# Peregrine's UltraCMOS™ RF and Mixed-Signal Wafer Foundry Services
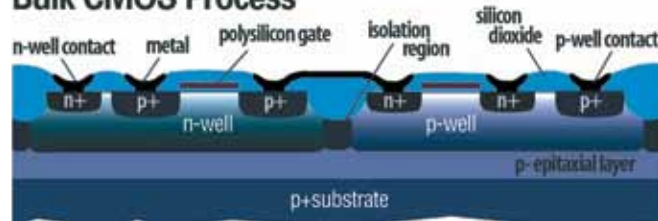## Unprecedented benefits in speed, power, integration and cost

The UltraCMOS process is a patented silicon-on-sapphire technology (SOS) that has for years been recognized as a technically superior semiconductor vehicle reserved for highly specialized military and space projects. SOS was thought to be impossible to manufacture in commercial volumes at a reasonable cost. Overcoming these challenges without sacrificing the inherent benefits of the technology took several years of research and development, all now protected by dozens of patents. The UltraCMOS process is the industry's first and only commercially qualified use of Ultra-Thin-Silicon (UTSi®) on a sapphire substrate enabling the combination of high-performance RF, mixed-signal, passive elements, nonvolatile memory and digital functions on a single device.
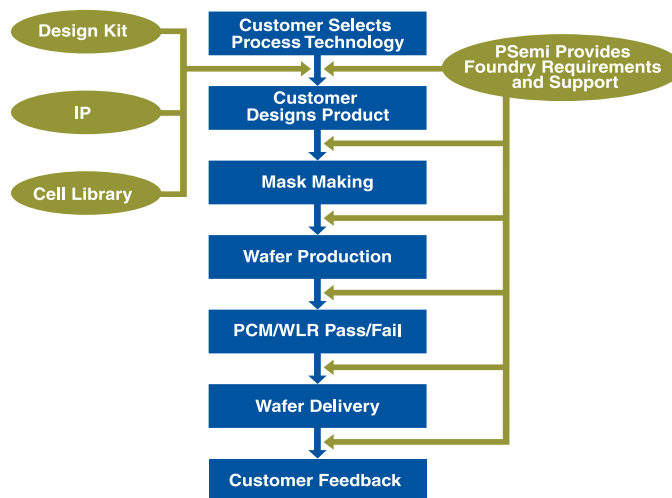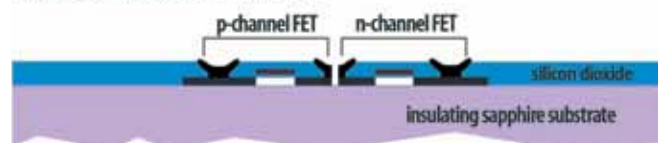

UltraCMOS™ vs Bulk CMOS

This monolithic integration provides significant performance advantages over competing mixed-signal processes such as GaAs, SiGe, BiCMOS and bulk silicon CMOS in applications where RF performance, low power and integration are paramount. Additionally, because UltraCMOS devices are fabricated in standard high-volume CMOS facilities, products benefit from the fundamental reliability, cost effectiveness, high yields, scalability and integration of CMOS, while exceeding the peak performance levels historically expected from SiGe and GaAs.

FOUNDRY SERVICES

Our comprehensive portfolio of Process Design Kits, standard cell libraries and IP offerings delivers leading-edge solutions for today's competitive RF wireless and broadband application challenges. For quick-turn prototyping service, we offer Multi-Project Runs (MPR) on a scheduled basis. This approach enables rapid, low-cost device evolution from design to limited or full production volumes. At Peregrine Semiconductor, our goal is to ensure customers achieve higher performance integrated circuits without a higher pricetag.

TECHNOLOGY FEATURES

Features Summary	Units	Process Variants				
		FA	FC	FD	GA	GC
Generation			0.5 um		0.25 um / 0.35 um	
Release Status			Production		Production	
Application			Com/Auto/Mil		Com/Auto/Mil	
Supply Voltage	V		3.0/3.3		2.5	
Transistor Vts		3n/3p	3n/3p	3n/3p*	3n/3p	3n/3p
Resistors			2n/1p/1polycide		2n/1p/1silicide	
Interconnect Layers		3	3**	2	3	3**
MIM Caps		No	Yes	No	No	Yes
Inductors		No	Yes	No	No	Yes
Ft (IN Device)	GHz		15		30	
fmax	GHz		45		90	

* Process option available for 2 Vts of n/p devices
** Last layer interconnect is a thick metal layer for High Q Inductor construction

MULTI-PROJECT RUN SCHEDULE

FA Process	FC Process	GA Process	GC Process	GDS Cut-Off Date	Tapeout Date	Delivery Date
	X			1/15/2010	1/29/2010	4/9/2010
			X	2/1/2010	2/15/2010	4/26/2010
X		X		2/15/2010	3/1/2010	5/10/2010
	X			3/15/2010	3/29/2010	6/7/2010
			X	4/1/2010	4/15/2010	6/24/2010
	X			5/14/2010	5/28/2010	8/6/2010
			X	6/1/2010	6/15/2010	8/24/2010
X		X		6/15/2010	6/29/2010	9/7/2010
	X			7/15/2010	7/29/2010	10/7/2010
			X	8/2/2010	8/16/2010	10/25/2010
	X			9/15/2010	9/29/2010	12/8/2010
			X	10/1/2010	10/15/2010	12/24/2010
X		X		10/15/2010	10/29/2010	1/7/2011
	X			11/15/2010	11/29/2010	2/7/2011
			X	12/1/2010	12/15/2010	2/23/2011

By selecting Peregrine's UltraCMOS™ technology, you can count on our expertise and outstanding support throughout the entire foundry process.

FOUNDRY SERVICE TURN-TIME

CAD Engineering	1 week
Mask Tooling	2 weeks
Fab Cycle	8 weeks
PCM/WLR/ Backgrind/Shipping	1 week
Dicing	1 week
TOTAL	13 weeks

FOUNDRY CONTACT INFORMATION

Americas and Asia Pacific
Email: foundry@psemi.com
Phone: 858-731-9407

Europe
Email: foundry-europe@psemi.com
Phone: +33 (0) 4 4239-3361

About Environmentally-friendly UltraCMOS™ Technology

UltraCMOS mixed-signal process is a patented advancement of silicon-on-insulator (SOI) technology on a sapphire substrate providing high yields, competitive costs and a "green" alternative to GaAs-based technologies. UltraCMOS delivers significant performance advantages over competing processes such as GaAs, SiGe BiCMOS and bulk silicon CMOS in designs where RF performance, low power and monolithic integration are paramount. These measureable power and size savings offer advantages for both manufacturers and consumers, including longer battery life, smaller batteries, lower power consumption and less electronic waste. Further, the company's revolutionary HaRP™ and DuNE™ design inventions enable improvements in harmonics, linearity, power handling and overall RF performance which today remain unmatched by any other RF process technology.

About Peregrine Semiconductor

Peregrine Semiconductor designs, manufactures, and markets high-performance communications RF ICs for the wireless infrastructure and mobile wireless; broadband CATV/DTV; communications infrastructure; and high-rel markets. Peregrine products are uniquely poised to meet the needs of a global RF design community in high-growth applications such as WCDMA, EDGE and GSM digital cellular and mobile TV; broadband communications such as DTV/PCTV/DVR; and in high-reliability applications such as telecom infrastructure, industrial, automotive, military and satellite systems. Peregrine UltraCMOS devices are manufactured under licensed foundry partnerships with world-class CMOS semiconductor manufacturers located throughout the world. The Company, headquartered in San Diego, California, maintains global sales operations and a worldwide technical distribution network.

Visit us online at: www.psemi.com

Peregrine Semiconductor

Changing how RF is designed. **Forever.**™