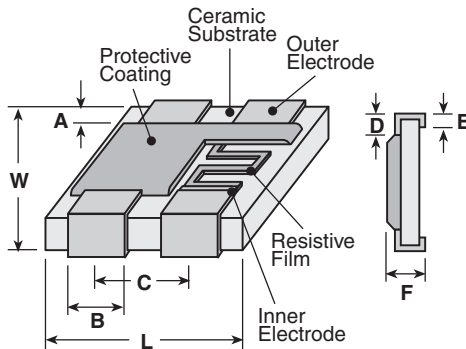


features

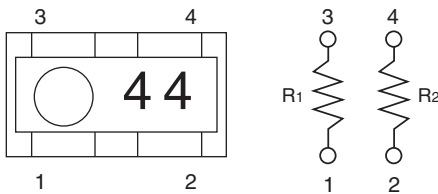
- Metal film chip network resistors
- Excellent in relative T.C.R. and relative accuracy
- Pair resistors for high precision OP-amplifiers
- As custom products, any pairs between 1k Ω and 100k Ω are available on request
- Marking: Green body color
- Products with lead-free terminations meet EU RoHS and China RoHS requirements

dimensions and construction



Size Code	Dimensions inches (mm)							
	A	B	C	D	E	F	L	W
CNN	.016 \pm .012 (0.4 \pm 0.3)	.028 \pm .006 (0.7 \pm 0.15)	.050 (1.27)	.016 \pm .012 (0.4 \pm 0.3)	.012 \pm .008 (0.3 \pm 0.2)	.020 \pm .004 (0.5 \pm 0.1)	.10 \pm .008 (2.54 \pm 0.2)	.079 \pm .008 (2.0 \pm 0.2)

circuit schematic



	Resistance					
R1	1k Ω	1k Ω	1k Ω	10k Ω	10k Ω	100k Ω
R2	1k Ω	10k Ω	100k Ω	10k Ω	100k Ω	100k Ω

CNN: Custom products of any pairs between 1k Ω and 100k Ω are available on request

	Marking					
R1*	3	3	3	4	4	5
R2**	3	4	5	4	5	5

* First marking number

** Second marking number

ordering information

New Part #	CNN	2A	2	T	TE	103/103	B	A
Type	CNN	Style	Number of Elements	Termination Material	Packaging	Nominal Resistance	Resistance Tolerance	Resistance Ratio
			2	T: Sn (Other termination styles may be available, please contact factory for options)	TE: 4 mm pitch embossed plastic	2 significant figures + multiplier	B: \pm 0.1% C: \pm 0.25%	A: 0.05% B: 0.1%

For further information on packaging, please refer to Appendix A.

Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.

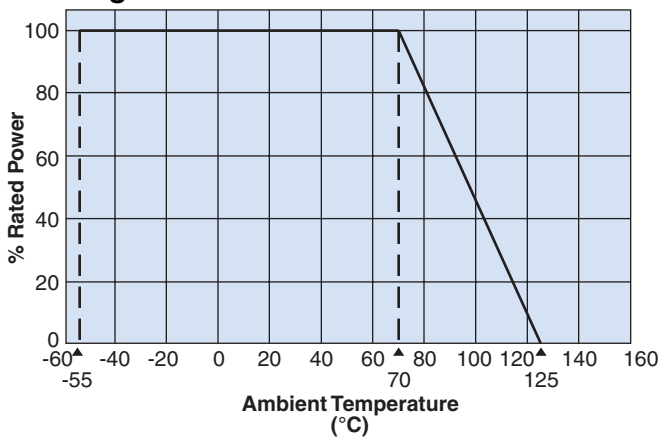
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applications and ratings

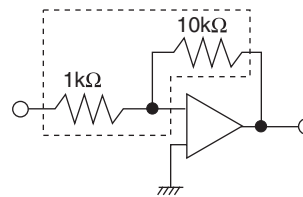
Part Designation	Power Rating w/Element	Resistance (Ω)	Resistance Tolerance		T.C.R. (ppm/ $^{\circ}$ C)		Maximum Working Voltage	Maximum Overload Voltage	Rated Ambient Temperature	Operating Temperature Range
			Absolute	Relative	Absolute	Relative				
CNN	0.05	1K, 10k, 100k	B: $\pm 0.1\%$ C: $\pm 0.25\%$	A: $\pm 0.05\%$ B: $\pm 0.1\%$	± 25	5	50V	100V	+70 $^{\circ}$ C	-55 $^{\circ}$ C to +125 $^{\circ}$ C

environmental applications

Derating Curve



Application Example



Performance Characteristics

Parameter	Requirement $\Delta R \pm(\%+0.05\Omega)$		Test Method
	Limit	Typical	
Resistance	Within specified tolerance	—	25 $^{\circ}$ C
T.C.R.	Within specified T.C.R.	—	+25 $^{\circ}$ C/-55 $^{\circ}$ C, +25 $^{\circ}$ C/+125 $^{\circ}$ C
Overload (Short time)	$\pm 0.1\%$	$\pm 0.01\%$	Rated voltage x 2.5 or Max. overload volume, whichever is less, for 5 seconds
Resistance to Soldering Heat	$\pm 0.1\%$	$\pm 0.02\%$	260 $^{\circ}$ C $\pm 5^{\circ}$ C, 10 seconds ± 1 second
Rapid Change of Temperature	$\pm 0.25\%$	$\pm 0.01\%$	-55 $^{\circ}$ C (30 minutes), +125 $^{\circ}$ C (30 minutes), 5 cycles
Moisture Resistance	$\pm 0.25\%$	$\pm 0.03\%$	40 $^{\circ}$ C $\pm 2^{\circ}$ C, 90 - 95% RH, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
Endurance at 70 $^{\circ}$ C	$\pm 0.25\%$	$\pm 0.03\%$	70 $^{\circ}$ C $\pm 2^{\circ}$ C, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
High Temperature Exposure	$\pm 0.25\%$	$\pm 0.02\%$	+125 $^{\circ}$ C, 100 hours