Jeremy Webb's Website | Standard Resistor Values

Today is:

Standard 0.1%, 0.25%, 0.5% Resistors:

0.1%, 0.25%, 0.5% Standard Values

10.0	10.1	10.2	10.4	10.5	10.6	10.7	10.9	11.0	11.1	11.3	11.4
11.5	11.7	11.8	12.0	12.1	12.3	12.4	12.6	12.7	12.9	13.0	13.2
13.3	13.5	13.7	13.8	14.0	14.2	14.3	14.5	14.7	14.9	15.0	15.2
15.4	15.6	15.8	16.0	16.2	16.4	16.5	16.7	16.9	17.2	17.4	17.6
17.8	18.0	18.2	18.4	18.7	18.9	19.1	19.3	19.6	19.8	20.0	20.3
20.5	20.8	21.0	21.3	21.5	21.8	22.1	22.3	22.6	22.9	23.2	24.4
23.7	24.0	24.3	24.6	24.9	25.2	25.5	25.8	26.1	26.4	26.7	27.1
27.4	27.7	28.0	28.4	28.7	29.1	29.4	29.8	30.1	30.5	30.9	31.2
31.6	32.0	32.4	32.8	33.2	33.6	34.0	34.4	34.8	35.2	35.7	36.1
36.5	37.0	37.4	37.9	38.3	38.8	39.2	39.7	40.2	40.7	41.2	41.7
42.2	42.7	43.2	43.7	44.2	44.8	45.3	45.9	46.4	47.0	47.5	48.1
48.7	49.3	49.9	50.5	51.1	51.7	52.3	53.0	53.6	54.2	54.9	55.6
56.2	56.9	57.6	58.3	59.0	59.7	60.4	61.2	61.9	62.9	63.4	64.2
64.9	65.7	65.5	67.3	68.1	69.0	69.8	70.6	71.5	72.3	73.2	74.1
75.0	75.9	76.8	77.7	78.7	79.6	80.6	81.6	82.5	83.5	84.5	85.6
86.6	87.6	88.7	89.8	90.9	92.0	93.1	94.2	95.3	96.5	97.6	98.8

Standard 1% Resistors:

Example: Calculations indicate the need for a 355 kΩ resistor and a tolerance of 1% .
Look in the 1% table and select the 35.7 value (the nearest available standard value).
Multiply by 10 000 to convert to 357 kΩ.

1% Standard Values

Decade multiples are available from 10.0 Ω through 1.00 MΩ (also 1.10 MΩ, 1.20 MΩ, 1.30 MΩ, 1.50 MΩ, 1.60 MΩ, 1.80 MΩ, 2.00 MΩ and 2.20 MΩ)											
10.0	10.2	10.5	10.7	11.0	11.3	11.5	11.8	12.1	12.4	12.7	13.0
13.3	13.7	14.0	14.3	14.7	15.0	15.4	15.8	16.2	16.5	16.9	17.4
17.8	18.2	18.7	19.1	19.6	20.0	20.5	21.0	21.5	22.1	22.6	23.2
23.7	24.3	24.9	25.5	26.1	26.7	27.4	28.0	28.7	29.4	30.1	30.9
31.6	32.4	33.2	34.0	34.8	35.7	36.5	37.4	38.3	39.2	40.2	41.2
42.2	43.2	44.2	45.3	46.4	47.5	48.7	49.9	51.1	52.3	53.6	54.9
56.2	57.6	59.0	60.4	61.9	63.4	64.9	66.5	68.1	69.8	71.5	73.2
75.0	76.8	78.7	80.6	82.5	84.5	86.6	88.7	90.9	93.1	95.3	97.6

Standard resistor values are calculated using the simple formula given below. Round the results to the proper number of significant figures (3 for 1% and 2%, 2 for 5% and 10%). As the chart at the right shows (created in Excel), plotting the values

$$R = d * 10^{\frac{i}{N}},$$

where
- d = decade multiplier : 10, 100, 10k, 100k
- N = tolerance series: 1% = 96, 2% = 48, 5% = 24, 10% = 12
- i = 0 ... N − 1

on a logarithmic scale results in a straight line.

Standard 5% Resistors:

5% Standard Values

Decade multiples are available from 10 Ω through 22 MΩ											
10.0	11.0	12.0	13.0	15.0	16.0	18.0	20.0	22.0	24.0	27.0	30.0
33.0	36.0	39.0	43.0	47.0	51.0	56.0	62.0	68.0	75.0	82.0	91.0

Standard 10% Resistors:

10% Standard Values

Decade multiples are available from 10 Ω through 1 MΩ										
10.0	12.0	15.0	18.0	22.0	27.0	33.0	39.0	47.0	56.0	68.0	82.0

Jeremy W. Webb
Graduate Student
Electrical and Computer Engineering Department
One Shields Avenue
Davis, CA 95616
jwwebb@ece.ucdavis.edu
Last Modified:

UCDAVIS COLLEGE OF ENGINEERING