

## DM54LS451/DM74LS451 Dual 8:1 Multiplexer

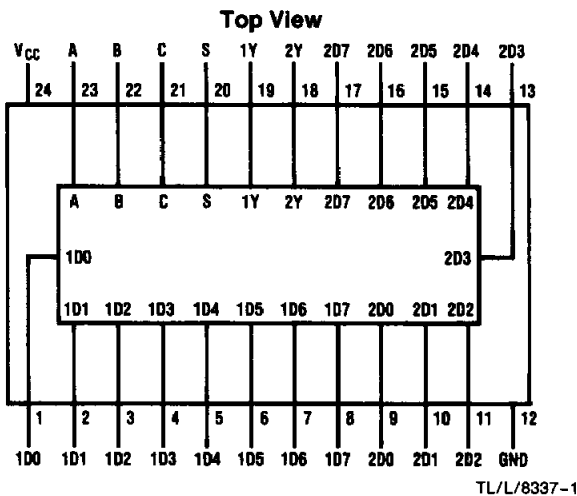
### General Description

The Dual 8:1 Mux selects one of eight inputs, D0 through D7, specified by three binary select inputs, A, B, and C. The true data is output on Y when strobed by S. Propagation delays are the same for inputs, addresses and strobes and are specified for 50 pF loading. Outputs conform to the standard 8 mA LS totem pole drive standard.

### Features/Benefits

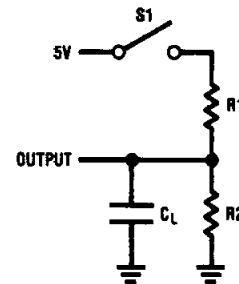
- 24-pin SKINNYDIP saves space
- Twice the density of 74LS151
- Low current PNP inputs reduce loading

### Connection Diagram



Order Number DM54LS451J, DM74LS451J,  
DM74LS451N or DM74LS451V  
See NS Package Number J24F, N24C or V28A

### Standard Test Load



TL/L/8337-2

### Function Table

Inputs				Outputs
Select			Strobe	Y
C	B	A	S	
X	X	X	H	H
L	L	L	L	D0
L	L	H	L	D1
L	H	L	L	D2
L	H	H	L	D3
H	L	L	L	D4
H	L	H	L	D5
H	H	L	L	D6
H	H	H	L	D7

## 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 5.5V  
Storage Temperature  $-65^{\circ}\text{C}$  to  $+150^{\circ}\text{C}$

## Operating Conditions

Symbol	Parameter	Military			Commercial			Units
		Min	Nom	Max	Min	Nom	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	$^{\circ}\text{C}$

\*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	$\mu\text{A}$
$I_I$	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			2.4	V
		COM				
$I_{OS}$	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

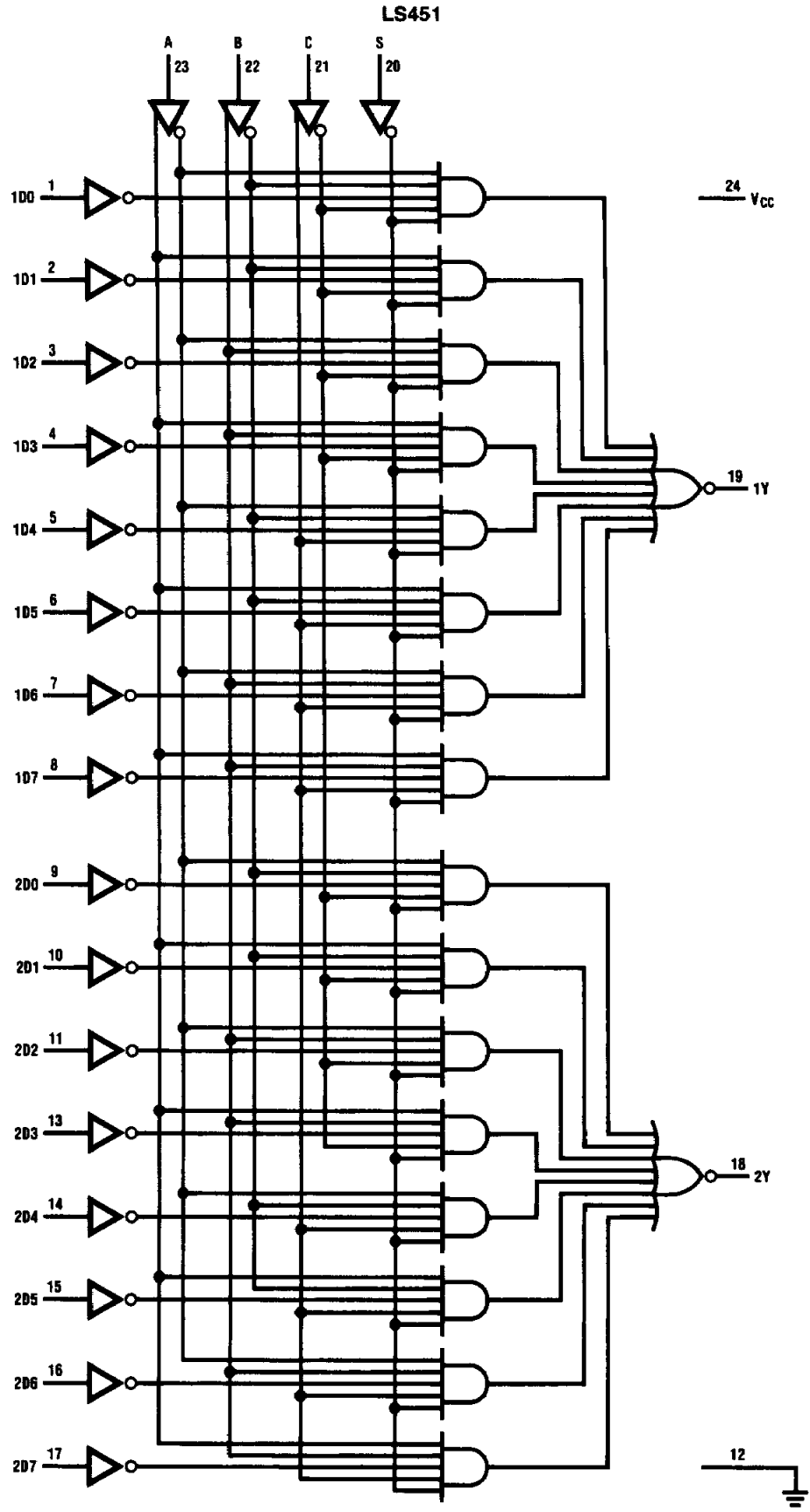
\*No more than one output should be shorted at a time and duration of the short-circuit should not exceed one second.

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

## 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	$C_L = 50 \text{ pF}$ $R_1 = 560\Omega$ $R_2 = 1.1\Omega$		25	45		25	40	ns

# Logic Diagram



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