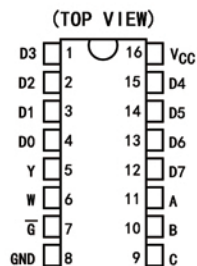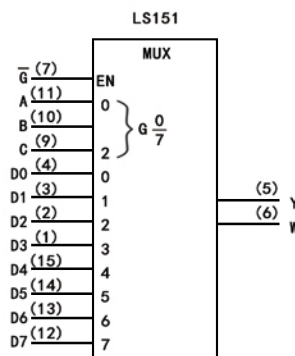- '151 Selects One-of- Sixteen Data Sources
- Others Select One-of-Eight Data Sources
- All Perform Parallel-to-Serial Conversion
- All Permit Multiplexing from N Lines to One Line
- Also For Use as Boolean Function Generator
- Input-Clamping Diodes Simplify System Design
- Fully Compatible with Most TTL Circuits

(TOP VIEW)

```
        ┌───┬───┐
D3  ▢ 1 │   └─┘ │ 16 ▢ VCC
D2  ▢ 2 │       │ 15 ▢ D4
D1  ▢ 3 │       │ 14 ▢ D5
D0  ▢ 4 │       │ 13 ▢ D6
Y   ▢ 5 │       │ 12 ▢ D7
W   ▢ 6 │       │ 11 ▢ A
G̅   ▢ 7 │       │ 10 ▢ B
GND ▢ 8 │       │ 9  ▢ C
        └───────┘
```

description

These monolithic data selectors/multiplexers contain full on-chip binary decoding to select the desired data source. The '1 50 selects one- -of-sixteen data sources; the LS151 select one-of-eight data sources. The 'LS151 have a strobe input which must be at a low logic level to enable these devices. A high level at the strobe forces the W output high, and the Y output (as applicable) low.

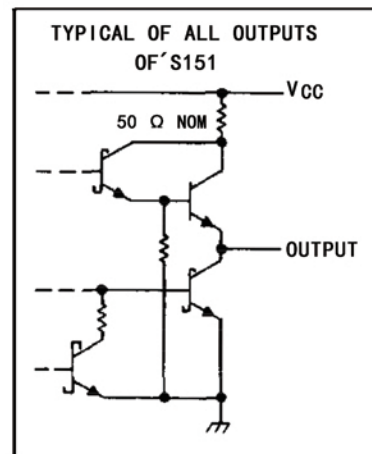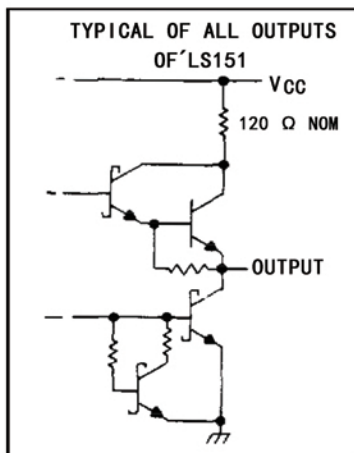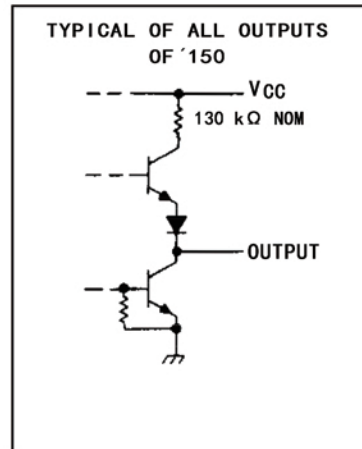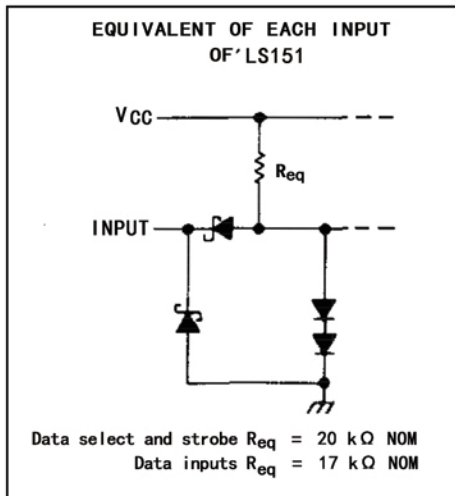The '151 has only an inverted W output; the 'LS151 feature complementary W and Y outputs.

LS151

```
              ┌─────────────┐
              │     MUX     │
G̅ (7) ────────│ EN          │
A (11) ───────│ 0    ┐      │
B (10) ───────│ 1    ├ G 0/7│
C (9) ────────│ 2    ┘      │
D0 (4) ───────│ 0           │
D1 (3) ───────│ 1           │
D2 (2) ───────│ 2           │──── (5) Y
D3 (1) ───────│ 3           │──── (6) W
D4 (15) ──────│ 4           │
D5 (14) ──────│ 5           │
D6 (13) ──────│ 6           │
D7 (12) ──────│ 7           │
              └─────────────┘
```

´LS151
FUNCTION TABLE

INPUTS				OUTPUTS	
SELECT			STROBE		
C	B	A	G̅	Y	W
X	X	X	H	L	H
L	L	L	L	D0	$\overline{D0}$
L	L	H	L	D1	$\overline{D1}$
L	H	L	L	D2	$\overline{D2}$
L	H	H	L	D3	$\overline{D3}$
H	L	L	L	D4	$\overline{D4}$
H	L	H	L	D5	$\overline{D5}$
H	H	L	L	D6	$\overline{D6}$
H	H	H	L	D7	$\overline{D7}$

schematics of inputs and outputs

EQUIVALENT OF EACH INPUT
OF '151

Vcc

4 kΩ NOM

INPUT

EQUIVALENT OF EACH INPUT
OF 'S151

Vcc

2.8 kΩ NOM

INPUT

EQUIVALENT OF EACH INPUT
OF 'LS151

Vcc

R_{eq}

INPUT

Data select and strobe R_{eq} = 20 kΩ NOM
Data inputs R_{eq} = 17 kΩ NOM

TYPICAL OF ALL OUTPUTS
OF '150

Vcc

130 kΩ NOM

OUTPUT

TYPICAL OF ALL OUTPUTS
OF 'LS151

Vcc

120 Ω NOM

OUTPUT

TYPICAL OF ALL OUTPUTS
OF 'S151

Vcc

50 Ω NOM

OUTPUT
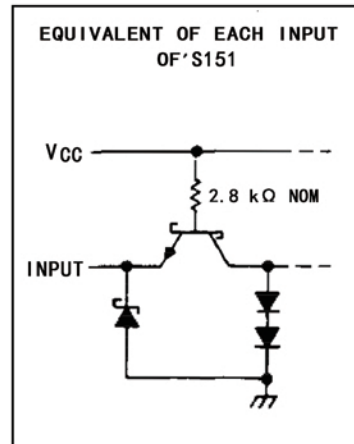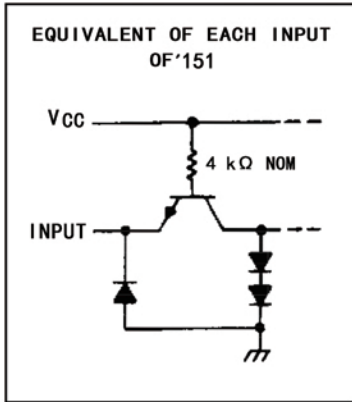
recommended operating conditions

	XD74			UNIT
	MIN	NOM	MAX	
Suooly voltage,V_{CC}	4.75	5	5.25	V
High-level outout current,I_{OH}			-800	µA
Low-level outout current,I_{OH}			16	mA
Operating free-air temperature,T_A	0		70	C

electrical characteristics over recommended operating free-air temperature range (unless otherwise noted)

PARAMETER		TEST CONDITIONS↑	150			151			UNIT
			MIN	TYP‡	MAX	MIN	TYP‡	MAX	
V_{IH}	High-level input voltage		2			2			V
V_{IL}	Low-level input voltage				0.8			0.8	V
V_{IK}	Input clamp voltage	V_{CC} =MIN, I_I = -8 mA			-1.5			-1.5	V
V_{OH}	High-level output voltage	V_{CC} =MIN, V_{IH} =2V, V_{IL} = 0.8V, I_{OH} = -800 µA	2.4	3.4		2.2	3.4		V
V_{OL}	Low-level output voltage	V_{CC} =MIN, V_{IH} =2V, V_{IL} = 0.8V, I_{OL} = 16mA		0.2	0.4		0.2	0.4	V
I_I	Input current at maximum input vottage	V_{CC} =MAX, V_I = 5.5V			1			1	mA
I_{IH}	High-level input current	V_{CC} =MAX, V_I = 2.4V			40			40	µA
I_{IL}	Low-level input current	V_{CC} =MAX, V_I = 0.4V			-1.6			-1.6	mA
I_{OS}	Short-circuit outout current§	V_{CC} =MAX, XD74	-18		-55	-18		-55	mA
I_{CC}	Supply current	V_{CC} =MAX, See Note 3		40	68		29	48	mA

↑For conditians shown as MIN or MAX, use the appropriate value specified under recommended operating conditions for the applicable device type.
‡All typical values at Vcc = 5 V, TA = 25°C.
§ Not more than one output of the 151 should be shorted at atime.
NOTE 3: I_{CC} is measured with the strobe and data select inputs at 4.5 V, all other inpurs and outputs open.

switching characteristics, V_{CC}= 5V, T_A = 25°C

PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS	150			151			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	
t_{PLH}	A,B, or C (4 levels)	Y	C_L = 15 pF, R_L = 400 Ω See Note 4					25	38	ns
t_{PHL}								25	38	
t_{PLH}	A,B,C,or D (3 levels)	W			23	35		17	26	ns
t_{PHL}					22	33		19	30	
t_{PLH}	Strobe $\overline{G}$	Y						21	33	ns
t_{PHL}								22	33	
t_{PLH}	Strobe $\overline{G}$	W			15.5	24		14	21	ns
t_{PHL}					21	30		15	23	
t_{PLH}	DO thru D7	Y						13	20	ns
t_{PHL}								18	27	
t_{PLH}	EO thru E15, or DO thru D7	W			8.5	14		8	14	ns
t_{PHL}					13	33		8	14	

t_{PLH} = propagation delay time, low-to-high-level output
t_{PLH} = propagation delay time, high-to-low-level output
NOTE 4: Load circuits and voltage waveforms are shown in Section 1 .

recommended operating conditions

	XD74LS151			UNIT
	MIN	NOM	MAX	
Suooly voltage,V_{CC}	4.75	5	5.25	V
High-level outout current,I_{OH}			-400	µA
Low-level outout current,I_{OH}			8	mA
Operating free-air temperature,T_A	0		70	C

electrical characteristics over recommended operating free-air temperature range (unless otherwise noted)

PARAMETER		TEST CONDITIONS[†]		XD74LS151			UNIT
				MIN	TYP[‡]	MAX	
V_{IH}	High-level input voltage			2			V
V_{IL}	Low-level input voltage					0.8	V
V_{IK}	Input clamp voltage	V_{CC} =MIN, I_I = -18 mA				-1.5	V
V_{OH}	High-level output voltage	V_{CC} =MIN, V_{IH} =2V, V_{IL} =0.7V, I_{OH} = -400 µA		2.7	3.4		V
V_{OL}	Low-level output voltage	V_{CC} =MIN, V_{IH} =2V, V_{IL} = V_{IL}max	I_{OL} = 4 mA		0.25	0.4	V
			I_{OL} = 8mA		0.35	0.5	
I_I	Input current at maximum input vottage	V_{CC} =MAX, V_I =7V				0.1	mA
I_{IH}	High-level input current	V_{CC} =MAX, V_I =2.7V				20	µA
I_{IL}	Low-level input current	V_{CC} =MAX, V_I =0.4V				-0.4	mA
I_{OS}	Short-circuit outout current[§]	V_{CC} =MAX,		-20		-100	mA
I_{CC}	Supply current	V_{CC} =MAX, Outputs open, All inputs at 4.5V			6.0	10	mA

[†]For conditians shown as MIN or MAX, use the appropriate value specified under recommended operating conditions for the applicable device type.
[‡]All typical values at Vcc = 5 V, TA = 25°C.
[§] Not more than one output should be shorted at a time and duration of short-circuit should not exceed one second.

switching characteristics, V_{CC} = 5V, T_A = 25°C

PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS	MIN	TYP	MAX	UNIT
t_{PLH}	A,B, or C (4 levels)	Y			27	43	ns
t_{PHL}					18	30	
t_{PLH}	A,B, or C (3 levels)	W			14	23	ns
t_{PHL}					20	32	
t_{PLH}	Strobe $\overline{G}$	Y	C_L = 15 pF, R_L = 2 kΩ, See Note 4		26	42	ns
t_{PHL}					20	32	
t_{PLH}	Strobe $\overline{G}$	W			15	24	ns
t_{PHL}					18	30	
t_{PLH}	Any D	Y			20	32	ns
t_{PHL}					16	26	
t_{PLH}	Any D	W			13	21	ns
t_{PHL}					12	20	

t_{PLH} = propagation delay time, low-to-high-level output
t_{PLH} = propagation delay time, high-to-low-level output
NOTE 4: Load circuits and voltage waveforms are shown in Section 1 .

recommended operating conditions

	XD74S151			UNIT
	MIN	NOM	MAX	
Suooly voltage,V_{CC}	4.75	5	5.25	V
High-level outout current,I_{OH}			-1	mA
Low-level outout current,I_{OH}			20	mA
Operating free-air temperature,T_A	0		70	C

electrical characteristics over recommended operating free-air temperature range (unless otherwise noted)

PARAMETER		TEST CONDITIONS†		MIN	TYP‡	MAX	UNIT
V_{IH}	High-level input voltage			2			V
V_{IL}	Low-level input voltage					0.8	V
V_{IK}	Input clamp voltage	V_{CC} =MIN, I_I = -18mA				-1.2	V
V_{OH}	High-level output voltage	V_{CC} =MIN, V_{IH} =2V, V_{IL} = 0.8V, I_{OH} =-1mA	XD74S151	2.7	3.4		V
V_{OL}	Low-level output voltage	V_{CC} =MIN, V_{IH} =2V, V_{IL} = 0.8V, I_{OL} = 20mA				0.5	V
I_I	Input current at maximum input vottage	V_{CC} =MAX, V_I = 5.5V				1	mA
I_{IH}	High-level input current	V_{CC} =MAX, V_I = 2.7V				50	µA
I_{IL}	Low-level input current	V_{CC} =MAX, V_I = 0.5V				-2	mA
I_{OS}	Short-circuit outout current§	V_{CC} =MAX,		-40		-100	mA
I_{CC}	Supply current	V_{CC} =MAX, All inputs at 4.5V, All outputs apen			45	-70	mA

†For conditians shown as MIN or MAX, use the appropriate value specified under recommended operating conditions for the applicable device type.
‡All typical values at Vcc = 5 V, TA = 25°C.
§ Not more than one output should be shorted at a time,and duration of the shortcircuit should not exceed one second.

switching characteristics, V_{CC} = 5V, T_A = 25°C

| PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS	MIN	TYP	MAX	UNIT
t_{PLH}	A,B, or C (4 levels)	Y			12	18	ns
t_{PHL}					12	18	
t_{PLH}	A,B, or C (3 levels)	W			10	15	ns
t_{PHL}					9	13.5	
t_{PLH}	Any D	Y	C_L = 15 pF, R_L =280 kΩ See Note 4		8	12	ns
t_{PHL}					8	12	
t_{PLH}	Any D	W			4.5	7	ns
t_{PHL}					4.5	7	
t_{PLH}	Strobe $\overline{G}$	Y			11	16.5	ns
t_{PHL}					12	18	
t_{PLH}	Strobe $\overline{G}$	W			9	13	ns
t_{PHL}					8.5	12	

t_{PLH} = propagation delay time, low-to-high-level output
t_{PLH} = propagation delay time, high-to-low-level output
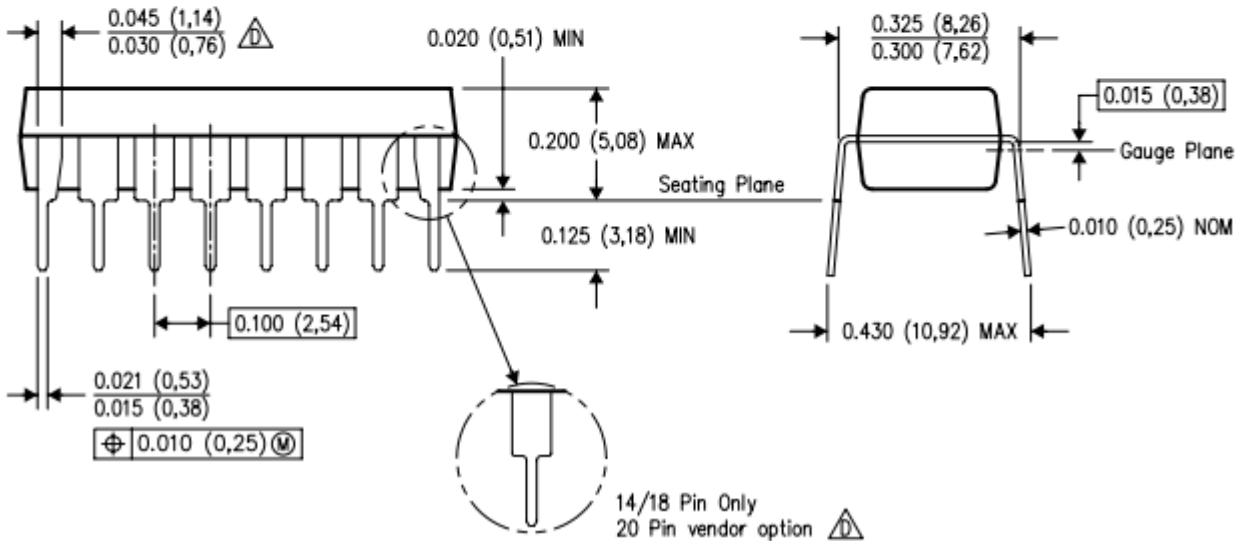NOTE 4: Load circuits and voltage waveforms are shown in Section 1 .

DIP
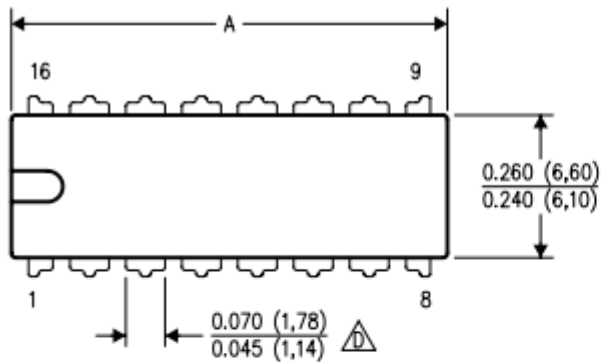
PINS **		14	16	18	20
DIM					
A MAX		0.775 (19,69)	0.775 (19,69)	0.920 (23,37)	1.060 (26,92)
A MIN		0.745 (18,92)	0.745 (18,92)	0.850 (21,59)	0.940 (23,88)
MS-001 VARIATION		AA	BB	AC	AD

0.260 (6,60) / 0.240 (6,10)

0.070 (1,78) / 0.045 (1,14)

0.045 (1,14) / 0.030 (0,76)

0.020 (0,51) MIN

0.200 (5,08) MAX

Seating Plane

0.125 (3,18) MIN

0.100 (2,54)

0.021 (0,53) / 0.015 (0,38)

⊕ 0.010 (0,25) Ⓜ

14/18 Pin Only
20 Pin vendor option

0.325 (8,26) / 0.300 (7,62)

0.015 (0,38)

Gauge Plane

0.010 (0,25) NOM

0.430 (10,92) MAX

以上信息仅供参考. 如需帮助联系客服人员。谢谢 XINLUDA

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