

World Class III-V Compound Semiconductor RF Wafer Foundry



Serving RFIC/MMIC industry, GCS offers **InGaP HBT, PHEMT, HFET, GaN HEMT and Integrated Passive Devices (IPD)** and **SAW filter** technologies.

A family of **five (5) InGaP HBT power processes** is in production, each tailored to provide an optimum performance (high power and superior linearity) for each unique application in cellular handset, wireless communication and base station.

Four (4) power processes (P1, P2, P5 and P6) were designed specifically for the Handset wireless, WLAN, Mobile WiMAX and Infrastructure markets with the emphasis on **high power efficiency and superior linearity**; while P1 and P2 process was developed for handset PA (WCDMA) with linearity and efficiency in mind; P2 process, in particular, has proven to be a winning formula for 802.11abg and 802.11n PA that achieves **high power efficiency, high ruggedness and superior linearity at the same time**. The P5 unbreakable ruggedness GSM HBT process, was designed to withstand the high VSWR ruggedness requirement of GSM. **In fact, several customers have reported excellent VSWR >15:1 with 5v Vcc bias.**

Our **high frequency D1 HBT process**, with Ft in the 60 GHz range, exhibits a **super low phase noise of -110 dBc/Hz at 100KHz offset** as demonstrated in many products in the market. In addition, the D1 process is also proven to be winning formula for prescaler and other phase detector MMICs.

Our unique IPD process offers **10um top metal** and **large through wafer Via openings for off-chip component integration**.

Besides HBT processes, we also offer 0.5um and 0.25um PHEMT, low cost PHEMT switch, **superior linearity** 0.5/0.25um HFET, and **GaN HEMT** processes which allow you compete effectively in today's markets for switches, PA, LNA and gain blocks products.

All of our processes went through rigorous reliability testing and qualification. **Today, we have been qualified by several first tier Integrated Devices Manufacturers (IDM) in the US, Europe and Japan.** A detailed qualification summary report for each process, including HTOL test data, active and passive elements stress tests results, etc. is available upon request.

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ISO 9001:2000 Certified

World Class III Compound Semiconductor RF Wafer Foundry



GCS provides high performance-driven foundry solutions to RFIC/MMIC design and sub-system companies in RF industry using its own proprietary process technologies.

To provide optimum performance for each unique application, GCS offers a broad portfolio of proprietary technologies. For RFIC/MMIC products, high power and high linearity InGaP HBT, PHEMT, HFET, GaN HEMT and RF Integrated Passive Devices (IPD) processes are available.

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Technology	Process	Application
InGaP HBT	P1	High Linearity for Handset and WLAN PAs
	P2	High Linearity for Handset and WLAN PAs
	P5	High Ruggedness for GSM/DCS PA
	P6	HBV for Infrastructure Amps
	D1	High Ft for Digital and Transceiver ICs
PHEMT	0.5 um	PA and LNA to 20GHz
	0.5 um Switch	Low-cost Switches
	E/D-Mode PHEMT	Integrated Multifunction ICs
	0.5um HFET	High Linearity for WiMAX and Infrastructure PAs
	0.3 um HFET	
	0.25 um PHEMT	Amplifiers up to 40 GHz
RF Passives	High-Q LCR on GaAs	Filter and Matching/Bias Network
InP HBT	SHBT1 (180GHz Ft)	High-speed Dig. & Analog ICs
	DHBT1 (150GHz Ft)	High V. Analog and RF ICs
	DHBT2 (250GHz Ft)	Super-high-speed ICs
	DHBT3 (300GHz Ft)	
Optoelectronics	Custom GaAs and InGaAs PIN PD	850/1310/1550 nm
	Photonics ICs	Monolithic integration of PD, MPD and Laser
	QWIP	LWIR (9 um) Focal Plane Array
	Ridge Waveguide, SOA Modulators, Laser Diode	Customer-specific
	VCSEL	850 nm, customer-specific
	LED / RCLED	LPH Array, POF
	GaN LED	Blue GaN LED
SAW	0.4um Linewidth/Spacing	Filters up to 2.4GHz

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