

Wafer Foundry Service

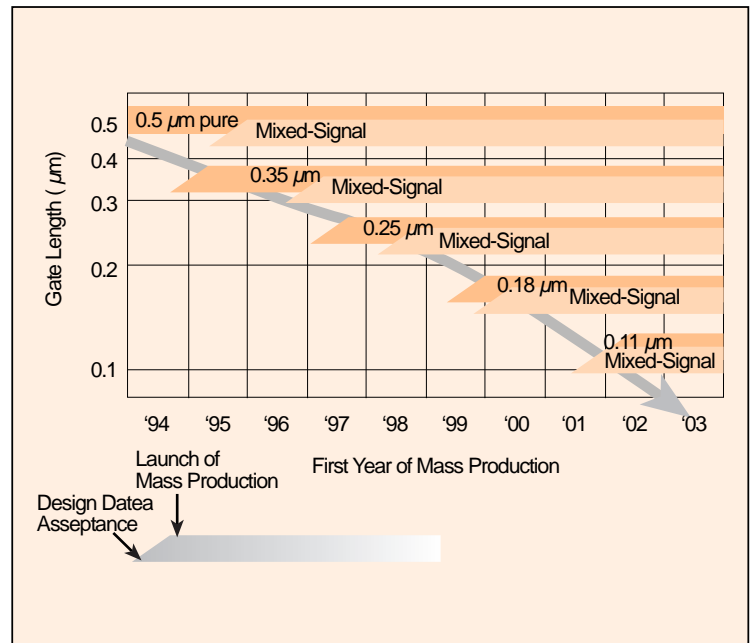
FUJITSU's LSI plants are always ready to meet your LSI fabrication needs. As an integrated semiconductor manufacturer, FUJITSU operates state-of-the-art foundry capabilities and offers a full turnkey of services covering not only wafer processing, but also assembling and LSI testing.

Introduction

All our three semiconductor wafer process plants (Iwate, Aizu-wakamatsu, and Mie) have the capability to supply high-quality semiconductor devices. At the Akiruno Technology Center, our new R&D hub, opened in the city of Akiruno in Tokyo in 2000, a process line for the development of the leading-edge 0.10 μ m technology is now being constructed. Through the long-standing, steady efforts of our engineers, we are creating LSI fabrication technologies for generations to come (Fig.1).

In the 1980s, we began providing our wafer foundry services to a limited number of customers. Since then, with the backing of our accumulated experience and proven achievement, our LSI fabrication plants have been accepting orders from a wide variety of customers world over. Our excellent engineers, who are willing to work hard to manufacture the highest performance devices, look forward to meeting your excellent design.

Figure 1 CMOS Technology Road Map



Iwate Plant:
ISO 9002/14001-Certified



Aizu-wakamatsu Plant:
ISO 9002/14001-Certified



Mie Plant:
ISO 9001/9002/14001-Certified



Akiruno Technology Center:
ISO 9001/14001-Certified



Available Services

Our standard service consists of mask making from customer's layouted design data and wafer processing (Fig.2). As an integrated semiconductor vendor, we are ready to offer the services from wafer fabrication to wafer testing, assembly, and LSI testing as the customer requests. Our full lineup of packages and packaging technologies, from standard types to the most advanced ones available in the industry (Photos 2 to 4), is certain to fit your exact requirements.

Technology Lineup

The CMOS standard technologies available in our wafer foundry service are listed in Table 1. The CMOS high voltage technology is shown in Table 2. In addition, the following application-specific process technologies are also available.

- LSI for microdisplays (LCOS)
The LCOS (L•iquid C•rystal O•n S•ilicon) fabricated in our plants realizes superior flatness (Photo 5).
- CMOS image sensors

Photo 1 0.11 μ m Transistor Cross Section

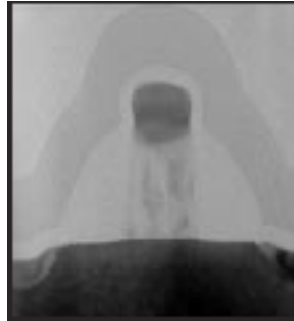


Photo 2 FBGA

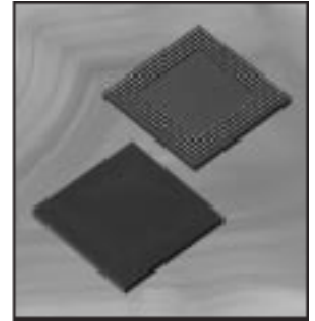


Photo 3 BCC

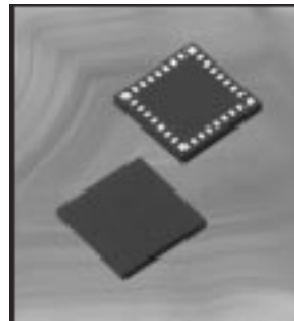


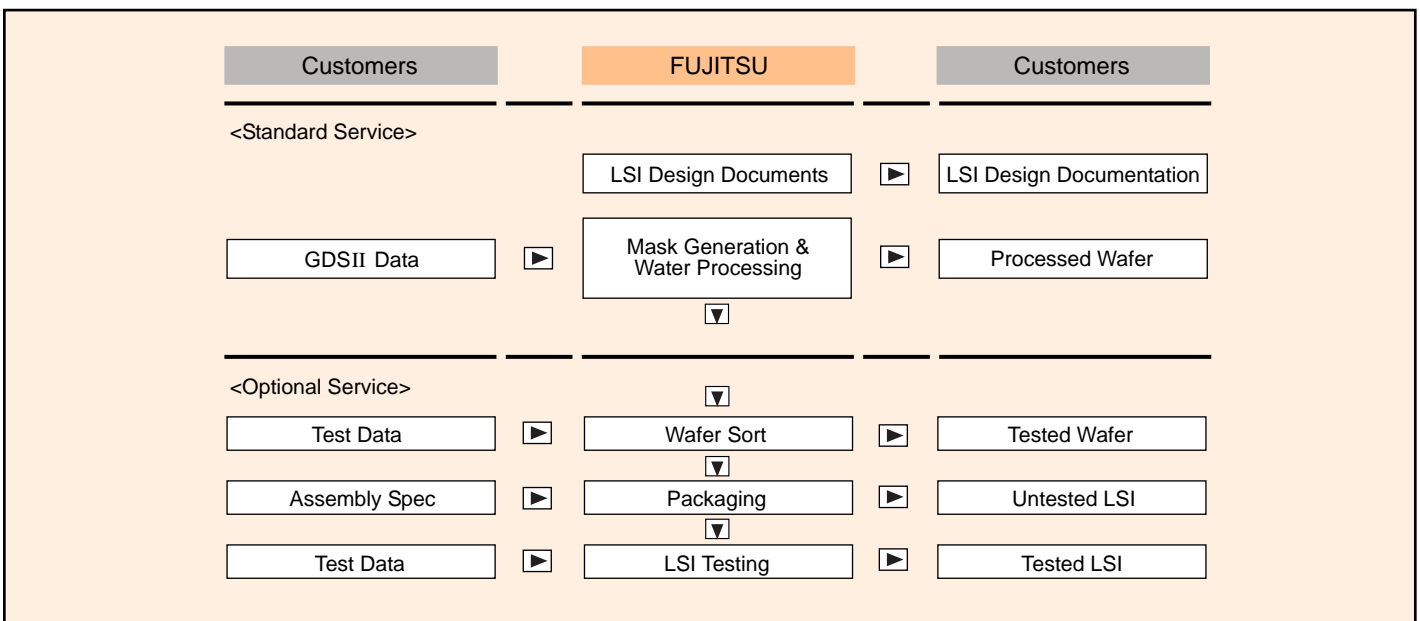
Photo 4 Leading-edge Wafer-level Chip Size Package SCSP



Photo 5 LCOS (Liquid Crystal on Silicon) Surface



Figure 2 Available Wafer Foundry Services



New Services

Our Micro Lithography Technology is applicable for fabrication of MEMS (M•icro E•lectro M•echanical S•ystem) on Silicon wafer. We challenge to realize mass production of these products.

SiExpress™

We offer a service called SiExpress™ (silicon express) to manufacture your prototype LSIs using the Multi-Project Wafer method. By making use of our standard process and package processes to fabricate your prototype, we deliver your prototype LSIs faster and at lower cost. If your design fits our standard processes, this service is effective to streamline commercialization of your products.

Fujitsu FAB Information System

FUJITSU have built a FAB data supply system* for customers on the Internet, with private web pages for each customer account. Simply by accessing your secure web page, you can check the status of lots, including the progress of manufacture, measurement data from the process control monitor (PCM) for wafers, and more. Before starting to process your wafers, we will send you the URL which you should access.

Conclusion

Our wafer foundry interface meets for the following types of customers. Our technical capability promise you to success in the market.

- Customers specializing in LSI design
- Customers looking for a second source to meet their increasing needs
- Customers who need wafers delivered to permit original assembly at their facilities
- Customers who want to use our advanced cutting-edge packages . *

NOTES

* FAB data supply system, what we call FAB information system, allows our customers 24/7 online accesses to the engineering information and work-in-process reports.

Figure 3 FAB Information System

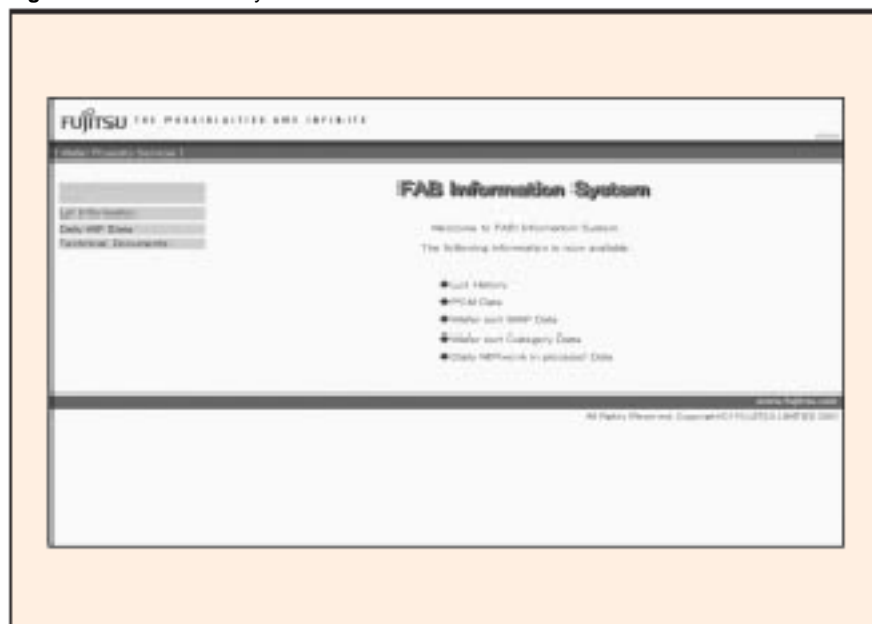


Table 1 CMOS Standard Technology Lneup

CMOS Technologies		0.11 μm	0.18 μm	0.25 μm	0.35 μm	0.5 μm
Supply Voltage (V)		1.2	1.8	2.5	3.3	3.3 ^{*1}
Available Interface (V)		1.2/2.5/3.3	1.8/2.5/3.3	2.5/3.3	3.3/5.0	3.3/5.0
Available Poly/Metal Layers		1P8M ^{*2}	2P6M	2P5M	2P4M	1P3M
Substrate		P-sub				
Mixed-Signal Option ^{*3}	Triple-well	Available				—
	Diffused Resistor	Available				
	Capacitor	metal-metal & bulk-poly	poly-poly & bulk-poly	poly-poly	poly-poly & bulk-poly	bulk-poly
Mass Production Availability		2Q/2002	Now			

- * 1 : For application needs at a voltage of 5 V, please consult us
- * 2 : "1P8M" means "Single Poly and Eight-Metal Layers"
- * 3 : For Mixed-Signal Option, any combination of these devices is available

Table 2 CMOS High Voltage Technology Lneup

● CMOS High Voltage Technology

	0.65 μm		0.50 μm	0.35 μm
Process	1P2M		1P3M	2P4M
Logic	5.0V		3.3V	3.3V
High voltage	25V	▪ ▪ V ▪	13V	12V, 18V, 25V
Tapeout acceptance	Now	2Q/2002	Now	3Q/2002

● Option

	0.65 μm / 0.50 μm	0.35 μm
Capacitor	Bulk-Poly	Bulk-Poly/Poly-Poly
Registor	Diffusion registor	Diffusion/Poly registor

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