

Semestral Project
 Master Project
 Thesis
 Other

TP Micro 332

Description of the fabrication project

The TP MICRO 332 focuses on the use of the cleanroom in CMI to fabricate and characterize a metallic resistor structure. Students are exposed to lithography, etching, and electrical characterization as part of this process. Such a structure could be used as an interconnect to connect components together in a microprocessor, for example, or could be used to implement a resistive sensor such as a temperature detector or a chemical sensor.

Technologies used			
Photolithography, positive resist, wet etching			
Photolitho masks			
Mask #	Critical Dimension	Critical Alignment	Remarks
Mask 1	2 μm		For aluminium etch
Substrate Type and size			
Silicon <100>, \varnothing 100mm, 525 μm thick, Single Side polished, p type Aluminum on SiO ₂ /Si, \varnothing 100mm, Aluminium thickness 0.8 μm			

Interconnections and packaging of final device

Thinning/grinding/polishing of the samples is required at some stage of the process.

No Yes => confirm involved materials with CMi staff

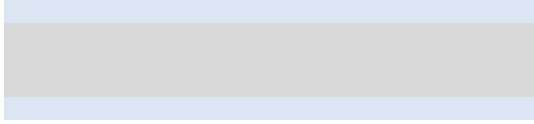
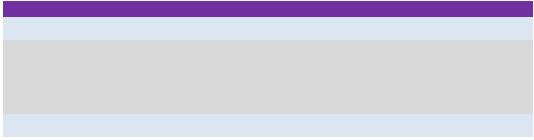
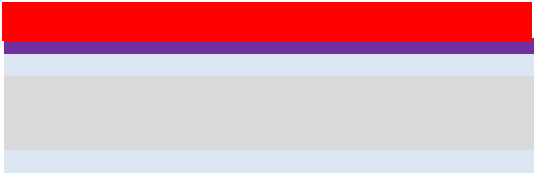
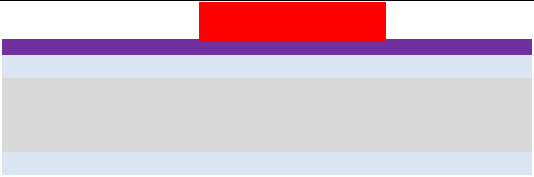
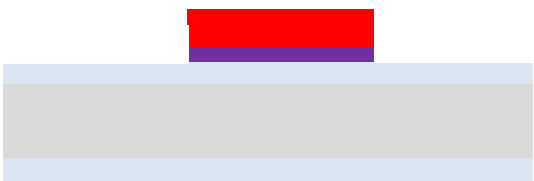
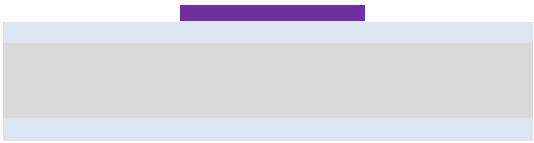
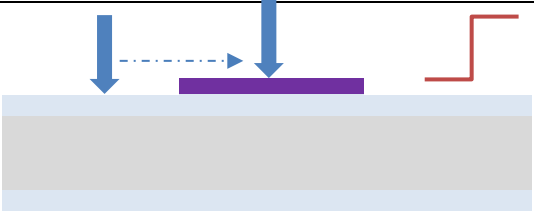
Dicing of the samples is required at some stage of the process.

No Yes => confirm dicing layout with CMi staff

Wire-bonding of dies, with glob-top protection, is required at the end of the process.

No Yes => confirm pads design (size, pitch) and involved materials with CMi staff

Wet etching

Step	Process description	Cross-section after process
01	Substrate: Si test <i>RCA cleaning</i> Machine: <i>Plade RCA- Z3</i> <i>Wet Oxidation</i> Machine: <i>Centrotherm -Z3</i> Thickness: 0.49 μm	
02	<i>Metallization</i> Machine: <i>Spider 600- Z4</i> <i>Couche: AlSi 1%</i> Thickness: <i>8000 A</i>	
03	<i>Photolith PR coat</i> Machine: <i>EVG 150 Coater Z6</i> PR : <i>AZ ECI 3007- 1 μm</i> Pr: <i>C4_H_3007_1ux (With HMDS)</i>	
04	<i>Photolith expo+ develop</i> Machine: <i>MLA 150 Z16</i> EVG 150: <i>DEVELOPER AZ 726</i> <i>MIF -Z6</i>	
05	<i>Wet Etch</i> Material : <i>AlSi 1%</i> Machine: <i>Plade Metal Z2</i> <i>ANP bath</i> Depth : <i>8000 A</i> Time: <i>(5 to 10 min)</i>	
06	<i>Resist Strip</i> Material: <i>AZ ECI 3007- 1 μm</i> (Z2) <i>Bain remover 1165</i> Or <i>plasma Oxygen</i> Or <i>Acetone + IPA</i>	
07	<i>Thickness measurement</i> Dek Tak <i>Z15</i>	

Lab : DLL-STI

Operator Name : **MT-BA students**

Supervisor Name : A. SAYAH

Process Flow Date : 09/07/2025

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