

Fisica Aplicada Presentation 15oct

Presented by

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Prof Dr ISLA Santarem

Revisão
Curso de
electronica,
p. 13

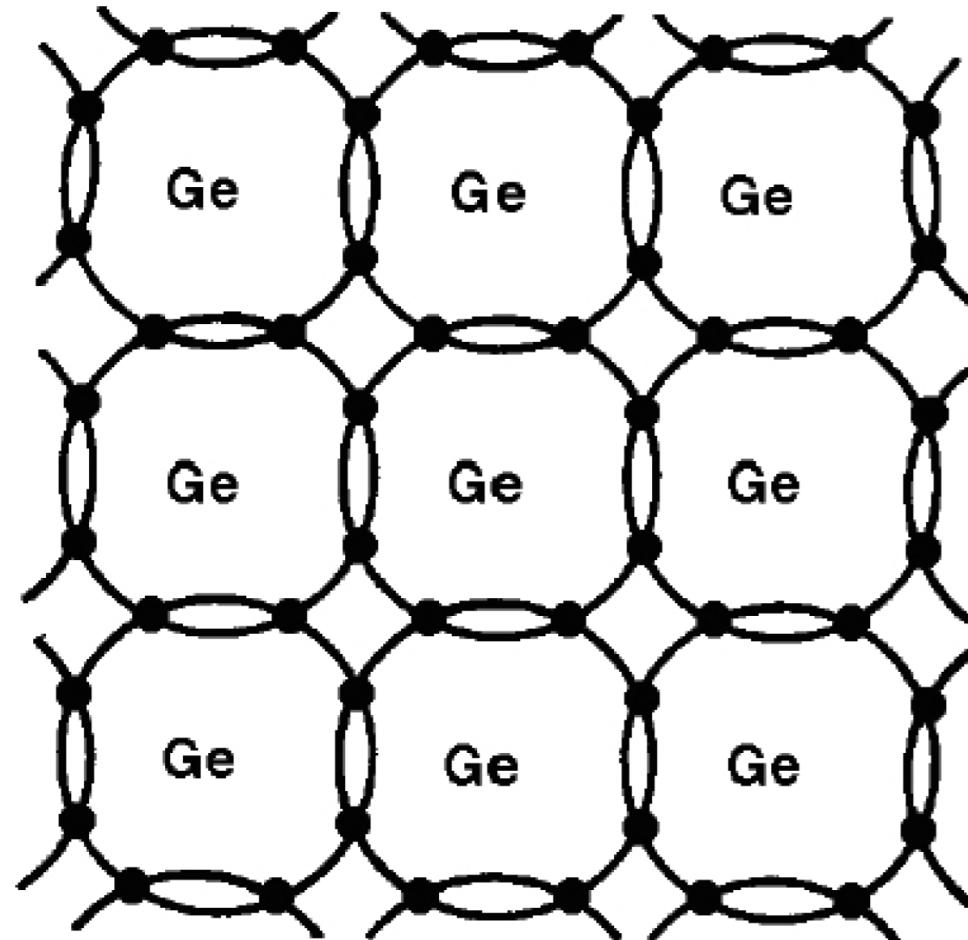


Figura 3 – Os átomos compartilham elétrons de modo que cada um fique com sua camada externa completa;

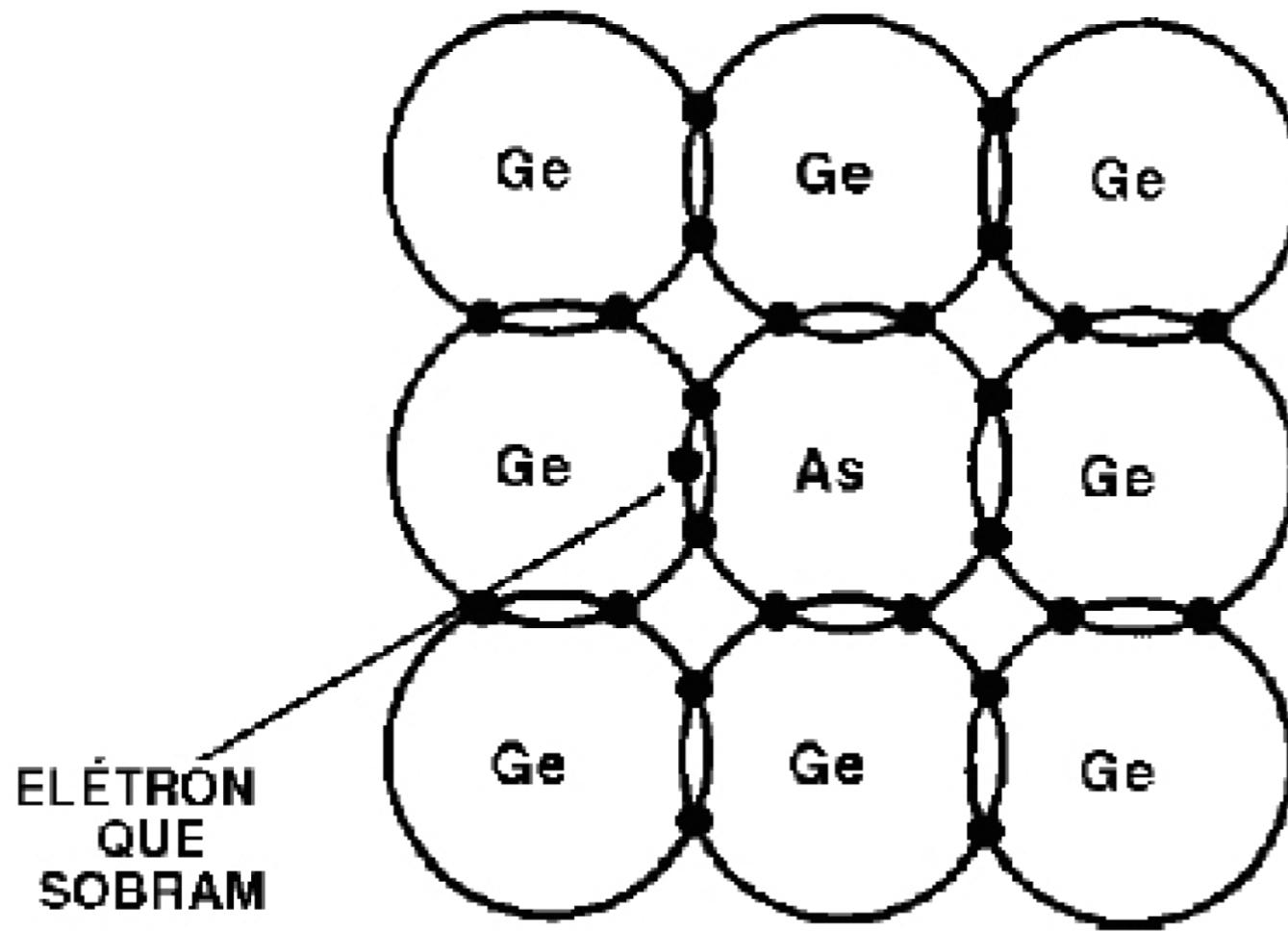
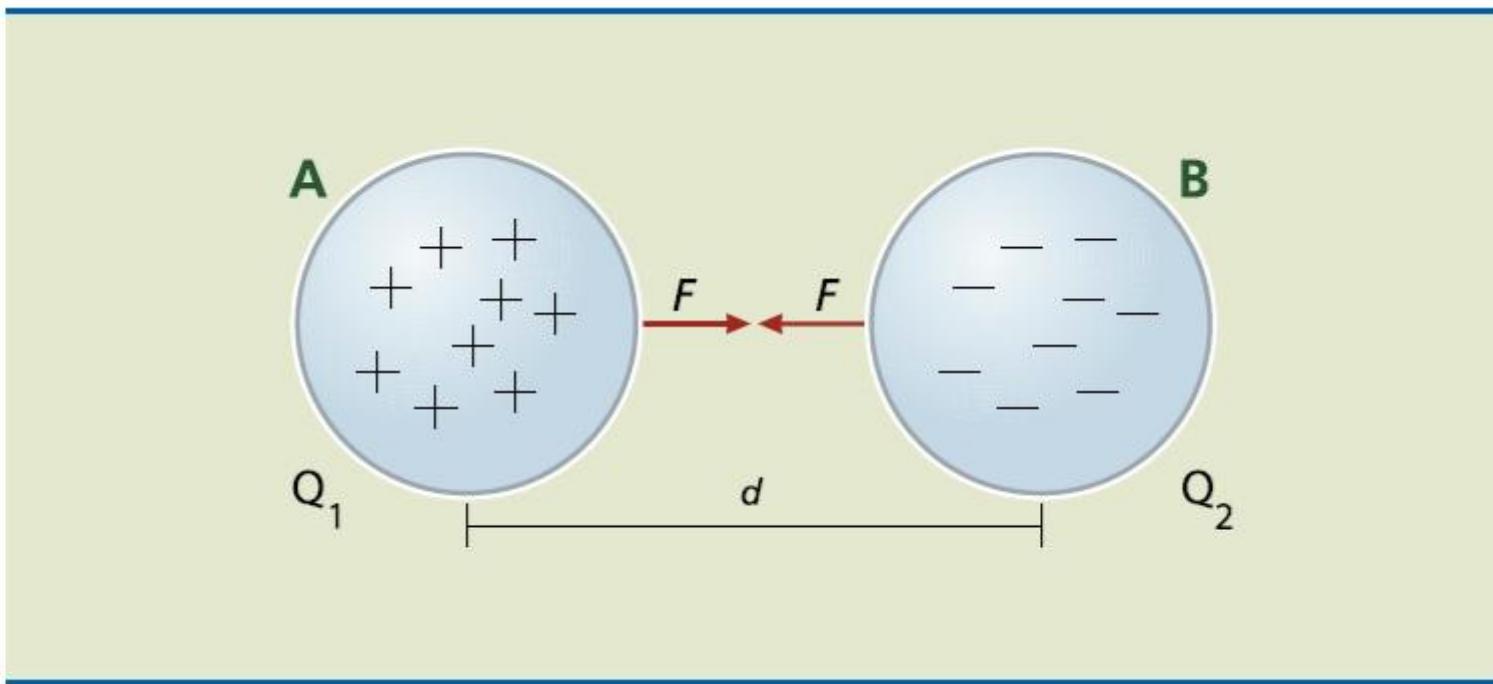


Figura 4 – Obtendo um material tipo N

Figura I.2

Força elétrica entre dois corpos carregados.



YURI ARCURI/SHUTTERSTOCK



ZMKSTUDIO/SHUTTERSTOCK



Sistema de unidades

Prefixos das unidades SI

Múltiplos:

$$k = \text{quilo} = 1\ 000 = 10^3$$

$$M = \text{mega} = 1\ 000\ 000 = 10^6$$

$$G = \text{giga} = 1\ 000\ 000\ 000 = 10^9$$

$$T = \text{tera} = 1\ 000\ 000\ 000\ 000 = 10^{12}$$

Submúltiplos:

$$m = \text{mili} = 0,001 = 10^{-3}$$

$$\mu = \text{micro} = 0,000\ 001 = 10^{-6}$$

$$n = \text{nano} = 0,000\ 000\ 001 = 10^{-9}$$

$$p = \text{pico} = 0,000\ 000\ 000\ 001 = 10^{-12}$$

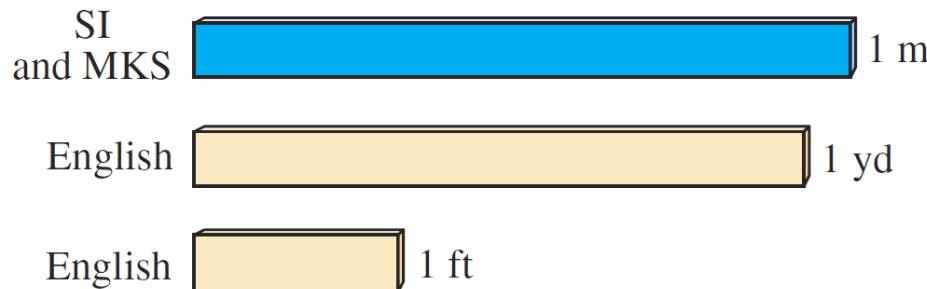
Pronúncia	Minúscula	Maiúscula
alfa	α	A
beta	β	B
gama	γ	Γ
delta	δ	Δ
épsilon	ε	E
dzeta ou zeta	ζ	Z
eta	η	H
teta	θ	Θ
iota	ι	I
capa	κ	K

Mais letras

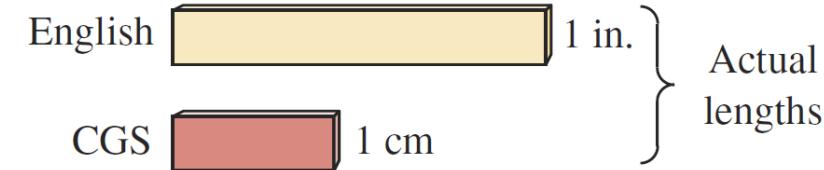
lambda	λ	Λ
mi	μ	M
ni	ν	N
csi	ξ	Ξ
$\text{\^omicro}n$	o	O
pi	π	Π
rô	ρ	P
sigma	σ	Σ
tau	τ	T
ípsilon	υ	Y
fi	φ	Φ
qui ou chi	χ	X
psi	ψ	Ψ
\^omega	ω	Ω

Length:

$$1 \text{ yard (yd)} = 0.914 \text{ meter (m)} = 3 \text{ feet (ft)}$$

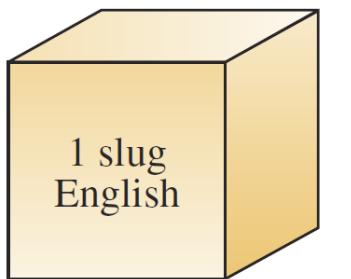


$$1 \text{ m} = 100 \text{ cm} = 39.37 \text{ in.}$$
$$2.54 \text{ cm} = 1 \text{ in.}$$

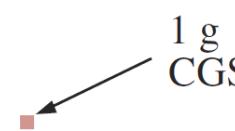


Mass:

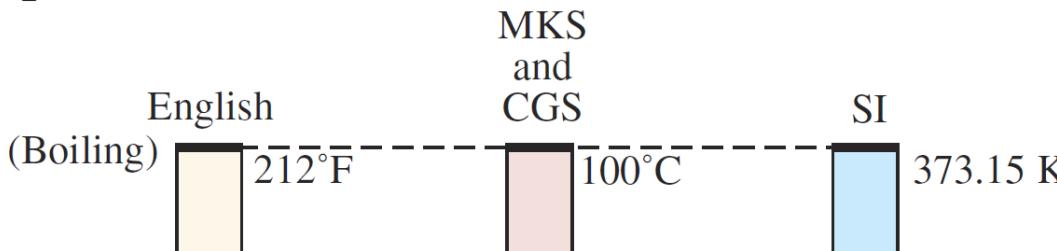
$$1 \text{ slug} = 14.6 \text{ kilograms}$$



$$1 \text{ kilogram} = 1000 \text{ g}$$



Temperature:

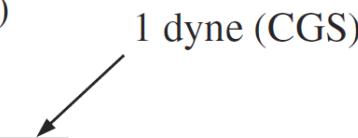
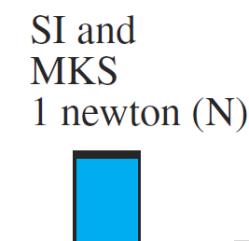


Force:

$$\text{English}$$
$$1 \text{ pound (lb)}$$



$$1 \text{ pound (lb)} = 4.45 \text{ newton}$$
$$1 \text{ newton} = 100,000 \text{ dynes}$$

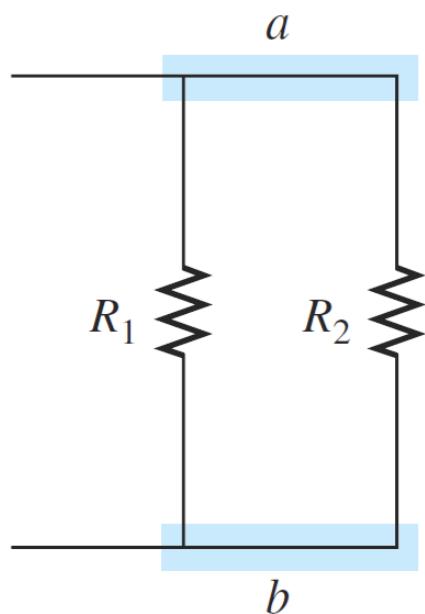


Energy:

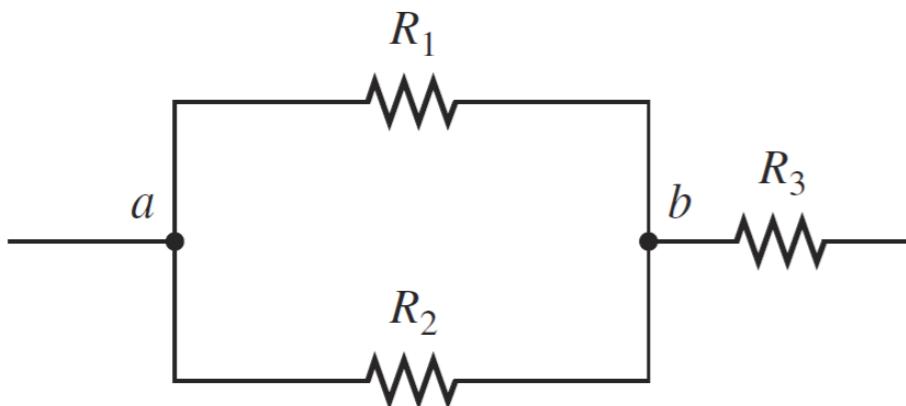
English

PARALLEL dc CIRCUITS

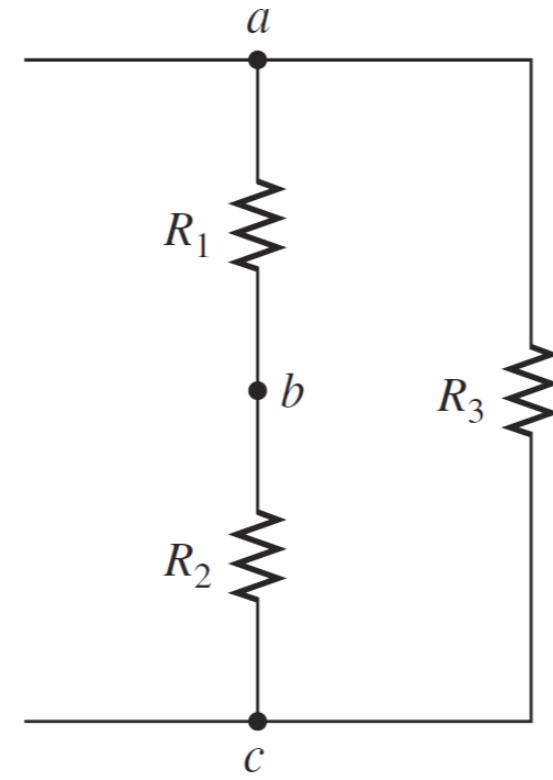
Boylestad
2014



(a)



(b)



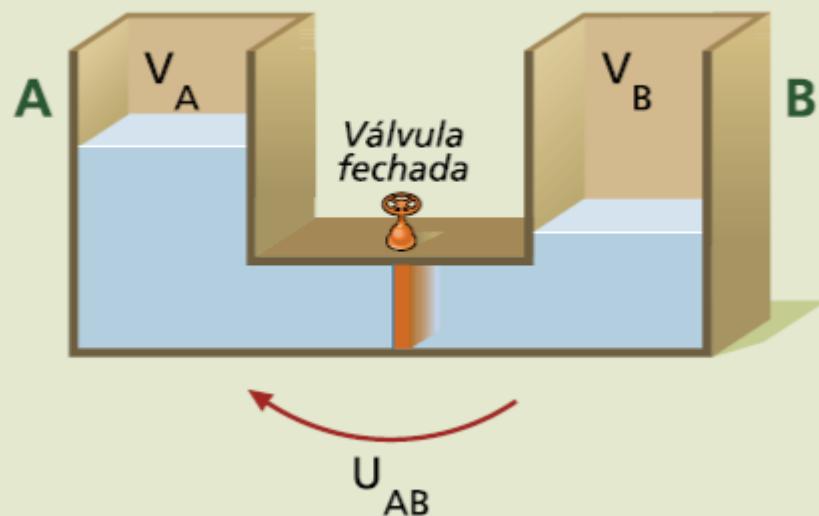
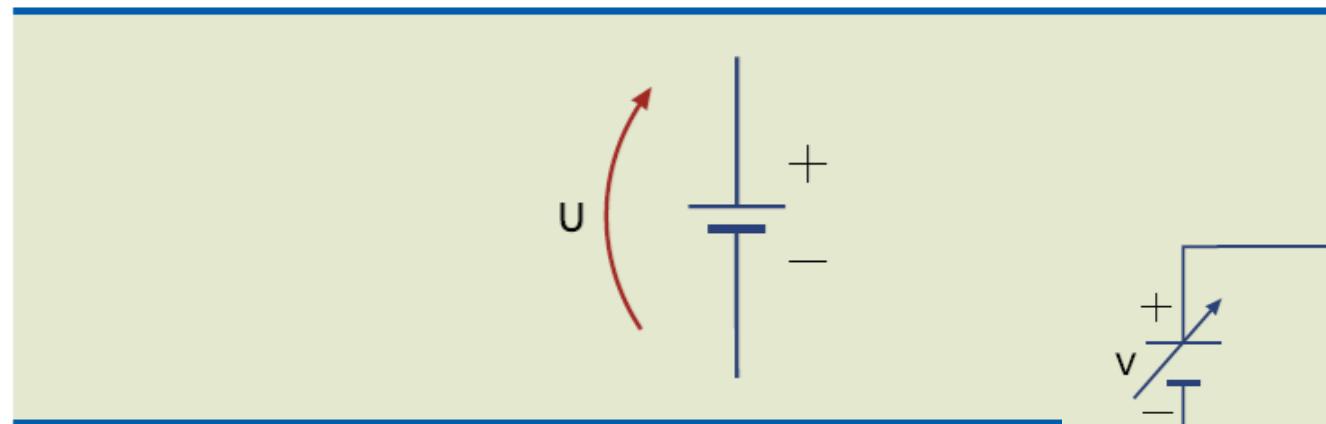
(c)

FIG. 1

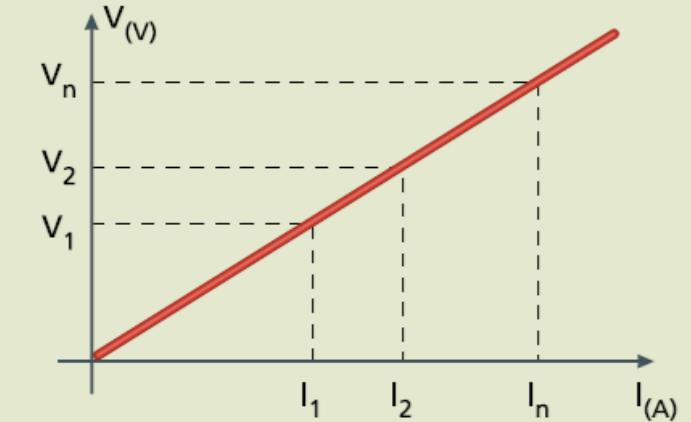
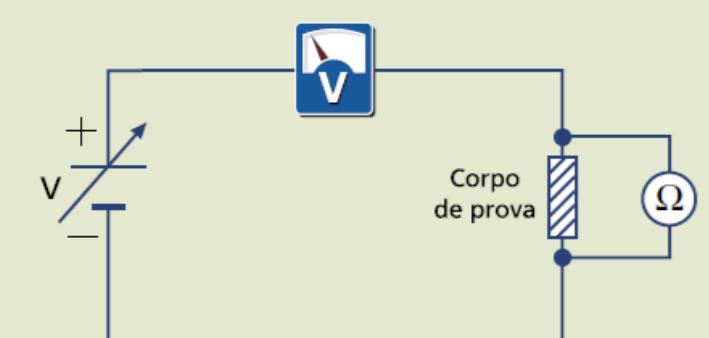
(a) Parallel resistors; (b) R_1 and R_2 are in parallel; (c) R_3 is in parallel with the series combination of R_1 and R_2 .

Figura 1.6

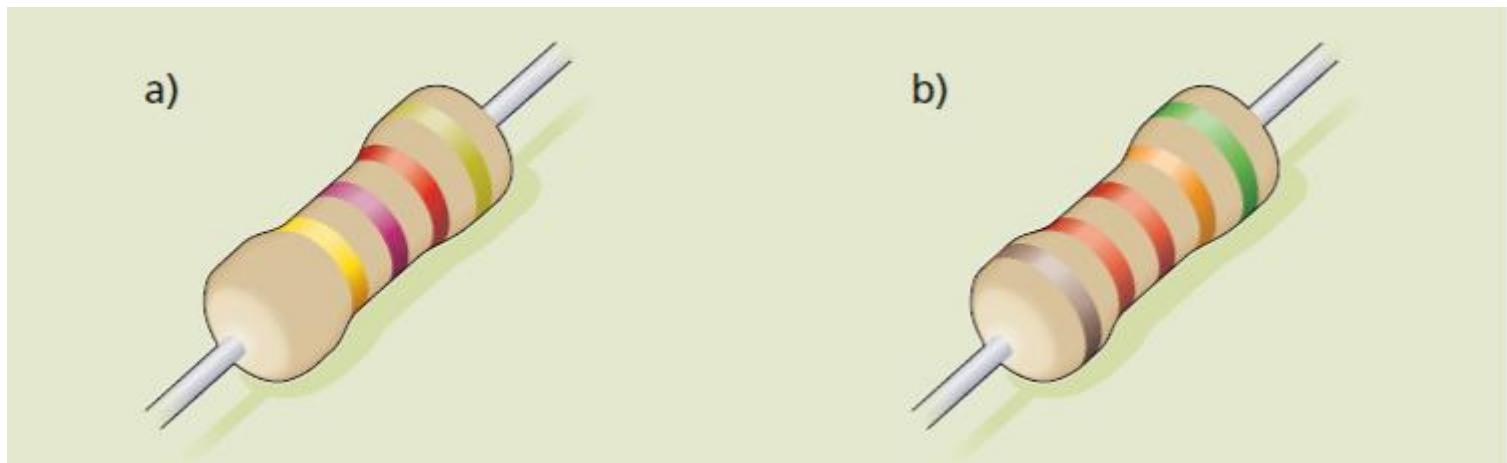
Representação da diferença de potencial em um gerador de tensão.



Lei de Ohm?



Resistencias



Valor

Cores	Valor (1º ao 3º anel)	Tolerância (4º ou 5º anel)
Preto	0 (menos 1º anel)	
Marrom	1	1%
Vermelho	2	2%
Laranja	3	
Amarelo	4	
Verde	5	0,5% (apenas 5º anel)
Azul	6	
Roxo/lilás/violeta	7	
Cinza	8	
Branco	9	
Ouro	-1 (apenas 3º anel)	5%
Prata	-2 (apenas 3º anel)	10% (não mais fabricado)

Resistência e resistividade

A unidade da resistividade é $\Omega\text{m} = 10^6 \Omega \frac{\text{mm}^2}{\text{m}}$.

Material	$\rho (\Omega \cdot \text{m})$ a 20 °C
Prata	$1,6 \cdot 10^{-8}$
Cobre	$1,7 \cdot 10^{-8}$
Ouro	$2,3 \cdot 10^{-8}$
Alumínio	$2,8 \cdot 10^{-8}$
Tungstênio	$4,9 \cdot 10^{-8}$
Platina	$10,8 \cdot 10^{-8}$
Ferro	$11 \cdot 10^{-8}$
Nicromo	$110 \cdot 10^{-8}$

Tabela 2.2

Valores aproximados
da resistividade para
diversos materiais

Cálculo da resistência (do Manual...)

2.4.4 Cálculo da resistência

De tudo isso se conclui: “A resistência elétrica de um condutor é diretamente proporcional ao comprimento e à resistividade e inversamente proporcional à área da seção transversal”. Portanto:

$$R = \rho \frac{\ell}{A} \quad (2.7)$$

em que:

- R é a resistência elétrica (em Ω);
- ρ a resistividade elétrica do material (em $\Omega \cdot m$);
- ℓ o comprimento do condutor (em m);
- A a área da seção transversal do condutor (em m^2).

The load line plots all possible current I_D , conditions for all voltages applied to the diode (V_D) in a given circuit. E / R is the maximum I_D and E is the maximum V_D .

$$E = V_D + I_D R$$

Where the load line and the characteristic curve intersect is the Q-point, which specifies a particular I_D and V_D for a given circuit.

Load-line analysis

{ Characteristic curve of the solid-state device
Load line of the circuit

