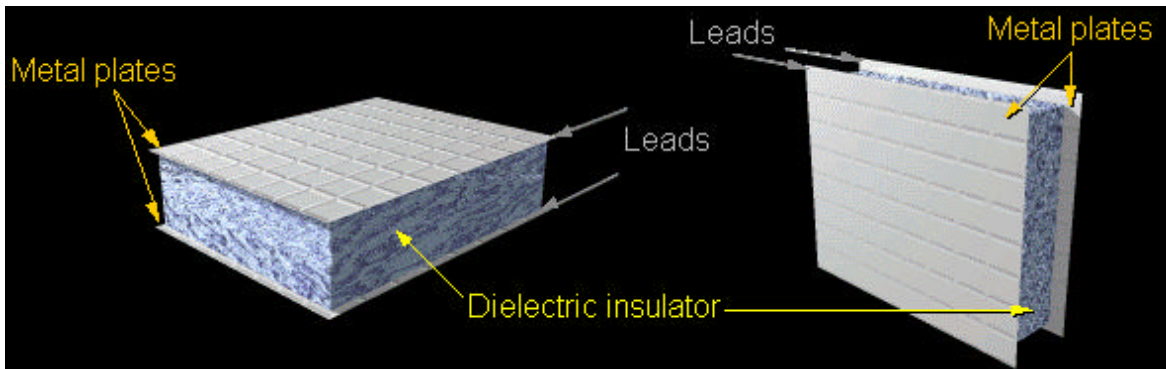


ESTUDO SOBRE CAPACITORES

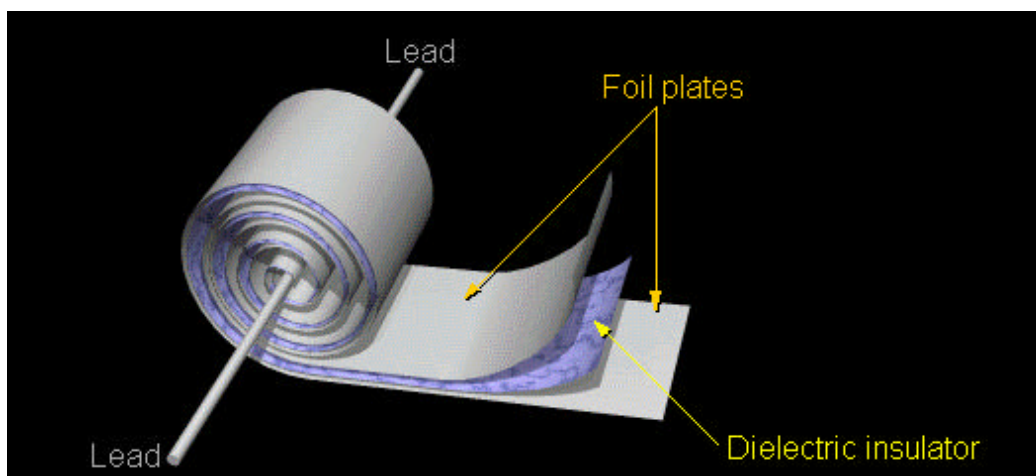


- CAPACITORES
- CARGA E DESCARGA
- UNIDADES DE CAPACITÂNCIA
- TIPOS DE CAPACITORES
- CAPACITORES EM SÉRIE E PARALELO

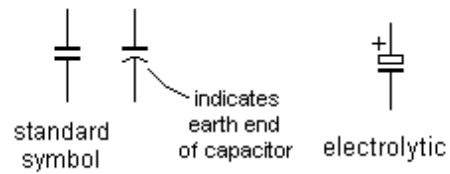
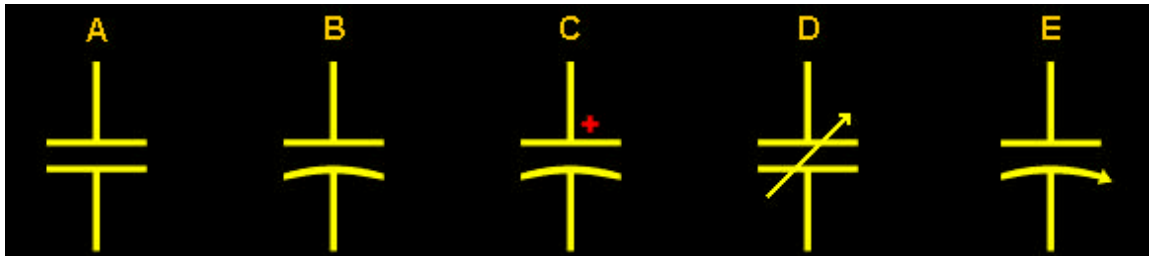
[CAPACITORES PODEM ARMAZENAR ENERGIA E DEPOIS LIBERAR]



CAPACITOR TUBULAR



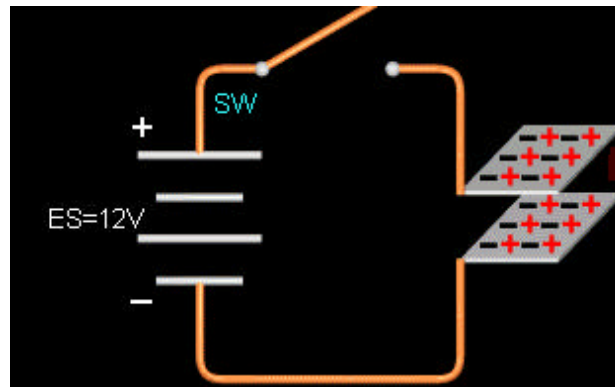
[TIPOS DE CAPACITORES]



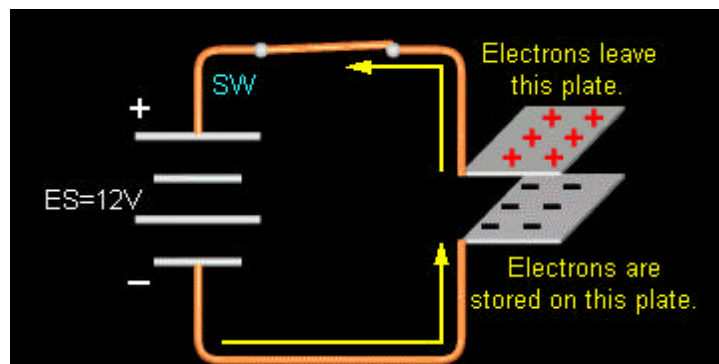
CAPACITOR SYMBOLS

[CARGA E DESCARGA]

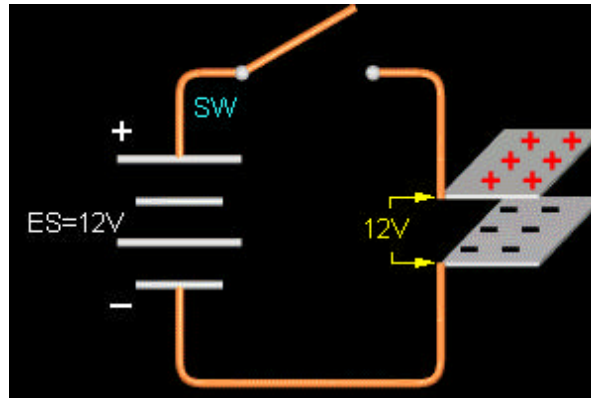
CARGA DO CAPACITOR



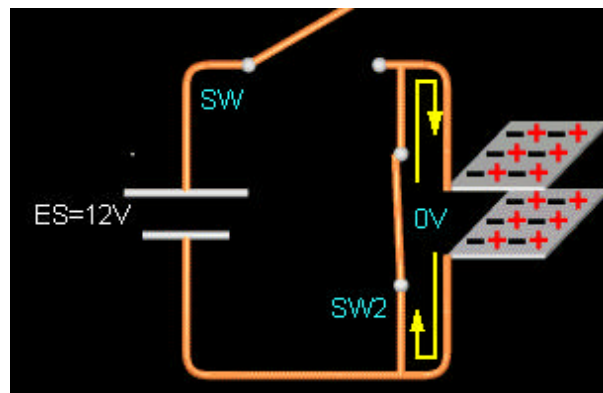
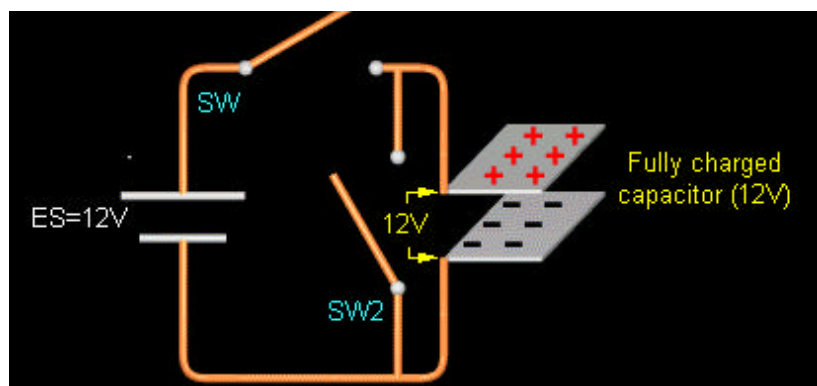
DECARGA DO CAPACITOR



ABRINDO A CHAVE



DESCARREGANDO CAPACITOR



[UNIDADES DE CAPACITÂNCIA]

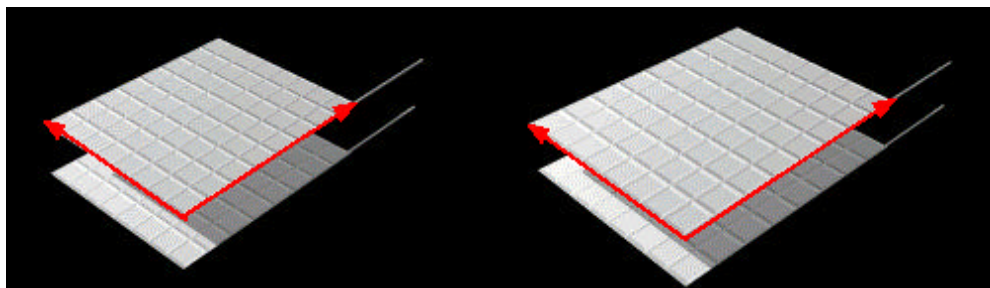
$$C=Q/E$$

FARADAY

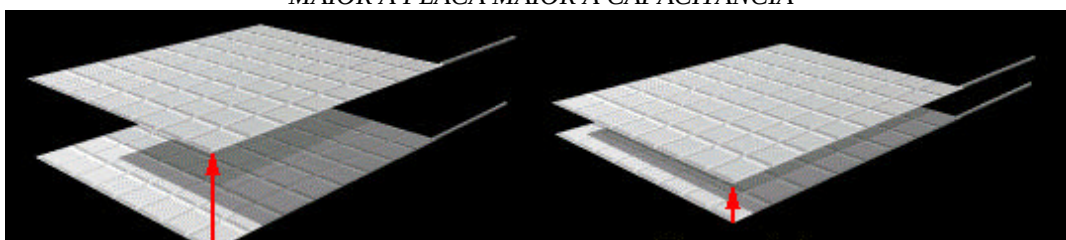
O NOME FARADAY SE DEVE AO FÍSICO MICHAEL FARADAY...

1 FARADAY = 1 COLOUMB PRODUZIDO COM UM 1 VOLT SOBRE O CAPACITOR

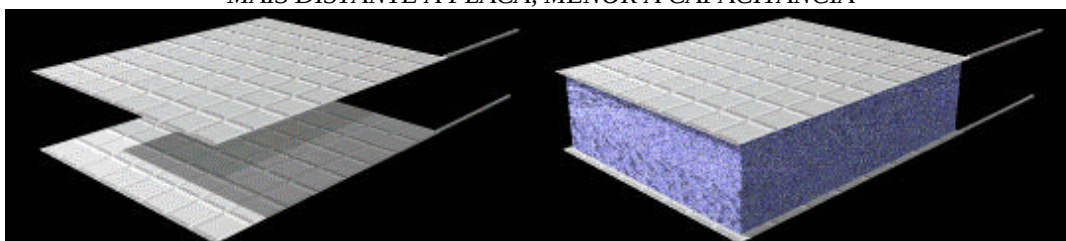
[FATORES QUE AFETAM A CAPACITÂNCIA]



MAIOR A PLACA MAIOR A CAPACITANCIA

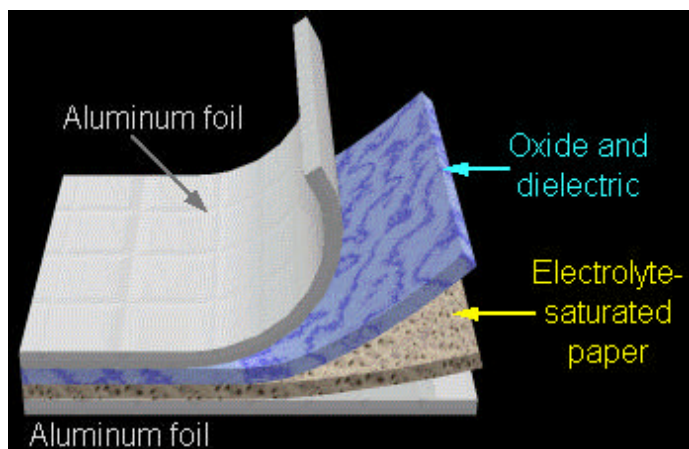


MAIS DISTANTE A PLACA, MENOR A CAPACITÂNCIA

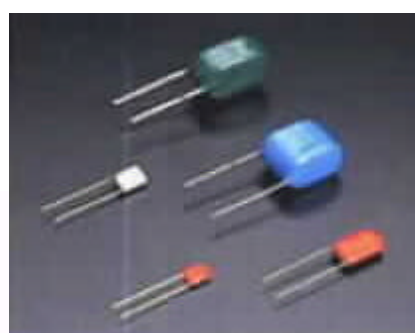
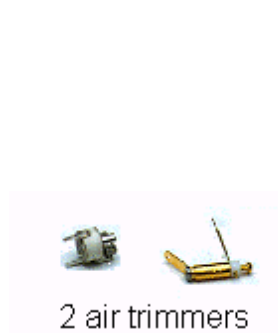
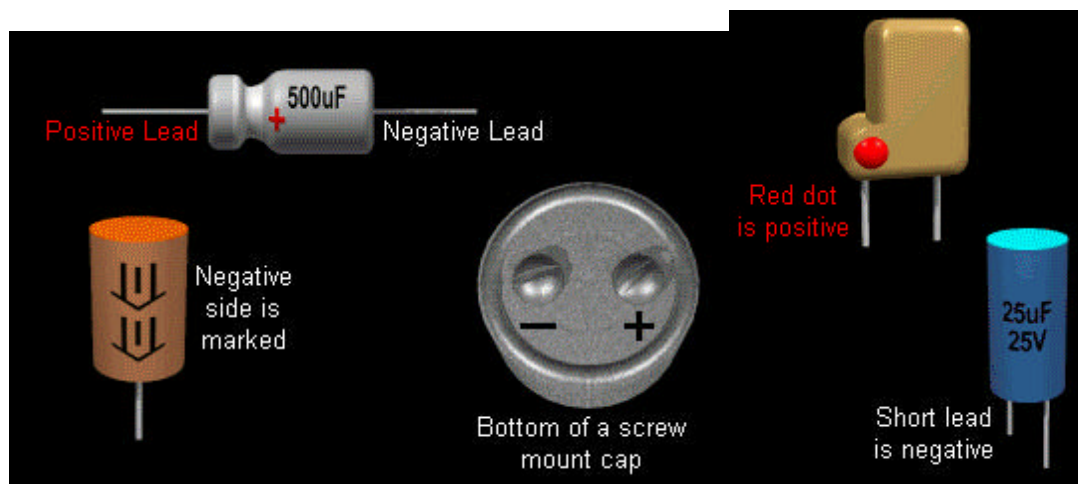


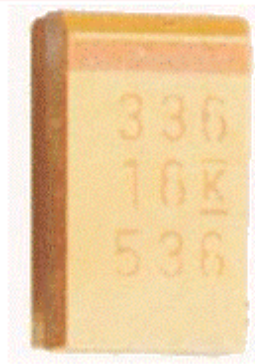
O MATERIA UTILIZADO INFLUENCIA NA CAPACITANCIA

[CONSTRUÇÃO DE UM CAPACITOR ELETROLÍTICO]



ALGUNS CAPACITORES





33u
chip capacitor
(close-up)



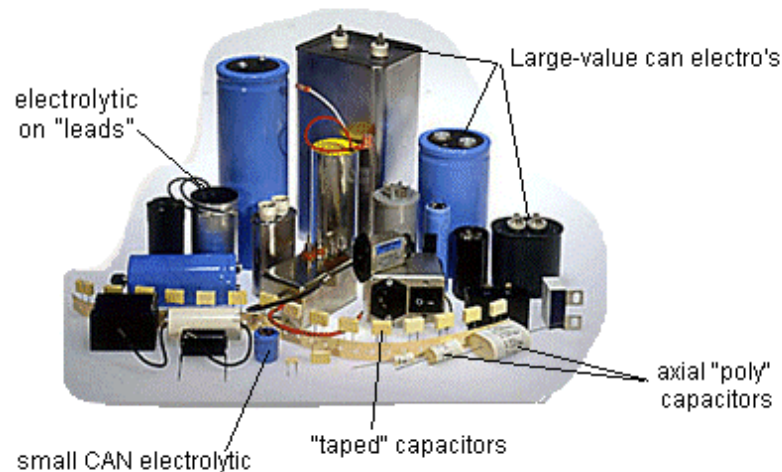
chip capacitor
(close-up)



"poly" capacitor



tantalum
capacitor



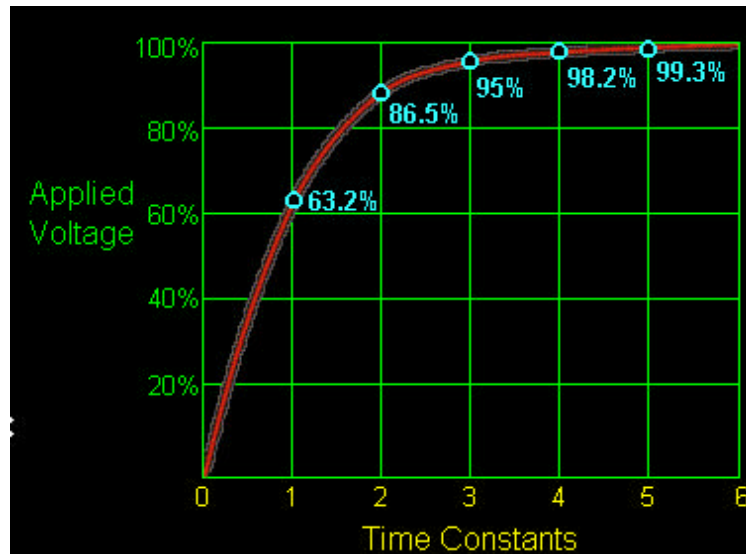
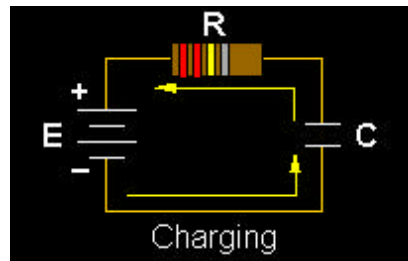
RESUMO

- CAPACITORES PODEM ARMAZENAR ENERGIA
 - CAPACITOR NAO CONSOMEM ENERGIA
- CURTO CIRCUITANDO CAPACITORES DESCARREGAR O MESMO
- COMPRIMENTO, DISTANCIA E SOLUÇÃO ELETROLÍTICA INFLUENCIAM NA CAPACITANCIA
 - A UNIDADE DE CAPACITÂNCIA É FARADAY(F)
 - A MAIORIA DOS CAPACITORES ESTÃO EM uF ou pF
- A DESCARGA DE UM CAPACITOR FARÁ COM QUE AS PLACAS TENHAM O MESMO NÚMERO DE CARGAS

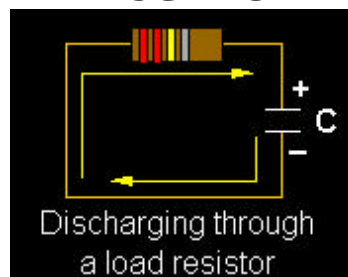
CARGA E DESCARGA DE CAPACITORES

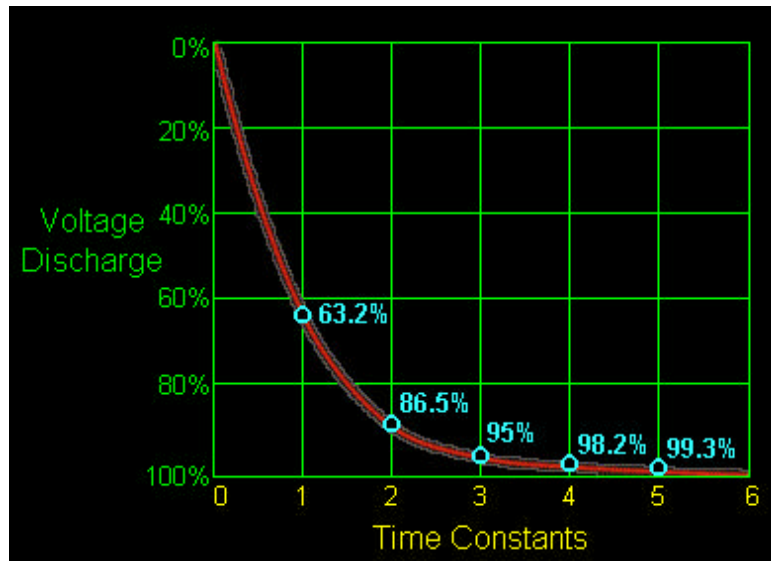
$$T=RC$$

CARGA



DESCARGA





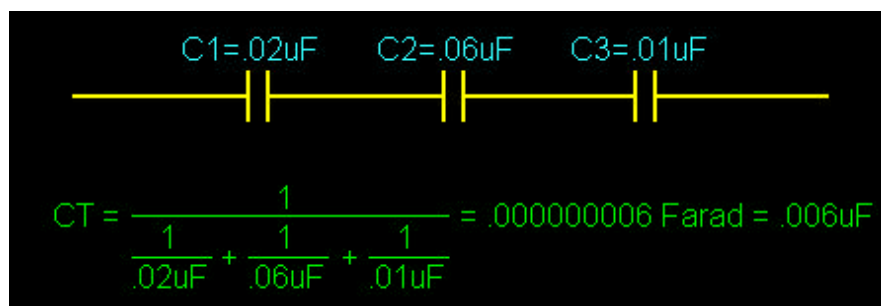
|ASSOCIAÇÃO DE CAPACITORES|

CAPACITORES EM SÉRIE SE DIVIDEM (CONTRÁRIO DA ASSOCIAÇÃO DE RESISTORES)
CAPACITORES EM PARALELO SE SOMAM (CONTRÁRIO DA ASSOCIAÇÃO DE RESISTORES)

EQUAÇÃO DA ASSOCIAÇÃO EM SÉRIE

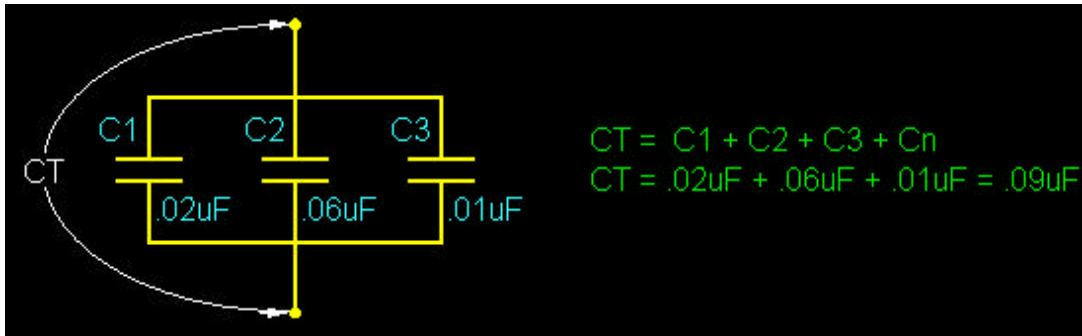
$$C_{total} = \frac{1}{\frac{1}{C_1} + \frac{1}{C_2} + \dots + \frac{1}{C_N}}$$

$$1/CT = 1/C1 + 1/C2 + 1/CN \text{ OU}$$



EQUAÇÃO DA ASSOCIAÇÃO EM PARALELO

$$CT = C1 + C2 + CN$$



ALGUNS TIPOS DE CAPACITORES

1. cerâmico - 1p to 100n
2. poliéster - 1n to 1u
3. electrolítico - 1u to 100,000u

LENDO CAPACITORES

PODE-SE LER OS CAPACITORES ATRAVÉS DE NÚMEROS OU CORES. NÃO UTILIZAREMOS O SEGUNDO MÉTODO.

- 101 = 100p
- 102 = 1,000p
- 103 = 10,000p
- 104 = 100,000p
- 105 = 1,000,000p
- 221 = 220p
- 222 = 2,200p
- 223 = 22,000p
- 224 = 220,000p

UMA VEZ QUE SE RECONHECE O VALOR DO CAPACITOR, PODE-SE REDUZIR OS NÚMEROS DE ZEROS (0), COM A ABREVIACÃO:

- 1,000p = 1n n = nano**
- 10,000p = 10n**
- 100,000p = 100n**
- 1,000,000p = 1u u = microfarad u = "mu"**

- 101 = 100p**
- 102 = 1n**
- 103 = 10n**
- 104 = 100n**

105 = 1u

QUANTO AOS CAPACITORES COM VALORES COM PONTO DECIMAL, ELES ESTÃO EM **u**

.0047 = 4n7

.047 = 47n

.47 = 470n

.001 = 1n

.01 = 10n

.1 = 100n

Outras combinações

.1u or 0.1mfd or 0.1 or .1 = 100n

.01u or 0.01mfd or 0.01 or .01 or 01 = 10n

.001u or 0.001mfd or 0.001 or .001 or 001 = 1n

MEDINDO CAPACITORES SMD

ELES SÓ PODEM SER MEDIDOS UTILIZANDO UM CAPACÍMETRO.

MEDINDO CAPACITORES ELTROLÍTICOS

O VALOR DO CAPACITOR ESTÁ EXPLÍCITO NO CAPACITOR.

VALORES DE CAPACITORES NO MERCADO

COMPLETE RANGE OF CAPACITORS:	TYPE OF CAPACITOR:
1p0, 1p2, 1p5, 1p8, 2p2, 2p7, 3p3, 3p9, 4p7, 5p6, 6p8, 8p2, 10p, 12p, 15p, 18p, 22p, 27p, 33p, 39p, 47p, 56p, 68p, 82p, 100p, 120p, 150p, 180p, 220p, 270p, 330p, 390p, 470p, 560p, 680p, 820p,	Ceramic
1000p (1n), 1n2, 1n5, 1n8, 2n2, 2n7, 3n3, 3n9, 4n7, 5n6, 6n8, 8n2, 10n, 12n, 15n, 18n, 22n, 27n, 33n, 39n, 47n, 56n, 68n, 82n, 100n, 220n 330n 470n,	ceramic and greencap
1u, 2u2, 3u3, 4u7, 10u, 22u, 47u, 100u, 220u, 470u, 1,000u, 2200u, 4700u, 10,000u.	Electrolytic

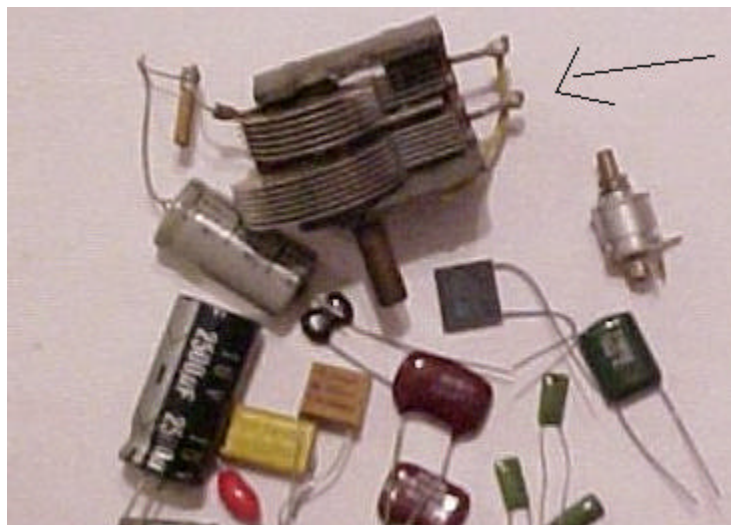
Capacitor value:	3-digit code identification:
10p	100 - yes! (can also be 10)
12p	120 - can also be: 12
15p	150 - can also be: 15
22p	220 - can also be: 22
33p	330 - can also be: 33
47p	470 - can also be: 47
56p	560 - can also be: 56
68p	680 - can also be: 68
82p	820 - can also be: 82
100p	101 - can also be: 100!
120p	121
150p	151
180p	181
220p	221
270p	271
330p	331
390p	391
470p	471
560p	561
680p	681
820p	821
1,000p	102 = 1n
1,200p	122 = 1n2

680p	681
820p	821
1,000p	102 = 1n
1,200p	122 = 1n2
1,500p	152 = 1n5
1,800p	182 = 1n8
2,200p	222 = 2n2
2,700p	272 = 2n7
3,300p	332 = 3n3
3,900p	392 = 3n9
4,700p	472 = 4n7
5,600p	562 = 5n6
6,800p	682 = 6n8
8,200p	822 = 8n2
10,000p	103 = 10n
12,000p	123 = 12n
15,000p	153 = 15n
18,000p	183 = 18n
22,000p	223 = 22n
27,000p	273 = 27n
33,000p	333 = 33n
39,000p	393 = 39n
47,000p	473 = 47n
56,000p	563 = 56n
68,000p	683 = 68n
82,000p	823 = 82n
100,000p	104 = 100n
220,000p	224 = 220n
470,000p	474 = 470n
1,000,000p	105 = (1,000n) = 1u
3,300,000p	335 = 3u3
	106 = 10u

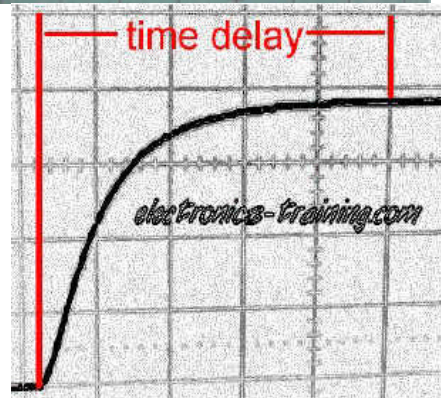
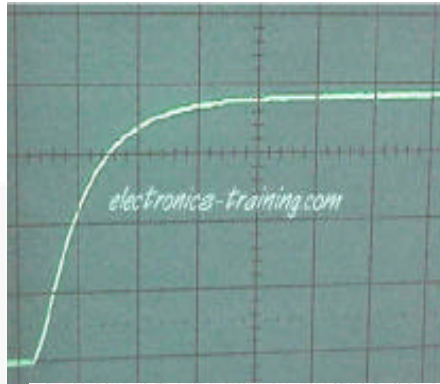
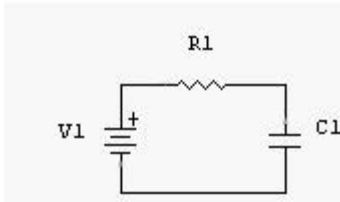
A PARTIR DO VALOR DO CAPACITOR, ACHE A CÓDIGO DE IDENTIFICAÇÃO

Questions on capacitor values	
Write down the value of these as they would appear on a capacitor using the 3-digit code:	Answers:
100p	100 or 101
4700p	472
10,000p = 10n	103
0.1u = 100n	104
3300	332
470	471
0.001 = 1n	102
0.0047 = 4n7	472
2200	222
39000	393
0047	472
0.001u	102
4n7	472
10n	103
39n	393
100n	104
1n	102
220n	224
10p	100 or 10

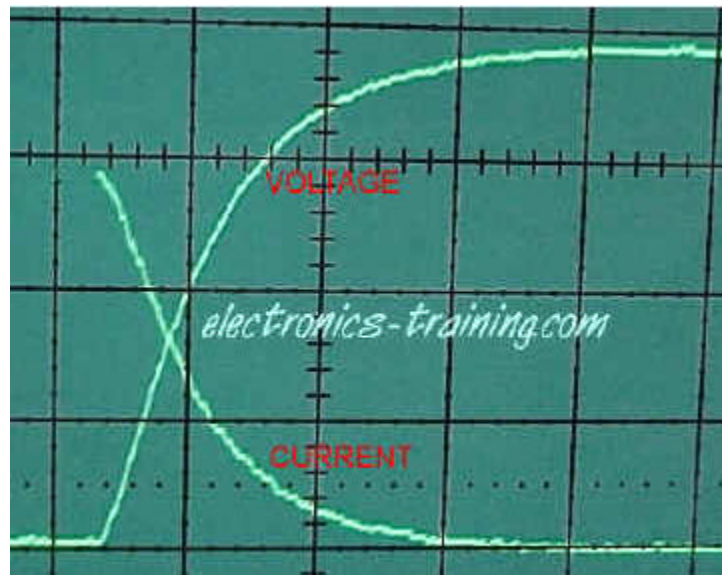
CAPACITOR EM RÁDIOS?



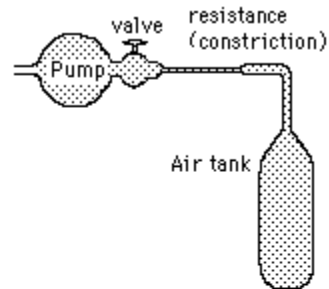
TENSÃO E CORRENTE NO CAPACITOR



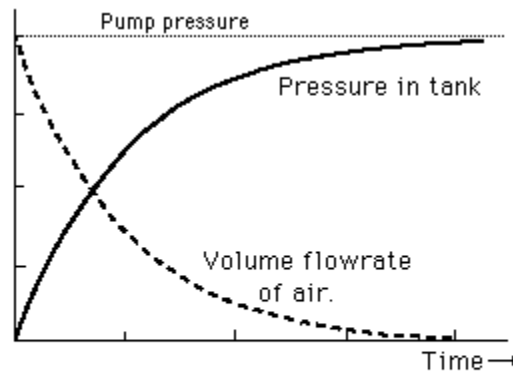
A RELAÇÃO TENSÃO X CORRENTE



ANALOGIA COM TANQUE DE GAS

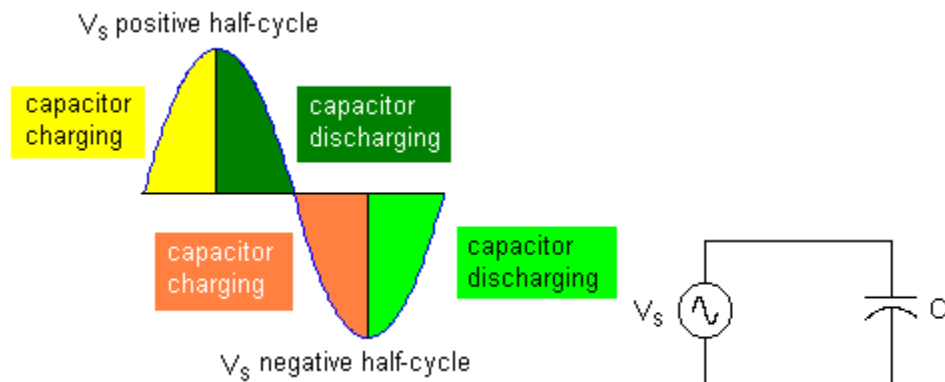


As pumping continues, volume flowrate decreases as pressure in tank builds up. When tank pressure equals pressure supplied by the pump, the flow ceases.



If you have more constriction in the tubing leading to the tank, it will take longer to fill the tank.

CARGA E DESCARGA CAPACITOR EM CORRENTE A/C



COMPLEMENTAR AQUI SOBRE O RASCUNHO PARA CONCURSO...