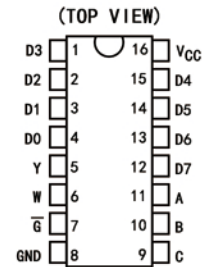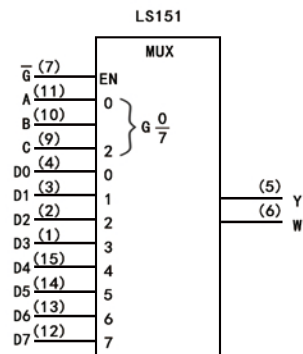- '151 Selects One-of- Sixteen Data Sources
- Others Select One-of-Eight Data Sources
- All Perform Parallel-to-Serial Conversion
- All Permit Multiplexing from N Lines to One Line
- Also For Use as Boolean Function Generator
- Input-Clamping Diodes Simplify System Design
- Fully Compatible with Most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

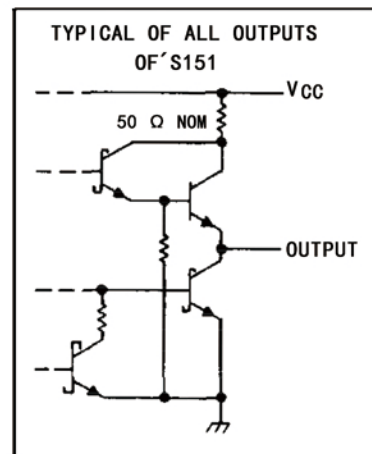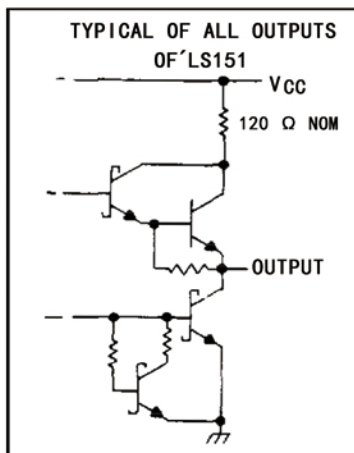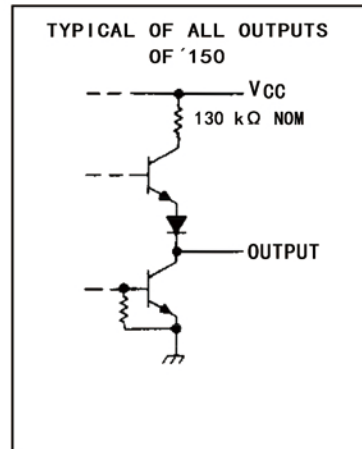The '151 has only an inverted W output; the 'LS151 feature complementary W and Y outputs.

LS151

```
        MUX
G̅ (7) ──┤EN
A (11)──┤0
B (10)──┤    G 0
C (9) ──┤2      7
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

      Req

INPUT

Data select and strobe Req = 20 kΩ NOM
     Data inputs Req = 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
```
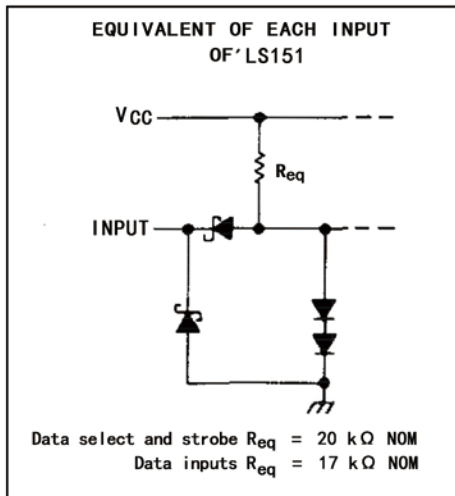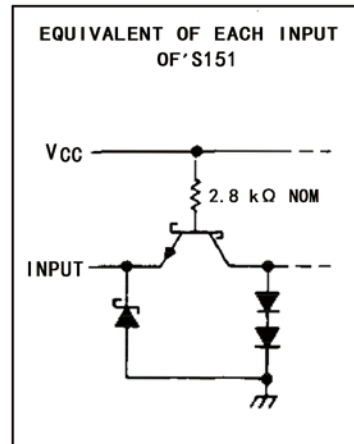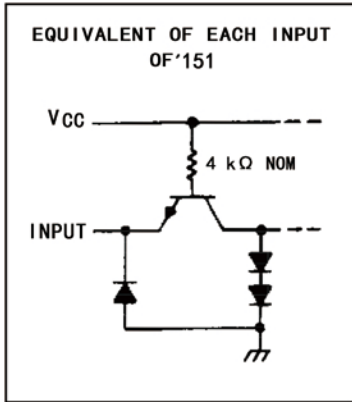
recommended operating conditions

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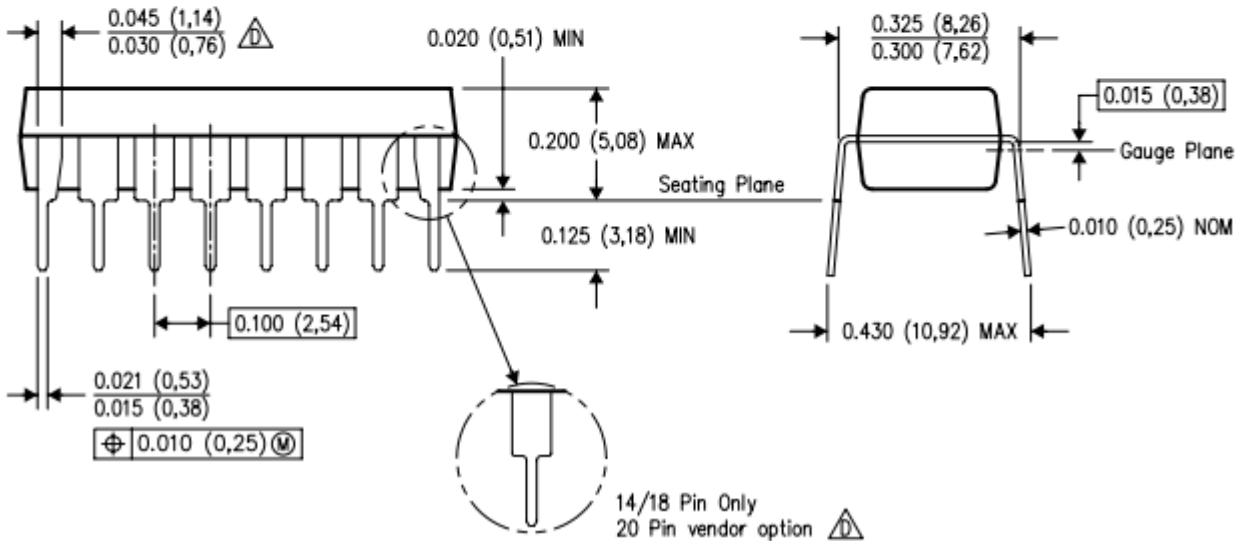t_{PLH} = propagation delay time, high-to-low-level output
NOTE 4: Load circuits and voltage waveforms are shown in Section 1 .

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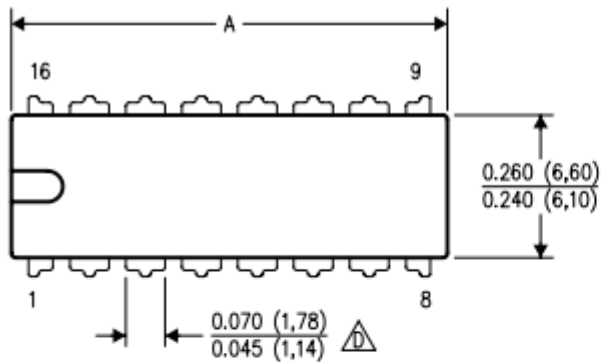
PINS ** DIM	14	16	18	20
A MAX	0.775 (19,69)	0.775 (19,69)	0.920 (23,37)	1.060 (26,92)
A MIN	0.745 (18,92)	0.745 (18,92)	0.850 (21,59)	0.940 (23,88)
MS−001 VARIATION	AA	BB	AC	AD

以上信息仅供参考. 如需帮助联系客服人员。谢谢 XINLUDA