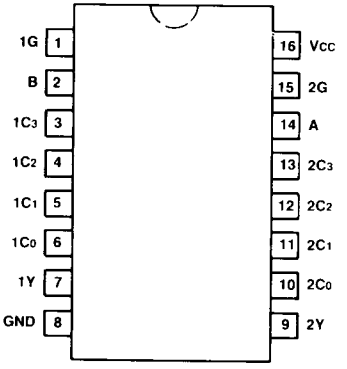
Dual 4- to 1-Line Data Selector/Multiplexer

The LS153 is a bipolar, NPN, sealed-junction, silicon integrated circuit. It is manufactured in low-power Schottky technology and is available in a wire-bonded, 16-pin plastic DIP or surface mount package.

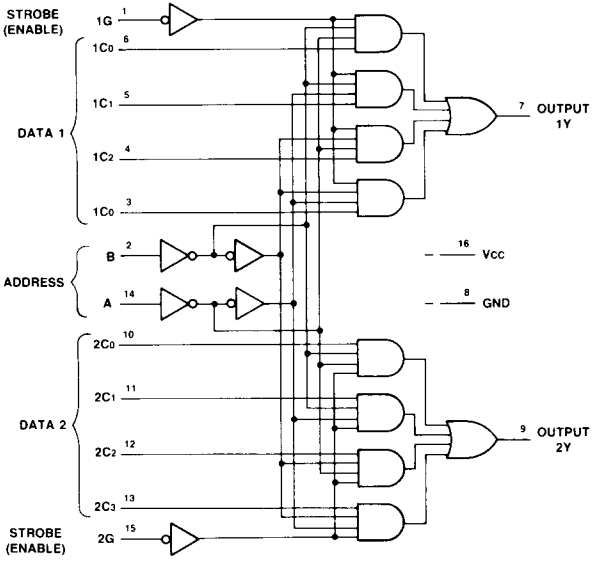


Truth Table

Select Inputs*		Data Inputs				Strobe	Output
B	A	C0	C1	C2	C3	G	Y
X	X	X	X	X	X	H	L
L	L	L	X	X	X	L	L
L	L	H	X	X	X	L	H
L	H	X	L	X	X	L	L
L	H	X	H	X	X	L	H
H	L	X	X	L	X	L	L
H	L	X	X	H	X	L	H
H	H	X	X	X	L	L	L
H	H	X	X	X	H	L	H

* Select inputs A and B are common to both sections.
H = High Level
L = Low Level
X = Irrelevant

Logic Diagram



Electrical Characteristics

V_{CC} = 5.0 ±0.5 V, T_A = −55 to +125°C (WA-LS)
V_{CC} = 5.0 ±0.25 V, T_A = 0 to 70°C (WP90348L2)
V_{CC} = 5.0 ±0.5 V, T_A = −40 to +85°C (WA-LSD, WP91404L5)

		WA-LS		WP, WA-LSD		
Parameter	**Symbol**	**Min**	**Max**	**Min**	**Max**	**Units**
Output Voltage, V_{CC} = 4.5 V (WA-LS), 4.75 V (WP, WA-LSD)						
Low, I_{OL} = 4.0 mA	V_{OL}	—	0.4	—	0.4	V
I_{OL} = 8.0 mA	V_{OL}	—	0.5	—	0.5	V
High, I_{OH} = −0.4 mA	V_{OH}	2.5	—	2.7	—	V
Input Voltage, V_{CC} = 4.5 V (WA-LS), 4.75 V (WP, WA-LSD)						
Low	V_{IL}	—	0.7	—	0.8*	V
High	V_{IH}	2.0	7.5	2.0	5.5	V
Clamp, I_{IN} = −18.0 mA	V_{IK}	—	−1.5	—	−1.5	V
Input Current, V_{CC} = 5.5 V (WA-LS), 5.25 V (WP, WA-LSD)						
Low, V_{IL} = 0.4 V	I_{IL}	—	−0.4	—	−0.4	mA
High, V_{IH} = 2.7 V	I_{IH}	—	20.0	—	20.0	μA
@ V_I max, V_I = 7.0 V (WA-LS), 5.5 V (WP, WA-LSD)	I_I	—	0.1	—	0.1	mA
Output Current, V_{CC} = 5.5 V (WA-LS), 5.25 V (WP, WA-LSD)						
Short-Circuit	I_{OS}	−20.0	−100.0	−20.0	−100.0	mA
Supply Current, V_{CC} = 5.5 V (WA-LS), 5.25 V (WP, WA-LSD)						
Outputs Open, Inputs Low	I_{CC}	—	10.0	—	10.0	mA

* WA-LSD, WP91404L5: V_{IL} = 0.7 V

Timing Characteristics

V_{CC} = 5.0 V, T_A = 25°C, C_L = 15 pF

		WA-LS		WP, WA-LSD		
Parameter	**Symbol**	**Min**	**Max**	**Min**	**Max**	**Units**
Propagation Delay						
Binary Select-to-Output						
Low-to-High	t_{PLH}	—	29.0	—	29.0	ns
High-to-Low	t_{PHL}	—	29.0	—	38.0	ns
Strobe-to-Output						
Low-to-High	t_{PLH}	—	24.0	—	24.0	ns
High-to-Low	t_{PHL}	—	24.0	—	32.0	ns
Data-to-Output						
Low-to-High	t_{PLH}	—	15.0	—	15.0	ns
High-to-Low	t_{PHL}	—	20.0	—	26.0	ns

Maximum Ratings

Power supply voltage (V_{CC}) . . . . . 7.0 V
Operating temperature (T_A) . . . . . WA-LS: −55 to +125°C
WP90348L2: 0 to 70°C
WA-LSD, WP91404L5: −40 to +85°C
Storage temperature (T_{stg}) . . . . . −65 to +150°C

Maximum ratings are defined as the limiting conditions that the user can apply to the device under all variations of circuit and environmental conditions. If any rating is exceeded, permanent damage to the device may result.

Bonding or soldering of the external leads of this device can be performed safely at temperatures up to 300°C.