

Boolean: Case


How to read Resistor Color Codes

First the code

Black	Brown	Red	Orange	Yellow	Green	Blue	Violet	Gray	White
0	1	2	3	4	5	6	7	8	9

The mnemonic

Bad Boys Ravage Only Young Girls But Violet Gives Willingly

Black is also easy to remember as zero because of the nothingness common to both.

How to read the code



First find the tolerance band, it will typically be gold (5%) and sometimes silver (10%).

Starting from the other end, identify the first band - write down the number associated with that color; in this case Blue is 6.

Now 'read' the next color, here it is red so write down a '2' next to the six. (you should have '62' so far.)

Now read the third or 'multiplier' band and write down that number of zeros.

In this example it is two so we get '6200' or '6,200'. If the 'multiplier' band is Black (for zero) don't write any zeros down.

If the 'multiplier' band is Gold move the decimal point one to the left. If the 'multiplier' band is Silver move the decimal point two places to the left. If the resistor has one more band past the tolerance band it is a quality band.

Read the number as the '% Failure rate per 1000 hour' This is rated assuming full wattage being applied to the resistors. (To get better failure rates, resistors are typically specified to have twice the needed wattage dissipation that the circuit produces) 1% resistors have three bands to read digits to the left of the multiplier. They have a different temperature coefficient in order to provide the 1% tolerance.

We now have a program that calculates the minimum error on resistor dividers of up to 4 values. See [Resistor](#) for details.

See our [Capacitor Wizard](#)
 How to read [Capacitor codes](#)
 Learn about [Capacitors and ESR](#)
[Soldering Stations](#)

Test Equipment Index

Was this Information Useful?

If you found this information useful - all I ask is to look at our home page and see if we have any products that might be of use to you or a colleague. Link to us if you have a web page. If you have some thing to add to this page please send it to the e-mail below.

Answers to E-mail Questions:

Dear Transtronics

What are the standard 5% Resistor values for one decade?

John

Dear John,

The values are as follows.

10, 11, 12, 13, 15, 16, 18, 20, 22, 24, 27, 30, 33, 36, 39, 43, 47, 51, 56, 62, 68, 75, 82, 91,

Here is a very low cost [resistor picking program](#) that will help you pick the correct values to form an optimized resistor divider for up to 4 output taps.

Exact values will print only the resistor pairs that provides an exact output of the divider.

EIN is the voltage going into the top of the divider

Eout is the Voltage you want to come out of the divider.

% tolerance will let you chose to work with 5% or 1% resistor values.

Installing

Just dump it in a folder and it should run - needs LPT1 for output.

Dear Transtronics,

Hello, I would like to know something about resisters- do they need to be put in a circuit in a certain way (positive, negative)? if so, how do I tell what end from the other?

Dylan

Dear Dylan,

Resistors Have no polarity; they can be installed either way, but often it is best to put them in all facing the same way so as to make reading them easier.

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