

HOW TO READ OLD STYLE RESISTORS

Over the years many methods of marking small components have evolved. In the case of resistors the colour code method is predominant. The basic colour code and colour values have remained consistent.

Initially most resistors were manufactured to a 20% tolerance standard and therefore no method of colour coding the tolerance was required and only three colours were needed to indicate the value. With the advent of better manufacturing techniques it became necessary to add additional colours to the code and extra stripes to the resistor to indicate the tolerance value, this also meant a change in the way the colours were applied to resistors and hence the order in which the colours were read.

Early 3 colour resistors are read in the following order:



Body.....End.....Stripe
Green (5)..Black (0)..Yellow (0000) = 500000 or 500k or .5meg

Body.....End.....Dot
Red (2)...Green (5)..Yellow (0000) = 250000 or 250k or .25meg

More modern 4 colour resistors have the colour bands side by side and are read left to right. The first band being the one that is closest to an end...the fourth band (last on right) indicating the tolerance.

As a result of the improved tolerance situation a preferred value system (as in the case of capacitors) was developed, to minimise overlapping values. This preferred value system has been expanded as tolerances have been further improved, necessitating more bands to indicate the value and tolerance.

Over recent years 5 colour resistors have become common.

The two colour charts below will assist reading of 3, 4 & 5 band resistors.

4 band coding			
1st	2nd	3rd	4th
	0	x1	
1	1	x10	
2	2	x100	2%
3	3	x1k	
4	4	x10k	
5	5	x100k	
6	6	x1M	
7	7		
8	8	Gold / 10	Gold 5%
9	9	Silver / 100	Silver 10%

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5 band coding				
1st	2nd	3rd	4th	5th
	0	0	x1	
1	1	1	x10	1%
2	2	2	x100	2%
3	3	3	x1k	
4	4	4	x10k	
5	5	5	x100k	
6	6	6	x1M	
7	7	7		
8	8	8	Gold /10	Gold 5%
9	9	9	Silver /100	Silver 10%

This information has been adapted from Brian Smith's web pages.