

Passive Components Codes Guide

Codes for Resistors, Capacitors, Inductors, Termistors NTC and PTC, Varistors VDR.

[Pictures](#)

[Color Code](#)

[Alpha-Numeric Code](#)

[One Letter Code](#)

[Pictures](#) ↑

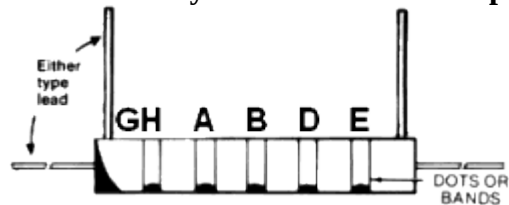
Resistors



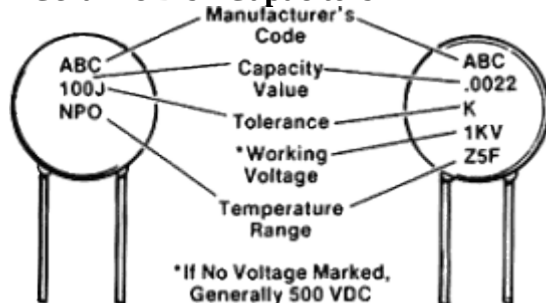
5 Band Ceramic Capacitors



Radial or Ayial Lead Ceramic Capacitors (6 Dot or Band System)

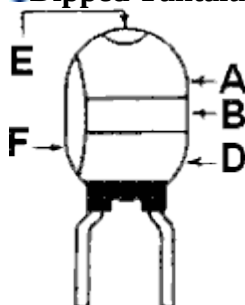


Ceramic Disk Capacitors

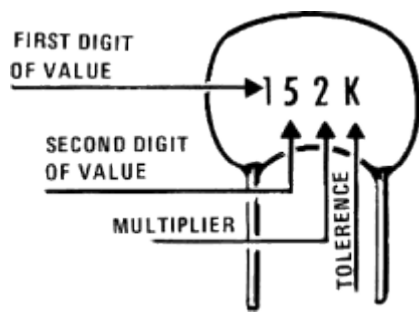


Ceramic Feed Through Capacitors

Dipped Tantalum Capacitors



Film Type Capacitors

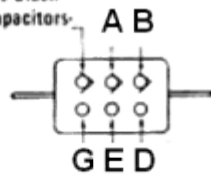


5 Dot or Band Ceramic Capacitors (one wide band)

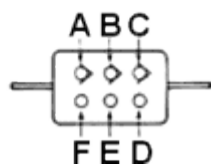
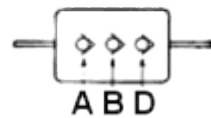


Postage Stamp Mica Capacitors

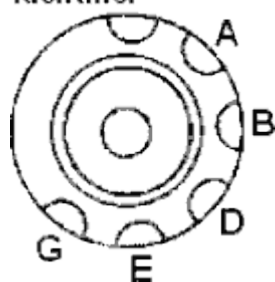
Mica capacitors-Black
(AWS paper capacitors-
silver)



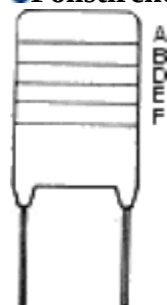
AWS and JAN fixed capacitors
(First dot silver or black)



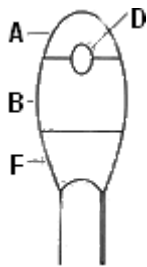
Standard Button Mica Capacitors Identifier



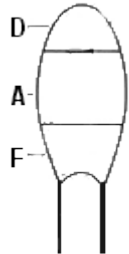
Polistirene Capacitors



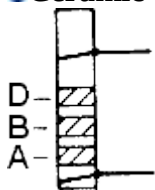
Electrolytic Tantalum Capacitors (4 colors code)



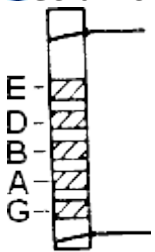
●Electrolytic Tantalum Capacitors (3 colors code)



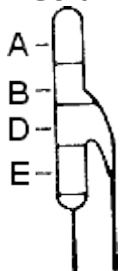
●Ceramic Capacitors Class II



●Ceramic Capacitors Class I



●Ceramic Capacitors Pin-up



●Color Code↑

Type 1: Resistors [Ohm], Thermistors NTC and PTC [Ohm], symmetric Varistors VDR [Ohm], Inductors (μH), Capacitors [pF] (Postage Stamp Mica, Dipped Tantalum, 5 Band Ceramic).

Type 2: Capacitors [pF] (Ceramic Disk, Film Type, Standard Button Mica, Radial or Axial Ceramic, 6 Dot or band RMA-JAN-AWS).

- **A:** first significant figure
- **B:** second significant figure
- **C:** third significant figure
- **D:** multiplier (factor by which the significant figures are multiplied to yield the nominal value)
- **E:** tolerance

- **F:** When used on composition resistors indicates the established reliability failure rate level.
On film resistors, this band is approximately 1.5 times the width of the other bands, and indicates type of terminal.
On Capacitors indicate the working voltage.
- **G-H:** temperature coefficient

Examples:

Resistor 6200 Ohm $\pm 5\%$ = A Blue, B Red, C Red, D Gold.

Resistor 1000 Ohm $\pm 10\%$ = A Brown, B Black, C Red, D Silver.

Colour	Colour Name	Digit	Multiplier Type 1	Multiplier Type 2	Tolerance	Tolerance under 10pF	Fail Rate	Terminal
	Black	0	1	1	$\pm 20\%$	$\pm 2.0\text{pF}$		
	Brown	1	10	10	$\pm 1\%$	$\pm 0.1\text{pF}$	1%	
	Red	2	10^2	10^2	$\pm 2\%$	$\pm 0.2\text{pF}$	$10^{-1}\%$	
	Orange	3	10^3	10^3	$\pm 3\%$	$\pm 0.3\text{pF}$	$10^{-2}\%$	
	Yellow	4	10^4	10^4	$\pm 4\%$	$\pm 0.4\text{pF}$	$10^{-3}\%$	
	Green	5	10^5	10^5	$\pm 5\%$	$\pm 0.5\text{pF}$		
	Blue	6	10^6	10^6				
	Violet	7	10^7	10^{-3}				
	Gray	8	10^8	10^{-2}	$\pm 30\%$	$\pm 0.25\text{pF}$		
	White	9	10^9	10^{-1}	$\pm 10\%$	$\pm 1.0\text{pF}$		Solder
	Gold		10^{-1}	10^{-1}	$\pm 5\%$			
	Silver		10^{-2}	10^{-2}	$\pm 10\%$			
-	No color				$\pm 20\%$			

Temperature Coefficient

Type A: Radial or Ayal Lead Ceramic Capacitors (6 Dot or Band System).

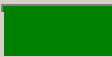
Type B: 5 Dot or Band Ceramic Capacitors (one wide band).

Type C: Ceramic Feed Through Capacitors.

Type D: 5 Band Ceramic Capacitors (all bands equal size).

Type E: Ceramic Capacitors Class I-II and Pin-up.

Colour 1	Colour 2	Colour Name	Temperature Coefficient Type A	Temperature Coefficient Type B	Temperature Coefficient Type C	Temperature Coefficient Type D	Temperature Coefficient Type E
	-	Black	NP0	NP0	NP0	NP0	NP0
	-	Brown	N030	N030	N030	Y5S	N033
	-	Red	N080	N080	N060	Y5T	N075
	-	Orange	N150	N150	N150	N150	N150
	-	Yellow	N220	N220	N220	N220	N220

	-	Green	N330	N330	N330	N330	N330
	-	Blue	N470	N470	N470	N470	N470
	-	Violet	N750	N750	N750	N750	N750
	-	Gray	N750±1000	P30	P30	Y5R	
	-	White	N330±500	P500			
	-	Gold			P100	Y5F	
	-	Silver				Y5P	
		Red/Violet	P100				P100
		Green/Blue	P030				
		Orange/Orange	N1500				N1500
		Yellow/Orange	N2200				
		Green/Orange	N3300				
		Green/Green	N4200				
		Blue/Orange	N4700				
		Green/Black	N5600				
		Gray/Black	N3300±2500				

Voltage Rating

Type J: Dipped Tantalum Capacitors.

Type K: Postage Stamp Mica capacitors.

Type L: Polistirene capacitors.

Type M: Electrolytic Tantalum (4 colors code).

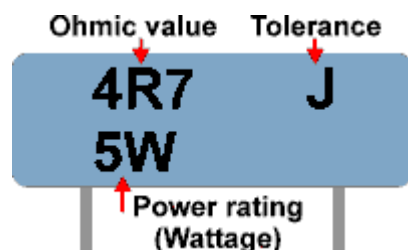
Type N: Electrolytic Tantalum (3 colors code).

Colour 1	Colour Name	Voltage Rating Type J	Voltage Rating Type K	Voltage Rating Type L	Voltage Rating Type M	Voltage Rating Type N
	Black	4			10	10
	Brown	6	100	100	1.6	
	Red	10	200	250	4	35
	Orange	15	300		40	
	Yellow	20	400	400	6.3	6
	Green	25	500		16	15
	Blue	35	600	630		20
	Violet	50	700			
	Gray		800		25	25
	White	3	900		2.5	3

	Gold		1000			
	Silver		2000			
-	No Color		500			

Alpha-Numeric Code

Resistors [Ohm], Capacitors [pF]



This code use digits and one or two letters to indicate value and tolerance.

If we have two letters:

The digits indicate the value.

The first letter indicate the multiplier.

The position of the first letter indicate the point position (decimal place).

The second letter indicate the tolerance.

If we have only one letter:

The first digits indicate the value.

The last digit indicate the multiplier ($1=10$; $2=10^2$; $3=10^3$; ...).

The letter indicate the tolerance.

When used, the power rating is explicit indicated in Watts.

NOTE: On Ceramic Capacitors the K letter must indicate "Keramic" and not 10^3 multiplier.

Examples:

R21K = 0,21 Ohm $\pm 10\%$

6K2J = 6,2 KOhm $\pm 5\%$

2M2M = 2,2 MOhm $\pm 20\%$

103J = 10 KOhm $\pm 5\%$

101K = 100 Ohm $\pm 10\%$

Letter	Multiplier		Letter	Tolerance	Tolerance under 10pF
R	1		B	$\pm 0.1\%$	$\pm 0.1\text{pF}$
K	10^3		C	$\pm 0.25\%$	$\pm 0.25\text{pF}$
M	10^6		D	$\pm 0.5\%$	$\pm 0.5\text{pF}$
G	10^9		F	$\pm 1\%$	$\pm 1.0\text{pF}$
T	10^{12}		G	$\pm 2\%$	$\pm 2.0\text{pF}$
			J	$\pm 5\%$	
			K	$\pm 10\%$	
			M	$\pm 20\%$	
			N	$\pm 30\%$	

Letter	Value [pF]
A	3.9
B	4.7
C	5.6
D	6.8
E	8.2
F	10
G	12
H	18
J	22
K	27
L	33
M	39
N	39
P	47
Q	56
R	68
S	82
T	100
U	120



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