3.5
 5.5
 6.5
 9.3
 9.5
 10
 10
 10.8
 11.9
 12
 12.1
 12.8
 12.8
 12.8
 14.5
 14.5
 15
 15
 19.7
 19.9
 25.5
 25.9
 29.8



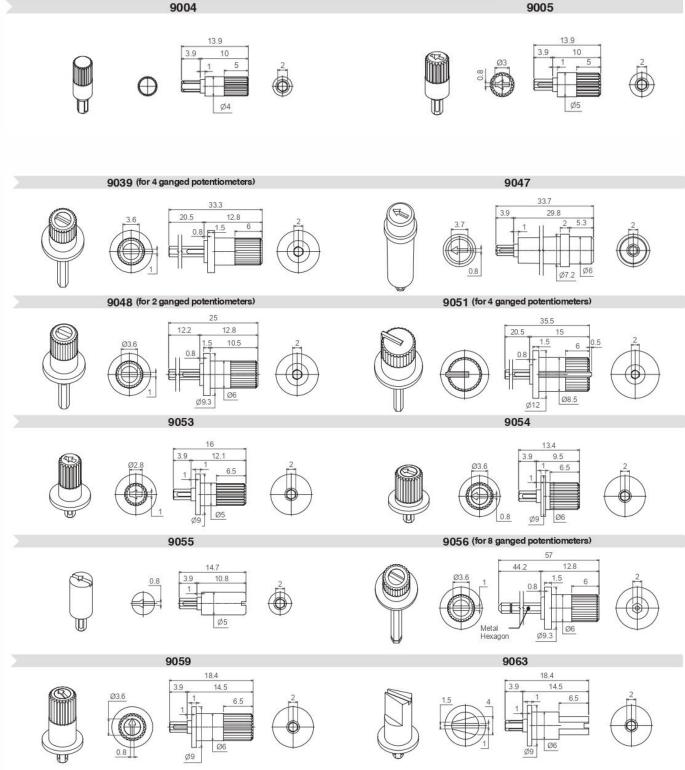
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The arrow is in line with the wiper when potentiometer has rotor J (with M rotor, there is a 30° difference).

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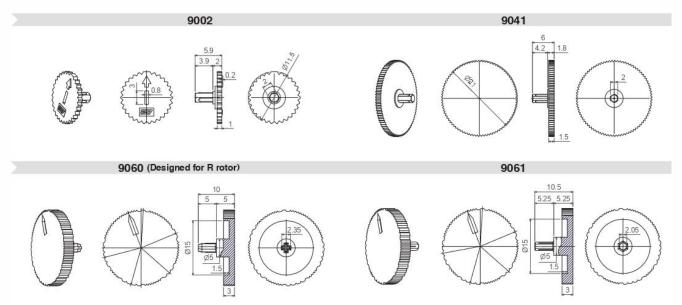
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Wheel

Thumbwheels are available in different colors and with self-extinguishable property according to UL 94 V-0, under request. Thumbwheels can be mounted on the potentiometers at CTS or sold separately. CTS can study special thumbwheel designs.



Packaging

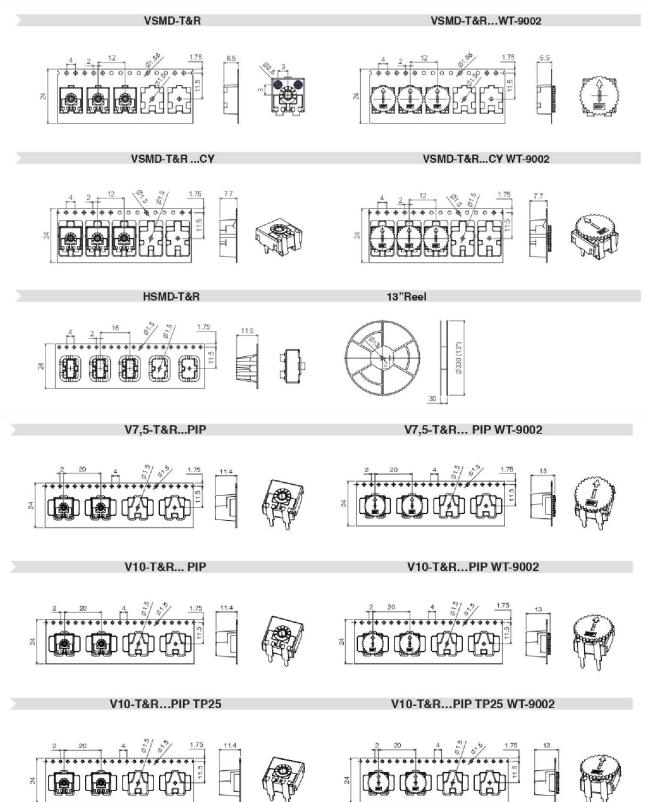
Bulk packaging:	With shaft or thumbwheel inserted	Pieces per box
	None, only potentiometers.	1000
2,5 - H3,8 - HS3,8 - H5	9002	750
HSMD - V7,5 - V10 VK10 - VR10 - VSMD	9004, 9005, 9006, 9009, 9010,9018, 9039, 9041, 9047, 9048,9051, 9053, 9055, 9056,9059, 9060, 9061, 9063, 9064,9067, 9070.	450
	9054	500
Tape & Reel packaging: With thumbwheel inserted?		13" Reel (Standard), with 24mm width tape
	None, only potentiometers.	900 pcs per reel, 12mm step between cavities.
VSMD	9002	700 pcs per reel, 12mm step between cavities.
VSMDCY	None, only potentiometers.	750 pcs per reel, 12 mm step between cavities
	9002	To be determined
HSMD		350 pcs per reel, 16 mm step between cavities
H2,5PIP TP25 - H5PIP TP25 - HS3,8 PIP	None, only potentiometers —	250
V7,5PIP - V10PIP - V10PIP TP25 - VR10PIP	or 9002.	250

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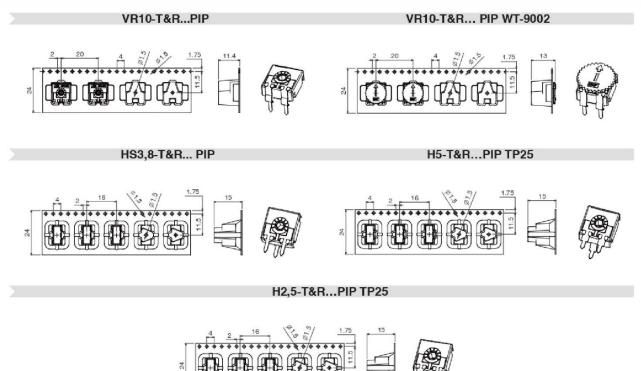




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