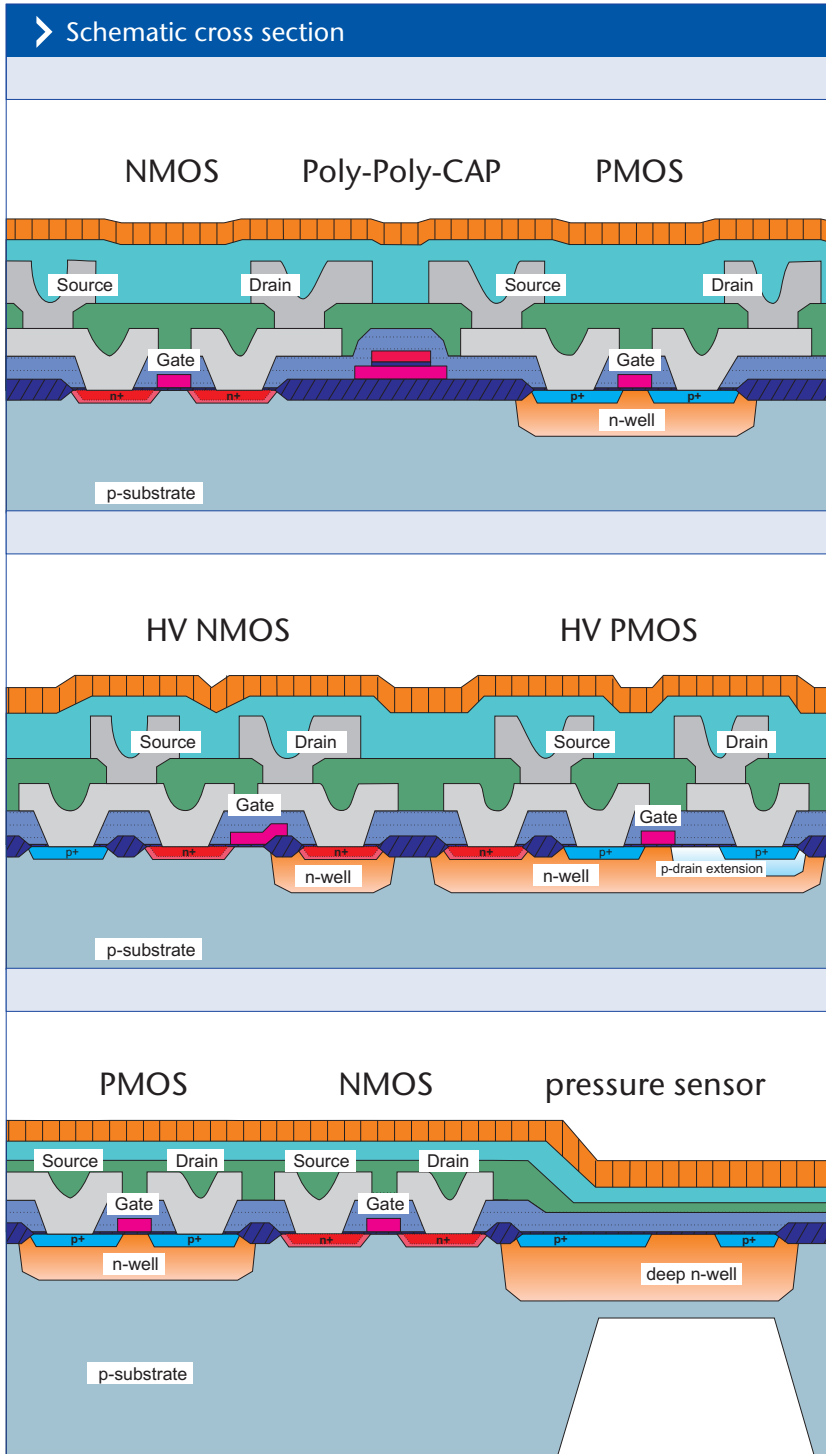


1.0 μm CMOS Process

> XC10

> Schematic cross section



> 1.0 μm Mixed Signal CMOS Technology

Broad variety of combinable process elements available:

- Double poly capacitor
- High ohmic and low TC resistors
- Non volatile memories, MEMS
- Low voltage variant

> Process Features

- N-well CMOS process on 6 inch p-EPI wafers
- 40 nm gate oxide
- Poly gate oxid spacers / DDD n-channel
- BPSG interlayer dielectric
- 2 metal layers AlSiCu
- TEOS intermetal dielectric with resist etchback
- PSG/Nitride passivation

1.0 μm CMOS Process

> XC10

Cost effective single poly, single metal basic process with numerous primitive devices:

- 5V and 12V MOS enhancement transistors
- Natural n-channel transistors
- Different n-channel high voltage transistors up to 100V
- Resistors, diodes including Schottky and Zener, bipolar transistors
- Low voltage variant available

Additional options of the modular process:

- Double metal
- Double poly for linear capacitors, high ohmic and low TC resistors
- P-channel high voltage and depletion transistors
- Fuses, Zener zapping and EPROM for OTP
- High density ROM
- High reliable EEPROM
- Sensors including MEMS

Well characterized and supported by:

- BSIM3V3 SPICE models
- Digital and I/O cell libraries
- IP cores
- Development kits for major EDA tools

Design Rules	
Mask layer	Pitch [μm]
N well	18.8
Active	2.8
Poly	2.2
Contact	2.2
Metal 1	2.6
Via	3.3
Metal 2	3.1
Mask layers	Enclosure [μm]
Active - Contact	0.5
Poly - Contact	0.6
Contact - Metal 1	0.6
Metal 1 - Via	0.4
Via - Metal 2	0.4

Electrical Parameters (selection)

MOS Transistors				
	Vt [V]	Ids [mA/ μm]	BV _{DSS} [V]	I [μm]
N-channel	0.80	0.18	13	1.2
P-channel	- 0.90	0.07	- 13	1.3
N-channel zero	- 0.1	0.10	14	6.0
	Vt [V]	RDS _{ON} [k Ω μm]	BV _{DSS} [V]	
N-channel high voltage	0.80	40	95	
P-channel high voltage	- 0.90	110	- 45	

Special Diodes	
	BV _{DSS} [V]
Schottky	10
Zener	5

Capacitors & Resistors		
	C [fF/ μm^2]	TC [10 ⁻³ /K]
Poly to poly capacitor	0.43	0.07
	Rs [k Ω]	TC [10 ⁻³ /K]
High ohmic resistor	20	- 5
	Rs [Ω]	TC [10 ⁻³ /K]
Low TC resistor	350	- 0.2



Marketing & Sales Headquarters

X-FAB Semiconductor Foundries AG
Haarbergstr. 67, 99097 Erfurt, Germany
Tel.: +49-361-427-6160
Fax: +49-361-427-6161
Email: Thomas.Hartung@xfab.com
Web: <http://www.xfab.com>

General Information info@xfab.com
Technology/Design Support hotline@xfab.com
Silicon Foundry Services sifo@xfab.com