

Exhibit 16



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Overview

Drawing file download :

DRAM is used in virtually every general-purpose and industrial computing device, such as desktops, laptops, servers, workstation computers, camcorders, digital cameras, and as buffer memory in many other digital devices. Several other applications, such as gaming consoles, also use DRAM as their main memory.

Samsung is the world's top manufacturer of all types of DRAM memory, such as SDRAM, DDR DRAM, DDR2 DRAM, and DDR3 DRAM, among others. Apart from the consumer segment, Samsung has an extensive portfolio of DRAM solutions for the industrial segment, with specialized designs that feature outstanding quality and reliability, along with the lowest power consumption at the fastest speed.

Packaging DRAM Memory

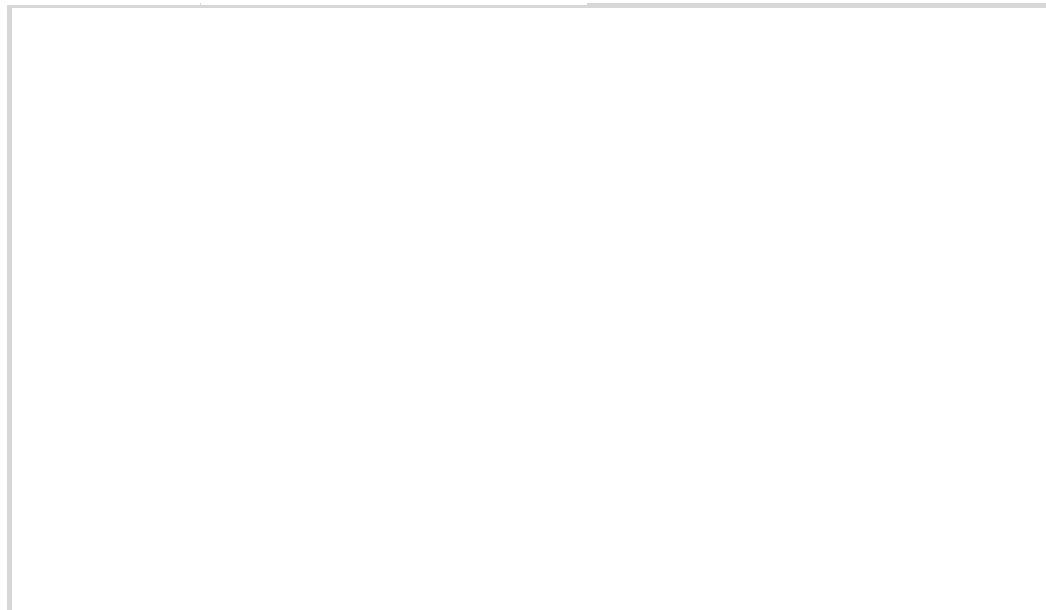
DRAM memory operates from several hundred MHz to several GHz, based on the deployed application. Due to the specific speed requirements, advanced technologies must be applied to the memory's packaging design to improve the performance of DRAM devices, and reduce stray parasitic capacitances and lead inductances. Currently, the most commonly used packages for DRAM memory are Wire-bonding type BGA (Ball-Grid Array).

Figure 1 illustrates a cross-sectional view of a typical DRAM module encapsulated in a BGA package.

FCFBGA 1chip

WLI DDP

WLI QDP



Samsung SMART MEMORY

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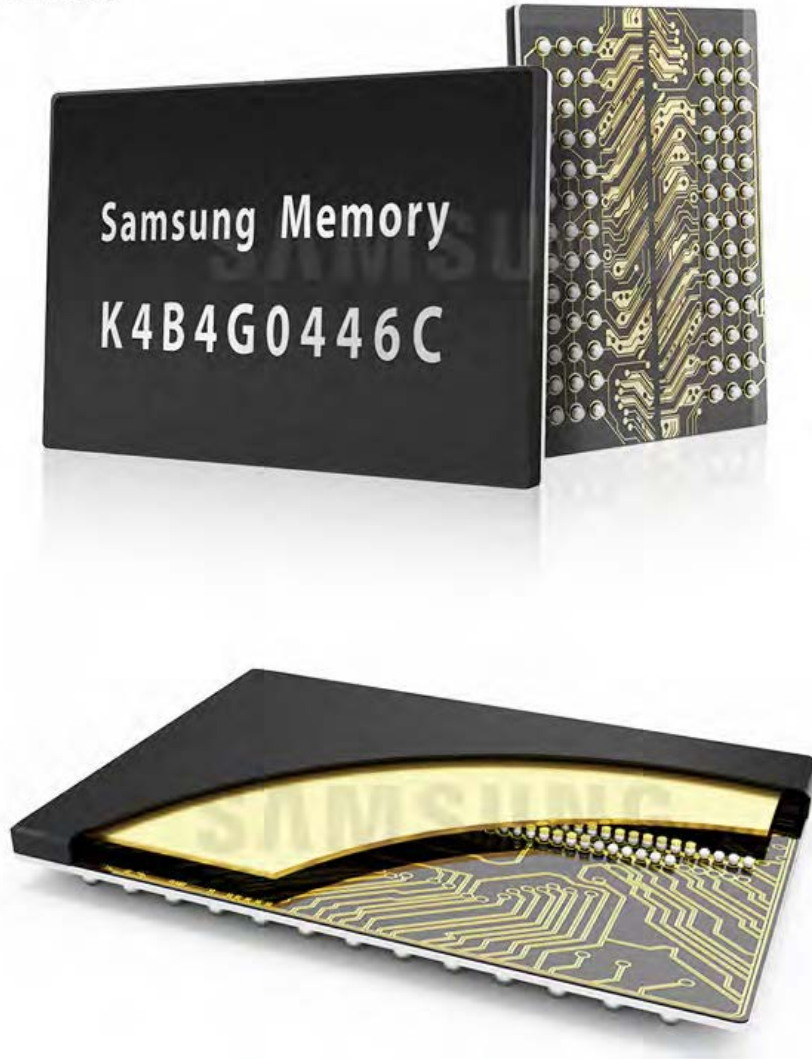


Samsung GREEN MEMORY

Less Energy. More Speed.



FCFBGA 1chip



* The above image is an artist rendering and may differ from the actual product.

The illustration above highlights Flip Chip Technology, the most advanced technique for packaging DRAM, and other similar, high-speed memory modules.

The Flip Chip technique consists of placing metal bumps on top of pads placed on the surface of the integrated circuit chips. The wafer is then cut into individual chips and flipped over (hence the name "Flip Chip") so that the metal bumps face down and are aligned with the pads of the substrate. The final phase - bonding the device to the circuit board - is then completed using one of several techniques (such as using a reflow process).

Flip Chip is the most advanced packaging technique for DRAM memory, owing to several advantages it offers over other techniques, such as maximizing the throughput of the packaging processes, reducing the lead inductance of the device to the minimum extent (due to the use of metal bumps), minimizing its power consumption, and enhancing noise rejection at higher frequencies.

Samsung has the most refined processes in the world for packaging DRAM memory. Samsung's advanced Flip Chip processing and packaging techniques ensure DRAM memory of the highest quality, optimized for operating at the highest frequencies, and consuming the lowest power. Furthermore, Samsung's production techniques assure maximum output in terms of the number of working chips per processed wafer.

Samsung's advanced and specialized processing and packaging techniques for DRAM memory provide several important benefits to the end application. Some of the most significant features and benefits are listed below:

Use of advanced Flip Chip technology :

DRAM memory devices are most commonly supplied in BGA packages, and Samsung's Flip Chip technology ensures that the devices offer the highest levels of performance in terms of both speed and power consumption. Flip Chip technology also ensures lower levels of stray capacitances and lead inductances, improving noise immunity for the device.

Suitability for mass production :

Samsung's Flip Chip package is well suited for mass production of not only DRAM memory, but also several other devices, such as controllers, DSPs, chipsets, and ASICs.

Suitability for future packaging technologies such as TSV (Through Silicon Via) :

Samsung's Flip Chip package is suitable for devices utilizing PoP designs (such as DRAM memory) supporting up to four stack levels.

Excellent quality and reliability :

Samsung's packaging techniques provide exceptional reliability characteristics to the device, statistics for some of which are provided below:

- Moisture sensitivity : JEDEC Level 3 (30°C/60%, 192 hours, IR 260°C)
- Unbiased Highly Accelerated Stress Test (uHAST) : 168 hours (130°C, 85% relative humidity, 1 atm)
- Boundary temperature cycles : 1,000 cycles (-55~125°C)
- Temperature, Humidity, Bias (THB) : 1,000 Hours (85°C, 85% relative humidity, 3.3 V, static stress)

Application Areas for Samsung's DRAM Packages

Samsung's DRAM packaging techniques are the industry-standards and benchmarks for memory devices. Today's highly demanding applications require the highest throughputs from the deployed memory, and Samsung's packaging techniques ensure that memory does not become a performance bottleneck in such applications.

Some of the application areas for Samsung's Flip Chip DRAM package include:

Computing devices and systems :

Various types of DRAM modules (such as UDIMM, SoDIMM, RDIMM, and LRDIMM) deployed in today's desktops, laptops, and servers use BGA packages. Additionally, high-density memory, such as DDP (Dual Die Package) and QDP (Quad Die Package) can also leverage the advantages of Samsung's Flip Chip packaging technology. Portable and mobile computers can use this technology for the small amount of on-board memory that they carry.

Consumer products :

Consumer electronic products, such as digital TVs and set-top boxes, digital still/video cameras, HDDs, Blu-ray players, and automobile navigation systems can greatly benefit from Samsung's Flip Chip technology, which offers the highest levels of performance for the memory subsection, while reducing its power consumption.

Graphics modules and game consoles :

High-performance graphic memory (usually deployed in the form of a graphics card) as well as embedded devices and systems, such as game consoles, are additional segments that stand to gain significantly from adopting Samsung's Flip Chip memory packaging technology.

[^ TOP](#)

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