

THIN FILM ARRAY CHIP RESISTOR

- CNP SERIES -

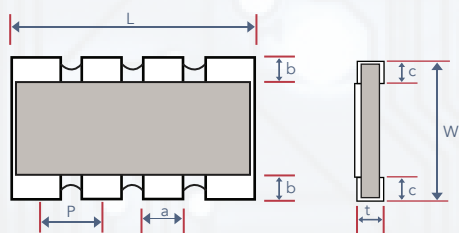
FEATURES

- Advanced thin film technology
- Very tight tolerance down to $\pm 0.1\%$
- Extremely low TCR down to $\pm 10\text{PPM}/^\circ\text{C}$
- TCR tracking down to $15\text{ppm}(\pm 7.5\text{ppm})$ and tolerance matching down to $0.1\%(\pm 0.05\%)$
- RoHS compliant component, compatible with lead (Pb)-free

APPLICATIONS

- Voltage divider
- Feedback circuits
- Signal conditioning

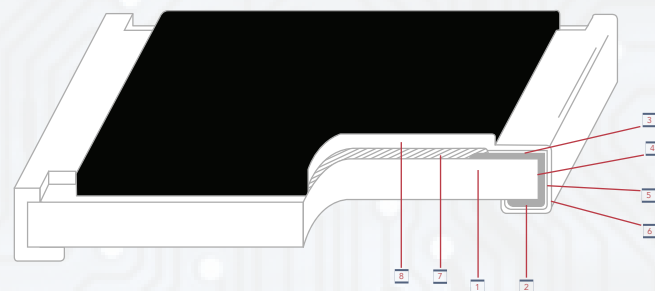
DIMENSIONS



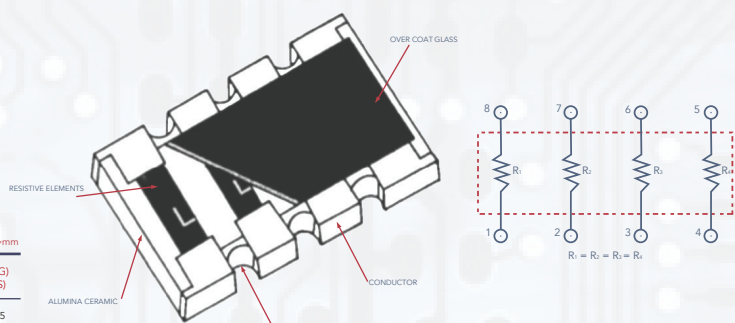
UNIT-mm

TYPE	NO. OF RESISTORS	L	W	H	A	B	C	Y	WEIGHT (G) (1000 PCS)
CNP34	4	3.20 ± 0.15	1.60 ± 0.15	0.55 ± 0.10	0.50 ± 0.15	0.80 ± 0.05	0.30 ± 0.15	0.30 ± 0.15	0.30 ± 0.15

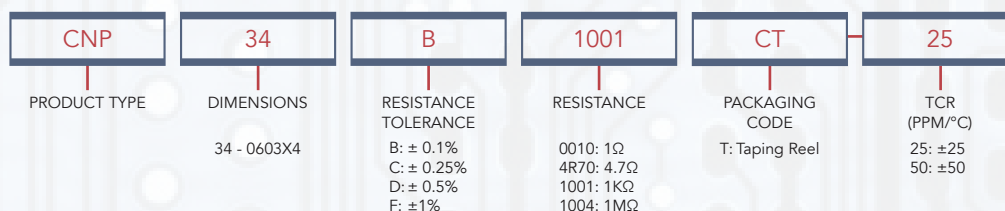
CONSTRUCTION



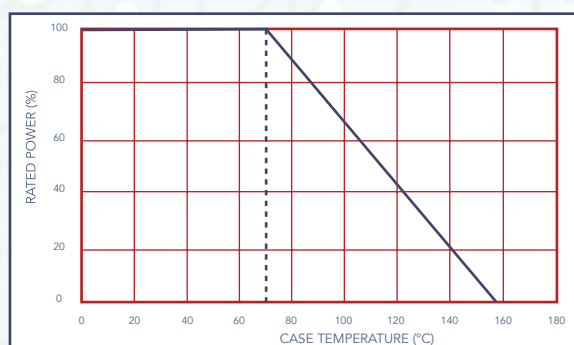
- 1 Alumina Substrate
- 2 Bottom Electrode (Ag)
- 3 Top Electrode (Ag-Pd)
- 4 Edge Electrode (NiCr)
- 5 Barrier Layer (Ni)
- 6 External Electrode (Sn)
- 7 Resistor Layer
- 8 Primary Overcoat (glass)



PART NUMBER GUIDE



DERATIVE CURVE



SPECIAL ELECTRICAL SPECIFICATIONS

TYPE / ITEM	POWER RATINGS AT 70°C	OPERATING TEMP. RANGE	MAX OPERATING VOLTAGE	MAX OVERLOAD VOLTAGE	NUMBER OF RESISTORS	RESISTANCE RANGE				TCR (PPM/°C)
						±0.1%	±0.25%	±0.5%	±1%	
CNP34	1/16W	-55 ~ +155°C	50V	100V	4	24.9Ω - 100KΩ				±25 ± 50

Operating Voltage = $\sqrt{(p \cdot R)}$ or Max. operating voltage listed above, whichever is lower.
 Overload Voltage = $2.5 \cdot \sqrt{(p \cdot R)}$ or Max. overload voltage listed above, whichever is lower.

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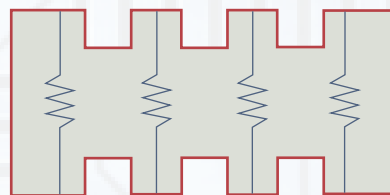
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ENVIRONMENTAL CHARACTERISTICS

ITEM	REQUIREMENT		TEST METHOD
Temperature Coefficient of Resistance (T.C.R.)	As Spec.		MIL-STD-202F Method 304 +25/-55/+25/+125/+25°C
Short Time Overload	$\Delta R \pm 0.1\%$		JIS-C-5201-1 5.5 RCWV*2.5 or Max. overload voltage for 5 seconds
Insulation Resistance	>1000MΩ		MIL-STD-202F Method 302 Apply 100VDC for 1 minute
Endurance	1000Hr: $\Delta R \pm 0.15\%$ 8000Hr: $\Delta R \pm 0.3\%$		MIL-STD-202F Method 108A 70±2°C, Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Damp Heat with Load	$\Delta R \pm 0.25\%$		MIL-STD-202F Method 103B 40±2°C, 90~95% R.H. Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Bending Strength	$\Delta R \pm 0.25\%$	$\Delta R \pm 0.5\%$	JIS-C-5201-1 6.1.4 Bending amplitude 3 mm for 10 seconds
Solderability	95% coverage min.		MIL-STD-202F Method 208H 245±5°C for 3 seconds
Resistance to Soldering Heat	$\Delta R \pm 0.25\%$	$\Delta R \pm 0.5\%$	MIL-STD-202F Method 210E 260±5°C for 10 seconds
Dielectric Withstanding Voltage	100V		MIL-STD-202F Method 301 Max. overload voltage for 1 minute
Thermal Shock	$\Delta R \pm 0.25\%$	$\Delta R \pm 0.5\%$	MIL-STD-202F Method 107G -55°C ~ 150°C, 100 cycles
Low Temperature Operation	$\Delta R \pm 0.25\%$	$\Delta R \pm 0.5\%$	JIS-C-5201-1 7.1 1 hour, -65°C, followed by 45 minutes of RCWV

Storage Temperature: 25±3°; Humidity <80%RH

EQUIVALENT CIRCUIT DIAGRAM

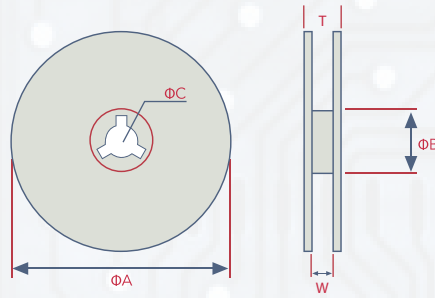


CNP



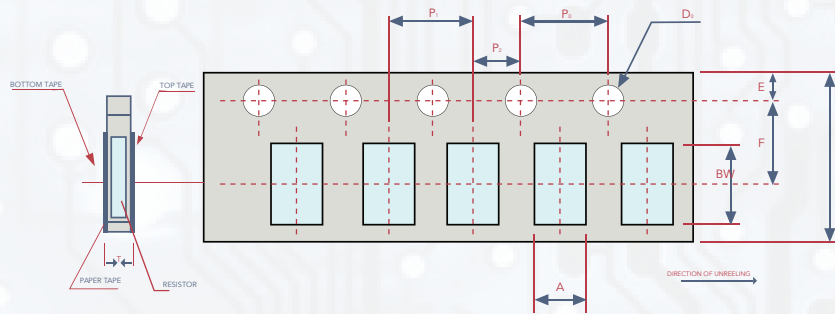
PACKAGING

- REEL SPECIFICATIONS & PACKAGING QUANTITY



UNIT=mm

TYPE	PACKAGING QUANTITY		TAPE WIDTH	REEL DIAMETER	øA	øB	øC	W	T
CNP34	Paper	5K	8mm	7 inch	178 ± 1.5	60 ^{+1/-0}	13.0 ± 0.2	9.0 ± 0.05	12.5 ± 0.5



UNIT=mm

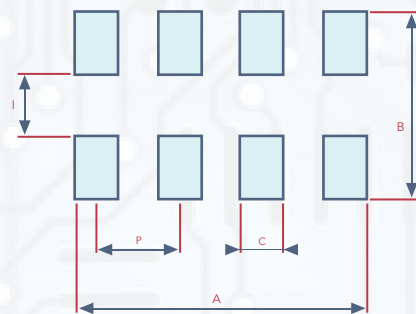
TYPE	A	B	W	E	F	P ₀	P ₁	P ₂	øD ₀	T
CNP34	1.95 ± 0.1	3.50 ± 0.1	8.0 ± 0.1	1.75 ± 0.1	3.5 ± 0.05	4.0 ± 0.05	4.0 ± 0.05	2.0 ± 0.05	1.5+0.1 ^{+0.1-0}	0.85 ± 0.1

MARKING

- Jumper for all Letter "0"
- CNP34: 4 digits marking

REISTANCE	100Ω	2.2KΩ	10KΩ	49.9KΩ	100KΩ
Marking	1000	2201	1002	4992	1003

RECOMENDED LAND PATTERN



TYPE	A	B	C	C1	I	I1	P	P1
CNP34	2.85	3.10	0.45	---	0.80	---	0.80	---