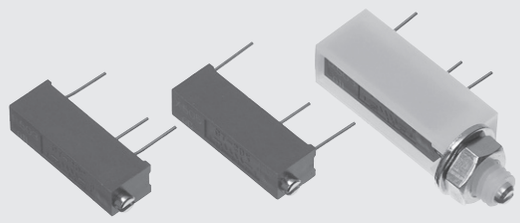
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15 TURNS CERMET TRIMMERS CT-20

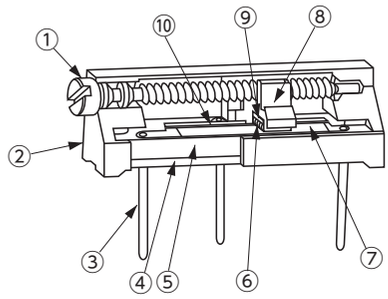
RoHS compliant



FEATURES

- RoHS compliant
- General use type
- Wide resistance range from 10 Ω to 5 MΩ
- Resin material is UL Recognized 94V-0

INTERNAL STRUCTURE



	Part name	Material
①	Shaft	Brass, Nickel-plated
②	Housing	Polybutyleneterephthalate
③	Terminal pin	Copper, Tin-plated
④	Adhesive	Epoxy
⑤	Base element	Ceramic
⑥	Wiper	Multi metal alloy
⑦	Resistive element	RuO_2 cermet
⑧	Slider block	Polybutyleneterephthalate
⑨	Rubber cushion	Silicone rubber
⑩	Electrode	Ag-Pd cermet

PART NUMBER DESIGNATION

C T - 2 0 E P 2 0 0 k Ω (2 0 4)

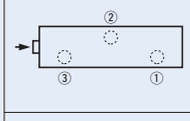
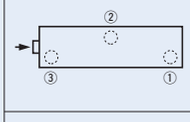
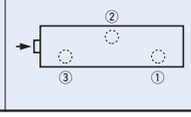
- Series name
- Terminal pin
  - E : Sn (Lead-free)
- Product shape
  - P : Side adjustment
  - X : Side adjustment
  - PB : Panel mount
- Resistance value
- Resistance code

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

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CT-20
CERMET TRIMMERS

LIST OF PART NUMBERS

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

ELECTRICAL CHARACTERISTICS

Nominal resistance range	10 Ω ~ 5 MΩ
Resistance tolerance	± 10 %
Power ratings	0.5 W (70 °C) 0 W (120 °C)
Resistance law	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 MΩ : ± 250 10^{-6}/°C maximum 50 Ω ~ 2 MΩ : ± 100 10^{-6}/°C maximum
Insulation resistance	1000 MΩ 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 kΩ	2 kΩ	5 kΩ
10 kΩ	20 kΩ	50 kΩ	100 kΩ	200 kΩ	500 kΩ	1 MΩ	2 MΩ	⊖5 MΩ

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 [ΔR/R ≦ ± (0.5 Ω +3 %)] 500 Ω ~ 5 MΩ [ΔR/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	[ΔR/R ≦ 1 %] [S.S. ≦ 1 %]
Humidity	−10 ~ 65 °C (80 ~ 98 %), 10 cycles, 240 h	[ΔR/R ≦ 1 %]
Shock	981 m/s², 6 ms 6 directions for 3 times each	[ΔR/R ≦ 1 %] [S.S. ≦ 1 %]
Vibration	(Amplitude) 1.52 mm or (Acceleration) 196 m/s², 10 ~ 2000 Hz, 3 directions, 12 times each	
Load life	70 °C, 0.5 W, 1000 h	[ΔR/R ≦ 2 %] [S.S. ≦ 1 %]
Low temp. operation	−55 °C, 2 h	[ΔR/R ≦ 1 %] [S.S. ≦ 2 %]
High temp. exposure	120 °C, 250 h	[ΔR/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	[ΔR/R ≦ 1 %]

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

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CERMET TRIMMERS

MAXIMUM INPUT RATINGS

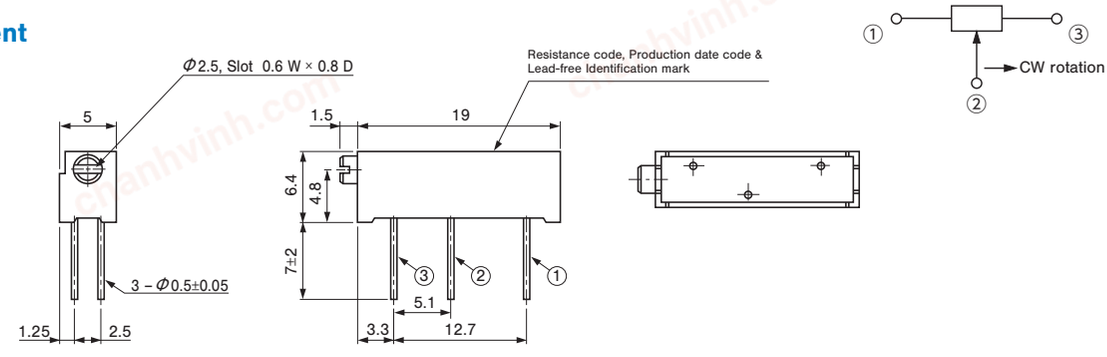
Nominal resistance values (Ω)	Resistance code	Maximum input voltage (V)	Maximum wiper current (mA)
⊖ 10	100	1.00	100
⊖ 20	200	2.00	100
50	500	5.00	100
100	101	7.07	70.7
200	201	10.0	50.0
500	501	15.8	31.6
1 k	102	22.4	22.4
2 k	202	31.6	15.8
5 k	502	50.0	10.0
10 k	103	70.7	7.07
20 k	203	100	5.00
50 k	503	158	3.16
100 k	104	224	2.24
200 k	204	300	1.50
500 k	504	300	0.60
1 M	105	300	0.30
2 M	205	300	0.15
⊖ 5 M	505	300	0.06

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

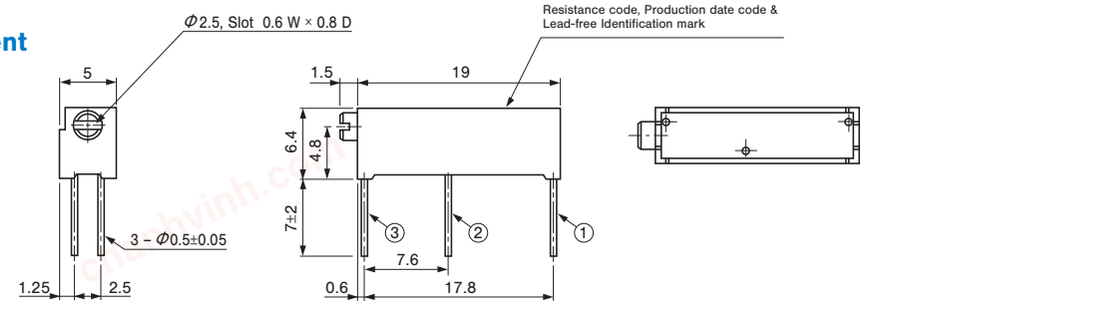
OUTLINE DIMENSIONS

Unless otherwise specified, tolerance: ± 0.3 (Unit: mm)

CT-20EP
Side adjustment



CT-20EX
Side adjustment



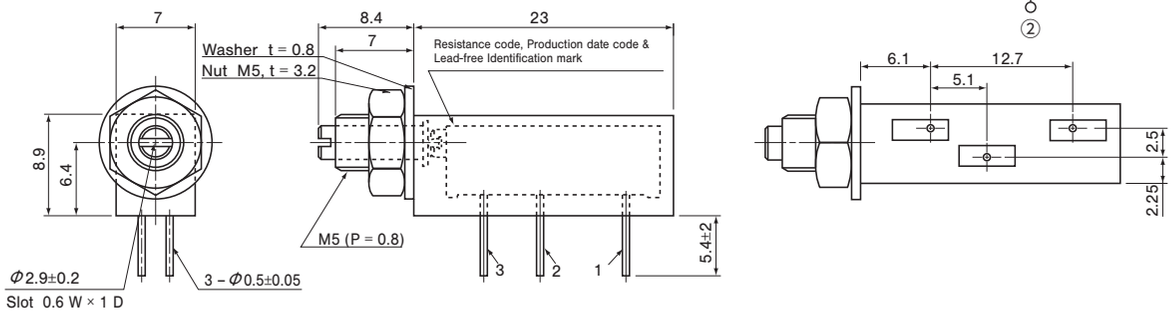
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CT-20
CERMET TRIMMERS

■ OUTLINE DIMENSIONS

Unless otherwise specified, tolerance: ± 0.3 (Unit: mm)

● CT-20EPB



■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.