

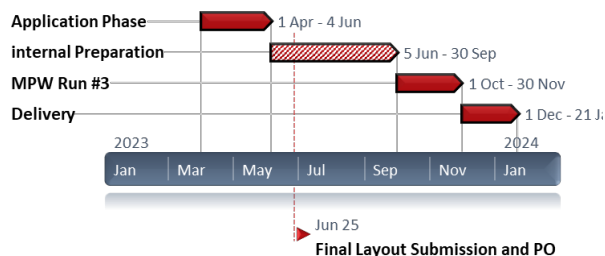
The third MPW run is mainly intended towards electronics but can also include sensor devices (e.g. Hall sensor, but via opening on graphene is not in the scope of this run) and will be provided by AMO GmbH. The design of the device can be adjusted within the specifications. The offered device structure is a GFET (Fig. 1) consisting of the following fabrication steps:

- Back gate
- Dielectric deposition & vias opening
- Fabrication of adhesion pads
- Wafer scale graphene transfer & patterning
- Top contacts fabrication
- Encapsulation & vias opening (not on top of graphene)

The summary of the key parameters for a device with local back gate is shown in the table below.

Parameter	Value
Graphene Mobility	>1000 cm ² /Vs
Avg. Sheet Resistance	n=5 x 10 ¹² cm ⁻² : ~1 kΩ CNP: ~4 kΩ
Avg. Contact Resistance	n=5 x 10 ¹² cm ⁻² : ~1 kΩ μm CNP: ~4 kΩ μm
Minimum working devices:	>80 %
Dirac point	<15 V
Safe gate-source voltage range:	± 20 V

Timeline



- During the application phase, interested clients can contact us via the contact form and receive further information about the run in a first meeting.
- Final Layout Submission and PO must be received by 25 June.
- The chips are expected to be delivered in December 2023.

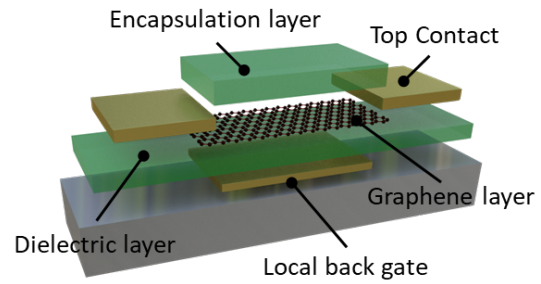


Figure 1 Scheme with the different layers of the final GFET structure.

Specifications

Substrate

- Material: Silicon
- Basic die size: 1 x 1 cm²

Resolution

- General design rule: 10 μm for in-layer critical dimension and over-layer alignment

Layer Thicknesses

	Material	Thickness
Rigid Substrate	Si/SiO ₂	90 nm
1 Back Gate Contact	Ti/Pd	5nm /40nm
2 Dielectric Layer	Al ₂ O ₃	40 nm
3 Adhesion Layer for Top Contact Pad	Ni	25 nm
4 Graphene	Single layer, CVD on Cu	
5 Top Contact	Pd	40 nm
6 Encapsulation	Al ₂ O ₃	80 nm

Characterization

- Raman characterization
- Electrical measurement for as-fabricated reference devices
- General optical inspection of your devices

Costs

- 1300,-€ set price for four dies with identical design (1x1 cm²)
- Each die more with identical design costs 250,-€ in addition

AMO GmbH

Otto-Blumenthal-Str. 25
52074 Aachen
Germany



Email: 2D-EPL@amo.de

Website: <http://www.2DPilotLine.eu>