

90nm High-End CMOS Technologies



▶ Description

Fujitsu was the first company to mass-produce ICs using high-yield 90nm technology. The company leverages this long experience to help its customers be leaders in their respective markets.

Fujitsu's 90nm products have a remarkably low failure rate, the result of Fujitsu's strict quality control procedures. All design rules are reflected as internal requirements, helping assure this high reliability. The 90nm technology has already passed Fujitsu's strict quality tests.

▶ Key Features

- At standard transistor, 25% faster (gate level) than the 130nm generation
- Transistor density doubled compared with the 130nm generation
- SRAM cell area reduced 50% compared with the 130nm generation
- Mixed signal and RFCMOS PDK

▶ Specification

- Shallow Trench Isolation (STI)
- Dual / Triple Retrograde Wells
- Multi-Vt Options
- Dual / Triple gate Oxide (1.2V / 1.8V / 2.5V or 3.3V I / O)
- Salicide Gate / Source / Drain (CoSi₂)
- 1-Poly and 10-Metal (9Cu + 1Al)
- Dual Damascene Cu
- Full Low-k Interlayer Dielectric (k = 2.9)
- Stackable Contact and Vias
- CMP Planarization
- Tungsten and Electrical Fuse
- Oxide / Nitride Passivation
- Wire bond and Flip chip

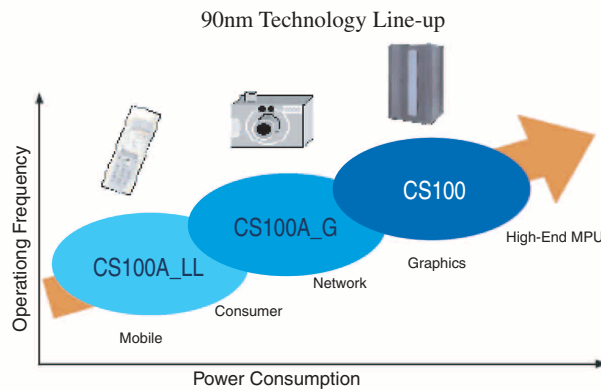
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Technology line-up

Fujitsu uses the most advanced technologies to meet the requirements of submicron technology, including the need for low leakage and high performance on one chip. Fujitsu's wide range of transistor characteristics includes multiple Vt transistors, which can be placed on the same chip for maximum flexibility.

The 90nm family consists of the low-power CS100A-LL, the high-performance CS100 and the generic CS100A-G, giving customers the flexibility to choose the appropriate technology to differentiate their products. The HV (high Vth transistor) of the CS100 achieves higher performance and lower power than the CS100A-G. The I/O ranges from 1.8V to 3.3V, and the SRAM memory cell size is less than 1.0µm².

Standard		Technology Family		
		CS100A_LL	CS100A_G	CS100HP
Core	VDD	1.2V	1.0V	1.0V
	Lgate (nm)	80	60	40
	Gox THK (nm)	1.8	1.6	1.1
	UHS	○	○	
	HS	○	○	○
	STD	○	○	○
	LL	○		
I/O	HVt			○
	1.8V	○	○	○
	2.5V	○	○	○
	3.3V	○	○	
SRAM	6T SRAM	0.917µm ²	0.917µm ²	0.945µm ²



IP Portfolio

Fujitsu's foundry services offer an extensive IP lineup, including CPU cores, image cores, encryption, interface controllers and high-speed I/O, all prepared for 90nm ASIC and COT customers.

Global Packaging Leadership

Fujitsu provides a one-stop, turnkey packaging service, which includes package design, simulation, assembly and testing.

Packaging options include standard BGA and Flip-Chip BGA (FC-BGA). Fujitsu is the acknowledged global leader in advanced packaging technology, innovation, patents and manufacturing techniques.

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