

# 1962

## DTL goes on sale (Signetics Corporation, U.S.A.)

### ~ Integrated Circuit ~

Following RTL (Resistor Transistor Logic), DTL (Diode Transistor Logic) was developed. DTL is a circuit which realizes a logic function by a combined connection of diodes and amplifies a signal with a bipolar transistor (Fig. 1). In the computer IBM 1409 developed in 1959, a DTL circuit consisting of a discrete diode and a bipolar transistor was used.

In 1962, after Signetics developed the integrated circuit DTL SE100 series equipped with diodes, resistors and bipolar transistors, Fairchild commercialized the 930 series which was superior in performance and noise immunity, highly integrated and cost-effective, and it overwhelmed the market in 1964 (Fig.2).

DTL relaxed the constraint on the number of inputs which was a problem of RTL, but the problem of operation speed remained. In order to shorten the base charge release time in the saturated state of the bipolar transistor which was a factor determining the operation speed, various improvements of the elements and the circuit were made.

Following the DTL, integrated circuit TTL (Transistor Transistor Logic) which was superior in terms of performance and cost was developed, and eventually the center of the logic integrated circuit was shifted to TTL.

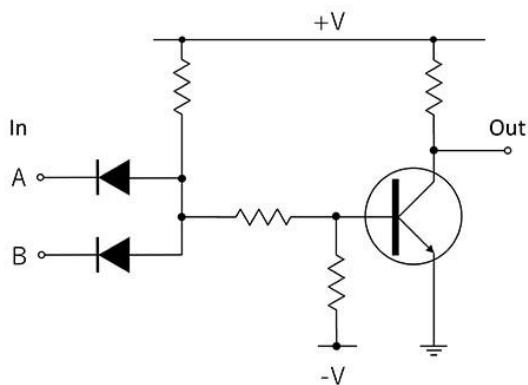


Fig. 1: 2-input NAND gate TTL circuit diagram

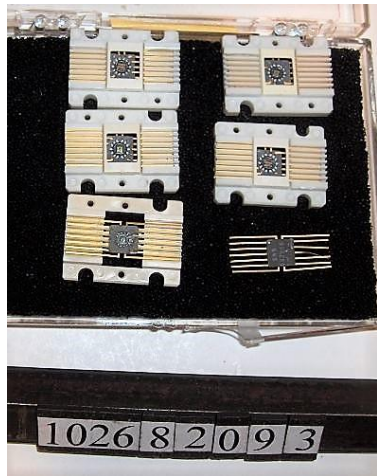


Fig.2: Fairchild's DTL triple-gate semiconductor devices

(By Courtesy of the Computer History Museum)