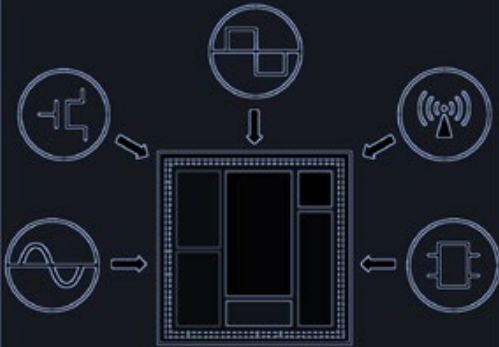




GLOBALFOUNDRIES®

40LP

40nm Process Technology



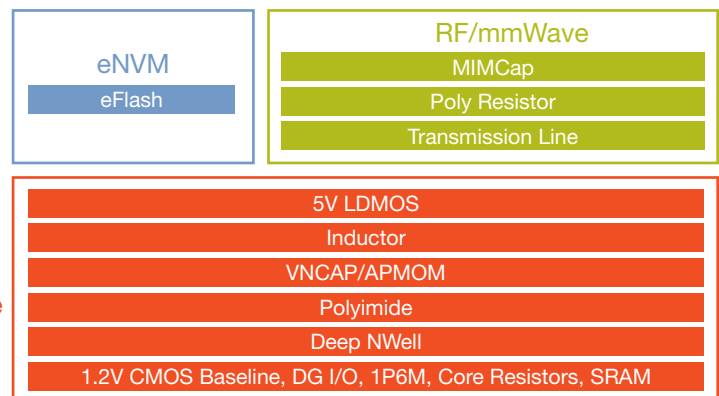
Highlights

- Single 40nm platform to support logic, analog, RF and eNVM
 - + Reusable designs for maximum ROI
 - + Manufactured in Singapore
 - + High volume production with fully mature D0 (<0.04 def/in²) defect density
- Optimized for mobile and wireless applications
 - + Baseband SoC
 - + Mobile Multimedia
 - + Wireless Consumer
 - + Digital TV, STB
 - + Automotive MCUs
 - + IoT
- Comprehensive design ecosystem
 - + Full range of Foundation and Complex IP libraries
 - + PDK and reference flows supported by major EDA and IP partners
 - + High performance and high reliability eFlash macro (Auto Grade 1)
- Extensive services and supply chain support
 - + Regularly scheduled MPWs
 - + Layout database consolidation and mask assembly services
 - + Advanced packaging and test solutions including 2.5D and 3D

The Right Technology for the Right Application™

GLOBALFOUNDRIES 40LP process technology platform is ideal for power- and price-sensitive mobile and wireless applications with flexible mixed-technology options for RF, low voltage and automotive. 40LP also enables mmWave solutions for applications that require greater than 30GHz operation.

40LP provides up to 40% less power, 60% less area and significantly lower cost compared to 65nm technologies. The 40nm platform supports a wide choice of device component options to meet your exacting low-power product specifications.



40LP Baseline & RF/mmWave

Target Applications and Solutions

- mmWave Automotive Radar (40LP+RF+eNVM)
- Single-chip PMIC / motor control (40LP+eNVM)
- Automotive (Body Electronics / Power Train) (40LP+eNVM)
- Wearables (40LP+RF)
- NFC devices (40LP+eNVM)
- Industrial / Smart Meters (40LP)

Technology Overview

- 40nm LP with 1.1V CMOS logic
 - + 4 core device Vt's
 - + 2.5V I/O with Overdrive (3.3V) and Underdrive (1.8V) options, and 1.8V I/O with Underdrive (1.5V) option
- APMOM, MIM and MOS capacitors
- eFuse macro
- Large suite of passive devices
- Wide choice of productized metal stack options
- Standard temperature range: -40°C to +105°C

IP Overview

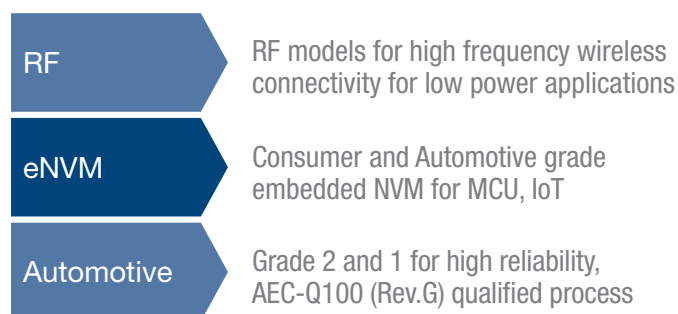
The 40LP Platform IP portfolio includes a wide range of silicon-proven high performance, power-optimized solutions for a broad set of applications.

Foundation IP		
Standard Cell 9T	Standard Cell 12T	
SRAM & ROM Compiler	GPIO	
PLL	Temp Sensor	ESD
Interface IP		
DDR3/2	LPDDR3/2	HDMI
SATA I/II	PCIe G1/2	USB3.0/2.0
MIPI D-PHY		SerDes
Memory		
NVM: eFlash	eFuse	NVM: OTP
ROM	SRAM	

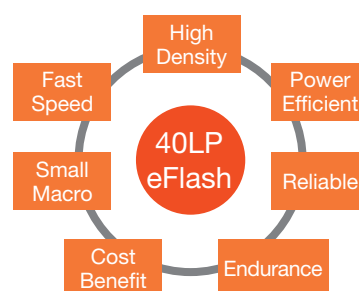
Contact GF for IP availability.

40nm Platform Extensions

The 40nm LP platform offers numerous technology options that enable you to further innovate and differentiate your design.



40nm High Performance and High Reliability eFlash solution



Fast Speed

- Read Access ~10ns
- Sector Erase time ~10ms
- Word Program speed ~10μs

Small Macro

- 0.066μm² bit cell
- Optimized macro
- Flexible macro form factor

Cost Benefit

- 30% smaller bit cell than 55nm

High Density

- NVM Memory density up to 16Mb

Power Efficient

- Active I_{Read} < 200μA/MHz (low-power mode)

Reliable

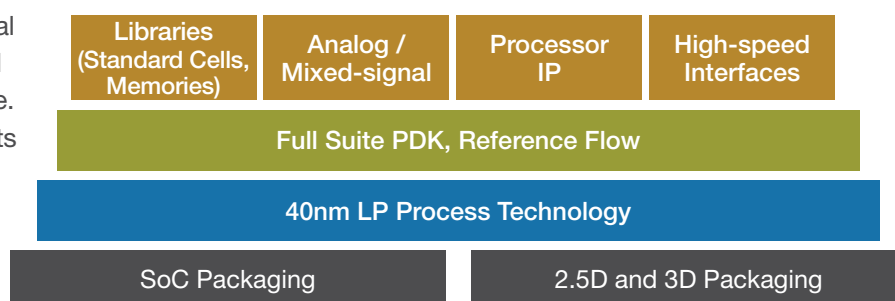
- Automotive grade
- 10 year data retention

Endurance

- >200k Cycles

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.



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