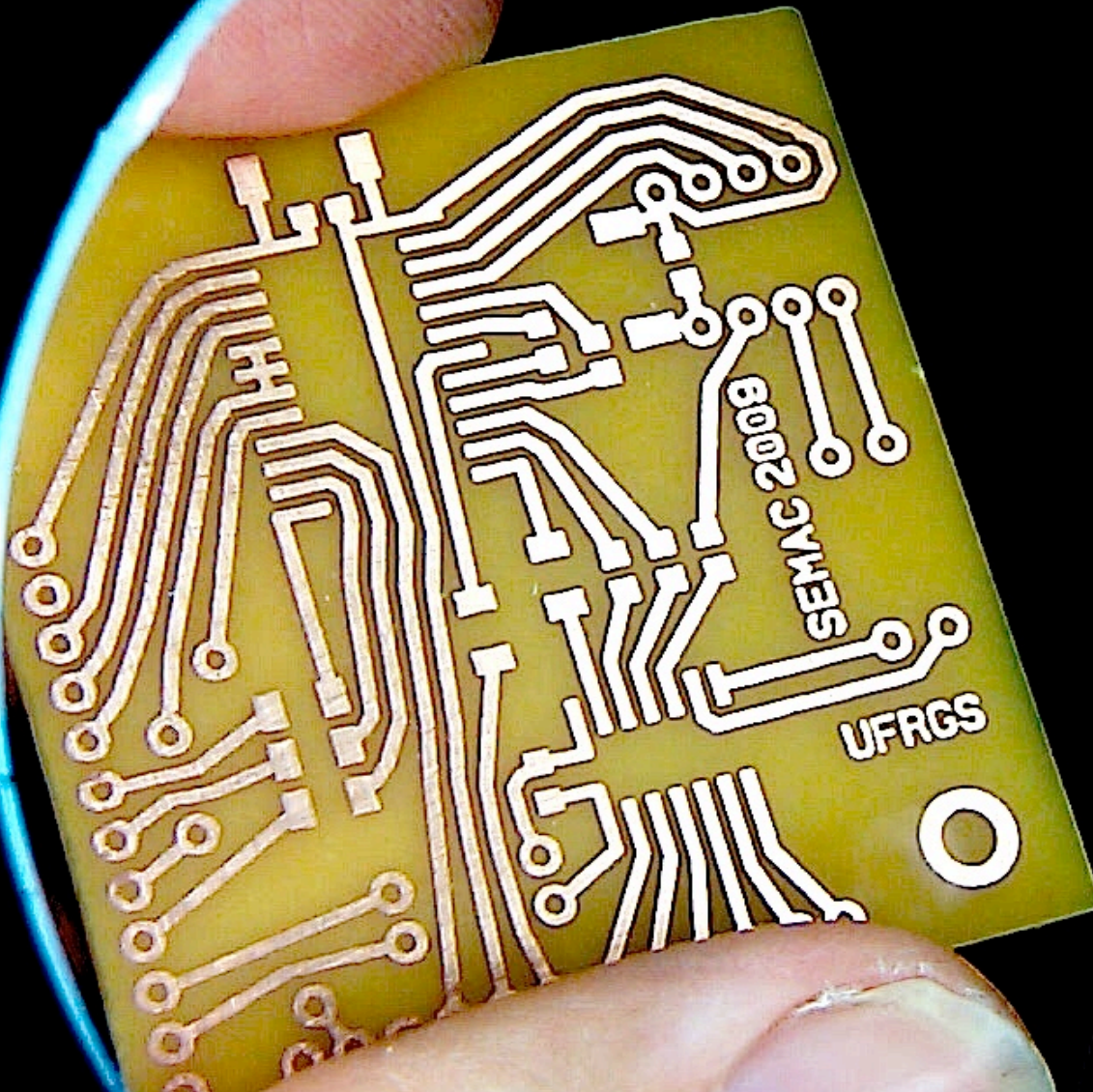


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inf
INSTITUTO
DE INFORMÁTICA
UFRGS

Agenda

- Introdução?
- Motivação?
- Aplicações?
- Revisão Bibliográfica?
- Slides e mais slides?

Que nada!

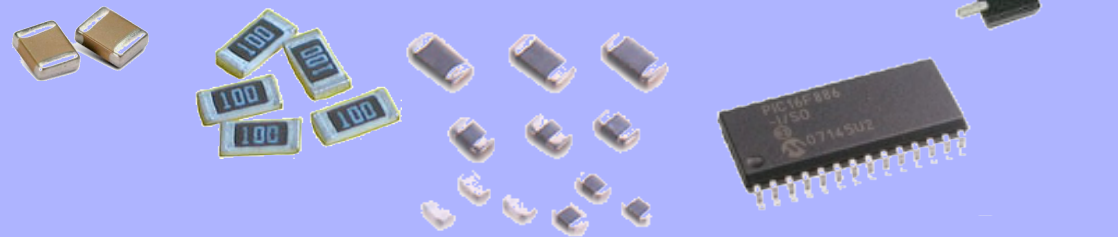
30^{min}

fazendo placas



30^{min}

soldando SMD



30^{min}

para discussão...

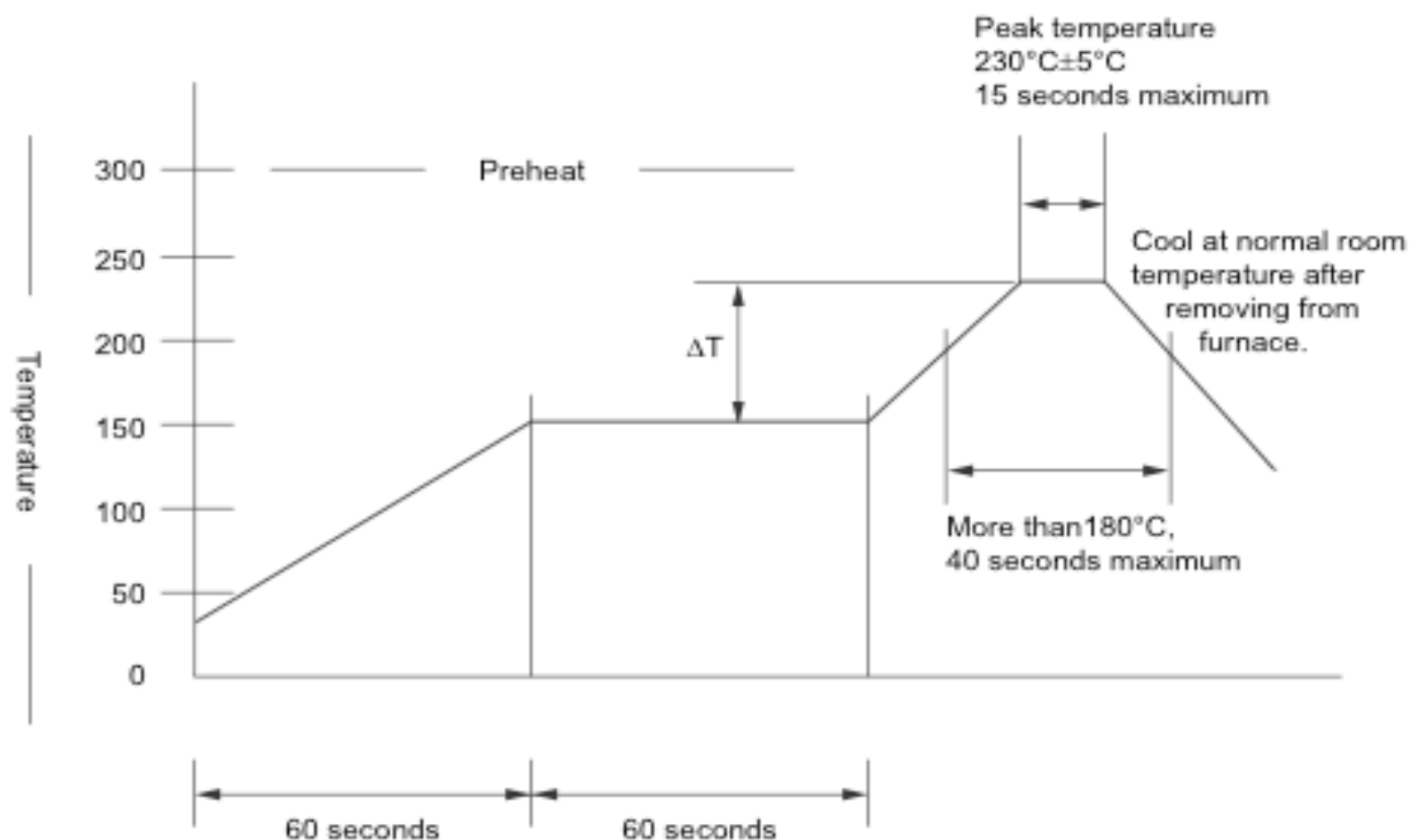
Solder

(from Wikipedia)

- Tin/lead solders, ... two most common alloys are 60/40 Sn/Pb which melts at 370 –F or 188 – C and 63/37 Sn/Pb ... The 63/37 ratio is notable in that it is a eutectic mixture...”
- Lead free:
 - SnAgCu solders are used by two thirds of Japanese manufacturers for reflow and wave soldering, and by about ¾ companies for hand soldering.
 - SnAg3.0Cu0.5, tin with 3% silver and 0.5% copper, has a melting point of 217 to 220 °C and is predominantly used in Japan. It is the JEITA recommended alloy for wave and reflow soldering, with alternatives SnCu for wave and SnAg and SnZnBi for reflow soldering.
 - SnAg3.5Cu0.7 is another commonly used alloy, with melting point of 217-218 °C.
 - SnAg3.5Cu0.9, with melting point of 217 °C, is determined by NIST to be truly eutectic.
 - SnAg3.8Cu0.7, with melting point 217-218 °C, is preferred by the European IDEALS consortium for reflow soldering.
 - SnAg3.8Cu0.7Sb0.25 is preferred by the European IDEALS consortium for wave soldering.
 - SnAg3.9Cu0.6, with melting point 217-223 °C, is recommended by the US NEMI consortium for reflow soldering.
 - SnCu0.7, with melting point of 227 °C, is a cheap alternative for wave soldering, recommended by the US NEMI consortium.
 - SnZn9, with melting point of 199 °C, is a cheaper alloy but is prone to corrosion and oxidation.
 - SnZn8Bi3, with melting point of 191-198 °C, is also prone to corrosion and oxidation due to its zinc content.
 - SnSb5, tin with 5% of antimony, is the US plumbing industry standard. Its melting point is 232-240 °C. It displays good resistance to thermal fatigue and good shear strength.
 - SnAg2.5Cu0.8Sb0.5 melts at 217-225 °C and is patented by AIM alliance.
 - SnIn8.0Ag3.5Bi0.5 melts at 197 to 208 °C and is patented by Matsushita/Panasonic.
 - SnBi57Ag1 melts at 137-139 °C and is patented by Motorola.
 - SnBi58 melts at 138 °C.
 - SnIn52 melts at 118 °C and is suitable for the cases where low-temperature soldering is needed.

Recommended Temperature Profile (62Sn Solder)

Reflow



- ① Minimize soldering time.
- ② Ensure that the temperature difference (ΔT) does not exceed 150°C .
- ③ Ensure that the temperature difference (ΔT) does not exceed 130°C for $3.2 \times 2.5\text{mm}$ size or larger.
- ④ MLCC can withstand the above reflow conditions up to 3 times.



Métodos de Solda

- Estação de ar quente
- Ferro para SMD, pino a pino
- Método da bolinha
(com ferro grande)
- Ferro de Passar
(ou outros fornos caseiros...)

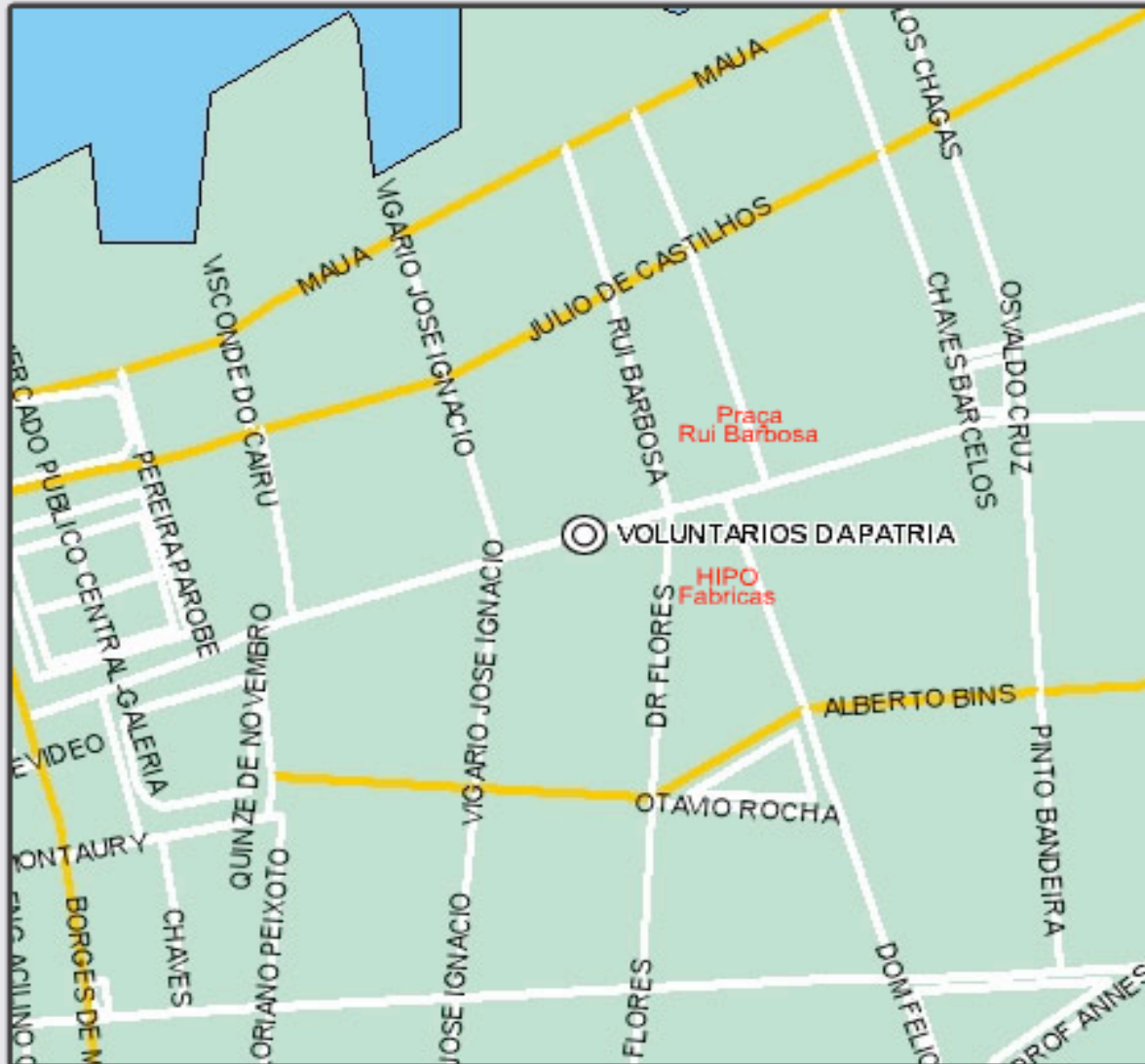
RESUMO

BOM

(Bill Of Materials)

Essencial	Econômico	Confortável
Pinças 	Acesso a ----->	Impressora Laser
Luz e Lente	Ferro de Solda	Estação de Solda
Papel certo!	Ferro de Passar	Estação de Retrabalho
Fluxo para SMD	Estanho 60/40, 63/37	Solda em Pasta 
Paquímetro	Furadora de Placa	Furadeira de precisão
Lixas, fita crepe, panos, papel toalha, cotonete, ...		
Alicate, serra, estilete, morça, organizadores...		
Espaço	Medidas de Segurança!	
Software (e saber)	Tratamento de Efluentes!	

Gaúcha Fornituras



Endereço:
Rua Voluntários da Pátria, 188
conjunto: 402 - 403 - 404- 405
Quarto Andar

Porto Alegre - RS - Brasil
Cep: 90030-000

Fones:
(51) 3225.90.55
(51) 3225.97.46
(51) 3227.3678
(51) 3286.5750

Solda em Pasta

(from Wikipedia)

- “Solder paste (or solder cream) is used for connecting the terminations of IC packages with land patterns on the PCB”
- Classification based on size:

Type designation[JEDEC]	Mesh size in micrometres	Particle size in micrometres	Average size in micrometres
Type 2	-200/+325	75-45	60
Type 3	-325/+500	45-25	35
Type 4	-400/+500	38-20	31
Type	-500	25-15	18

- Classification based on flux:
 - rosin based pastes,
 - water soluble pastes
 - and no clean pastes.

Encontre em:

www.raisa.com.br

ALTERNATIVAS

Para fazer as placas

- Desenho manual (com régua)
- Impressora Jato de Tinta
- Fotolitografia (com cola)
- Serigrafia
- Drill com CNC
- Serviços profissionais



Tutorials, Links, Refs...

Google™

You Tube

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