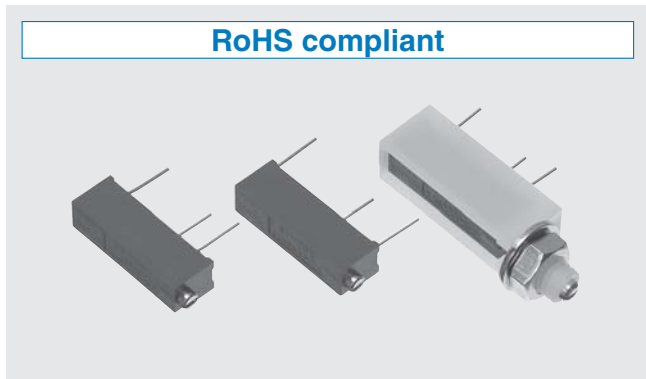


# 15 TURNS CERMET TRIMMERS

# CT-20

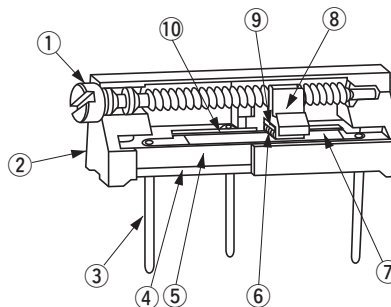
RoHS compliant



## FEATURES

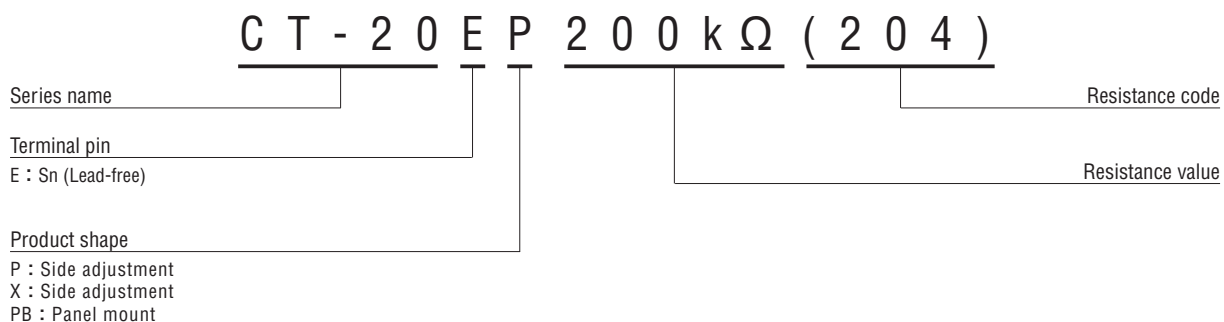
- RoHS compliant
- General use type
- Wide resistance range from 10  $\Omega$  to 5 M  $\Omega$

## INTERNAL STRUCTURE



Part name	Material	Flammability
① Shaft	Brass, Nickel-plated	—
② Housing	Polybutyleneterephthalate	UL94V-0
③ Terminal pin	Copper, Tin-plated	—
④ Adhesive	Epoxy	UL94V-0
⑤ Base element	Ceramic	—
⑥ Wiper	Multi metal alloy	
⑦ Resistive element	RuO <sub>2</sub> cermet	UL94HB
⑧ Slider block	Polybutyleneterephthalate	
⑨ Rubber cushion	Silicone rubber	—
⑩ Electrode	Ag-Pd cermet	

## PART NUMBER DESIGNATION



※ Please refer to the LIST OF PART NUMBERS when placing orders.

## LIST OF PART NUMBERS

Adjustment position	Shape of terminal (Top view)	Form of packaging	Pieces in package
		Plastic bag	
Side adjustment (↑ Adjustment direction)		CT-20EP	50 pcs./pack
		CT-20EX	
		CT-20EPB	25 pcs./pack

## ELECTRICAL CHARACTERISTICS

Nominal resistance range	10 Ω ~ 5 M Ω
Resistance tolerance	± 10 %
Power ratings	0.5 W (70 °C) 0 W (120 °C)
Resistance law	(B) Linear law
Maximum input voltage	DC300 V or power rating, whichever is smaller
Maximum wiper current	100 mA or power rating, whichever is smaller
Effective electrical turn	12 turns
End resistance	1 % or 2 Ω , whichever is greater
C.R.V.	1 % or 3 Ω , whichever is greater
Operating temp. range	— 55 ~ 120 °C
Temp. coefficient	10 Ω , 20 Ω , 5 M Ω : ± 250 10 <sup>-6</sup> /°C maximum 50 Ω ~ 2 M Ω : ± 100 10 <sup>-6</sup> /°C maximum
Insulation resistance	1000 M Ω minimum (DC500 V)
Dielectric strength	AC600 V, 60 s
Net weight	Approx. 1.08 g (CT-20EP, EX) Approx. 3.7 g (CT-20EPB)

## <Nominal resistance values>

⤴ 10 Ω	⤴ 20 Ω	50 Ω	100 Ω	200 Ω	500 Ω	1 k Ω	2 k Ω	5 k Ω
10 k Ω	20 k Ω	50 k Ω	100 k Ω	200 k Ω	500 k Ω	1 M Ω	2 M Ω	⤴ 5 M Ω

Fig. 1

- ※ The above part numbers are all available with the respective combination of <Nominal resistance values> (Fig. 1).
- ※ Verify the above part numbers when placing orders.

**The products indicated by ⤴ mark are manufactured upon receipt of order basis.**

## MECHANICAL CHARACTERISTICS

Mechanical turn	15 turns
Operating torque	35 mN·m {357 gf·cm} maximum
Mechanical stop	Clutch action
Rotational life	200 cycles 10 Ω ~ 200 Ω [ Δ R/R ≤ ± (0.5 Ω + 3 %) ] 500 Ω ~ 5 M Ω [ Δ R/R ≤ ± (0.5 Ω + 2 %) ]
Terminal strength	9 N {917 gf} minimum (Tensile strength)
Thrust to rotor	10 N {1.02 kgf} minimum
Solderability	245 ± 3 °C, 2 ~ 3 s

{ } : Reference only

## ENVIRONMENTAL CHARACTERISTICS

Test item	Test conditions	Specifications
Thermal shock	— 65 ~ 125 °C (0.5 h), 5 cycles	[ Δ R/R ≤ 1 % ] [ S.S. ≤ 1 % ]
Humidity	— 10 ~ 65 °C (80 ~ 98 %), 10 cycles, 240 h	[ Δ R/R ≤ 1 % ]
Shock	981 m/s <sup>2</sup> , 6 ms 6 directions for 3 times each	[ Δ R/R ≤ 1 % ] [ S.S. ≤ 1 % ]
Vibration	(Amplitude) 1.52 mm or (Acceleration) 196 m/s <sup>2</sup> , 10 ~ 2000 Hz, 3 directions, 12 times each	
Load life	70 °C, 0.5 W, 1000 h	[ Δ R/R ≤ 2 % ] [ S.S. ≤ 1 % ]
Low temp. operation	— 55 °C, 2 h	[ Δ R/R ≤ 1 % ] [ S.S. ≤ 2 % ]
High temp. exposure	120 °C, 250 h	[ Δ R/R ≤ 2 % ] [ S.S. ≤ 2 % ]
Immersion seal	85 °C, 60 s	No leaks (No continuous bubbles)
Soldering heat	Flow 260 ± 3 °C, 5 ~ 6 s, two times maximum Manual soldering 380 ± 10 °C, 3 ~ 4 s	[ Δ R/R ≤ 1 % ]

Δ R/R : Change in total resistance  
S.S. : Setting stability

# CT-20

## CERMET TRIMMERS

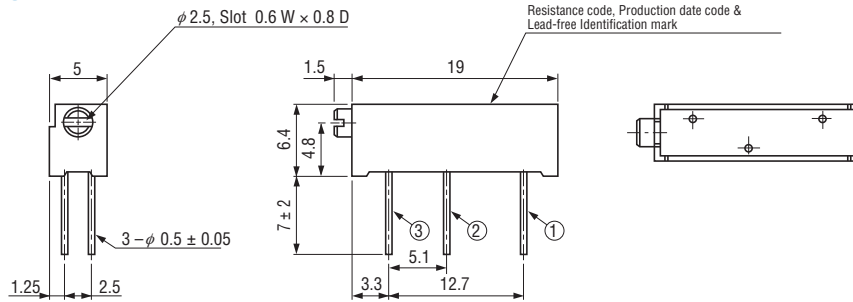
### MAXIMUM INPUT RATINGS

Nominal resistance values ( $\Omega$ )	Resistance code	Maximum input voltage (V)	Maximum wiper current (mA)
<ul style="list-style-type: none"> <li>➔ 10</li> <li>➔ 20</li> <li>50</li> <li>100</li> <li>200</li> <li>500</li> </ul>	<ul style="list-style-type: none"> <li>100</li> <li>200</li> <li>500</li> <li>101</li> <li>201</li> <li>501</li> </ul>	<ul style="list-style-type: none"> <li>1.00</li> <li>2.00</li> <li>5.00</li> <li>7.07</li> <li>10.0</li> <li>15.8</li> </ul>	<ul style="list-style-type: none"> <li>100</li> <li>100</li> <li>100</li> <li>70.7</li> <li>50.0</li> <li>31.6</li> </ul>
<ul style="list-style-type: none"> <li>1 k</li> <li>2 k</li> <li>5 k</li> <li>10 k</li> <li>20 k</li> <li>50 k</li> </ul>	<ul style="list-style-type: none"> <li>102</li> <li>202</li> <li>502</li> <li>103</li> <li>203</li> <li>503</li> </ul>	<ul style="list-style-type: none"> <li>22.4</li> <li>31.6</li> <li>50.0</li> <li>70.7</li> <li>100</li> <li>158</li> </ul>	<ul style="list-style-type: none"> <li>22.4</li> <li>15.8</li> <li>10.0</li> <li>7.07</li> <li>5.00</li> <li>3.16</li> </ul>
<ul style="list-style-type: none"> <li>100 k</li> <li>200 k</li> <li>500 k</li> <li>1 M</li> <li>2 M</li> <li>➔ 5 M</li> </ul>	<ul style="list-style-type: none"> <li>104</li> <li>204</li> <li>504</li> <li>105</li> <li>205</li> <li>505</li> </ul>	<ul style="list-style-type: none"> <li>224</li> <li>300</li> <li>300</li> <li>300</li> <li>300</li> <li>300</li> </ul>	<ul style="list-style-type: none"> <li>2.24</li> <li>1.50</li> <li>0.60</li> <li>0.30</li> <li>0.15</li> <li>0.06</li> </ul>

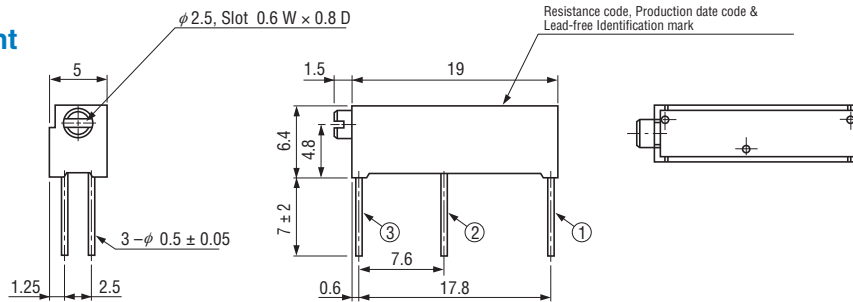
The products indicated by ➔ mark are manufactured upon receipt of order basis.

### OUTLINE DIMENSIONS

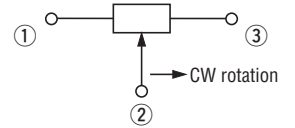
#### CT-20EP Side adjustment



#### CT-20EX Side adjustment

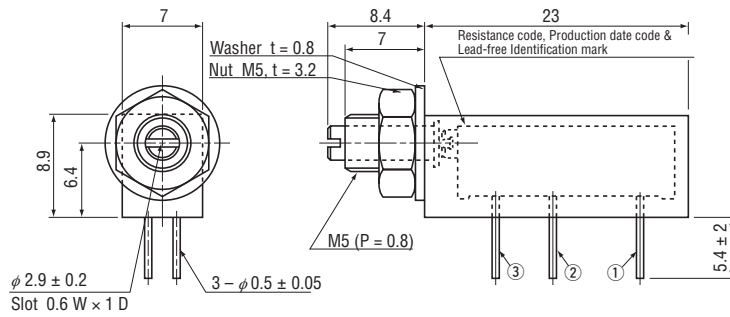


Unless otherwise specified, tolerance:  $\pm 0.3$  (Unit: mm)

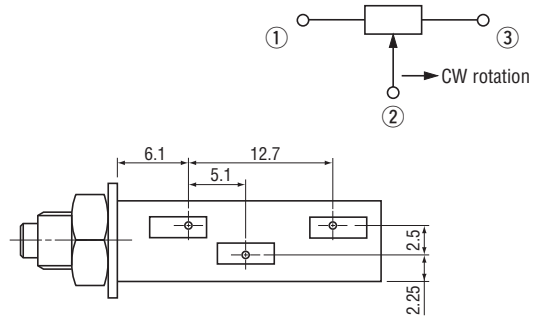


## OUTLINE DIMENSIONS

### CT-20EPB



Unless otherwise specified, tolerance:  $\pm 0.3$  (Unit: mm)



## PACKAGING SPECIFICATIONS

### <Bulk pack specifications>

- Unit of bulk in a plastic bag is 50 pcs. (CT-20EPB is 25 pcs.) per pack.
- Boxing of bulk in a plastic bag is performed with 100 pcs. (CT-20EPB is 50 pcs.) per box.

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[R16148-1A-2-B220K](#) [R16148-1A-2-B22K](#)