

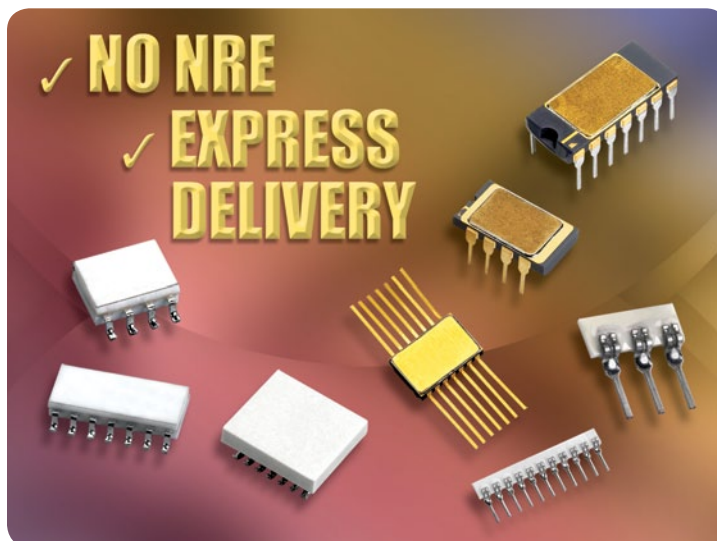


QUICK-NET® PROTOTYPES

Thin Film Precision Resistor Networks



No NRE, Express Delivery



INTRODUCTION

Vishay's Quick-Net® Precision Resistor Network Prototype Service Allows Designers to Specify Tight Ratio Tolerances of $\pm 0.01\%$, Absolute Tolerances of $\pm 0.1\%$, and TCR Tracking of $\pm 5 \text{ ppm}/^\circ\text{C}$

Service Features Two-Week Turnaround and No NRE Charges

Quick-Net®, the industry's prototyping service for precision resistor networks to provide designers and manufacturers with a two-week turnaround without non-recurring engineering (NRE) charges. Quick-Net dramatically shortens the process of bringing end products requiring precision analog circuitry to market, while allowing designers to specify improved ratio and TCR tracking specifications.

Precision resistor networks, which integrate a number of resistive components in a single package in various configurations, are an increasingly popular solution for saving space and reducing assembly costs for a wide range of analog applications requiring precision performance.

RESOURCES

- For technical questions contact thinfilm@vishay.com
- Sales Contacts: <http://www.vishay.com/doc?99914>

One of the World's Largest Manufacturers of
Discrete Semiconductors and Passive Components



While resistor network prototyping typically requires up to 10 weeks to produce a single sample, Quick-Net provides a two-week turnaround, with certain styles prototyped in just 72 hours, and no NRE charges.

To meet the requirements of their custom designs, an easy-to-complete fax form allows designers to specify the desired package format, schematic pin-out, and required electrical performance. Resistance ranges are package specific and typically range from 100 Ω to 100 kΩ for most formats, with values up to 1 MΩ available in single in-line formats. Available performance limits include ratio tolerances down to ± 0.01 % for values (over 1 kΩ), absolute tolerances of ± 0.1 %, TCR tracking of ± 5 ppm/°C at a temperature range of - 55 °C to + 125 °C, and a maximum wattage of 100 mW/element.

Quick-Net offers designers a broad choice of network standards and package types, including SIP, DIP, flatpack, and leadless chip carriers. The networks are available with either Tantalum Nitride or passivated nichrome resistor film.

Electrical	
Absolute Tolerance	1.0 %, 0.5 %, 0.10 %
Ratio Tolerance	0.10 % to 0.01 %* (Value Limited)
Absolute TCR	± 25 ppm/°C
TC Track	± 5 ppm/°C
Power	100 mW / Element

*0.01 % ratio tolerance for R values > 1000 ohms

Network Resistance Range Limits by Film Resistivity

Package Format	Single-In-Line 3 - 10 Pin				Dual-In-Line 8, 14, 16, 18, 20 Pin			Flat-Pack 14, 16 Lead		
Resistance Film (Ω per square)	50	125	250	125	50	125	250	50	125	250
# of R per Network	2 - 9				2- 10			2 - 12		
Network Resistance Range (Ω)	100 - 91.5 KΩ	200 - 210.5 KΩ	400 - 455 KΩ	455 - 1 MΩ **	200 - 68 KΩ	200 - 130 KΩ	400 - 290 KΩ	200 - 68 KΩ	200 - 130 KΩ	400 - 290 KΩ
Network Ratio Limit (± %)	0.01 *	0.025	0.03	0.025	0.01 *	0.01	0.02	0.01 *	0.02	0.05

*0.01 % ratio tolerance for R values > 1000 ohms

**Seated height 0.520"

Network resistance value is dictated by resistance film, available area, and geometry of the pattern. See network resistance range for limits on R values within a selected package.

Dimensions and Schematics Available

Single-In-Line 3 - 10 Pin	Dual-In-Line 8, 14, 16, 18, 20 Pin	Flat-Pack 14, 16 Lead
Daisy Chained, Isolated, Pin One Common, Combinations Available 	Open to all combinations	Open to all combinations
Single in Line - Conformal Coated 	Dual in Line - Chip and Wire 	Flat Packs - Chip and Wire 14 PIN 16 PIN

Single-In-Line 3 - 10 Pin	
Number of Pins	Length "L" Dimension
3	0.320
4	0.420
5	0.520
6	0.620
7	0.720
8	0.820
9	0.920
10	1.020

Dual-In-Line 8, 14, 16, 18, 20 Pin	
Number of Pins	Length "L" Dimension
8	0.528
14	0.710
16	0.880
20	1.010



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Design Guidelines



Resistors - Thin Film Precision Resistor Networks

	Network Resistance Range Limits by Film Resistivity								
	Leadless Chip Carrier 4, 16, 20, 24 Terminal			Surface Mount Gull Wing Gull Wing CSO (150 Mil SOIC) 6 - 20 Leads		Surface Mount J Lead J-Lead (220 Mil SOIC)			
Package Format									
Resistance Film (Ω per square)	50	125	250	50	125	50	125	250	
# of R per Network	2 - 10			2 - 10		2 - 10			
Network Resistance Range (Ω)	200 - 68 KΩ	200 - 130 KΩ	400 - 290 KΩ	1000 - 42 KΩ	300 - 105 KΩ	200 - 68 KΩ	200 - 130 KΩ	400 - 290 KΩ	
Network Ratio Limit (± %)	0.01 *	0.02	0.05	0.01 *	0.02	0.01 *	0.02	0.05	

*0.01 % ratio tolerance for R values > 1000 ohms

**Seated height 0.520"

Network resistance value is dictated by resistance film, available area, and geometry of the pattern. See network resistance range for limits on R values within a selected package.

Dimensions and Schematics Available

Leadless Chip Carrier 4, 16, 20, 24 Terminal	Surface Mount Gull Wing Gull Wing CSO (150 Mil SOIC) 6 - 20 Leads	Surface Mount J Lead J-Lead (220 Mil SOIC)
Isolated and Daisy Chained on Each Side, Customs	Isolated Straight Through or Daisy Chained/Isolated Each Side 	Open to all combinations
Leadless Chip Carrier - Chip and Wire 	Gull Wing CSO (150 Mil SOIC) 	J-Lead (220 Mil SOIC)

	Leadless Chip Carrier 4, 16, 20, 24 Terminal				
	A	B	C	D	E
16 Pin	0.050"	0.400"	0.300"	0.077"	0.025"
(mm)	1.27	7.62	7.62	1.96	0.635
20 Pin	0.050"	0.350"	0.350"	0.077"	0.025"
(mm)	1.27	8.89	8.89	1.96	0.635
24 Pin	0.050"	0.400"	0.400"	0.077"	0.025"
(mm)	1.27	10.16	10.16	1.96	0.635
	F	G	H	I	
16 Pin	0.050"	0.040"	0.020"	0.085"	
(mm)	1.27	1.02	0.508	2.16	
20 Pin	0.050"	0.040"	0.020"	0.085"	
(mm)	1.27	1.02	0.508	2.16	
24 Pin	0.050"	0.040"	0.020"	0.085"	
(mm)	1.27	1.02	0.508	2.16	

Dimension	Inches	Millimeters
A	0.050	1.27
B (Typ.)	0.015	0.38
C	0.017 - 0.005 + 0.010	0.432
D (Max.)	0.157	3.99
E	0.239	6.07
F (Min.)	0.005	0.13
G (Typ.)	0.006	0.15
H (Max)	0.070	1.72 MAX

LEADS	Dual-In-Line 8, 14, 16, 18, 20 Pin			
	L	H	T	W
8	0.250	0.180	0.245	0.350
10	0.300	0.180	0.245	0.350
14	0.400	0.180	0.245	0.350
16	0.450	0.180	0.245	0.350
18	0.500	0.180	0.245	0.350

Number of Pins	Length "L" ± 0.01	Millimeters
6	0.150	3.81
8	0.200	5.08
10	0.250	6.35
12	0.300	7.62
14	0.350	8.89
16	0.400	10.16
18	0.450	11.43
20	0.500	12.70

