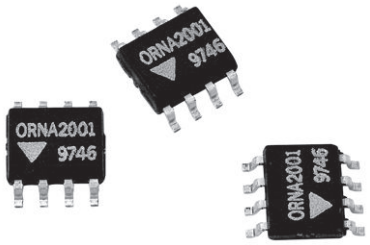
Molded, 50 mil Pitch, Dual-In-Line Thin Film Resistor, Surface-Mount Network



Actual Size

ORN series resistor networks feature 4 isolated resistors or 7 bussed resistors with standard 50 mil pitch lead spacing. The networks feature close TCR tracking and tight ratio tolerance and are ideally suited for unity gain operational amplifier circuitry. The standard resistance offering listed are available for immediate delivery.

FEATURES

- 0.068" (1.73 mm) maximum seated height
- Rugged molded case construction with no internal solder
- Low temperature coefficient (± 25 ppm/°C)
- JEDEC® MS-012 STD variation AA package
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free Available

RoHS* Available

HALOGEN FREE

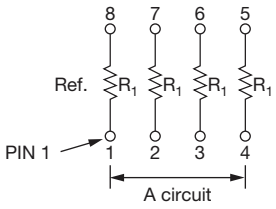
Note

* This datasheet provides information about parts that are RoHS-compliant and / or parts that are non RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details

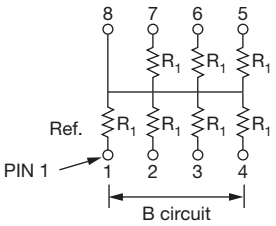
TYPICAL PERFORMANCE

	ABSOLUTE	TRACKING
TCR	25	5
	ABSOLUTE	RATIO
TOL.	0.1	0.05

SCHEMATIC



The A circuit provides a choice of 4 nominally equal resistors with each resistor isolated from all others and wired directly across.



The B circuit provides 7 nominally equal resistors, each connected between a common lead (8) and a discrete PC board pin.

STANDARD RESISTANCE OFFERING (R_1 =)	
49.9 Ω	10 kΩ
100 Ω	20 kΩ
500 Ω	50 kΩ
1 kΩ	100 kΩ
2 kΩ	200 kΩ
4.99 kΩ	500 kΩ
5 kΩ	

Note

- Consult factory for additional values and schematics

For technical questions, contact: thinfilm@vishay.com

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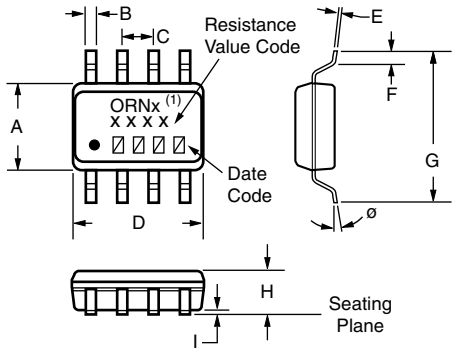
STANDARD ELECTRICAL SPECIFICATIONS		
TEST	**SPECIFICATIONS**	**CONDITIONS**
Material	Passivated nichrome	-
Pin/Lead Number	8	-
Resistance Range	33 Ω to 500 kΩ (isolated) per resistor 33 Ω to 250 kΩ (bussed) per resistor	-
Resistance for Jumper	≤ 50 mΩ	-
TCR: Absolute	± 25 ppm/°C	-55 °C to +125 °C
TCR: Tracking	± 5 ppm/°C	-55 °C to +125 °C
Tolerance: Absolute	± 0.05 % to ± 1.0 %	+25 °C
Tolerance: Ratio	± 0.01 % to ± 0.5 %	+25 °C
Power Rating: Resistor	100 mW	Maximum at +70 °C
Power Rating: Package	400 mW	Maximum at +70 °C
Stability: Absolute	ΔR ± 0.05 %	2000 h at +70 °C
Stability: Ratio	ΔR ± 0.015 %	2000 h at +70 °C
Voltage Coefficient	0.1 ppm/V (typical)	-
Working Voltage	100 V max. not to exceed $\sqrt{P \times R}$	-
Operating Temperature Range	-55 °C to +125 °C	-
Storage Temperature Range	-55 °C to +150 °C	-
Noise	< -30 dB	-
Thermal EMF	0.08 µV/°C	-
Shelf Life Stability: Absolute	ΔR ± 0.01 %	1 year at +25 °C
Shelf Life Stability: Ratio	ΔR ± 0.002 %	1 year at +25 °C

Note

- TCR and TCR tracking are not available for parts with zero ohm jumpers

DIMENSIONS AND IMPRINTING in inches and millimeters



DIMENSION	INCHES	MILLIMETERS
A	0.154 ± 0.003	3.90 ± 0.09
B	0.016 ± 0.002	0.4 ± 0.06
C	0.050	1.27
D	0.193 ± 0.004	4.90 ± 0.1
E	0.008 ± 0.001	0.20 ± 0.03
F	0.032 ± 0.016	0.81 ± 0.4
G	0.236 ± 0.008	6.00 ± 0.2
H	0.068 max.	1.73
I	0.007 ± 0.003	0.18 ± 0.07
Ø	2° to 6°	2° to 6°

Notes

- Marking - Vishay symbol, part number from ordering information

(1) A for isolated or B for bussed

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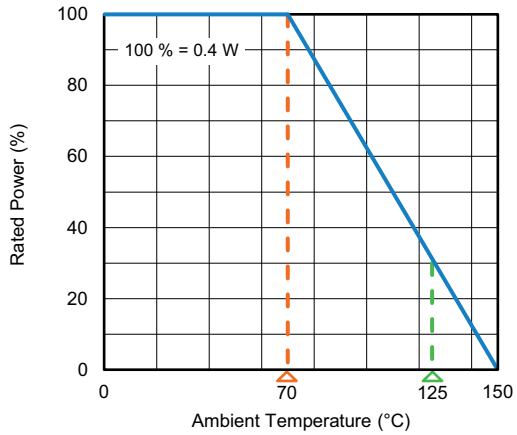
MECHANICAL SPECIFICATIONS

Resistive Element	Passivated nichrome
Substrate Material	Silicon
Body	Molded epoxy
Terminals	Copper alloy
Lead (Pb)-free Option	100 % matte tin
Tin Lead Option	Sn90
Tin Lead and Lead (Pb)-free Finish	Plated

DERATING CURVE



GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: ORNA1002AUF

O	R	N	A	1	0	0	2	A	U	F
O	R	N	T	B	1	0	0	3	Z	T	S
O	R	N	T	A	0	0	0	0	N	T	1

GLOBAL MODEL (3 or 4 digits)

ORN (Tin lead)

ORNT (Lead (Pb)-free) (e3)

SCHEMATIC

A = 4 isolated equal resistors
B = 7 bussed equal resistors

RESISTANCE

The first 3 digits are significant figures and the last digit specifies the number of zeros to follow. R designates the decimal point.

Example:
1002 = 10 kΩ
1003 = 100 kΩ
4991 = 4.99 kΩ
50R0 = 50 Ω
0000 = 4 isolated jumpers (4)

TOLERANCE AND RATIO TOLERANCE

Abs. Tol.	Ratio
A = ± 0.1 % (3)	± 0.05 %
B = ± 0.1 %	± 0.1 %
C = ± 0.25 %	± 0.1 %
D = ± 0.5 %	± 0.1 %
F = ± 1 %	± 0.5 %
Q = ± 0.05 % (1)	± 0.01 %
Z = ± 0.1 % (1)	± 0.025 %

N = for jumpers only

PACKAGING

TAPE AND REEL
T0 = 100 min., 100 mult.
T1 = 1000 min., 1000 mult. (2)
T3 = 300 min., 300 mult.
T5 = 500 min., 500 mult.
TF = full reel 3000
TS = 100 min., 1 mult.

UF = TUBED

Historical Part Number Example: ORNA1001F (for reference purposes only)

ORN	A	1001	F
SERIES	SCHEMATIC	RESISTANCE	TOLERANCE AND RATIO TOLERANCE

Notes

(1) Tol. available 1K and up
(2) Preferred packaging code
(3) Ratio tolerance available 250 Ω and up
(4) Jumpers only available in A schematic

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