

## 74L Series TTL (Low-Power)

The Series 74L family is designed for applications requiring very low power dissipation. Typically a system can be built with a factor-of-ten power saving over the conventional TTL integrated circuits, such as Series 74. Gates typically draw 0.2mA from a 5 volt supply thus dissipating 1mW. Flip-flops pull about 1.0mA and therefore dissipate about 5mW. Speed however is not proportionately sacrificed. Flip-flops can typically be clocked at 11 MHz. Gate delays are typically 25ns.

The Series is manufactured with TTL circuitry and employs low impedance Darlington outputs which maintain output voltage waveform integrity when capacitively loaded. The Darlington outputs also allow greater guaranteed logical "1" fan out (20) in case it is desirable to connect unused inputs to used inputs.

National's Low Power Series is also guaranteed to drive two standard TTL unit loads from 0°C to 70°C.

## FEATURES

Low power dissipation—typically 1mW/gate, 5mW/flip-flop. One-tenth power of standard TTL. Relatively high speed.

Typical gate propagation delay time of 25ns.

Typical flip-flop toggle frequency at 11 MHz.

Typical MSI shift register toggle frequency at 12 to 14 MHz.

High DC noise margin—typically 1 volt at  $T_A = 25^\circ\text{C}$ .

Low impedance Darlington outputs provide low AC noise susceptibility.

### Fan Out:

10 Series 74L loads in logical "0" state.

20 Series 74L loads in logical "1" state.

2 Series 74 loads (74L only).

1 Series 74 load and 2 Series 74L loads.

1 Series 74H load.

TTL and DTL compatible.

REFERENCE TABLE See outline drawings Nos. 109, 111 and 114 for physical dimensions.

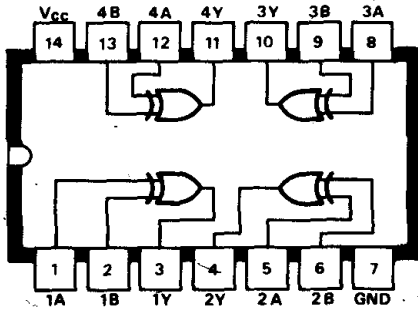
Code	Function	Stock No.	Connection Diagram No.
DM74L00N	Quad 2 NAND Gate	30637F	B1
DM74L01N	Quad 2 NAND Gate (Open Collector)	31015F	B145
DM74L02N	Quad 2 NOR Gate	30638D	B3
DM74L03N	Quad 2 NAND Gate (Open Collector)	30639B	B4
DM74L04N	HEX Inverter	30640E	B5
DM74L10N	Triple 3 NAND Gate	30641C	B11
DM74L20N	Dual 4 NAND Gate	30642A	B19
DM74L30N	Eight Input NAND Gate	30643X	B26
DM74L42AN	6CD-TO-Decimal Decoder (One-Tenth Power)	33269G	B33
DM74L51N	Dual AND-OR-INVERT Gate	30644H	B41
DM74L54N	2-2-3-3-Input AND-OR-INVERT Gate	30645F	B146
DM74L55N	4-Input AND-OR-INVERT Gate	30646D	B147
DM74L71N	R-S Flip-Flop (Master/Slave)	30647B	B148
DM74L72N	J-K Flip-Flop (Master/Slave)	30648X	B53
DM74L73N	Dual J-K Flip-Flop (Master/Slave)	30649R	B54
DM74L74N	Dual-D Flip-Flop	30650A	B55
DM74L78N	Dual J-K Flip-Flop (Master/Slave)	30651X	B149
DM74L85N	Four-BIT Comparator	31010E	B150
DM74L86N	Quad Exclusive OR Gate	30652H	B151
DM74L89AN	64-Bit RAM (One-Tenth Power)	33270X	B67
DM74L90N	Decade Counter	30653F	B68
DM74L91N	Eight-BIT Shift Register	33271H	B69
DM74L93N	Four-BIT Binary Counter	30654D	B152
DM74L95N	4-Bit Parallel-In Parallel-Out Shift Register	30655B	B153
DM74L98N	Four-BIT Storage Register	31028G	B76
DM74L123N	Dual One Shot Monostable	33092C	B89
DM74L154AN	4-Line-to-16-Line Decoder (One-Tenth Power)	33093A	B106
DM74L164N	Serial-In Parallel-Out 8 Bit S/R	33094X	B115
DM74L165N	Parallel-In, Serial-Out 8 Bit S/R	33095H	B116
DM74L187A	1024-Bit ROM (One-Tenth Power)	33096F	B130
DM74L192N	Up/Down Decade Counter	33097D	B134
DM74L193N	Up/Down Binary Counter	33098B	B135

MANUFACTURER'S CURRENT LIST PRICES ARE ALWAYS CHARGED

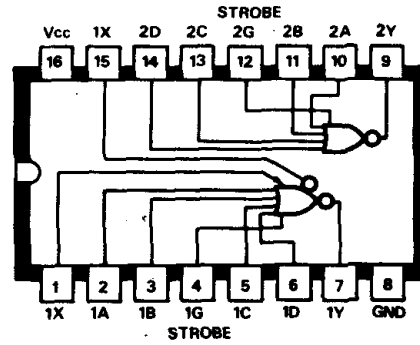
# Semiconductors

## Connection Diagrams

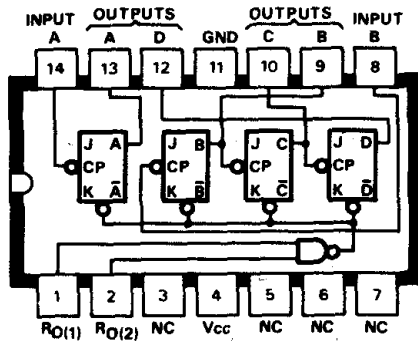
B151 **SN74L86N**  
Quad exclusive OR gate



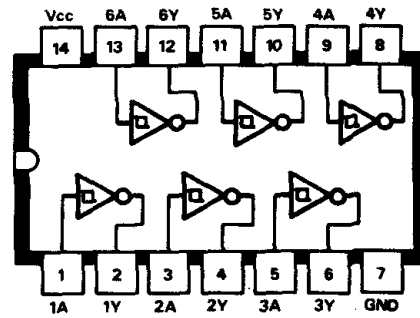
B154 **SN7423N**



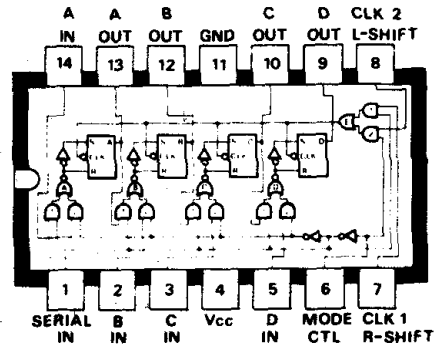
B152 **SN74L93N**  
4-bit binary counter



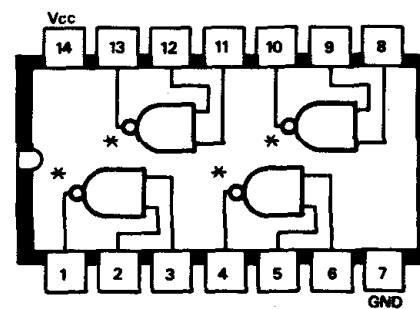
B155 **SN7414N**



B153 **SN74L95N**  
4-bit shift register



B156 **SN7439N**



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