THIN FILM ARRAY CHIP RESISTOR
- CNP SERIES -

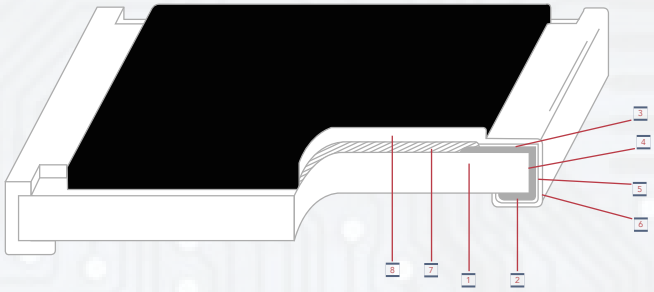
FEATURES

- Advanced thin film technology
- Very tight tolerance down to ±0.1%
- Extremely low TCR down to ±10PPM/°C
- TCR tracking down to 15ppm(±7.5ppm) and tolerance matching down to 0.1%(±0.05%)
- RoHS compliant component, compatible with lead (Pb)-free

APPLICATIONS

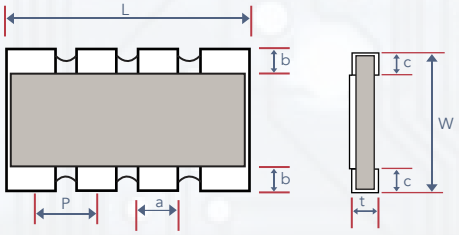
- Voltage divider
- Feedback circuits
- Signal conditioning

CONSTRUCTION



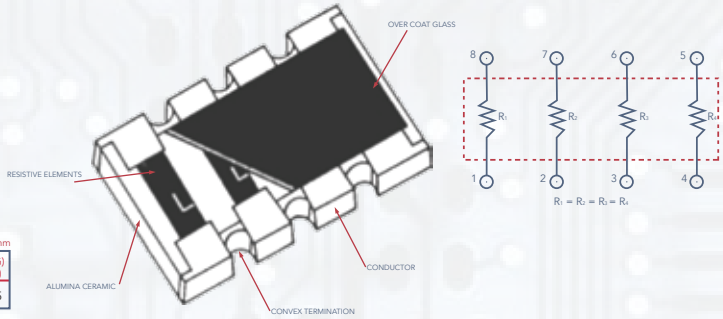
1	Alumina Substrate	5	Barrier Layer (Ni)
2	Bottom Electrode (Ag)	6	External Electrode (Sn)
3	Top Elctrode (Ag-Pd)	7	Resistor Layer
4	Edge Electrode (NiCr)	8	Primary Overcoat (glass)

DIMENSIONS



UNIT=mm

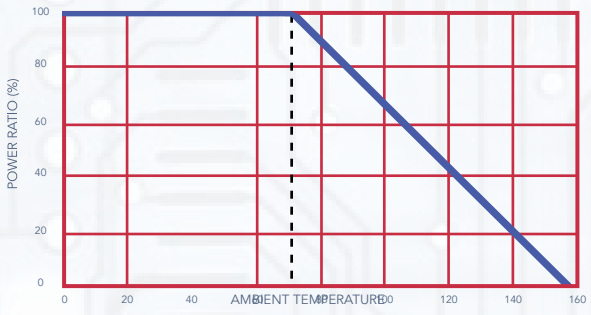
TYPE	NO. OF RESISTORS	L	W	H	A	B	C	Y	WEIGHT (G) (1000 PCS)
CNP34	4	3.20±0.15	1.60±0.15	0.55±0.10	0.50±0.15	0.80±0.05	0.30±0.15	0.30±0.15	0.30±0.15



PART NUMBER GUIDE

CNP	34	B	1001	CT	—	25
PRODUCT TYPE	DIMENSIONS	RESISTANCE TOLERANCE	RESISTANCE	PACKAGING CODE		TCR (PPM/°C)
	34 - 0603X4	B: ± 0.1% C: ± 0.25% D: ± 0.5% F: ±1%	0010: 1Ω 4R70: 4.7Ω 1001: 1KΩ 1004: 1MΩ	T: Taping Reel		25: ±25 50: ±50

DERATIVE CURVE



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SPECIAL ELECTRICAL SPECIFICATIONS

TYPE/ ITEM	POWER RATING 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%	
CNP 34	1/16W	-55 ~ +155°C	50V	100V	4	24.9Ω~100KΩ				±25 ±50

Operating Voltage = √(p*R) or Max. operating voltage listed above, whichever is lower.
Overload Voltage = 2.5*√(P*R) or Max overload voltage listed above, whichever is lower.

SPECIAL SPECIFICATIONS

TYPE/ ITEM	POWER RATING 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%	
CNP 34	1/16W	-55 ~ +155°C	50V	100V	4	24.9Ω~100KΩ				±10 ±15

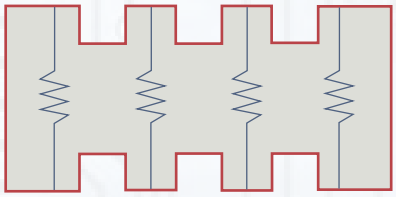
Operating Voltage = √(p*R) or Max. operating voltage listed above, whichever is lower.
Overload Voltage = 2.5*√(P*R) or Max overload voltage listed above, whichever is lower.

ENVIRONMENTAL CHARACTERISTICS

ITEM	REQUIREMENT		TEST METHODS
Temperature Coefficient of Resistance (T.C.R.)	As Spec.		MIL-STD-202F Method 304 +25/-55/+25/+125/+25°C
Short Time Overload	ΔR±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 100V$_{DC}$ for 1 minute
Endurance	1000Hr: ΔR±0.15% 8000Hr: ΔR±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	ΔR±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	ΔR±0.25%	ΔR±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	ΔR±0.25%	ΔR±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	ΔR±0.25%	ΔR±0.5%	MIL-STD-202F Method 107G -55°C ~150°C, 100 cycles
Low Temperature Operation	ΔR±0.25%	ΔR±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

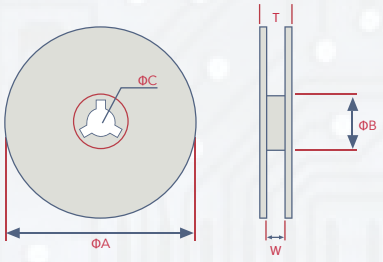


CNP

RoHS

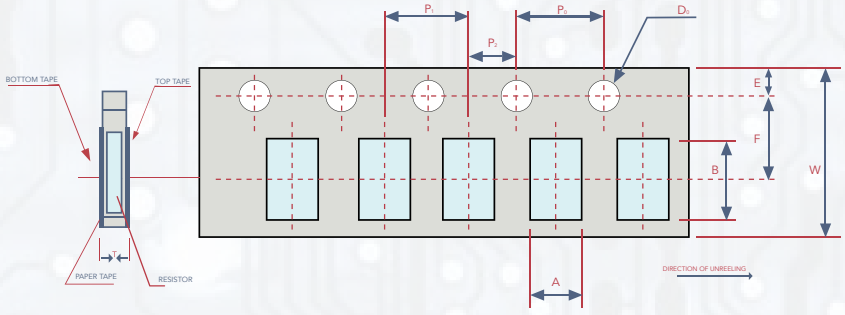
PACKAGING

REEL SPECIFICATIONS & PACKAGING QUANTITY



UNIT=mm

TYPE	PACKAGING QUANTITY		TAPE WIDTH	REEL DIAMETER	ΦA	ΦB	ΦC	W	T
CNP 34	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	ΦD_0	T
CNP 34	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	$1.5^{+0.1}_{-0}$	0.85±0.1

MARKING

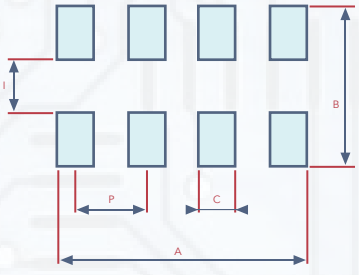
Jumper for all: Letter "0"

CNP34: 4 digits marking

Example:

RESISTANCE	100Ω	2.2KΩ	10KΩ	49.9KΩ	100KΩ
marking	1000	2201	1002	4992	1003

RECOMEND LAND PATTERN



UNIT=mm

TYPE	A	B	C	C1	I	I1	P	P1
CNP 34	2.85	3.10	0.45	---	0.80	---	0.80	---