

SN54159, SN74159

4-LINE TO 16-LINE DECODERS/DEMULTIPLEXERS

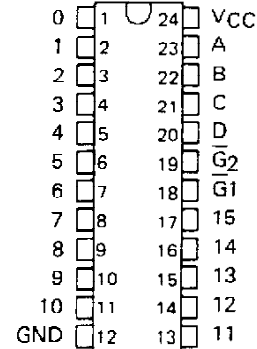
WITH OPEN-COLLECTOR OUTPUTS

DECEMBER 1972 - REVISED MARCH 1988

- **Open-Collector Outputs for Interfacing with MOS or Memory Decoders/Drivers**
- **Decodes 4 Binary-Coded Inputs into One of 16 Mutually Exclusive Outputs**
- **Performs the Demultiplexing Function by Distributing Data from One Input Line to Any One of 16 Outputs**
- **Typical Average Propagation Delay Times:**
 24 ns through 3 levels of Logic
 19 ns from Strobe Input
- **Output Off-State Current is Less Than 50 μ A**
- **Fully Compatible with Most TTL and MSI Circuits**

SN54159 . . . J OR W PACKAGE
 SN74159 . . . N PACKAGE

(TOP VIEW)



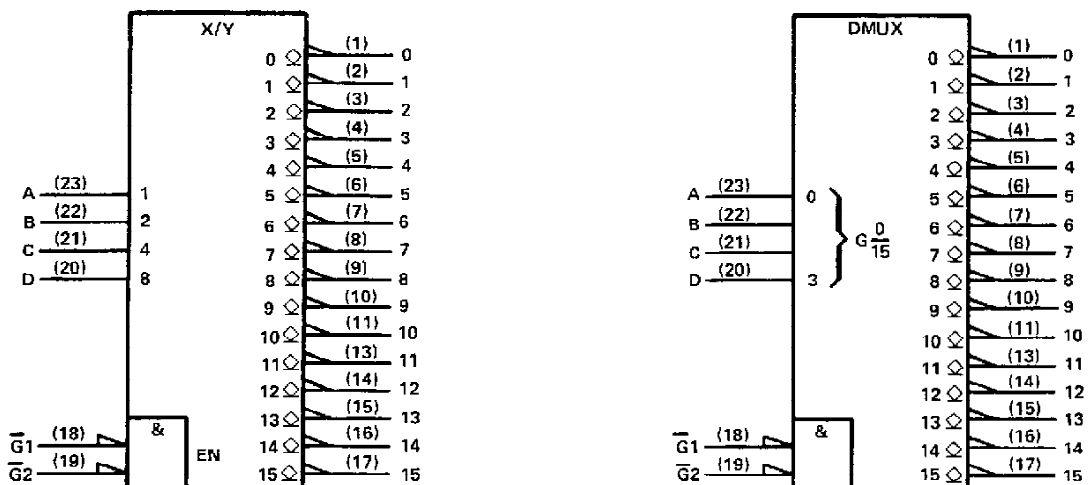
description

Each of these monolithic, 4-line-to-16 line decoders utilizes TTL circuitry to decode four binary-coded inputs into one of sixteen mutually exclusive open-collector outputs when both the strobe inputs, $\bar{G}1$ and $\bar{G}2$, are low. The demultiplexing function is performed by using the 4 input lines to address the output line, passing data from one of the strobe inputs with the other strobe input low. When either strobe input is high, all outputs are high. These demultiplexers are ideally suited for implementing MOS memory decoding or for interfacing with discrete memory address drivers. For ultra-high-speed applications, the SN54S138/SN74S138 or SN54S139/SN74S139 is recommended.

These circuits are fully compatible for use with most other TTL circuits. Input clamping diodes are provided to minimize transmission-line effects and thereby simplify system design. Input buffers are used to lower the fan-in requirement to only one normalized Series 54/74 load. A fan-out to 10 normalized Series 54/74 loads in the low-level state is available from each of the sixteen outputs. Typical power dissipation is 170 mW.

The SN54159 is characterized for operation over the full military temperature range of -55°C to 125°C ; the SN74159 is characterized for operation from 0°C to 70°C .

logic symbols (alternatives)[†]



[†]These symbols are in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.

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