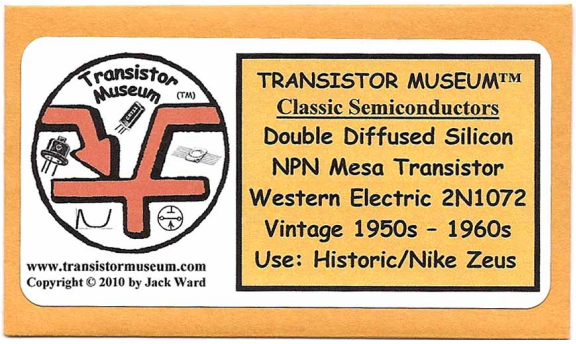
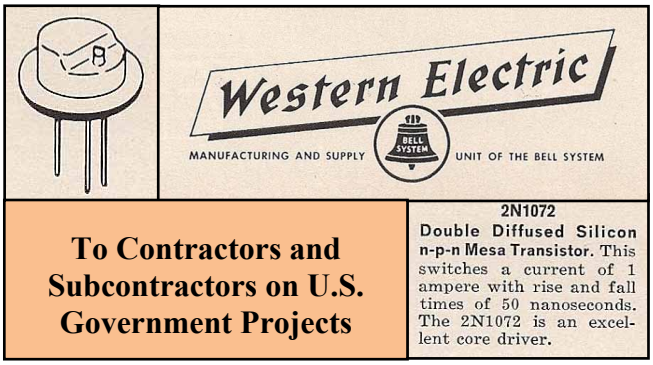
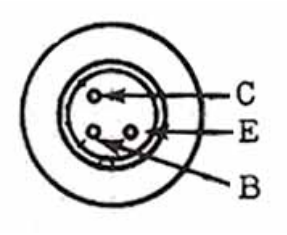
Transistor Museum™ Store
Historic Semiconductor Fact Sheet
Western Electric 2N1072 Silicon NPN Mesa Transistor



Storage/Display envelope provided with your transistor.

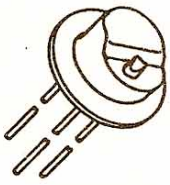




Lead Configuration Bottom View 2N1072

Typical 2N1072 transistors are marked as shown above - the "144" date code denotes 1961 week 44. Western Electric registered the 2N1072 with JEDEC in 1961. Note the unique metal case style, listed as TO-38.

Historical Background: Approximately ten years after the first public announcement of the transistor in 1948, this new technology had matured to the point that devices of reliability and performance suitable for military use were available. The Nike Zeus program was the first large scale missile system to use transistors in preference to vacuum tubes. Bell Labs was heavily involved in the Nike projects, beginning with Nike Ajax in 1946. Shown above is a section of an ad from the August 1961 issue of the IRE magazine. The 2N1072 silicon transistor was noted as available to contractors and subcontractors of U.S. government projects, and this included the Nike Zeus anti-ballistic missile program, where high reliability and performance were required.



2N1072

$P_C \leq 12.5$ W
$T_A \leq 150°C$
$V_{CES} \leq 75$ V
$I_C \leq 2.0$ A
$\theta_{J-C} \leq 10°C/W$
$r_{CE(Sat)} \geq 0.66$ ohms
≤ 2.6 ohms
$t_s + t_f \leq 300$ nsec
(I_C = 800 mA)
(I_{B1} = 75 mA)
(I_{B2} = 75 mA)
$C_{ob} \leq 55$ pfd
$h_{FE} \geq 20$
$f_t \sim 95$ mc

Description: The 2N1072 is a silicon NPN diffused junction transistor in a vacuum tight cold-welded case.

Application: General purpose high pulse current switch, core driver. Medium power amplifier service to approximately 40 mc.

Distinguishing Characteristics: This device is designed to switch currents on the order of 1.0 ampere at rise and fall times of approximately 50 nsec. The saturation resistance is limited to the range of ≥ 0.66 ohms to ≤ 2.6 ohms at 750 mA.

Military Specification: MIL-S-19500/163 (Sig C).

Shown above is a section of a January 24, 1961 publication from a Western Electric publication entitled "High Reliability Transistors and Diodes". This publication documents the performance characteristics of the semiconductor devices manufactured at that time to meet the exacting circuit and environmental requirements of military applications. Bell Labs and Western Electric had been designated contractors by the U.S. government for the Nike Zeus missile program and the 2N1072 was employed extensively in this system. Both germanium and silicon transistors were used in the Nike Zeus, and the 2N1072 mesa (double diffused) technology represented the best that could be manufactured in the late 1950s – 2 amp switching currents up to 70MC. These high reliability transistors cost many times more than commercial devices. Shown at right is a similar application for the 2N1072 – a 1965 ignition circuit for a Saturn V rocket.