

USB Flash Drive

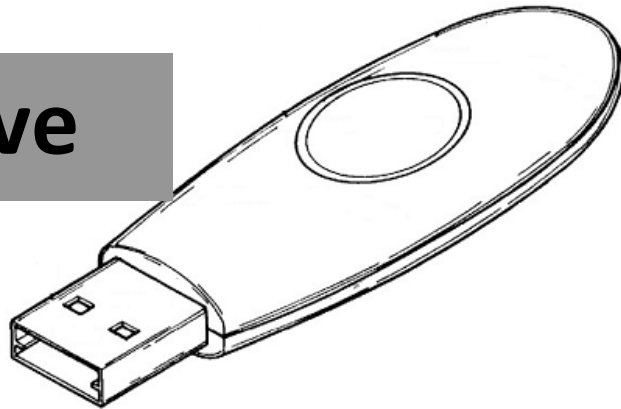


Fig. 1

A USB flash drive is a NAND-type flash memory data storage device with a USB interface. Typical uses include storing and transferring computer files. Newer capabilities of flash drives allow people to use them as RAM(random access memory) for computers to alter operating system memory. USB flash drives are removable and rewritable storage devices. The USB flash drive consists of an outer plastic or rubber casing that protects a printed circuit board on the inside. Also on the outside on one end is the metal USB connector. The circuit board inside mounts the NAND Flash memory chip, crystal oscillator, and LED. Modern flash drives come with either FAT or FAT 32 file system. Some newer flash drives come with disk encryption software.

Usage

Flash drives are primarily used for transferring files from one computer to another. Since replacing the floppy disk back in 2000, all new computers come with USB ports, the interface in which USB flash drives connect with computer. With newer technologies in flash drives users can now use them to alter operating system memory. When connected to a high-speed USB 2.0 port, the flash drive's on-board memory can be selected to act as RAM for the host computer. RAM (random access memory) is used by the computer operating system as data storage which allows the computer to perform multiple tasks. Flash drives also feature removability and rewritability. Flash drives can be removed from a computer without rebooting or shutting down a computer. They can also be rewritable and/or reformatted so that files can be replaced by other files, making flash drives very reusable.

Size

Flash drives do not vary much in physical size, ranging from around the size of a ketchup packet to at most the length of a credit card. Flash drives weigh less than an ounce depending on the type of casing.

Capacity

Actual storage capacity size does vary tremendously. Although low capacity flash drives are becoming more obsolete, they still exist and hold at least 64 MB – enough space to hold 10 mp3 songs. There is no maximum size for flash drives because newer technologies allow their capacity to keep increasing, but the current largest size is around 64 GB – enough space to hold 10,000 mp3 songs.

Compatibility

USB flash drives are supported natively by any modern operating system like Windows, Macintosh, Linux, and Unix-like systems that are equipped with USB ports.

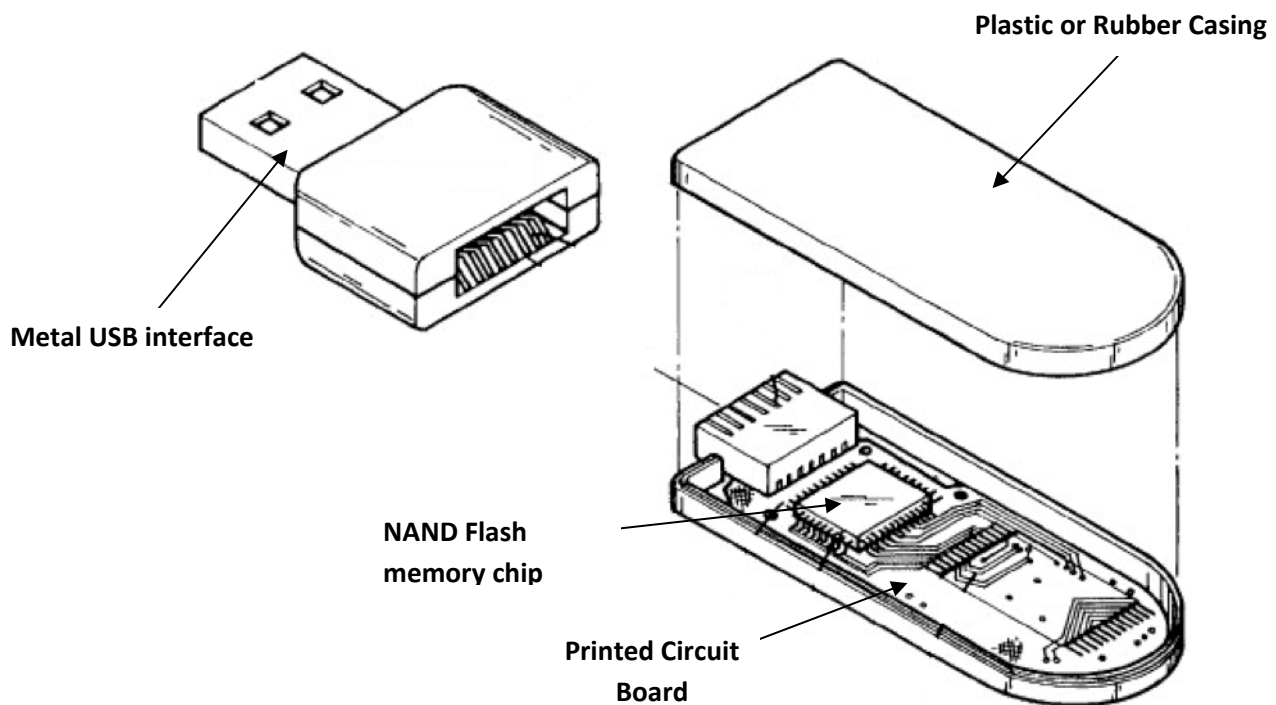


Fig. 2. Yang, D. (2004). US Patent No. 2004/0038592. Washington, DC: U.S. Patent and Trademark Office.

Parts

Metal USB Interface – provides an interface to connect to the host computer. This end is inserted into the USB port on a computer.

NAND Flash memory chip – this chip stores the data stored on flash drive. The storage capacity of the flash drive depends on the capacity of this memory chip.

Printed Circuit Board – used to mechanically and electronically connect different electronic components including NAND flash memory chip and metal USB interface using conductive pathways, or traces, etched from copper sheets laminated onto a non-conductive substrate.

Plastic or Rubber Casing – protects and gives shape to flash drive.