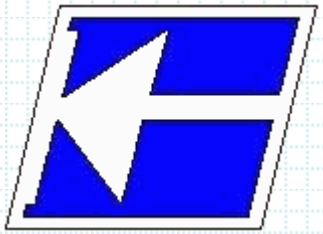
Instituto Federal de Educação, Ciência e Tecnologia de Santa Catarina
Departamento Acadêmico de Eletrônica
Curso Técnico em Eletrônica
Eletrônica Analógica I



Semicondutores: Diodos e Light Emitting Diode (Led)

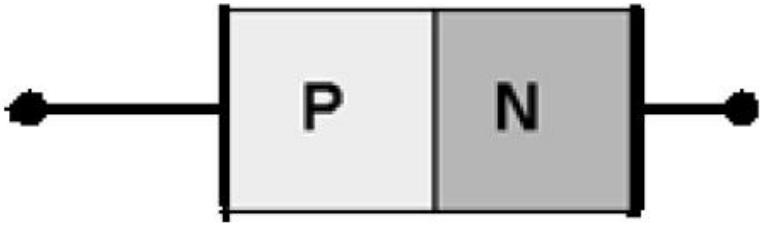
Prof. Joabel Moia

Florianópolis, outubro de 2024

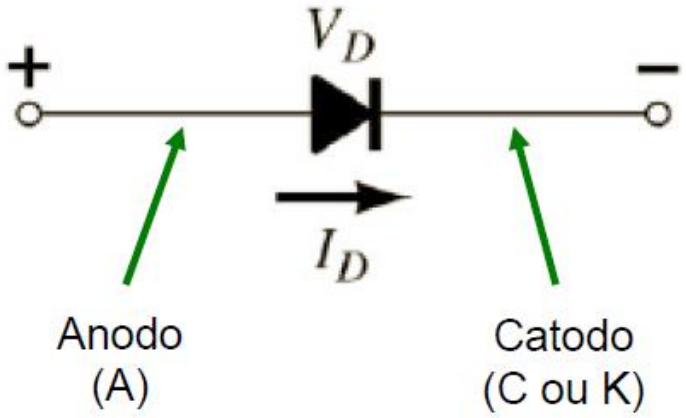
Semicondutores: Diodo

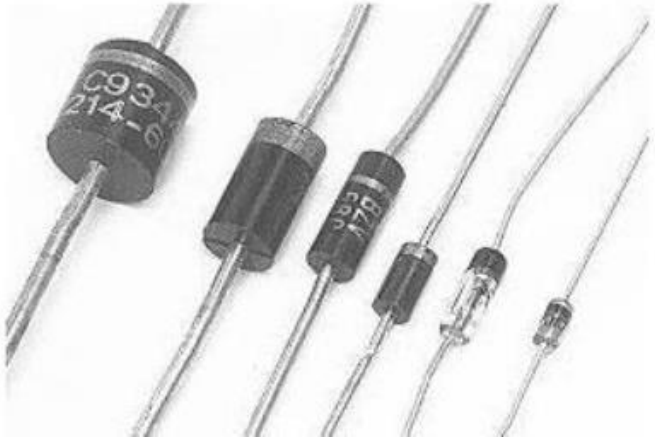
Diodos:

ânodo cátodo



Símbolo do diodo





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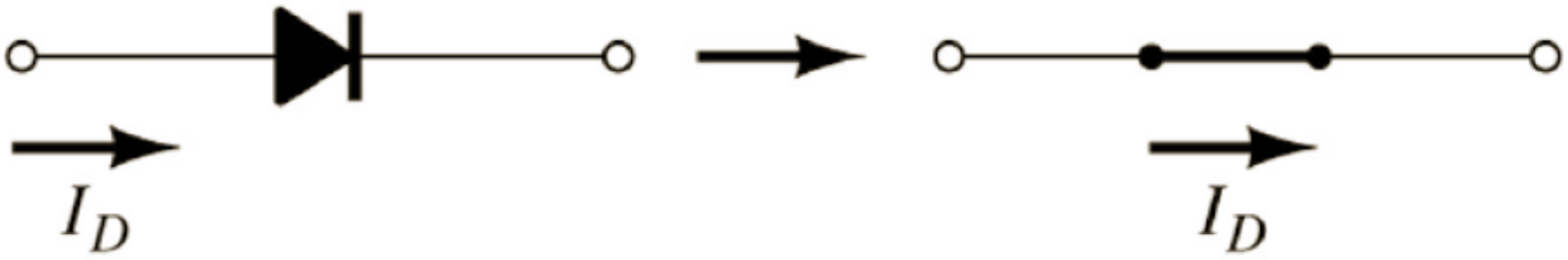
Diodos:

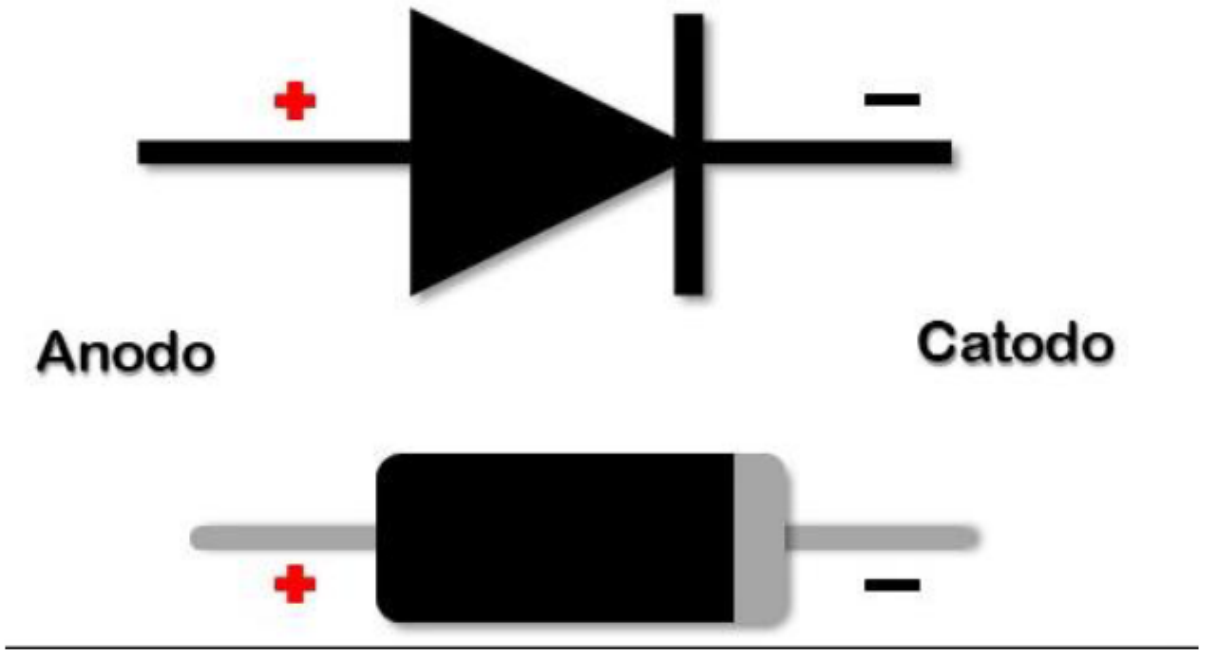
Diodo
conduzindo

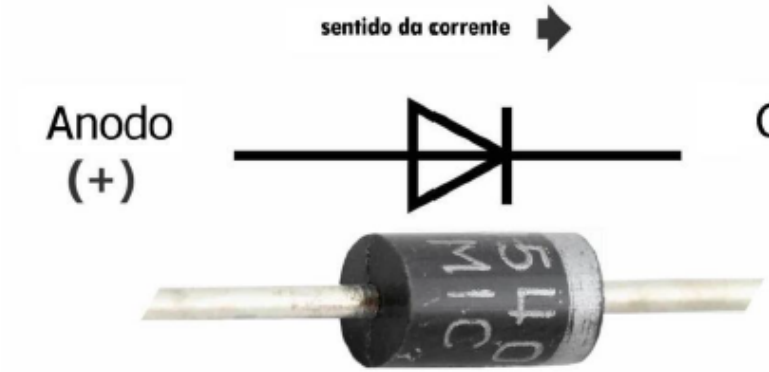


Diodo
bloqueado

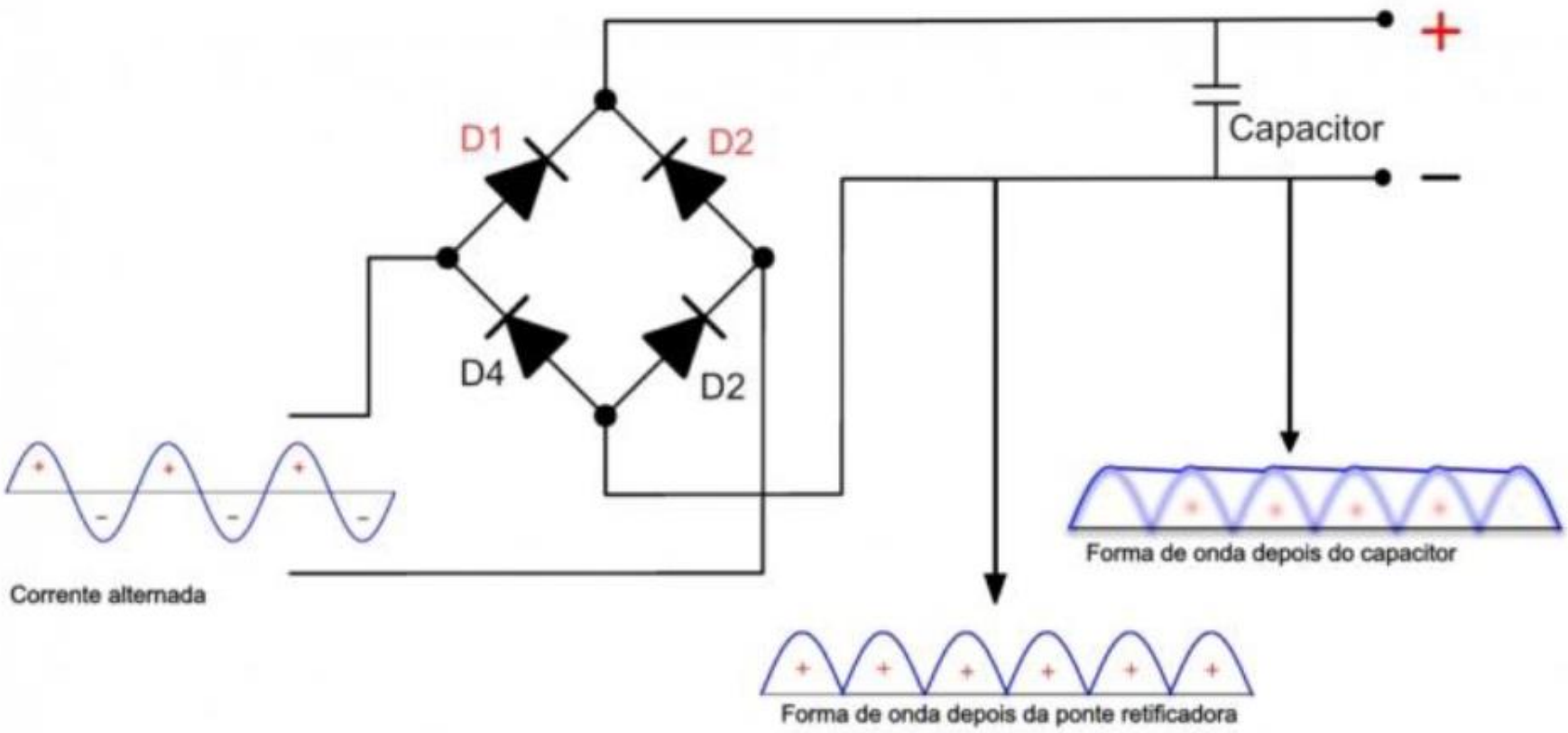
Semicondutores: Diodo

Diodos:





Diodos: Aplicação - Retificadores



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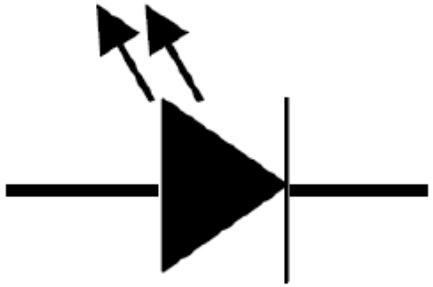
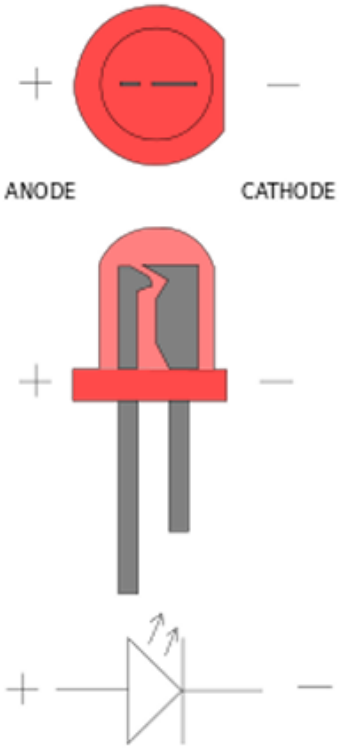
LED: Diodo Emissor de Luz

Quando polarizado de maneira correta, o mesmo conduzirá corrente elétrica e emitirá LUZ

Símbolo:

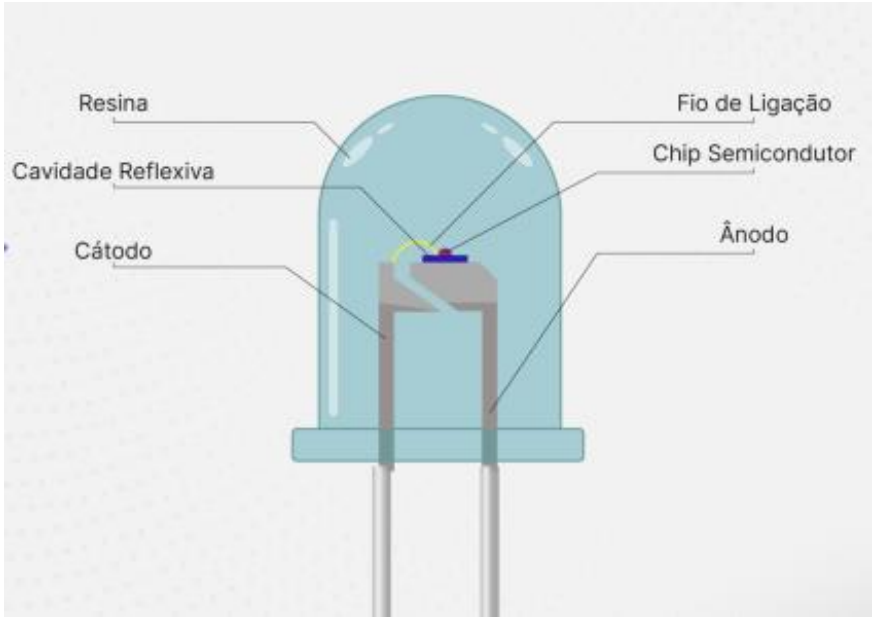




Semicondutores: LED

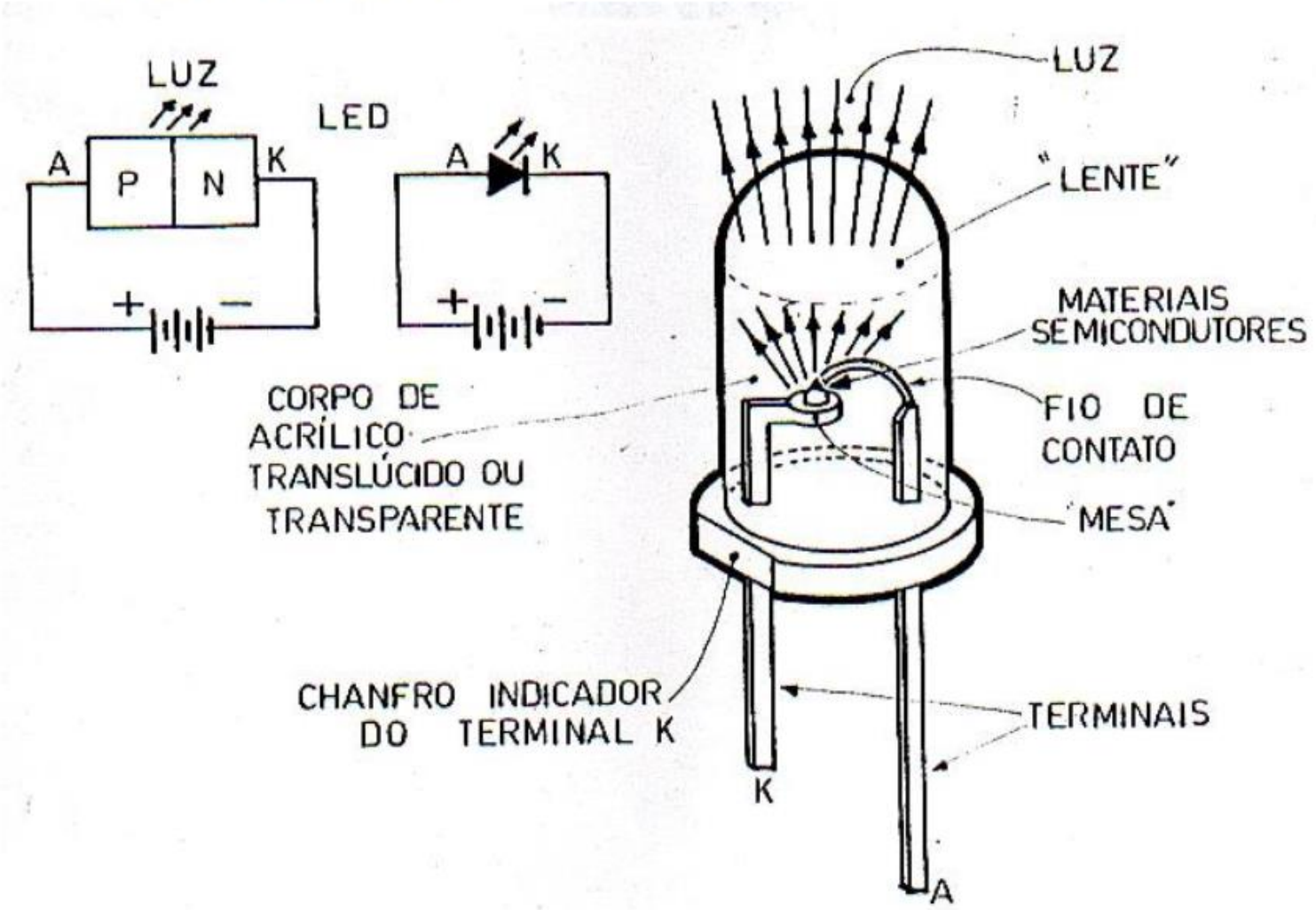
As cores dos LEDs dependem dos materiais semicondutores usados:

- **Vermelho:** arsenieto de gálio e alumínio;
- **Amarelo:** fosfato de alumínio, índio e gálio;
- **Verde:** fosfato de gálio;
- **Azul:** nitreto de gálio.



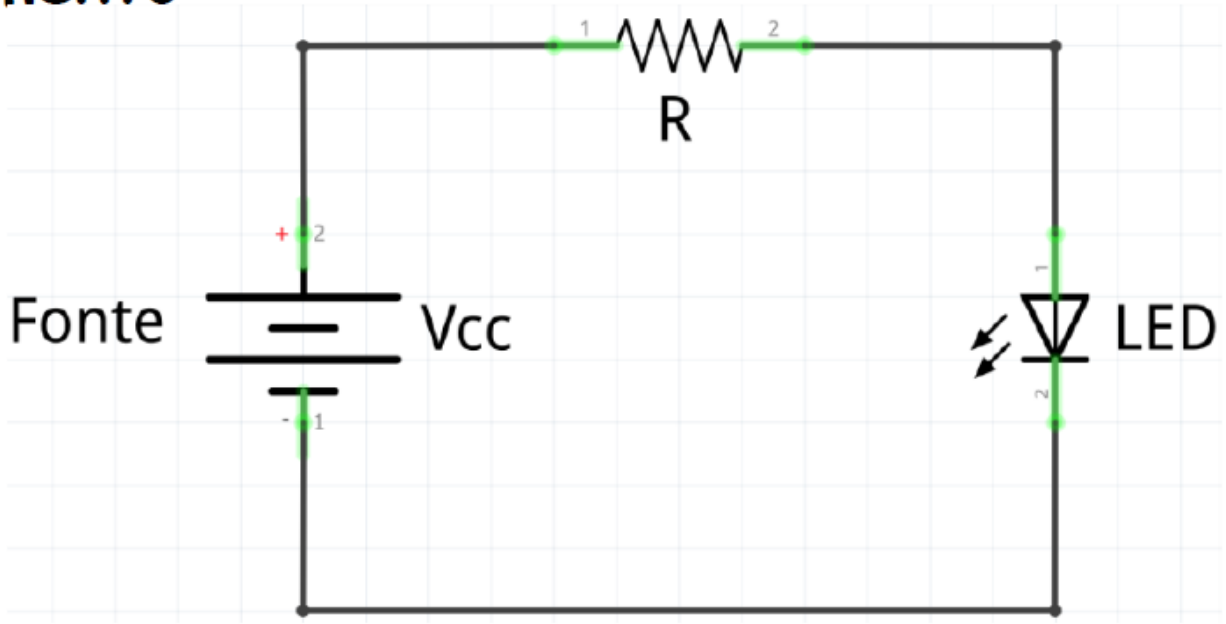
Semicondutores: LED

LED: Funcionamento



Semicondutores: LED

LED: Funcionamento

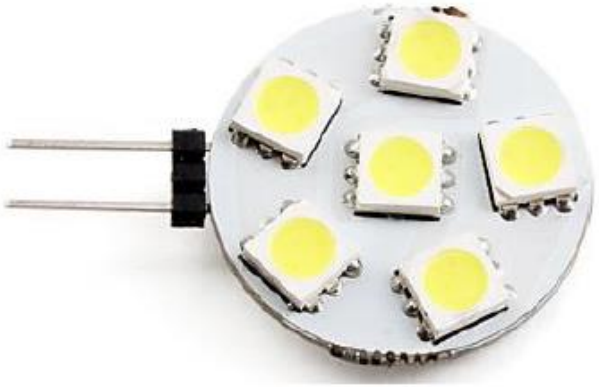


$$I_{LED} = (Vcc - V_{LED})/R$$

Cor do led	Faixa de tensão	Corrente máxima
Vermelho	1,8 V - 2,0 V	20 mA
Amarelo	1,8 V - 2,0 V	20 mA
Laranja	1,8 V - 2,0 V	20 mA
Verde	2,0 V - 2,5 V	20 mA
Azul	2,5 V - 3,0 V	20 mA
Branco	2,5 V - 3,0 V	20 mA

Semicondutores: LED

LED: Aplicação



Iluminação Publica SC 401

Semicondutores: LED

LED: Aplicação

TV:

Display:

Sinalização Letreiros:

Semicondutores: LED

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Sinalização: Exemplo, fontes lineares e chaveada, dentre outros: