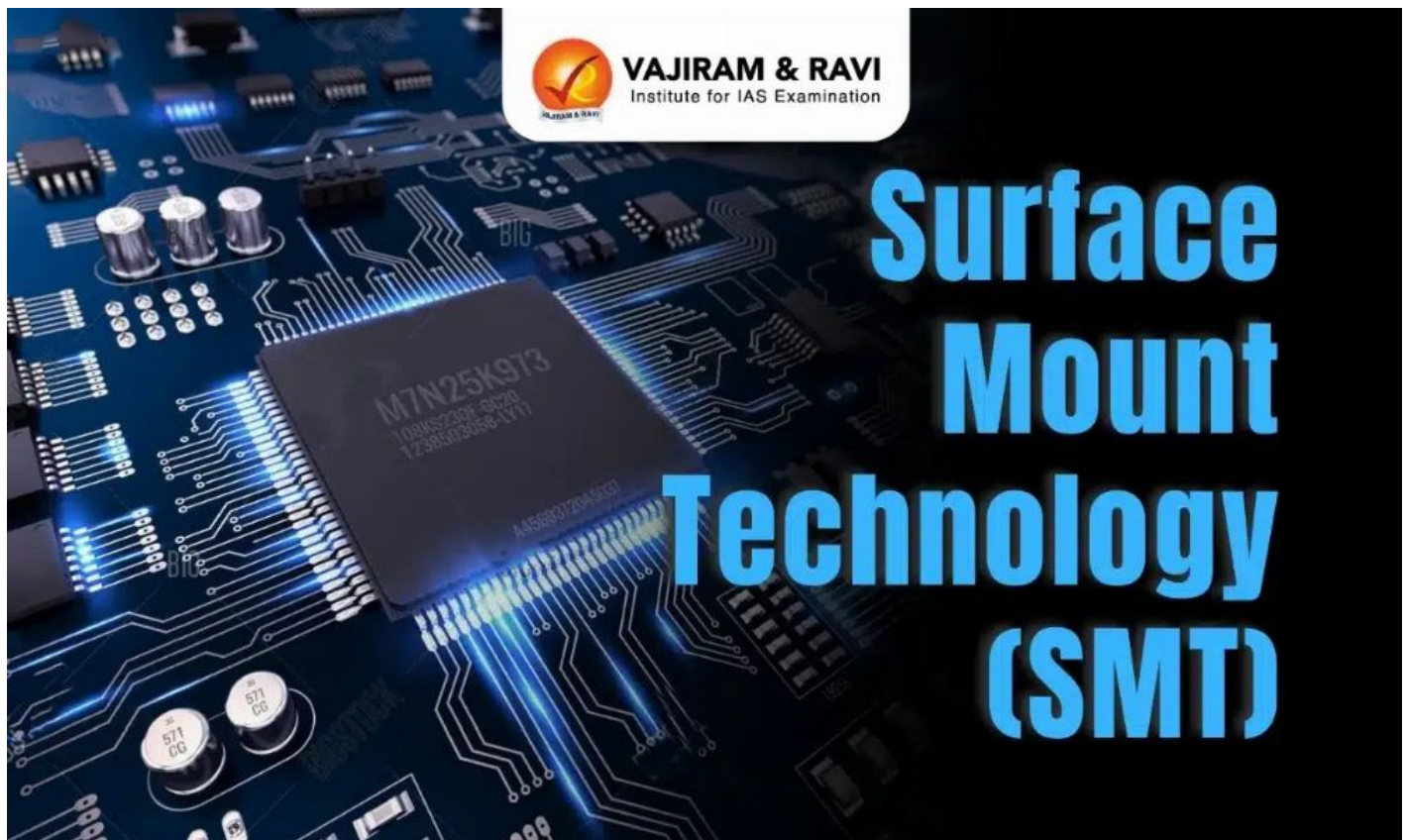


Surface Mount Technology (SMT)

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Surface Mount Technology Latest News

Inaugurating VVDN Technologies' SMT (Surface Mount Technology) Line at Manesar recently, the Minister of Electronics and Information Technology noted that electronics manufacturing in India has risen 5-fold in the last decade, topping Rs 11 lakh crore.

About Surface Mount Technology

- It refers to a **manufacturing technique** where **electronic components are directly applied to the surface of a printed circuit board (PCB)**.
- SMT, developed in the 1960s and 1970s, **replaced conventional through-hole technology (THT)**, producing more compact, economical, and efficient electronic devices.
- This method **enables automated production** to conduct a more extensive assembly, resulting in the creation of a fully functional circuit board.
- **Any electronic element installed in this manner** is identified as a **surface-mounted component (SMD)**.

- In opposition to conventional manufacturing techniques, **SMT removes the necessity for elements to be placed through apertures**; rather, **elements are attached** to the board **via the process of soldering**.
 - The two main soldering techniques are **reflow soldering and wave soldering**.
 - Assembling PCBs using SMT involves various **steps like solder paste application, component placement, reflow soldering, and cleaning**.
- SMT is used in many industries like consumer electronics, medical, and aerospace industries.
- **THT vs. SMT:**
 - As compared to THT, SMT has **cheaper production costs, increased component density, and superior electrical performance**. But the **initial cost is high**, and it is **difficult to repair**.
 - The **process** for SMT production setup **is faster** when compared to THT. This is because components are mounted using solder paste instead of drilled holes. It saves time and labor-intensive work.
 - **SMT supports microelectronics** by allowing more components to be placed closer together on the board. This **leads to designs that are more lightweight and compact**.
 - **Simplicity: In THT, lead wires pass through the holes** to connect components. Because **SMT components are soldered** right onto the PCB, the overall makeup is **far less complex**.
 - The **heat dissipated in SMT is also less** than through-hole components.

Source: ET

Source: <https://vajiramandravi.com/current-affairs/surface-mount-technology/>

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