

Transistor Museum™ Store

Historic Semiconductor Fact Sheet

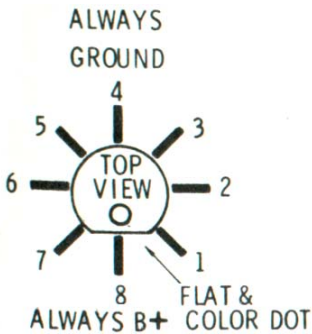
Fairchild Type 923 uLogic® RTL J-K Flip-Flop



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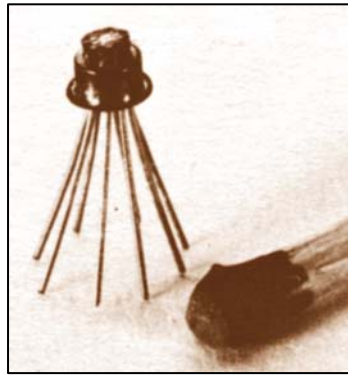
TRANSISTORMUSEUM™
Classic Semiconductors
RTL Integrated Circuit
J-K Flip-Flop
Fairchild Type 923EC
Vintage 1960s - 70s
Use: Computers/Logic

Historical Background: Beginning in 1961, Fairchild offered one of the first Integrated Circuit product lines for commercial sale. These ICs were silicon and contained a few transistors, diodes, resistors and even capacitors on the silicon “chip”. These ICs implemented basic logic functions and used a type of circuitry known as RTL (Resistor Transistor Logic). The 923 is an RTL IC containing 15 transistors which performs the logic function defined as J-K Flip-Flop. Your units are from 1972 and are type 923EC, indicating commercial temperature range and epoxy case.

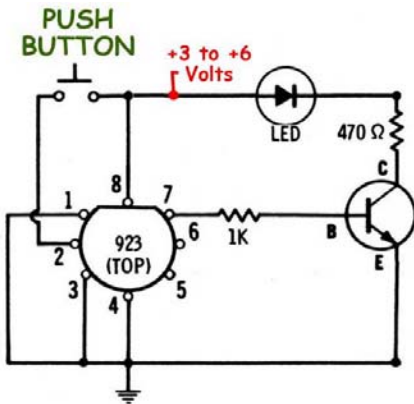


Your RTL 923EC IC is “brand new” and directly from the original factory package. It is guaranteed to work!

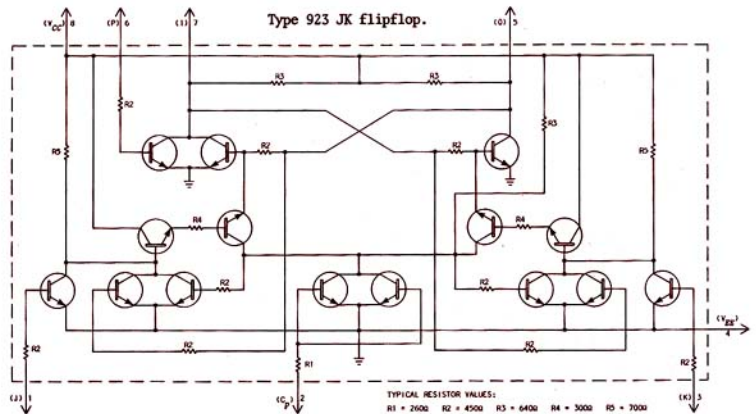
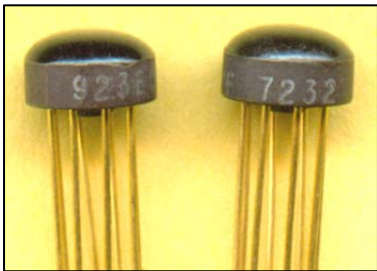
Use the diagram on the left to identify the leads of your RTL 923EC IC.



The photo on the left shows a very early Fairchild RTL IC – it is from the 1962/63 timeframe and represents one of the first commercial ICs available. Prices for these early ICs started in the \$50 range and fell to the few \$\$ range a decade later.



- PINOUTS**
- 1: (J)**
 - 2: (CLK)**
 - 3: (K)**
 - 4: (GND)**
 - 5: (0)**
 - 6: (Preset)**
 - 7: (1)**
 - 8: (+ V)**



The internal layout of the 923 is shown above – there are 15 transistors and a variety of resistors. A simple circuit using the 923 is shown at the top left. Each time the switch is pushed, the JK FlipFlop will change states and the LED will alternately turn OFF and then ON. Multiple 923s can be cascaded to form a binary counter. The pinout connections for the 923 are listed in table on the left. RTL logic is usually listed as requiring a 3.6V power supply, but should operate reliably up to 6 volts. Examples of your epoxy-packaged 923s are shown in the photo.