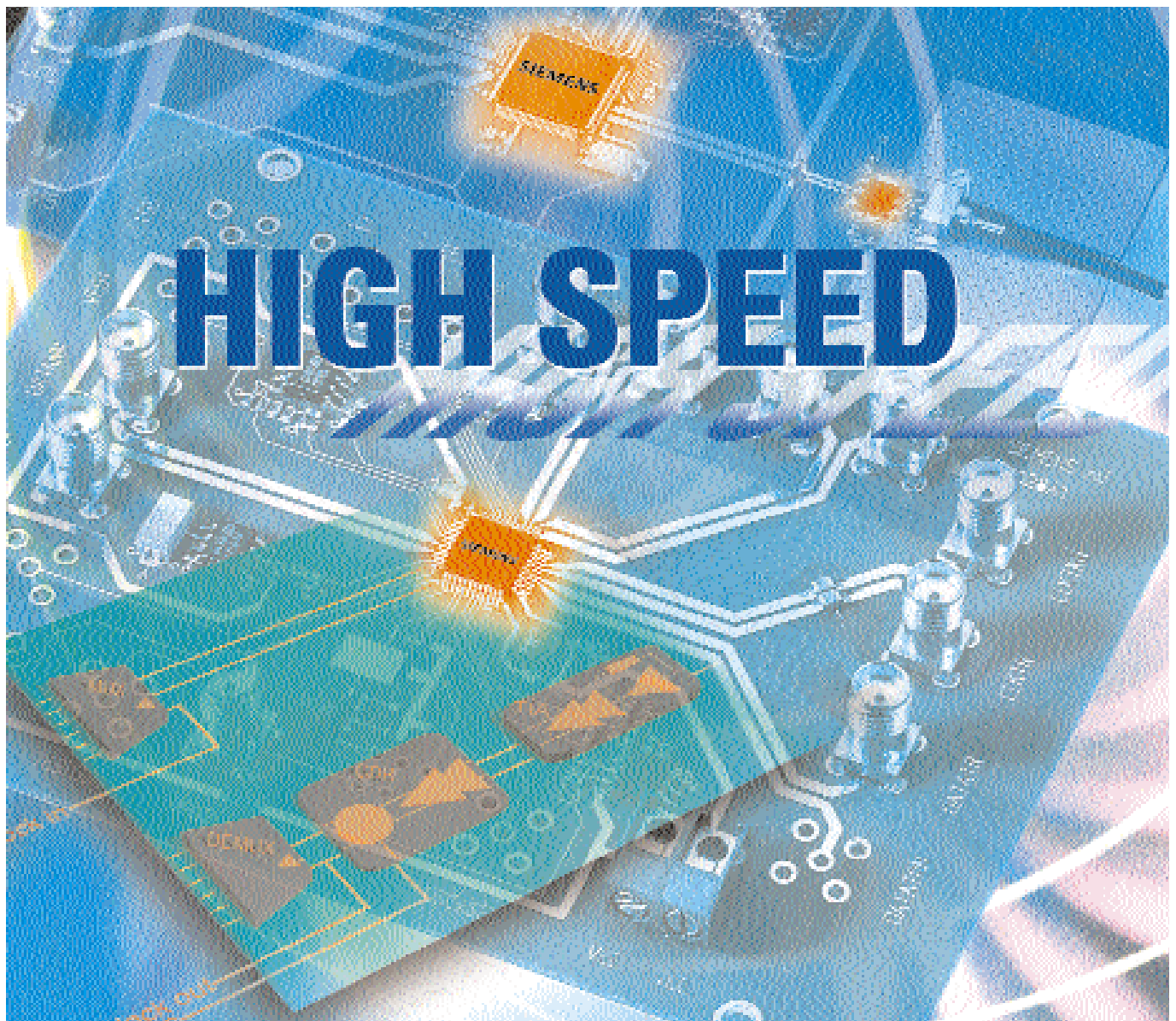


SIEMENS

Our Competence for Your Own Design

Bipolar RF-ICs for High Speed Data Communication



Siemens Semiconductors.

Technical Specifications: Superiority in Facts and Figures

.....Technical Specifications:.....

MUX/DEMUX

- ▶ Gate Array based MUX/DEMUX
- ▶ dedicated I/O cells (e.g. LVDS, Open Collector, ECL)
- ▶ customized MUX/DEMUX ratio (2:1, 4:1, 8:1, 16:1)

Laserdiode Driver - LDD

- ▶ data rate up to 2.5 Gb/s
- ▶ supply range from 3.3 V to 5.0 V
- ▶ programmable modulation current and DC offset
- ▶ bias control via monitor diode
- ▶ integrated supervisor for all vital laser functions

Clock and Data Recovery - CDR

- ▶ data rate up to 2.5 Gb/s
- ▶ supply range from 3.3 V to 5.0 V
- ▶ all jitter data full ITU-T compliant
- ▶ Input sensitivity $< 5\text{mV}_{\text{pp}}$ differential at $\text{BER}=10^{-12}$
- ▶ loss of signal detection

Transimpedance Amplifier - TIA

- ▶ data rate up to 2.5 Gb/s
- ▶ Input sensitivity - 23.5 dBm at $\text{BER} = 10^{-9}$
- ▶ high overload dynamic: 2mA_{pp} max. input current
- ▶ no external components needed
- ▶ full ITU-T compliant
- ▶ suitable for PIN diodes and APDs

First Class in Three Approaches

Realizing Modules With Highly Sophisticated HF-ICs: First Class in Three Approaches

ICs for High Speed Transmission

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graph TD; A[ICs for High Speed Transmission] --> B[Standard ICs]; A --> C[Gate Arrays]; A --> D[Silicon Foundry]
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Standard ICs

High Speed Fiber Optic ICs such as transimpedance amplifiers, decision circuits, multiplexers, demultiplexers and laser drivers are key components for gigabit-per-second optical fiber links.

Siemens Semiconductors offers you a broad range of these components.

Gate Arrays

Siemens' Gate Array product family combines the advantages of logic arrays and flexible analog arrays on one single chip.

Our Gate Arrays are based on the Siemens HF-bipolar technology, the so called B6HF, which offers a cutoff frequency of 25 GHz. Designs up to 6 GHz on chip are possible.

Silicon Foundry

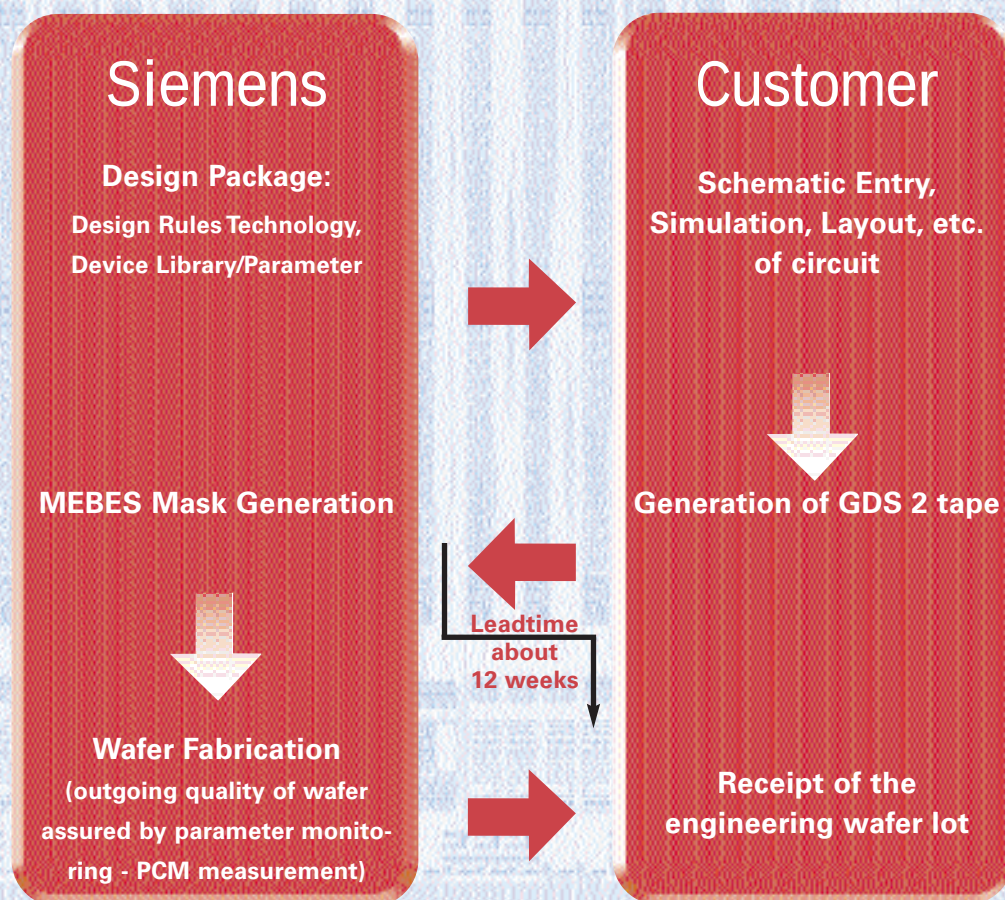
Siemens also offers silicon foundry for customers who require individual solutions for particular analog/digital RF applications. Of course Siemens provides development support and takes care of fabrication of the wafer.

Completely the Way You Want it: Silicon Foundry

Customer Silicon Solutions

For customers who require individual solutions for particular analog/digital RF or fast logic applications, Siemens offers silicon foundry. With our foundry service you can develop your own full custom IC in 25 GHz bipolar B6HF-technology. We provide development support and take care of wafer fabrication.

Custom Silicon - The Way to Your own Silicon.



Ready for Your Own Individual Solution

Gate Arrays: Ready for Your Own Individual Solution

To design your own Gate Arrays Siemens supplies you with a design kit based on state of the art CAD-tools. They allow the customer to achieve first class design success through intensive checks, i.e. connectivity, dynamic and static load violations, compatibility of emitter/receiver types, etc. as well as feedback about important figures like gate count, total current, power dissipation. With additional preplacement features available on front end workstation, the necessity for changes after layout and post-layout simulation has been nearly eliminated.

Features:

- ▶ Up to four linear arrays on chip for applications up to 6 GHz
- ▶ Large macro library e.g. MUX, DEMUX, VCO, PLL,...
- ▶ Special macros for Telecom-, Datacom and ATE-Applications available
- ▶ Internal CML and ECL on one chip
- ▶ Different power/speed configurations for one macro possible
- ▶ Dedicated I/O-cells, e.g. interfaces to 3.3 V CMOS, BiCMOS
- ▶ Front end CAD support for Cadence, VeriBest and Mentor 8

Master Name	SH 100 G1	SH 100 G2	SH 100 G3
Gate Functions	3300	1000	10000
I/O Pads on chip (max.)	100	66	144
Power Pads on chip (max.)	32	20	64
Integrated linear arrays on chip	two	two	four
Maximum frequency on chip	6 GHz	6 GHz	6 GHz
No. of linear components	2x1400	2x1400	4x1400
Application/Gate Delay	30 ps	30 ps	30 ps
Power dissipation (typ.)	2.5 W	0.9 W	7.0 W

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