One-Gigabit Nand Flash Memory Device

Toshiba America Electronic Components with its parent company, Toshiba Corporation (Toshiba) raised the bar for memory density and lowered cost-per-bit with its 1-gigabit (Gb) multi-level cell (MLC) NAND electrically erasable programmable read-only memory (EEPROM). Co-developed by Toshiba and Sunnyvale, Calif.-based SanDisk Corporation, the new device represents an industry benchmark, providing the industry's highest density NAND chip currently available using MLC technology.

Toshiba's 1 Gb MLC NAND is manufactured using 0.16-micron (mm) technology, the same technology used to produce the 512 megabit (Mb) NAND, and is based on MLC technology which allows two bits of data to be stored in one memory cell, effectively doubling memory capacity. The result is more data storage for less money, making the new device ideal for consumer applications such as digital cameras, cellular telephones and personal digital assistants as well as streaming audio/video equipment, and other emerging markets for flash memory technology.

For additional memory, Toshiba plans to produce 2 Gb parts in 2002 by stacking two 1 Gb dies into a single thin small outline package (TSOP). This can be achieved using the same footprint as existing NAND devices, eliminating design space concerns.

Toshiba's 1 Gb NAND device will be produced at the company's advanced manufacturing facility at Yokkaichi, Japan and by the FlashVision joint venture established by Toshiba and SanDisk at Toshiba's Dominion Semiconductor manufacturing plant in Manassas, Virginia.

Toshiba is a recognized pioneer in flash technology and invented NAND-type flash technology in 1987. NAND flash is becoming the storage media of choice for solid-state storage applications because of its high-speed programming capability, high-speed erasing, small block size and low cost. The sequential nature (serial access) of NAND-based flash memory provides notable advantages for these block-oriented data storage applications.

Toshiba's NAND flash memory products are optimized for general solid-state storage, image file storage and audio for applications such as solid-state disk drives, digital cameras, set-top boxes and industrial storage.

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