

DM54LS453/DM74LS453

Quad 4:1 Multiplexer

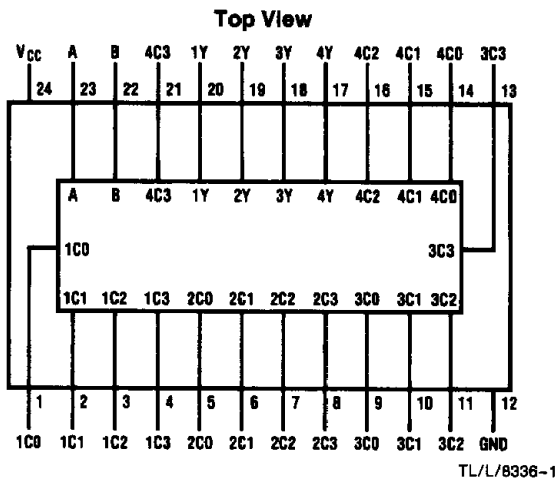
General Description

The quad 4:1 Mux selects one of four inputs, C0 through C3, specified by two binary select inputs, A and B. The true data is output on Y. Propagation delays are the same for inputs and addresses and are specified for 50 pF loading. Outputs conform to the standard 8 mA LS totem pole drive standard.

Features/Benefits

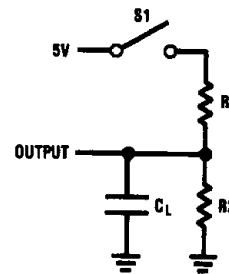
- 24-pin SKINNYDIP saves space
- Twice the density of 74LS153
- Low current PNP inputs reduce loading

Connection Diagram



Order Number **DM54LS453J**,
DM74LS453J or **DM74LS453N**
See NS Package Number **J24F** or **N24C**

Standard Test Load



TL/L/8936-2

Function Table

INPUT SELECT		OUTPUTS Y
B	A	
L	L	C0
L	H	C1
H	L	C2
H	H	C3

Absolute Maximum Ratings

If Military/Aerospace specified devices are required, please contact the National Semiconductor Sales Office/Distributors for availability and specifications.

Supply Voltage V_{CC} 7V
Input Voltage 5.5V

Off-State Output Voltage
Storage Temperature

5.5V
-66° to +150°C

Operating Conditions

Symbol	Parameter	Military			Commercial			Units
		Min	Typ	Max	Min	Typ	Max	
V_{CC}	Supply Voltage	4.5	5	5.5	4.75	5	5.25	V
T_A	Operating Free-Air Temperature	-55		125*	0		75	°C

*Case temperature

Electrical Characteristics Over Operating Conditions

Symbol	Parameter	Test Conditions	Min	Typ†	Max	Units
V_{IL}	Low-Level Input Voltage				0.8	V
V_{IH}	High-Level Input Voltage		2			V
V_{IC}	Input Clamp Voltage	$V_{CC} = \text{MIN}$ $I_I = -18 \text{ mA}$			-1.5	V
I_{IL}	Low-Level Input Current	$V_{CC} = \text{MAX}$ $V_I = 0.4 \text{ V}$			-0.25	mA
I_{IH}	High-Level Input Current	$V_{CC} = \text{MAX}$ $V_I = 2.4 \text{ V}$			25	μA
I_I	Maximum Input Current	$V_{CC} = \text{MAX}$ $V_I = 5.5 \text{ V}$			1	mA
V_{OL}	Low-Level Output Voltage	$V_{CC} = \text{MIN}$ $V_{IL} = 0.8 \text{ V}$ $V_{IH} = 2 \text{ V}$			0.5	V
V_{OH}	High-Level Output Voltage	MIL $I_{OH} = -2 \text{ mA}$	2.4			V
		COM $I_{OH} = -3.2 \text{ mA}$				
I_{OS}	Output Short-Circuit Current*	$V_{CC} = 5.0 \text{ V}$ $V_O = 0 \text{ V}$	-30		-130	mA
I_{CC}	Supply Current	$V_{CC} = \text{MAX}$		60	100	mA

*No more than one output should be shorted at a time and duration of the short-circuit should not exceed one second.

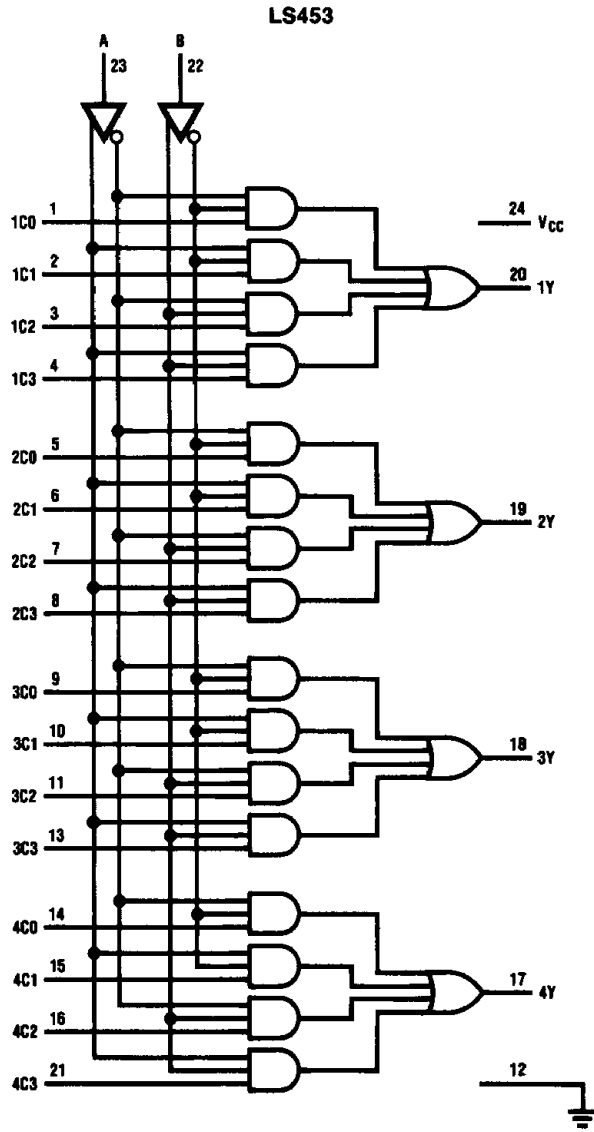
†All typical values are at $V_{CC} = 5 \text{ V}$, $T_A = 25^\circ \text{C}$

Switching Characteristics Over Operating Conditions

Symbol	Parameter	Test Conditions (See Test Load)	Military			Commercial			Units
			Min	Typ	Max	Min	Typ	Max	
t_{PD}	Any Input to Y	$C_L = 50 \text{ pF}$ $R_1 = 560 \Omega$ $R_2 = 1.1 \text{ k}\Omega$		25	45		25	40	ns

Logic Diagram

LS453



TL/L/8336-3