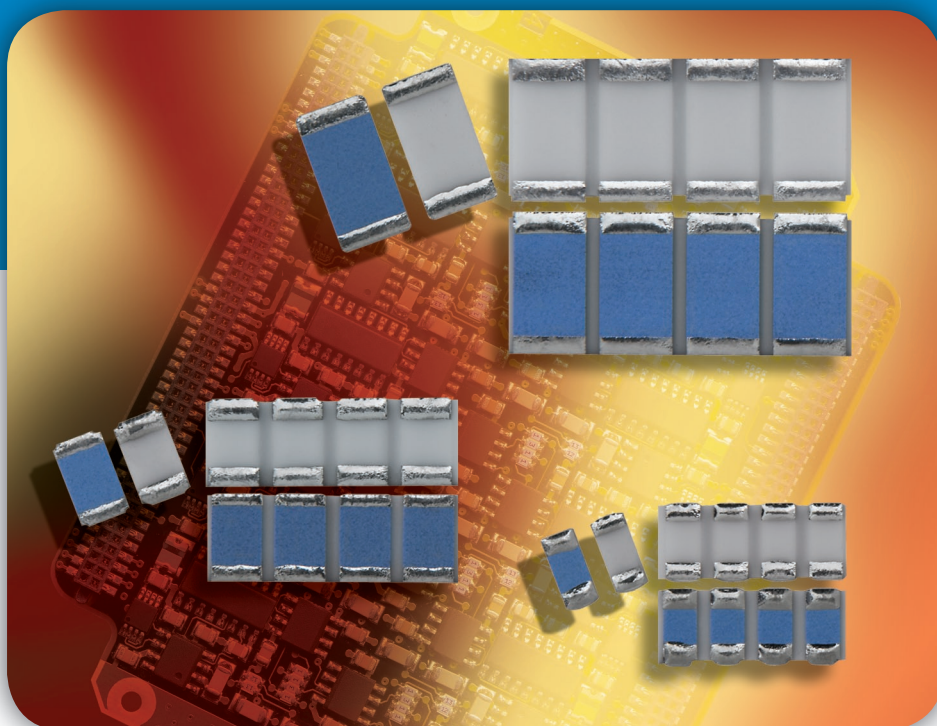




RESISTIVE PRODUCTS – Model PRA

PRODUCT SHEET



High-Precision Resistor Arrays

FEATURES

- Unique ultra-stable resistive layer
- Outstanding contacts between resistive and conductive layers
- Special patterning and laser trimming
- Registered to ESCC - EPPL
- Less than 0.03% combined relative error. Within a set of resistors, combined error is the sum of:
 - the initial ratio tolerancing at room temperature
 - the reversible drift in the range (- 40 °C to + 125 °C)
 - the load life drift after 2000 hours at 70 °C under Pn

APPLICATIONS

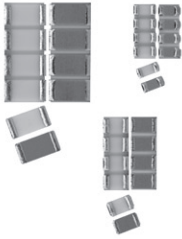
- Applications requiring precision sets of resistor elements
- Instrumentation
- Calibration
- Data conversion



PRA

Vishay Thin Film

High Precision Resistor Arrays



FEATURES

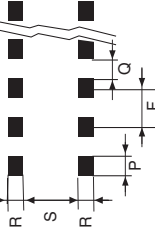
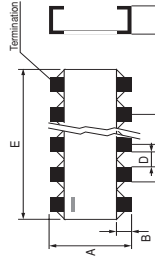
- Very short deliveries even on specials
- High stability passivated nichrome resistive layer
- Tight T.C.R. (10ppm/°C) and T.C.R. tracking (to 1ppm/°C)
- Very low noise and voltage coefficient
- Ratio tolerance to 0.01%
- Pre-tinned terminations over nickel barrier

PRA arrays can be used in most applications requiring a matched pair (or set) of resistor elements. The networks provide 1ppm/°C T.C.R. tracking, a ratio tolerance as tight as 0.01% and outstanding stability. They are available in 1 mm, 1.35mm and 1.82mm pitch.

DIMENSIONS

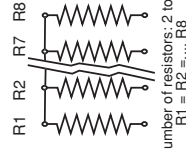
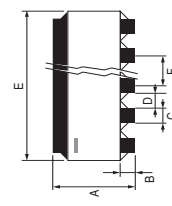
I : Independent resistors

Electrical Diagram



Number of resistors: 2 to 8
R1 = R2 = ... R8

C : One common point N resistors



Number of resistors: 2 to 8
R1 = R2 = ... R8

Dim.	PRA 100	PRA 135	PRA 182
	mm	mm	mm
A	1.6 ^{+0.2} _{-0.1}	63	1.85 ^{+0.2} _{-0.1}
B	0.4 ^{+0.2} _{-0.15}	16	0.4 ^{+0.2} _{-0.15}
C	0.65 ^{+0.15} _{-0.15}	25.5	1.05 ^{+0.15} _{-0.15}
D	0.25	10	0.25
E*	E = (N x F) ± 0.2mm		
F	1	40	1.35
G	0.38 ^{+0.2} _{-0.1}	15	0.38 ^{+0.2} _{-0.1}
P	0.7	27.5	1.05
Q	0.3	12	0.3
R	1	40	1
S	0.6	23.5	0.8

*E depends on number of resistors

ORDERING INFORMATION

PRA 100	MODEL	1	2	10KΩ	± 0.5 %	0.1 %	B
PRA 100		SCHEMATIC OF RESISTORS	NUMBER	OHMIC VALUE TOLERANCE	ABSOLUTE TOLERANCE	RATIO	TERMINATION
PRA 135		I : Independent resistors	2 to 8	For different ohmic values on a given network a specific part number is issued (e.g. CNWxxx)	± 0.1 % ± 0.5 %	0.1 % 0.05 % 0.01 %	B : tinned over nickel barrier
PRA 182		C : Common point resistors					

ELECTRICAL SPECIFICATIONS

Resistance Range : PRA 100.....100Ω to 200KΩ
PRA 135.....100Ω to 300KΩ
PRA 182.....100Ω to 1MΩ

Tolerances : Absolute...± 0.5% to ± 0.1 %
Ratio...0.1 % - 0.05% - 0.02% - 0.01%

Temperature Coefficient :

Absolute.....± 10ppm/°C (- 40 °C +125°C)
Ratio.....2ppm/°C (1ppm/°C on request)

Power Rating : PRA 100.....100mW/resistor at + 70°C
PRA 135.....100mW/resistor at + 70°C
PRA 182.....100mW/resistor at + 70°C

Operating Temperature Range : - 55°C to + 155°C

Noise : ≤ - 35 dB

Voltage Coefficient : ≤ 0.01ppm/V

Limiting Voltage : PRA 100.....35V
PRA 135.....75V
PRA 182.....100V

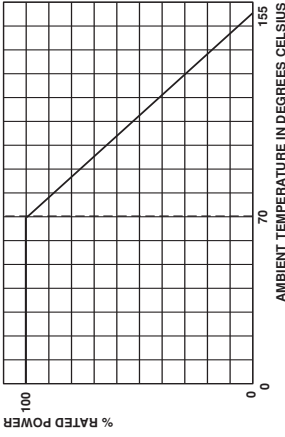
MECHANICAL SPECIFICATIONS

Substrate : Alumina

Technology : Thin film

Film : Nickel chromium with mineral passivation

Terminations : B Type : pre-tinned over nickel barrier



POWER RATING

SPECIAL FEATURES

Resistance values can be different on a given network (R max. /R min. as high as 300) with no tooling charge and short delivery.

Please, consult VISHAY SERNICE for ohmic values, tolerances and also temperature coefficient (e.g. ± 1ppm/°C) outside the standard range.

PACKAGING

Several types of packaging are available: wafer-pack and tape and reel

MARKING

On the primary package, printed information includes VISHAY S.A. trademark series and model, schematic number of resistors, ohmic value, absolute tolerance, ratio tolerance, type of termination: B tinned over nickel barrier.

PERFORMANCE		
TESTS	CONDITIONS	RATIO
Overload	2.5Un/2s	0.05% Rn + 0.05Ω
Climatic Sequences	- 55°C + 155°C/5 moisture cycles	0.1% Rn + 0.05Ω
Thermal Shock	- 55°C + 155°C/5 cycles 30'	0.05% Rn + 0.05Ω
Load Life	1000h/Pn at + 70°C	0.1% Rn + 0.05Ω
Resistance to Solder Heat	260°C/10s	0.05% Rn + 0.05Ω
Moisture Resistance	0.01Pn at + 40°C 93% RH	0.1% Rn + 0.05Ω
High Temperature Storage	1000h/no load at + 155°C	0.1% Rn + 0.05Ω

Rn : nominal resistance

Revision 02-Mar-04

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