

Odd Resistance Finder

By G8MNY

(Updated Nov 07)

Resistors normally come in 2 ranges, E12 has 12 resistors evenly spaced per

decade about 20% to the adjacent value, & E24 has 24 & includes the E12 series

giving value at about 10% apart. As tolerances improve there are also E24 & E48 values available!

E12 1.0 1.2 1.5 1.8 2.2 2.7 3.3 3.9 4.7 5.6 6.8 8.2  
 E24 + 1.1 + 1.3 + 1.6 + 2.0 + 2.4 + 3.0 + 3.6 + 4.3 + 5.1 + 6.2 + 7.5 + 9.1

Here is a useful list of 128 values obtained with two E12 resistors.

Multiply or Divide by 10s for the range needed.

	Wanted	How		Wanted	How
E12	1000			3400	6k8//6k8, 1k2+2k2
	1020	1k2//6k8		3590	5k6//10k
	1031	1k5//3k3	E24	3600	1k8+1k8
	1047	1k2//8k2		3700	1k+2k7, 1k5+2k2
	1071	1k2//10k		3717	6k8//8k2
	1080	1k8//2k7	E12	3900	1k2+2k7
	1083	1k5//3k9		4000	1k8+2k2
E24	1100	2k2//2k2, 1k+100		4048	6k8//10k
	1137	1k5//4k7		4100	8k2//8k2
	1165	1k8//3k3		4200	1k5+2k7
	1182	1k5//5k6	E24	4300	1k+3k3
E12	1200			4400	2k2+2k2
	1212	2k2//2k7		4500	1k2+3k3
	1229	1k5//6k8		4505	8k2//10k
	1232	1k8//3k3	E12	4700	
	1269	1k5//8k2		4800	1k6+3k3
E24	1300			4900	1k+3k9, 2k2+2k7
	1301	1k8//4k7		5000	10k//10k
	1304	1k5//10k	E24	5100	1k2+3k9, 1k8+3k3
	1320	2k2//3k3		5400	1k5+3k9, 2k7+2k7
	1350	2k7//2k7		5455	10k//12k
	1362	1k8//5k6		5500	2k2+3k3
	1406	2k2//3k9	E12	5600	
	1423	1k8//6k8		5700	1k+4k7, 1k8+3k9
	1476	1k8//8k2		5900	1k2+4k7
	1485	2k7//3k3		6000	12k//12k, 10k//15k, 2k7+3k
	1497	2k2//4k7		6100	2k2+3k9
E12	1500		E24	6200	1k5+4k7
	1525	1k8//10k		6429	10k//18k
	1580	2k2//5k6		6500	1k8+4k7
	1596	2k7//3k9		6600	1k+5k6, 2k7+3k9, 3k3+3k3
E24	1600			6667	12k//15k
	1650	3k3//3k3	E12	6800	1k2+5k6
	1662	2k2//6k8		6875	10k//22k
	1715	2k7//4k7		6900	2k2+4k7
	1735	2k2//8k2		7100	1k5+5k6
	1788	3k3//3k9		7200	18k//12k, 3k3+3k9
E12	1800			7297	10k//27k
	1803	2k2//10k		7400	1k8+5k6, 2k7+4k7
	1822	2k7//5k6	E24	7500	15k//15k
	1933	2k7//6k8		7674	10k//33k
	1939	3k3//4k7		7765	12k//22k
	1950	3k9//3k9		7800	1k+6k8, 2k2+5k6, 3k9+3k9
E24	2000	1k+1k		7959	10k//39k

	2031	2k7//8k2		8000	1k2+6k8, 3k3+4k7
	2071	3k3//5k6		8182	15k//18k
	2126	2k7//10k		E12 8200	
	2131	3k9//4k7		8246	10k//47k
E12	2200	1k+1k2		8300	1k5+6k8, 2k7+5k6
	2222	3k3//6k8		8308	12k//27k
	2299	3k9//5k6		8485	10k//56k
	2350	4k7//4k7		8600	1k8+5k6, 3k9+4k7
	2353	3k3//8k2		8718	10k//68k
E24	2400	2k2+2k2		8800	12k//33k
	2479	3k9//6k8		8900	3k3+5k6
	2481	3k3//10k		8913	10k//82k
	2500	1k+1k5		8919	15k//22k
	2555	4k7//5k6		9000	18k//18k
E12	2700	2k7, 1k2+1k5	E24	9100	
	2779	4k7//6k8		9091	10k//100k
	2800	5k6//5k6, 1k+1k8		9176	12k//39k
	2806	3k9//10k		9200	1k+8k2
	2988	4k7//8k2		9400	1k2+8k2, 4k7+4k7
E24	3000	1k2+1k8, 1k5+1k5		9500	2k7+6k8, 3k9+5k6
	3071	5k6//6k8		9559	12k//47k
	3197	4k7//10k		9643	15k//27k
	3200	1k+2k2		9700	1k5+8k2
E12	3300	3k3, 1k5+1k8		9882	12k//56k
	3328	5k6//8k2		9900	18k//22k

// = in parallel, + = in series

Series combinations are better for high voltage.  
 Similar values spread the power dissipation more evenly.

So now you can replace that experimental preset value with 2 fixed value Rs.

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 From Jim VK7JH

$$R = \frac{R1 \times R2}{R1 + R2}$$

The formular can be written as:

$$\frac{1}{R} = \frac{1}{R1} + \frac{1}{R2}$$

Re-aranging gives:

$$\frac{1}{R2} = \frac{1}{R} - \frac{1}{R1}$$

Putting it in the form that you started with:

$$R2 = \frac{R \times R1}{R1 - R}$$

R is the value you want & R1 is something higher in value.

There are tables that give the combination of preferred values to save the calculations. I think I saw a TECH buletin....

Why Don't U send an interesting bul?  
 73 De John, G8MNY @ GB7CIP