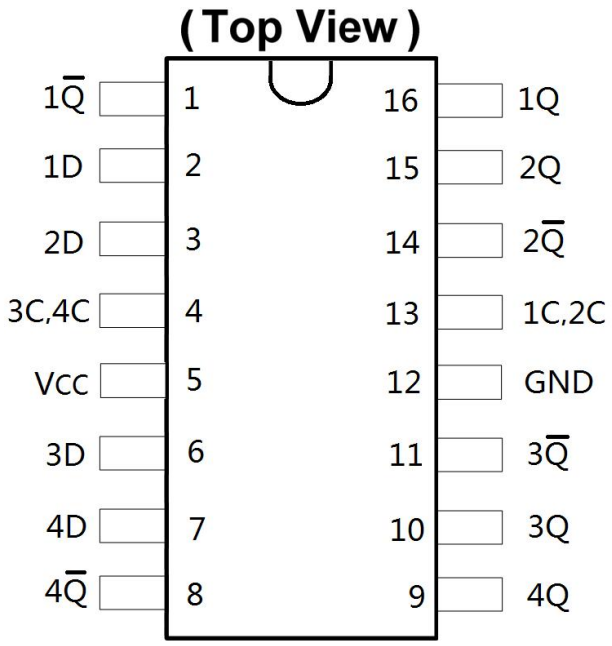
1. DESCRIPTION

These latches are ideally suited for use as temporary storage for binary information between processing units and input/output or indicator units.Information present at a data(D) input is transferred to the Q output when the enable remains high.When the enable goes low,the information(that was present at the data input at the time the transition occurred) is retained at the Q output until the enable is permitted to go high.

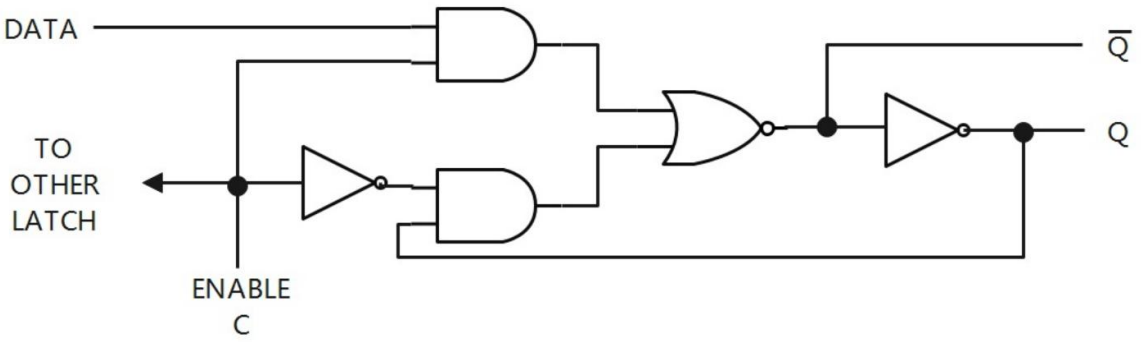
The ’LS75 feature complementary Q and $\overline{Q}$ outputs from a 4-bit latch,and are available in various 16-pin packages.

These circuits are completely compatible with all popular TTL families.All inputs are diode-clamped to minimize transmission-line effects and simplify system design. Series 74LS devices are characterized for operation from 0℃ to 70℃.

2. PIN CONFIGURATIONS

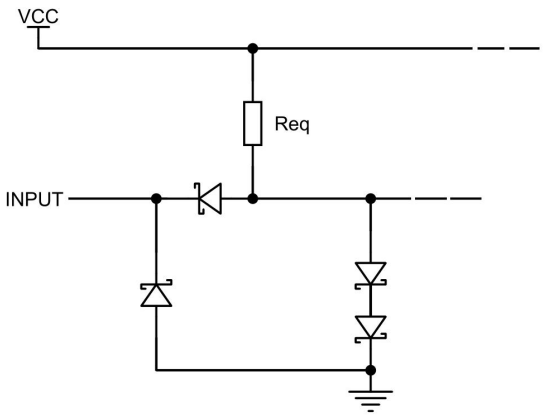


3. LOGIC DIAGRAM

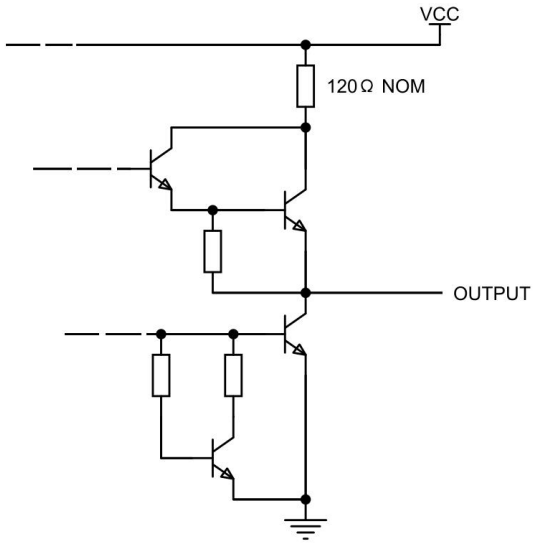


INPUTS		OUTPUT	
D	**C**	**Q**	**$\overline{Q}$**
L	H	L	H
H	H	H	L
X	L	Q_0	$\overline{Q_0}$

4. SCHEMATICS OF INPUTS AND OUTPUTS



EQUIVALENT OF EACH INPUT



TYPICAL OF ALL OUTPUTS

5. ABSOLUTE MAXIMUM RATINGS OVER OPERATING FREE-AIR TEMPERATURE RANGE (UNLESS OTHERWISE NOTES)

Supply voltage, V_{CC} (see Note 1)..... 7V

Input voltage, VI: 74LS75..... 7V

Operating free-air temperature range: SOP package..... 0°C to 70°C

DIP package..... 0°C to 70°C

Storage temperature range, Tstg..... −65°C to 150°C

NOTE : 1.Voltage values are with respect to network ground terminal.

2.This is the voltage between two emitters of a multiple-emitter input transistor and is not applicable to the 'LS75.

6. RECOMMENDED OPERATING CONDITIONS

		XD74LS75			UNIT
		MIN	NOM	MAX	
V_{CC}	Supply voltage	4.75	5	5.25	V
I_{OH}	High-level input voltage			-400	μA
I_{OL}	Low-level input voltage			4	mA
tw	Width of enabling pulse	20			ns
t_{su}	Setup time	20			ns
th	Hold time	5			ns
T_A	Operating free-air temperature	0		70	°C

7. ELECTRICAL CHARACTERISTICS OVER RECOMMENDED OPERATING FREE-AIR RANGE (UNLESS OTHERWISE NOTED)

PARAMETER	TEST CONDITIONS†			XD74LS75			UNIT
				MIN	TYP‡	MAX	
V_{IH}				2			V
V_{IL}						0.8	V
V_{IK}	V_{CC} = MIN,	I_I = −18 mA				−1.5	V
V_{OH}	V_{CC} = MIN,	V_{IL} = MAX,	I_{OH} = −400μA	2.7	3.5		V
V_{OL}	V_{CC} = MIN,	V_{IH} = 2 V	I_{OL} = 4 mA		0.25	0.4	V
			I_{OL} = 8 mA		0.35	0.5	
I_I	V_{CC} = MAX,	V_I = 7 V	D input			0.1	mA
			C input			0.4	
I_{IH}	V_{CC} = MAX,	V_I = 2.7 V	D input			20	μA
			C input			80	
I_{IL}	V_{CC} = MAX,	V_I = 0.4 V	D input			−0.4	mA
			C input			−1.6	
I_{OS}§	V_{CC} = MAX			−20		−100	mA
I_{CC}	V_{CC} = MAX,	See note2	'74LS75		6.3	12	mA

† For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.
‡ All typical values are at V_{CC} = 5 V, T_A = 25°C.
§ Not more than one output should be shorted at a time, and the duration of the short-circuit should not exceed one second.

NOTE 2:I_{CC} is measured with all R inputs grounded,all S inputs at 4.5V, and all outputs open.

8. SWITCHING CHARACTERISTICS,VCC = 5 V, TA = 25℃

PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS	XD74LS75			UNIT
				MIN	TYP	MAX	
t_{PLH}	D	Q	RL = 2 kΩ, CL = 15 pF See Figure 1		15	27	ns
t_{PHL}					9	17	
t_{PHL}	D	$\overline{Q}$			12	20	ns
t_{PHL}					7	15	
t_{PHL}	C	Q			15	27	ns
t_{PHL}					14	25	
t_{PHL}	C	$\overline{Q}$			16	30	ns
t_{PHL}					7	15	

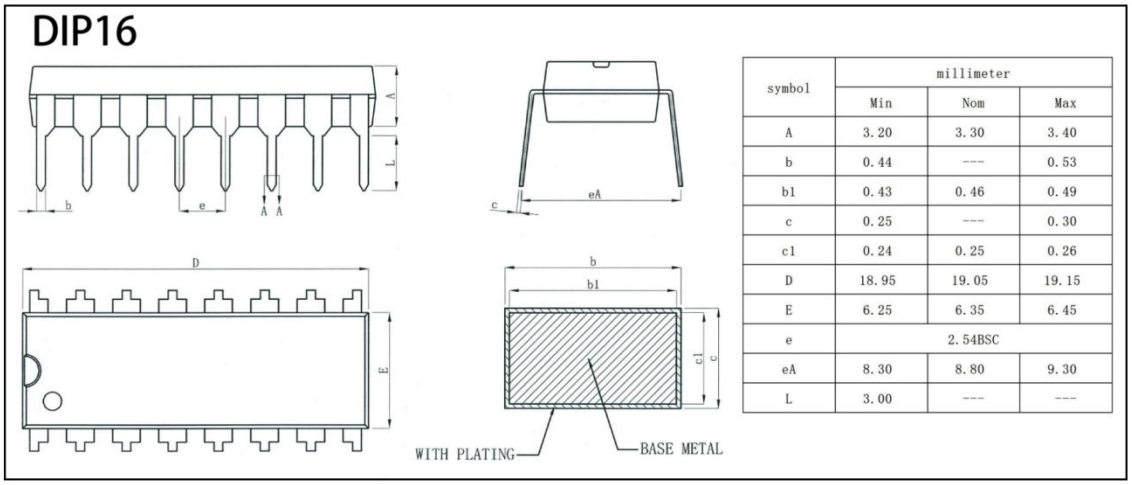
NOTE 3: Load circuits and voltage waveforms are shown in Section 1.

9. ORDERING INFORMATION

Ordering Information

Part Number	Device Marking	Package Type	Body size (mm)	Temperature (°C)	MSL	Transport Media	Package Quantity
XD74LS75	XD74LS75	DIP16	19.05 * 6.35	-0 to 70	MSL3	Tube 25	1000

10. DIMENSIONAL DRAWINGS



symbol	millimeter		
	Min	Nom	Max
A	3.20	3.30	3.40
b	0.44	---	0.53
b1	0.43	0.46	0.49
c	0.25	---	0.30
c1	0.24	0.25	0.26
D	18.95	19.05	19.15
E	6.25	6.35	6.45
e	2.54BSC		
eA	8.30	8.80	9.30
L	3.00	---	---