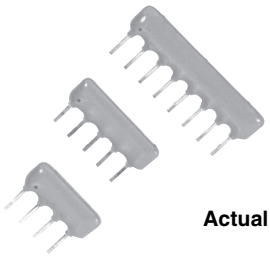
Conformal Coating, Single-In-Line Thin Film Resistor, Through Hole Networks



Actual Size

These networks are designed to be used in analog circuits in conjunction with operational amplifiers. In addition to the standard models, Vishay also offers semi-custom or custom networks.

FEATURES

- Standard design - no NRE
- Low TCR (10 ppm/°C)
- Excellent TCR tracking (< 2 ppm/°C)
- Low noise (< - 35 dB)
- High stability (0.005 % on ratio, after 2000 h at Pn at + 70 °C)
- Through hole SIL resistors networks
- Evolution to SMD version see PRA datasheet (www.vishay.com/doc?53033)
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

Pb-free

RoHS COMPLIANT

STANDARD ELECTRICAL SPECIFICATIONS

MODEL	RESISTANCE RANGE Ω	POWER RATING PER RESISTOR (1) W	POWER RATING PER PACKAGE W	ABSOLUTE TOLERANCE ± %	RATIO TOLERANCE (2) ± %	ABSOLUTE TCR (3) ± ppm/°C	RATIO TCR (4) ppm/°C
TAS (CNS)	1K to 9.9M	0.100	Varies with size	0.1	0.01, 0.02, 0.05	10, 15	2

Notes

(1) at + 70 °C

(2) ± 0.02 % or ± 0.01 % on request

(3) ± 10 ppm/°C at 0 °C to 70 °C, 15 ppm/°C at - 40 °C to 125 °C

(4) 1 ppm/°C on request

PERFORMANCES

TEST	SPECIFICATIONS	CONDITIONS
Stability (ΔR ratio)	0.005 %	2000 h at + 70 °C at Pn
Voltage coefficient	< 0.002 ppm/V	
Working voltage	100 V	
Noise	- 35 dB typical	
Thermal EMF	0.1 µV/°C	
Shelf life stability	50 ppm maximum	1 year

CLIMATIC SPECIFICATIONS

Operating temperature range	- 40 °C to + 125 °C
Storage temperature range	- 55 °C to + 125 °C

For technical questions, contact: sferthinfilm@vishay.com

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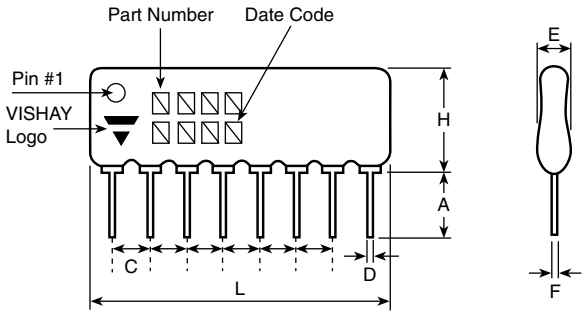
DIMENSIONS



Marking: The pin 1, series and model, Vishay trademark, manufacturing date (year, week)

DIMENSION	INCHES	MILLIMETERS
A	0.124	3.17 minimum
C	0.100	2.54
D	0.020	0.51
H	0.260	6.62 maximum
E	0.100	2.54 maximum
F	0.010	0.25

PIN COUNT	3	4	5	6	7	8	9	10
L max. Inches	0.320	0.420	0.520	0.620	0.720	0.820	0.920	1.020
Millimeters	8.14	10.68	13.23	15.78	18.32	20.87	23.40	25.95

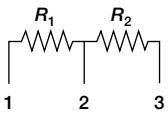
MECHANICAL SPECIFICATIONS	
Resistive element	Passivated nichrome
Substrate material	Alumina
Body	Epoxy-conformal coating
Terminals	Tin/silver on Cu alloy
Marking resistance to solvents	Laser marking

SCHEMATIC

TWO EQUAL RESISTORS

$R_1 = R_2$

SMD version: see PRA datasheet



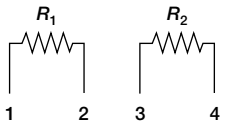
Actual size

ORDERING INFORMATION			
R_1 = 1 kΩ	TAS 209	50 kΩ	TAS 214
R_1 = 2 kΩ	TAS 210	100 kΩ	TAS 215
R_1 = 5 kΩ	TAS 211	200 kΩ	TAS 216
R_1 = 10 kΩ	TAS 212	500 kΩ	TAS 217
R_1 = 20 kΩ	TAS 213	1 MΩ	TAS 218

TWO EQUAL RESISTORS

$R_1 = R_2$

SMD version: see PRA datasheet



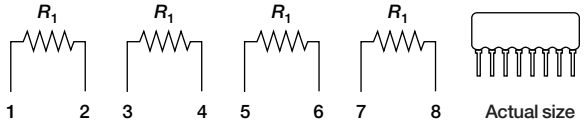
Actual size

ORDERING INFORMATION	
R_1 = 1 kΩ	TAS 365
R_1 = 10 kΩ	TAS 363
R_1 = 100 kΩ	TAS 348

FOUR EQUAL RESISTORS

R_1

SMD version: see PRA datasheet



Actual size

ORDERING INFORMATION	
R_1 = 1 kΩ	TAS 329
R_1 = 5 kΩ	TAS 1002
R_1 = 10 kΩ	TAS 158
R_1 = 100 kΩ	TAS 288

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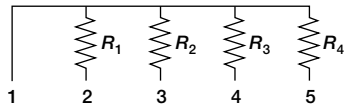
FOUR EQUAL RESISTORS, ONE COMMON

$R_1 = R_2 = R_3 = R_4$ SMD version: see PRA datasheet



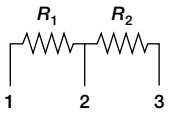

Actual size

ORDERING INFORMATION	
R_1 = 10 kΩ	TAS 366
R_1 = 100 kΩ	TAS 367

RATIO DIVIDER 10:1

$R_1 + R_2$ = 10 kΩ, 100 kΩ, 1 MΩ SMD version: see PRA datasheet

$$\frac{R_1 + R_2}{R_2} = 10$$




Actual size

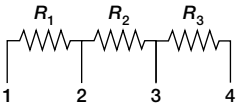
ORDERING INFORMATION		
$R_1 + R_2$ =	9 kΩ + 1 kΩ = 10 kΩ	TAS 280
$R_1 + R_2$ =	90 kΩ + 10 kΩ = 100 kΩ	TAS 193
$R_1 + R_2$ =	900 kΩ + 100 kΩ = 1 MΩ	TAS 281

RATIO DIVIDER 10:1, 100:1

$R_1 + R_2 + R_3$ = 100 kΩ and $R_2 + R_3$ = 10 kΩ SMD version: see PRA datasheet

$$\frac{R_1 + R_2 + R_3}{R_3} = 100$$

$$\frac{R_1 + R_2 + R_3}{R_2 + R_3} = 10$$



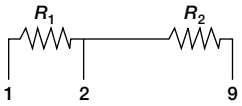

Actual size

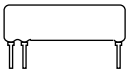
ORDERING INFORMATION		
$R_1 + R_2 + R_3$ = 100 kΩ	TAS 330	
	with R_1	= 90 kΩ
	R_2	= 9 kΩ
	R_3	= 1 kΩ

RATIO DIVIDER 100:1

$R_1 + R_2$ = 10 MΩ

$$\frac{R_1 + R_2}{R_1} = 100$$

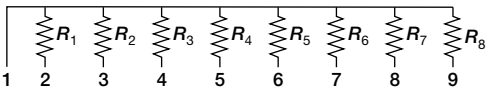


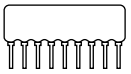

Actual size

ORDERING INFORMATION	
$R_1 + R_2$ = 10 MΩ	TAS 112
with R_1 =	100 kΩ
R_2 =	9.9 MΩ

EIGHT EQUAL RESISTORS, ONE COMMON

$R_1 = R_2 = R_3 = R_4 = R_5 = R_6 = R_7 = R_8$ SMD version: see PRA datasheet



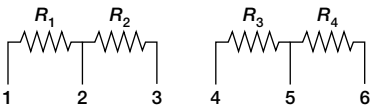

Actual size

ORDERING INFORMATION	
R_1 = 10 kΩ	TAS 368
R_1 = 100 kΩ	TAS 369

DIVIDER NETWORK 10:1

$$\frac{R_2}{R_1} = \frac{R_4}{R_3} = 10$$

SMD version: see PRA datasheet



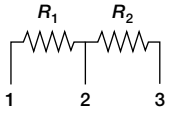

Actual size

ORDERING INFORMATION	
	TAS 220
with $R_1 = R_2$ =	10 kΩ
$R_2 = R_4$ =	100 kΩ

DIVIDER NETWORK 10:1

$$\frac{R_1}{R_2} = 10$$

SMD version: see PRA datasheet




Actual size

ORDERING INFORMATION	
R_1 = 100 kΩ, R_2 = 10 kΩ	TAS 282
R_1 = 1 MΩ, R_2 = 100 kΩ	TAS 283

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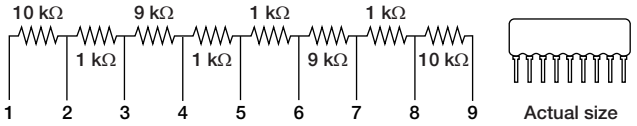
EIGHT RESISTORS NETWORK

SMD version: see PRA datasheet

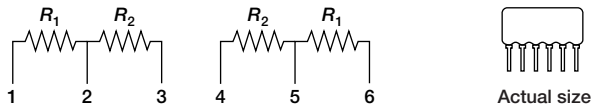


ORDERING INFORMATION
TAS 272

DIVIDER NETWORK 10:1

$\frac{R_1}{R_2} = 10$

SMD version: see PRA datasheet

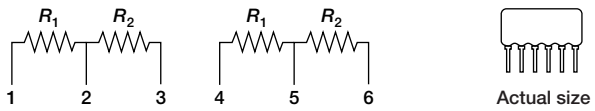


ORDERING INFORMATION	
R_1 = 10 kΩ, R_2 = 1 kΩ	TAS 328
R_1 = 100 kΩ, R_2 = 10 kΩ	TAS 284
R_1 = 1 MΩ, R_2 = 100 kΩ	TAS 285

DIVIDER NETWORK 1:1

$R_1 = R_2$

SMD version: see PRA datasheet



ORDERING INFORMATION	
R_1 = 5 kΩ	TAS 225
R_1 = 10 kΩ	TAS 286
R_1 = 100 kΩ	TAS 219
R_1 = 1 MΩ	TAS 287

GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: TAS214BW (preferred part number format)

T	A	S	2	1	4	B	W

GLOBAL MODEL	REFERENCE	ABS. TOLERANCE	RATIO TOLERANCE
TAS	(see list)	**B** = 0.1 %	**W** = 0.05 % **P** = 0.02 %

Custom Network: CNS 1128

CNS	1128
GLOBAL MODEL	REFERENCE

Note

- For custom specification a specific part number will be issued by Vishay Sfernice. E.g. CNS1128.

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