

180UHV

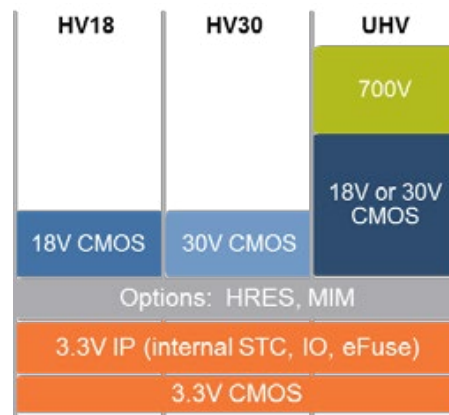
180nm Ultra High Voltage (700V) Process Technology

Highlights

- 180nm feature size with industry-leading analog and power devices
 - + Manufactured in Singapore
 - + High volume production capability with competitive DO (<0.04 def/in²) defect density
 - + Low cost, dense logic, 3.3V MV, and 700V FET capability
 - + 180nm BEOL and shallow-trench isolation for reduced analog and HV circuitry area
 - + Full set of logic, analog and power devices
- Optimized for the needs of AC/DC SMPS controllers
 - + Smart power applications
 - + Wireless charging
 - + Off-line LED light bulbs
 - + AC adapters for mobile electronics
- Comprehensive design ecosystem
 - + Cadence PDK, Mentor DRC/LVS, Mentor and Synopsys RCX
 - + GLOBALFOUNDRIES off-the-shelf, royalty free standard cells, GPIO, ESD
- Extensive services and supply chain support
 - + Regularly scheduled MPWs
 - + Layout database consolidation and mask assembly services
 - + Advanced packaging and test solutions

Enabling *Connected Intelligence*

GLOBALFOUNDRIES 180nm High Voltage process technology offers options for HV18, HV30 and 700V UHV as part of a modular platform based on the company's 180nm logic process baseline. 180UHV integrates power and high voltage transistors, and precision analog passives to offer superior cost and performance for HVCMOS and AC/DC applications.



The modular 180UHV process enables you to pick the voltage option that best matches the application. 180nm logic enables the integration of microcontrollers that are typically associated with power conversion, LED lighting, and smart power solutions.

Target Applications and Solutions

- AC-DC converter (chargers, adapters, white goods)
- Off-line (AC-connected) LED lighting
- Wireless charging
- LED backlighting for monitors/TVs
- HVCMOS controller for MEMS

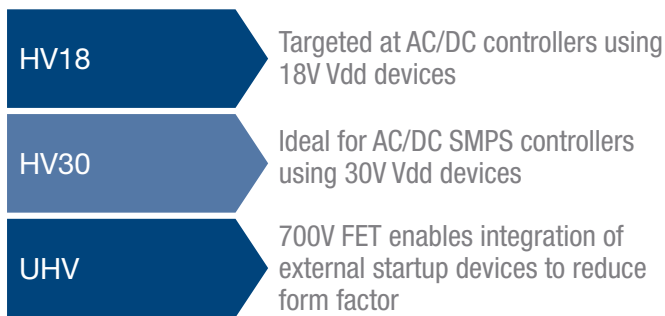
Technology Overview

- 3.3V LV CMOS with 180nm BEOL
 - + High CMOS density reduces digital blocks by 50% (compared to 350nm technology)
 - + 3.3V for optimal analog circuit performance
 - + Well suited for digital power management
- 18V or 30V Iso- and native CMOS
- 700V NLD MOS transistors
- NPN and PNP bipolar transistors
- Diodes, resistors, capacitors, NVM
- 1.2µm and 3.0µm thick top metal options allow Cu-wire bonding (non-CuP and CuP)
- -40°C to 150°C temperature rating for high temperature applications

Foundation IP
3.3V Standard Cell 8T
Interface IP
3.3V non-CuP GPIO
Memory
NVM: eFuse (32x1)

Contact GF for IP availability.

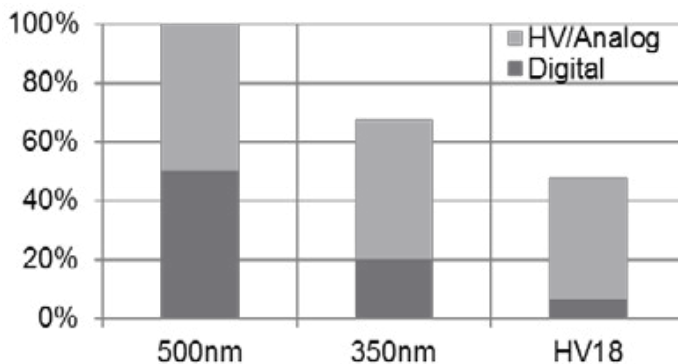
Application-optimized Platform Modules



Die Size Shrinks 50% Moving from 500nm to 180nm Process

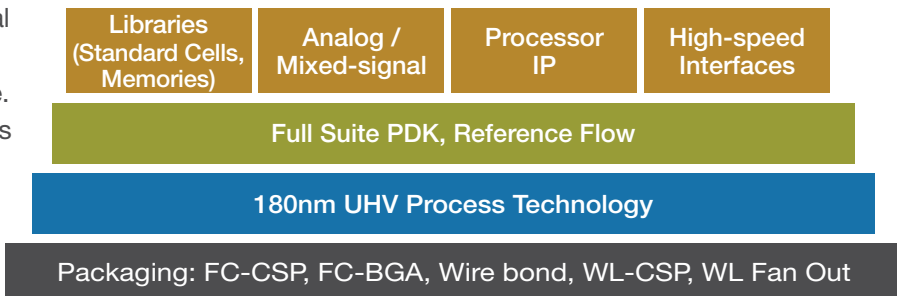
Migrating from 500nm to HV18 yields a 50% die area reduction due to tighter back-end design rules and shallow trench isolation.

The multi-generational advantage of scaling process geometries is the driving force behind Moore’s Law. This applies to HV processes like 180UHV, resulting in decreasing cost while enabling integration strategies that reduce the form factor and cost of new equipment.



GLOBALSOLUTIONS® Design and Manufacturing Ecosystem

GLOBALSOLUTIONS is the sum of our internal resources and ecosystem partners, combined to efficiently enable the fastest time-to-volume. This ecosystem includes partners in all aspects of design enablement and turnkey services, OPC and mask operations, and advanced capabilities in assembly solutions.



GLOBALFOUNDRIES®

2600 Great America Way, Santa Clara, CA 95054 USA
Tel: +1 408-462-3900 globalfoundries.com/contact-us

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