



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from Europe, America and south Asia, supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts, Customers Priority, Honest Operation, and Considerate Service", our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip, ALPS, ROHM, Xilinx, Pulse, ON, Everlight and Freescale. Main products comprise IC, Modules, Potentiometer, IC Socket, Relay, Connector. Our parts cover such applications as commercial, industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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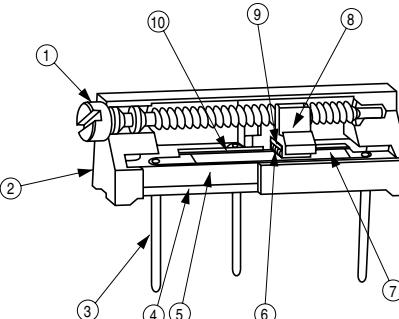
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COPAL ELECTRONICS**15 TURNS****CERMET TRIMMERS****CT-20**CERMET
TRIMMERS

■ FEATURES

- 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	PBT (Polybutyleneterephthalate)	UL-94V-0
③ Terminal pin	Copper, Solder-plated	—
④ Adhesive	Epoxy	UL-94V-0
⑤ Base element	Ceramic	—
⑥ Wiper	Multi metal alloy	
⑦ Resistive element	RuO ₂ cermet	UL-94HB
⑧ Slider block	PBT (Polybutyleneterephthalate)	
⑨ Rubber cushion	Silicone rubber	
⑩ Electrode	Ag-Pd cermet	—

CFCs, Halon, Carbon tetrachloride and designated bromic flame retardant PBBOs and PBBs are not used in our products.

■ PART NUMBER DESIGNATION

C T - 2 0 P 2 0 0 k Ω (2 0 4)

Series name

Resistance code

Product shape

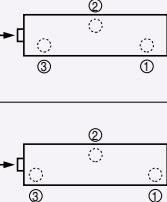
Resistance value

P : Side adjustment

X : Side adjustment

* 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
		Bulk packaging	
Side adjustment (↑ Adjustment direction)		CT-20P	50 pcs./pack
		CT-20X	

<Nominal resistance values>

10 Ω	20 Ω	25 Ω	50 Ω	100 Ω	200 Ω	250 Ω	500 Ω	1 k Ω	2 k Ω	5 k Ω
10 k Ω	20 k Ω	25 k Ω	50 k Ω	100 k Ω	200 k Ω	250 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.

④ : Semi-standard

■ ELECTRICAL CHARACTERISTICS

Nominal resistance range	10 Ω ~ 5 M Ω
Total resistance tolerance	$\pm 10\%$
Power ratings	0.5 W (70 °C) 0 W (125 °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 ~ +125 °C
Temp. coefficient	10 Ω , 20 Ω , 5 M Ω ± 250 ppm/°C maximum 50 Ω ~ 2 M Ω ± 100 ppm/°C maximum
Insulation resistance	1000 M Ω minimum (DC500 V)
Dielectric strength	AC600 V, 60 s
Net weight	Approx. 1.08 g

■ 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 [$\Delta R/R \leq \pm (0.5 \Omega + 3\%)$] 500 Ω ~ 5 M Ω [$\Delta R/R \leq \pm (0.5 \Omega + 2\%)$]
Terminal strength	9 N {917 gf} minimum (Tensile strength)
Thrust to rotor	10 N {1.02 kgf} minimum
Solderability	235 °C, 2 s

{ } : Reference only

■ ENVIRONMENTAL CHARACTERISTICS

Test item	Test conditions	Specifications
Thermal shock	-65 ~ +125 °C (0.5 h), 5 cycles	[$\Delta R/R \leq 1\%$] [S.S. $\leq 1\%$]
Humidity	-10 ~ +65 °C (80 ~ 98 %RH), 10 cycles, 240 h	[$\Delta R/R \leq 1\%$]
Shock	981 m/s ² , 6 ms 6 directions for 3 times each	[$\Delta R/R \leq 1\%$] [S.S. $\leq 1\%$]
Vibration	Amplitude of 1.52 mm or Acceleration of 196 m/s ² , 10-2000 Hz, 3 directions, 12 times each	
Load life	70 °C, 0.5 W, 1000 h	[$\Delta R/R \leq 2\%$] [S.S. $\leq 1\%$]
Low temp. operation	-55 °C, 2 h	[$\Delta R/R \leq 1\%$] [S.S. $\leq 2\%$]
High temp. exposure	125 °C, 250 h	[$\Delta R/R \leq 2\%$] [S.S. $\leq 2\%$]
Immersion seal	85 °C, 60 s	No leaks (No continuous bubbles)
Soldering heat	350 °C, 3 s	[$\Delta R/R \leq 1\%$]

$\Delta R/R$: Change in total resistance

S.S. : Setting stability

CT-20

CERMET TRIMMERS

■ MAXIMUM INPUT RATINGS

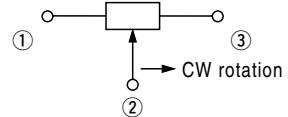
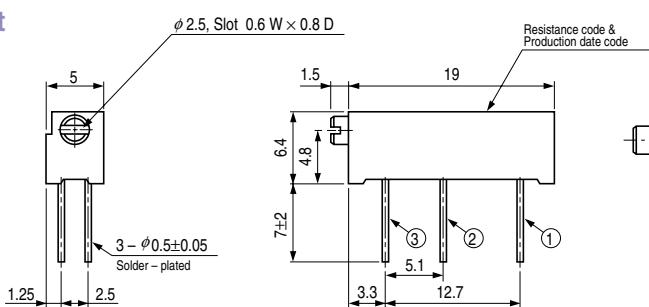
Nominal resistance values (Ω)	Resistance code	Maximum input voltage (V)	Maximum wiper current (mA)
④ 10 ④ 20 50 100 200 500	100	1.00	100
	200	2.00	100
	500	5.00	100
	101	7.07	70.7
	201	10.0	50.0
	501	15.8	31.6
1 k 2 k 5 k 10 k 20 k ④ 25 k 50 k	102	22.4	22.4
	202	31.6	15.8
	502	50.0	10.0
	103	70.7	7.07
	203	100	5.00
	253	112	4.48
100 k 200 k ④ 250 k 500 k 1 M 2 M ④ 5 M	503	158	3.16
	104	224	2.24
	204	300	1.50
	254	300	1.20
	504	300	0.60
	105	300	0.30
2 M ④ 5 M	205	300	0.15
	505	300	0.06

④ : Semi-standard

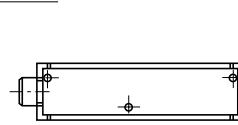
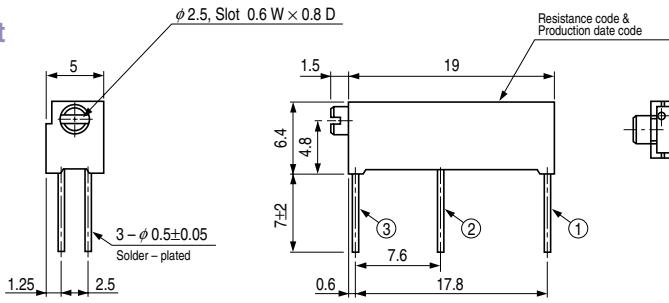
■ OUTLINE DIMENSIONS

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

● CT-20P Side adjustment



● CT-20X Side adjustment



■ PACKAGING SPECIFICATIONS

<Bulk packaging specifications>

- Unit of bulk in vinyl bag packaging is 50 pcs. per pack.
- Boxing of bulk in vinyl bags is performed with 100 pcs. per box.