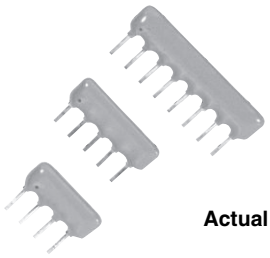
Conformal Coating, Single-In-Line Thin Film Resistor, Through Hole Networks



Actual Size

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

DESIGN SUPPORT TOOLS

click logo to get started

3D Models Available

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.

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

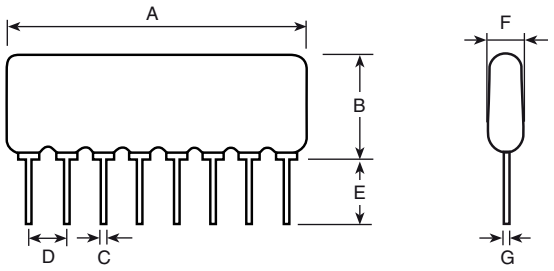
CLIMATIC SPECIFICATIONS

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

MECHANICAL SPECIFICATIONS

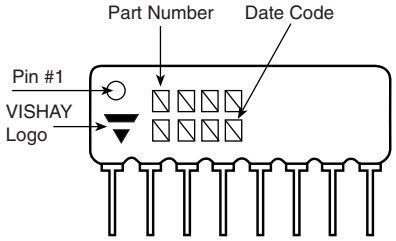
Resistive element	Passivated nichrome
Substrate material	Alumina
Body	Epoxy-conformal coating
Terminals	Tin / silver on Cu alloy
Marking resistance to solvents	Laser marking

DIMENSIONS



DIMENSION	INCHES	MILLIMETERS
A	(see table below)	(see table below)
B	0.261	6,62 max.
C	0.020	0.51
D	0.1	2.54
E	0.125	3.17 min.
F	0.100	2.54 max.
G	0.010	0.25

MARKING



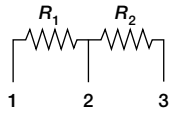
PIN COUNT		3	4	5	6	7	8	9	10
$A_{max.}$	inch	0.330	0.430	0.530	0.630	0.730	0.830	0.930	1.030
	mm	8.38	10.92	13.46	16	18.54	21.08	23.62	26.16

SCHEMATIC

TWO EQUAL RESISTORS

$R_1 = R_2$

SMD version: see PRA datasheet



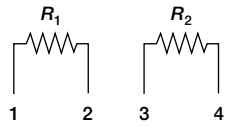
Actual size

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



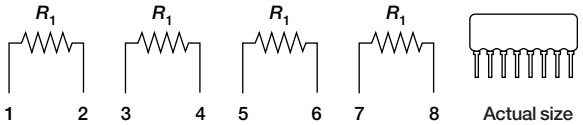
Actual size

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

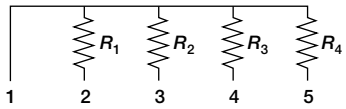


Actual size

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

FOUR EQUAL RESISTORS, ONE COMMON

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



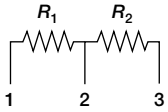

Actual size

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

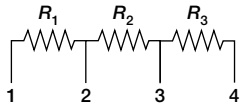
ORDERING INFORMATION		
$R_1 + R_2$ =	9 kΩ + 1 kΩ = 10 kΩ	TAS 280
$R_1 + R_2$ =	90 kΩ + 10 kΩ = 100 kΩ	TAS 193
$R_1 + R_2$ =	900 kΩ + 100 kΩ = 1 MΩ	TAS 281

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

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

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



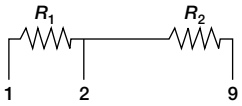

Actual size

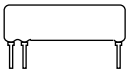
ORDERING INFORMATION		
$R_1 + R_2 + R_3$ = 100 kΩ	TAS 330	
	with R_1	= 90 kΩ
	R_2	= 9 kΩ
	R_3	= 1 kΩ

RATIO DIVIDER 100:1

$R_1 + R_2$ = 10 MΩ

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

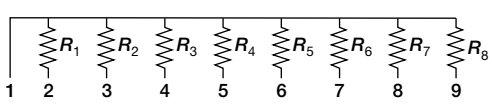


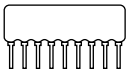

Actual size

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



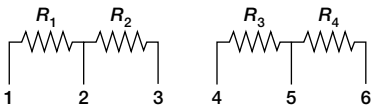

Actual size

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



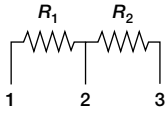

Actual size

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

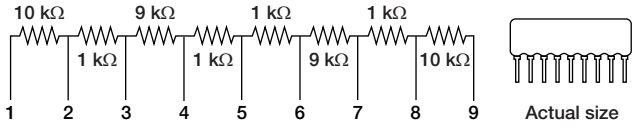



Actual size

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

EIGHT RESISTORS NETWORK

SMD version: see PRA datasheet

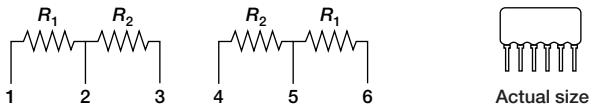


ORDERING INFORMATION
TAS 272

DIVIDER NETWORK 10:1

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

SMD version: see PRA datasheet

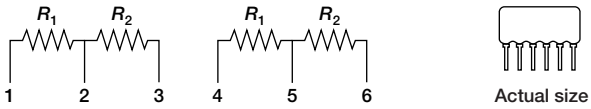


ORDERING INFORMATION	
R_1 = 10 kΩ, R_2 = 1 kΩ	TAS 328
R_1 = 100 kΩ, R_2 = 10 kΩ	TAS 284
R_1 = 1 MΩ, R_2 = 100 kΩ	TAS 285

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

Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Vishay”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.