X-Fab

X-FAB 0.35, 0.18, 0.13, 0.11µm & GaN-on-Si Photonics Integration

Why Fraunhofer IIS?

- 40+ years of experience in IC design and over 30 years of involvement in initiatives like Europractice, with a proven track record.
- Broad technology and service portfolio covering the full chip value chain, modular services, and an extensive partner ecosystem.
- Independent, application-oriented RTO based in Germany.

Why X-FAB?

- The world's leading foundry group for analog/mixed-signal semiconductor applications.
- Technologies ranging from 1.0 to 0.13 µm mixed-signal CMOS and special SOI long lifetime processes for automotive, industrial, medical and other applications.
- Six manufacturing sites in Germany, France, Malaysia and the USA.

Technology Highlights

XH035: Modular Mixed-Signal Technology with HV Extensions
0.35 µm CMOS with single poly and triple metal. Supports low Vt, low leakage devices, embedded NVM, HV modules, and high resistance polysilicon. Features MOS and bipolar devices, including ultra-low noise transistors for high SNR industrial, automotive, and telecom applications. Noble Metal Au/Pt finish available for MLM.

XH018: Modular Mixed-Signal HV CMOS
0.18 µm single-poly CMOS platform with up to six metals, supporting 175 °C, high voltage options, and embedded NVM. Ideal for automotive SoCs (combustion and EV), HV communication, consumer, and industrial applications.

XT018: Modular HV SOI CMOS
SOI based 0.18 µm process with Deep Trench Isolation and six metals. Supports up to 375V, multiple NVM options, full PDK, robust device modelling, and wide IP availability. Designed for automotive, industrial, and medical systems operating from –40 to 175 °C.

XS018: High Speed Image Sensor Technology
Supports 4 T cells, pinned photodiodes, and stitching for large high frame rate sensors used in medical and scientific X ray imaging. Includes a 3.3V core for low mask count, low power SoC designs serving automotive, industrial, and medical markets.

XP018: Modular CMOS Power Management
0.18 µm CMOS platform with high voltage and NVM integration. A cost-efficient solution for high performance power management ICs. Ideal for switching, lighting, and display applications operating from –40 to 175 °C.

XR013: RF SOI CMOS
0.13 µm RF SOI platform for multi standard fixed and mobile RF applications from –40 to 125 °C. Features twin well 2.5V CMOS on a high impedance SOI substrate with four metal hybrid Cu/Al metallization.

XT011: Next Generation BCD on SOI
SOI platform with Deep Trench Isolation built on a 110 nm process. Offers high voltage devices, automotive grade NVM, and 2× standard cell density vs. XT018. Targets next generation automotive systems needing greater processing capability, with a scaling path for industrial and medical products.

XG035: GaN on Si Power Technology
GaN on Si technology produced in X FAB's automotive qualified 8 inch fab. Supports d mode HEMTs scalable from 100–650V for high efficiency power conversion. Customer specific options include enhancement mode HEMTs and Schottky Barrier Diodes for high frequency rectification and power supplies. Optimized for high frequency, low RDS (on) switching and used in automotive, data center, industrial, renewable energy, and consumer power applications.

XPH90: Heterogeneous Photonic Integration

XPH90 combines high performance III V materials with silicon scalability through heterogeneous integration. Built on an SOI photonics platform, it integrates Si, SiN, and InP technologies to enable high speed, highly integrated photonic solutions for data center, telecom, and LiDAR applications.

Technology Details

XH035 3.3V/5V
M3 or M4 Layers
Thick metal option
5V or 18V dual gate for HV transistor
Isolated MOS module
Deep N-well and P-well
Operating voltages 45V, 70V, 90V
HR polysilicon
MIM capacitor
Depletion NMOS module
Tiny EEPROM

XH018 1.8V/3.3V
M4 or M6 Layers, thick metal layer
Triple well isolated
10-45V HV CMOS transistor, 18V gate oxide
1.8 low Vt module additional
N-well, P-well
Medium R, P-doped polysilicon
MIM or MIMH capacitor
HV Schottky diode
Support photodiodes and SPAD
NVM module

XT018 1.8V/5V
M4 or M6 layers, thick metal layer
Deep trench isolation (DTI)
10-375V HV transistors
1.8V for 1.8V/5.0V PNP bipolar transistors
7.0 N-type protection DIODE (dpc)
HR N-doped polysilicon resistor
MIM or MIMH capacitor
NVM module

XTO11
M6 to M8 layers
Thick metal option
Deep trench isolation (DTI)
12V - 60V HV CMOS transistors
Poly resistors
Metal fringe capacitors
1.5V MOS low power, standard Vt, low Vt
NVM module

XS018 1.8V/3.3V
M4 or M6 layers, thin metal layer
4T based CMOS imaging sensors
Selection of pinned photo diodes
3.3V buried channel NMOS in pixel
3.3V low Vt NMOS in pixel
MIM or MIMH capacitor
Polysilicon resistor module
Flat passivation for micro lense or colour filtering, post process

XP018 1.8V/5V
M4 or M6 layers
Thick metal layer
12V-60V HV transistors
Medium R P-doped polysilicon resistor
HR P-doped polysilicon resistor
MIM or MIMH capacitor
Ready-to-use EEPROM memory block (SONOS based)

XPH90
SOI photonics platform
Heterogeneous III-V integration
Micro-transfer print. of active devices
Si & SiN waveguides (multi-etch)
High- and low-index materials
Optical windows and cavities
Cu metallization (2–4 layers)+Al layer
Deep etch for edge fiber coupling
Selective process customization

XG035 GaN-on-Si
8”automotive-qualified´GaN-on-Si platform
d-mode HEMTs, scalable 100–650 V
e-mode HEMT and SBD options
Optimized for thicker GaN-on-Si wafers
High-frequency, low-RDS(on) switching

xfab

Contact

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MPW Pricelist	Metal stack	€/mm²
XH018 0.18µ CMOS E-FLASH (MET1-MET2-MET3-METMID-LPMOS)	4M	1,126
XH018 0.18µ CMOS E-FLASH (MET1-MET2-MET3-MET4-METMID-METTHK-LPMOS)	6M	1,314
XT018 0.18µ SOI CMOS(MET1-MET2-MET3-METTHK-LP5MOS)	4M	1,287
XT018 0.18µ SOI CMOS (MET1-MET2-MET3-MET4-METMID-METTHK-LP5MOS)	6M	1,503
XP018 0.18µ NVM CMOS (MET1-MET2-MET3-METMID-LP5MOS)	4M	1,126
XP018 0.18µ NVM CMOS (MET1-MET2-MET3-MET4-METMID-METTHK-LP5MOS)	6M	1,314
XS018 0.18µ OPTO (MET1-MET2-MET3-MET4-METTHIN-MOS3ST)	4M	891
XS018 0.18µ OPTO (MET1-MET2-MET3-MET4-MET5-METMID-MOS3ST)	6M	1,079
XS018 0.18µ OPTO (MET1-MET2-MET3-METMID-MOS3LPPD)	4M	891
XS018 0.18µ OPTO (MET1-MET2-MET3-MET4-MET5-METMID-MOS3LPPD)	6M	1,079
XH035 0.35µ HV CMOS (MOS)	3M	765
XH035 0.35µ HV CMOS (MOS, METAL4)	4M	855
XH035 0.35µ HV CMOS (MOS, METAL2)	2M	675
XT011 0.11µ SOI CMOS (MET1-MET2-MET3-MET4-MET5-COPTHK-ALUCAP-MOS5)	6M	1,605
XR013 0.13µ RF SOI CMOS (MET1-MET2-METBQ-METRB-CORE-2V5DT-NOPIMIDE)	4M	2,043
XR013 0.13µ RF SOI CMOS (MET1-MET2-MET3-MET4-METTHK1-METTHK2-METBQ-METRB-2V5DT-PIMIDE-CORE)	8M	2932
XR013 0.13µ CMOS XIPD (METTHK1-METTHK2-METBQSL-METRB-PIMIDE-XIPD)	4M	933
XG035 0.35µ GaN		789

Important notes:
If your design uses X-FAB IP blocks, you must complete the required IP License Agreement and Purchase Orders.
Please notify us at least 6 weeks before the final GDS deadline to enable coordination with X-FAB IP contacts.
The price is based on the X-FAB Basic Offering (Main Module + Metal Stacks). Final pricing will vary depending on the actual modules selected for the design.

Price = area (mm2) * price/mm² with min. fabrication cost equivalent to 10mm².Area will be rounded upwards to the next mm² (for instance, 12.24mm² will be charged as 13mm²).Backgrinding (necessary for packaging) is not always possible, and an additional cost might apply.

When four or more independent sub-designs are registered in one MPW submission to optimize the minimum charged area, an additional verification charge of 1,000 EUR will be applied.

Delivery of 50 dies is included. Purchasing additional dies is not always possible and an additional cost may apply.

[1] Delivery of 5 dies is included. Additional dies can be purchased for 10EUR/die (50 dies maximum).