

Quad 2-input Multiplexer

CJ74HC/HCT157 Logic

1 Introduction

The CJ74HC/HCT157 are quad 2-input multiplexers which select 4 bits of data from two sources under the control of a common data select input (S). The enable input (/E) is active LOW. When /E is HIGH, all of the outputs (1Y to 4Y) are forced LOW regardless of all other input conditions.

Moving the data from two groups of registers to four common output buses is a common use of the CJ74HC/HCT157. The state of the common data select input (S) determines the particular register from which the data comes. It can also be used as function generator. The device is useful for implementing highly irregular logic by generating any four of the 16 different functions of two variables with one variable common. The CJ74HC/HCT157 is logic implementation of a 4-pole, 2-position switch, where the position of the switch is determined by the logic levels applied to S.

The CJ74HC/HCT157 is identical to the CJ74HC/HCT158 but has non-inverting (true) outputs.

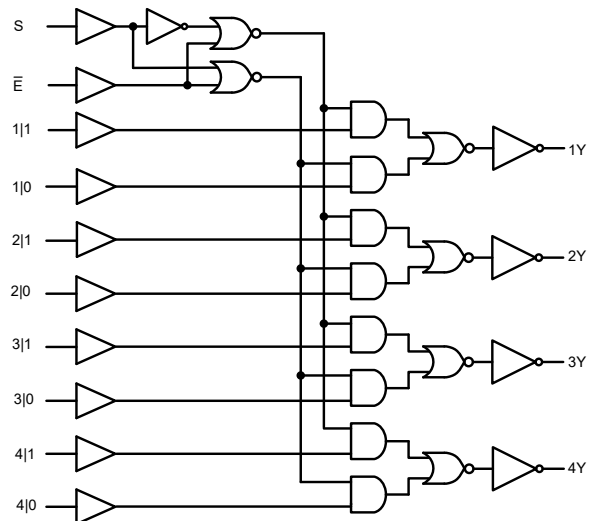
2 Available Packages

PART NUMBER	PACKAGE
CJ74HC157	SOP16
	TSSOP16
CJ74HCT157	SOP16
	TSSOP16

Note: For all available packages, please refer to the part Orderable Information.

3 Features

- Input levels:
 - For CJ74HC157: CMOS level
 - For CJ74HCT157: TTL level
- Low-power dissipation
- Non-inverting data path
- Specified from -40°C to +125°C



Functional block diagram

4 Orderable Information

DEVICE	PACKAGE	OP TEMP	ECO PLAN	MSL	PACKING OPTION	SORT
CJ74HC157AEN	SOP16	-40~125°C	RoHS & Green	Level 3 168HR	Tape and Reel 4000 Units / Reel	Active
CJ74HCT157AEN	SOP16	-40~125°C	RoHS & Green	Level 3 168HR	Tape and Reel 4000 Units / Reel	Active
CJ74HC157BEN	TSSOP16	-40~125°C	RoHS & Green	Level 3 168HR	Tape and Reel 5000 Units / Reel	Active
CJ74HCT157BEN	TSSOP16	-40~125°C	RoHS & Green	Level 3 168HR	Tape and Reel 5000 Units / Reel	Active

Note:

ECO PLAN: For the RoHS and Green certification standards of this product, please refer to the official report provided by JSCJ.

MSL: Moisture Sensitivity Level. Determined according to JEDEC industry standard classification.

SORT: Specifically defined as follows:

Active: Recommended for new products;

Customized: Products manufactured to meet the specific needs of customers;

Preview: The device has been released and has not been fully mass produced. The sample may or may not be available;

NoRD: It is not recommended to use the device for new design. The device is only produced for the needs of existing customers;

Obsolete: The device has been discontinued.

5 Pin Configuration and Marking Information

5.1 Pin Configuration

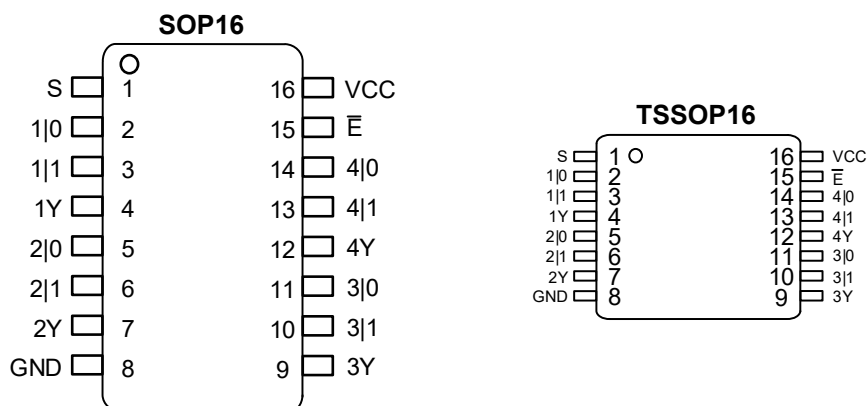


Figure 5-1 Pin configuration

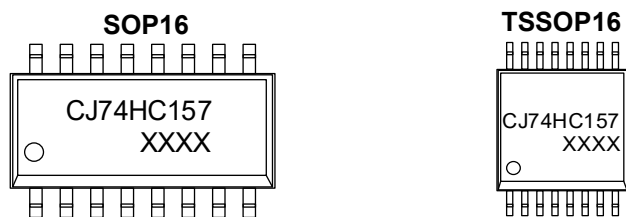
5.2 Pin Function

PIN		I/O ⁽¹⁾	DESCRIPTION
No.	NAME		
1	S	I	Common data select input
2	1 0	I	Data input from source 0
3	1 1	I	Data input from source 1
4	1Y	O	Multiplexer output
5	2 0	I	Data input from source 0
6	2 1	I	Data input from source 1
7	2Y	O	Multiplexer output
8	GND	G	Ground (0V)
9	3Y	O	Multiplexer output
10	3 1	I	Data input from source 1
11	3 0	I	Data input from source 0
12	4Y	O	Multiplexer output
13	4 1	I	Data input from source 1
14	4 0	I	Data input from source 0
15	$\bar{E}$	I	Enable input (active LOW)
16	VCC	P	Supply voltage

(1) I-Input, O-Output, P-Power, G-Ground

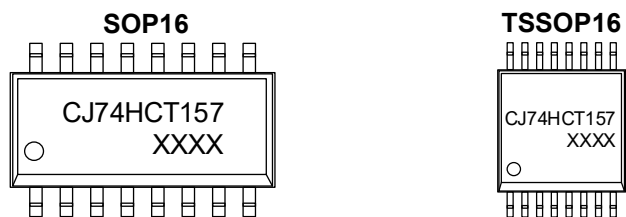
5.3 Marking Information

5.3.1 CJ74HC157



XXXX: Code, indicates weekly record information.

5.3.2 CJ74HCT157



XXXX: Code, indicates weekly record information.

6 Specifications

6.1 Absolute Maximum Ratings

Voltages are referenced to GND (ground=0V), unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS		MIN.	MAX.	UNIT
V _{CC}	Supply voltage	-		-0.5	+7.0	V
I _{IK}	Input clamping current	V _I < -0.5V or V _I > V _{CC} +0.5V		-	±20	mA
I _{OK}	Output clamping current	V _O < -0.5V or V _O > V _{CC} +0.5V		-	±20	mA
I _O	Output current	V _O = -0.5V to (V _{CC} +0.5V)		-	±25	mA
I _{CC}	Supply current	-		-	+50	mA
I _{GND}	Ground current	-		-50	-	mA
T _{stg}	Storage temperature	-		-65	+150	°C
P _{tot}	Total power dissipation	-		-	500	mW
T _L	Soldering temperature	10s	SOP/TSSOP	-	260	°C

Note: Absolute maximum ratings indicate sustained limits beyond which damage to the device may occur. All voltage parameters are absolute voltages referenced to GND. The thermal resistance and power dissipation ratings are measured under board mounted and still air conditions.

6.2 Recommended Operating Conditions

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
CJ74HC157						
V _{CC}	Supply voltage	-	2.0	5.0	6.0	V
V _I	Input voltage	-	0	-	V _{CC}	V
V _O	Output voltage	-	0	-	V _{CC}	V
Δt/ΔV	Input transition rise and fall rate	V _{CC} =2.0V	-	-	625	ns/V
		V _{CC} =4.5V	-	1.67	139	ns/V
		V _{CC} =6.0V	-	-	83	ns/V
T _{amb}	Ambient temperature	-	-40	-	+125	°C
CJ74HCT157						
V _{CC}	Supply voltage	-	4.5	5.0	5.5	V
V _I	Input voltage	-	0	-	V _{CC}	V
V _O	Output voltage	-	0	-	V _{CC}	V
Δt/ΔV	Input transition rise and fall rate	V _{CC} =4.5V	-	1.67	139	ns/V
T _{amb}	Ambient temperature	-	-40	-	+125	°C

6.3 ESD Ratings

SYMBOL	ESD RATINGS		VALUE	UNIT
V _{ESD-HBM}	Electrostatic discharge	Human body model (HBM) ⁽¹⁾	±2000	V

(1) JEDEC document JEP155 states that 500-V HBM allows safe manufacturing with a standard ESD control process.

6.4 Electrical Characteristics

6.4.1 DC Characteristics 1

$T_{amb}=25^{\circ}\text{C}$, voltages are referenced to GND (ground=0V), unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS		MIN.	TYP.	MAX.	UNIT
CJ74HC157							
V _{IH}	HIGH-level input voltage	V _{CC} =2.0V		1.5	1.2	-	V
		V _{CC} =4.5V		3.15	2.4	-	V
		V _{CC} =6.0V		4.2	3.2	-	V
V _{IL}	LOW-level input voltage	V _{CC} =2.0V		-	0.8	0.5	V
		V _{CC} =4.5V		-	2.1	1.35	V
		V _{CC} =6.0V		-	2.8	1.8	V
V _{OH}	HIGH-level output voltage	V _I =V _{IH} or V _{IL}	I _O =-20uA; V _{CC} =2.0V	1.9	2.0	-	V
			I _O =-20uA; V _{CC} =4.5V	4.4	4.5	-	V
			I _O =-20uA; V _{CC} =6.0V	5.9	6.0	-	V
			I _O =-4.0mA; V _{CC} =4.5V	3.98	4.32	-	V
			I _O =-5.2mA; V _{CC} =6.0V	5.48	5.81	-	V
V _{OL}	LOW-level output voltage	V _I =V _{IH} or V _{IL}	I _O =20uA; V _{CC} =2.0V	-	0	0.1	V
			I _O =20uA; V _{CC} =4.5V	-	0	0.1	V
			I _O =20uA; V _{CC} =6.0V	-	0	0.1	V
			I _O =4.0mA; V _{CC} =4.5V	-	0.15	0.26	V
			I _O =5.2mA; V _{CC} =6.0V	-	0.16	0.26	V
I _I	Input leakage current	V _I =V _{CC} or GND; V _{CC} =6.0V		-	-	±1.0	uA
I _{CC}	Supply current	V _I =V _{CC} or GND; I _O =0A; V _{CC} =6.0V		-	-	8.0	uA
C _I	Input capacitance	-		-	3.5	-	pF
CJ74HCT157							
V _{IH}	HIGH-level input voltage	V _{CC} =4.5V to 5.5V		2.0	1.6	-	V
V _{IL}	LOW-level input voltage	V _{CC} =4.5V to 5.5V		-	1.2	0.8	V
V _{OH}	HIGH-level output voltage	V _I =V _{IH} or V _{IL} ;	I _O =-20uA; V _{CC} =4.5V	4.4	4.5	-	V
			I _O =-4.0mA; V _{CC} =4.5V	3.98	4.32	-	V
V _{OL}	LOW-level output voltage	V _I =V _{IH} or V _{IL} ;	I _O =20uA; V _{CC} =4.5V	-	0	0.1	V
			I _O =4.0mA; V _{CC} =4.5V	-	0.15	0.26	V
I _I	Input leakage current	V _I =V _{CC} or GND; V _{CC} =5.5V		-	-	±1.0	uA
I _{CC}	Supply current	V _I =V _{CC} or GND; I _O =0A; V _{CC} =5.5V		-	-	8.0	uA
ΔI _{CC}	Additional supply current	V _I =V _{CC} -2.1V; Other inputs at V _{CC} or GND; I _O =0A; V _{CC} =4.5V to 5.5V	Per input pin; nI0, nI1 inputs	-	-	360	uA
			Per input pin; E input	-	-	216	uA
			Per input pin; S input	-	-	360	uA
C _I	Input capacitance	-		-	3.5	-	pF

6.4.2 DC Characteristics 2

T_{amb}=-40°C to +85°C, voltages are referenced to GND (ground=0V), unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS		MIN.	TYP.	MAX.	UNIT
CJ74HC157							
V _{IH}	HIGH-level input voltage	V _{CC} =2.0V		1.5	-	-	V
		V _{CC} =4.5V		3.15	-	-	V
		V _{CC} =6.0V		4.2	-	-	V
V _{IL}	LOW-level input voltage	V _{CC} =2.0V		-	-	0.5	V
		V _{CC} =4.5V		-	-	1.35	V
		V _{CC} =6.0V		-	-	1.8	V
V _{OH}	HIGH-level output voltage	V _I =V _{IH} or V _{IL}	I _O =-20uA; V _{CC} =2.0V	1.9	-	-	V
			I _O =-20uA; V _{CC} =4.5V	4.4	-	-	V
			I _O =-20uA; V _{CC} =6.0V	5.9	-	-	V
			I _O =-4.0mA; V _{CC} =4.5V	3.84	-	-	V
			I _O =-5.2mA; V _{CC} =6.0V	5.34	-	-	V
V _{OL}	LOW-level output voltage	V _I =V _{IH} or V _{IL}	I _O =20uA; V _{CC} =2.0V	-	-	0.1	V
			I _O =20uA; V _{CC} =4.5V	-	-	0.1	V
			I _O =20uA; V _{CC} =6.0V	-	-	0.1	V
			I _O =4.0mA; V _{CC} =4.5V	-	-	0.33	V
			I _O =5.2mA; V _{CC} =6.0V	-	-	0.33	V
I _I	Input leakage current	V _I =V _{CC} or GND; V _{CC} =6.0V		-	-	±1.0	uA
I _{CC}	Supply current	V _I =V _{CC} or GND; I _O =0A; V _{CC} =6.0V		-	-	80	uA
CJ74HCT157							
V _{IH}	HIGH-level input voltage	V _{CC} =4.5V to 5.5V		2.0	-	-	V
V _{IL}	LOW-level input voltage	V _{CC} =4.5V to 5.5V		-	-	0.8	V
V _{OH}	HIGH-level output voltage	V _I =V _{IH} or V _{IL} ;	I _O =-20uA; V _{CC} =4.5V	4.4	-	-	V
			I _O =-4.0mA; V _{CC} =4.5V	3.84	-	-	V
V _{OL}	LOW-level output voltage	V _I =V _{IH} or V _{IL} ;	I _O =20uA; V _{CC} =4.5V	-	-	0.1	V
			I _O =4.0mA; V _{CC} =4.5V	-	-	0.33	V
I _I	Input leakage current	V _I =V _{CC} or GND; V _{CC} =5.5V		-	-	±1.0	uA
I _{CC}	Supply current	V _I =V _{CC} or GND; I _O =0A; V _{CC} =5.5V		-	-	80	uA
ΔI _{CC}	Additional supply current	V _I =V _{CC} -2.1V; Other inputs at V _{CC} or GND; I _O =0A; V _{CC} =4.5V to 5.5V	Per input pin; nI0, nI1 inputs	-	-	450	uA
			Per input pin; E input	-	-	270	uA
			Per input pin; S input	-	-	450	uA

6.4.3 DC Characteristics 3

$T_{amb} = -40^{\circ}\text{C}$ to $+125^{\circ}\text{C}$, voltages are referenced to GND (ground=0V), unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS		MIN.	TYP.	MAX.	UNIT
CJ74HC157							
V _{IH}	HIGH-level input voltage	V _{CC} =2.0V		1.5	-	-	V
		V _{CC} =4.5V		3.15	-	-	V
		V _{CC} =6.0V		4.2	-	-	V
V _{IL}	LOW-level input voltage	V _{CC} =2.0V		-	-	0.5	V
		V _{CC} =4.5V		-	-	1.35	V
		V _{CC} =6.0V		-	-	1.8	V
V _{OH}	HIGH-level output voltage	V _I =V _{IH} or V _{IL}	I _O =-20uA; V _{CC} =2.0V	1.9	-	-	V
			I _O =-20uA; V _{CC} =4.5V	4.4	-	-	V
			I _O =-20uA; V _{CC} =6.0V	5.9	-	-	V
			I _O =-4.0mA; V _{CC} =4.5V	3.7	-	-	V
			I _O =-5.2mA; V _{CC} =6.0V	5.2	-	-	V
V _{OL}	LOW-level output voltage	V _I =V _{IH} or V _{IL}	I _O =20uA; V _{CC} =2.0V	-	-	0.1	V
			I _O =20uA; V _{CC} =4.5V	-	-	0.1	V
			I _O =20uA; V _{CC} =6.0V	-	-	0.1	V
			I _O =4.0mA; V _{CC} =4.5V	-	-	0.4	V
			I _O =5.2mA; V _{CC} =6.0V	-	-	0.4	V
I _I	Input leakage current	V _I =V _{CC} or GND; V _{CC} =6.0V		-	-	±1.0	uA
I _{CC}	Supply current	V _I =V _{CC} or GND; I _O =0A; V _{CC} =6.0V		-	-	160	uA
CJ74HCT157							
V _{IH}	HIGH-level input voltage	V _{CC} =4.5V to 5.5V		2.0	-	-	V
V _{IL}	LOW-level input voltage	V _{CC} =4.5V to 5.5V		-	-	0.8	V
V _{OH}	HIGH-level output voltage	V _I =V _{IH} or V _{IL} ;	I _O =-20uA; V _{CC} =4.5V	4.4	-	-	V
			I _O =-4.0mA; V _{CC} =4.5V	3.7	-	-	V
V _{OL}	LOW-level output voltage	V _I =V _{IH} or V _{IL} ;	I _O =20uA; V _{CC} =4.5V	-	-	0.1	V
			I _O =4.0mA; V _{CC} =4.5V	-	-	0.4	V
I _I	Input leakage current	V _I =V _{CC} or GND; V _{CC} =5.5V		-	-	±1.0	uA
I _{CC}	Supply current	V _I =V _{CC} or GND; I _O =0A; V _{CC} =5.5V		-	-	160	uA
ΔI _{CC}	Additional supply current	V _I =V _{CC} -2.1V; Other inputs at V _{CC} or GND; I _O =0A; V _{CC} =4.5V to 5.5V	Per input pin; n10, n11 inputs	-	-	490	uA
			Per input pin; E̅ input	-	-	294	uA
			Per input pin; S input	-	-	490	uA

6.4.4 AC Characteristics 1

T_{amb}=25°C, GND =0V, C_L=50pF, unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS		MIN.	TYP.	MAX.	UNIT
CJ74HC157							
t _{pd}	Propagation delay	nI0, nI1 to nY; See Figure 7-6 ⁽¹⁾	V _{CC} =2.0V	-	36	125	ns
			V _{CC} =4.5V	-	13	25	ns
			V _{CC} =5.0V; C _L =15pF	-	11	-	ns
			V _{CC} =6.0V	-	10	21	ns
		S to nY; See Figure 7-6 ⁽¹⁾	V _{CC} =2.0V	-	41	125	ns
			V _{CC} =4.5V	-	15	25	ns
			V _{CC} =5.0V; C _L =15pF	-	12	-	ns
			V _{CC} =6.0V	-	12	21	ns
		$\bar{E}$ to nY; See Figure 7-7 ⁽¹⁾	V _{CC} =2.0V	-	39	115	ns
			V _{CC} =4.5V	-	14	23	ns
			V _{CC} =5.0V; C _L =15pF	-	11	-	ns
			V _{CC} =6.0V	-	11	20	ns
t _t	Transition time	nY; See Figure 7-6 ⁽²⁾	V _{CC} =2.0V	-	19	75	ns
			V _{CC} =4.5V	-	7	15	ns
			V _{CC} =6.0V	-	6	13	ns
C _{PD}	Power dissipation capacitance	C _L =50pF; f=1MHz; V _I =GND to V _{CC} ⁽³⁾		-	70	-	pF
CJ74HCT157							
t _{pd}	Propagation delay	nI0, nI1 to nY; See Figure 7-6 ⁽¹⁾	V _{CC} =4.5V	-	16	27	ns
			V _{CC} =5.0V; C _L =15pF	-	13	-	ns
		S to nY; See Figure 7-6 ⁽¹⁾	V _{CC} =4.5V	-	22	37	ns
			V _{CC} =5.0V; C _L =15pF	-	19	-	ns
		$\bar{E}$ to nY; See Figure 7-7 ⁽¹⁾	V _{CC} =4.5V	-	15	26	ns
			V _{CC} =5.0V; C _L =15pF	-	12	-	ns
t _t	Transition time	nY; V _{CC} =4.5V; See Figure 7-6 ⁽²⁾		-	7	15	ns
C _{PD}	Power dissipation capacitance	C _L =50pF; f=1MHz; V _I =GND to V _{CC} -1.5V ⁽³⁾		-	70	-	pF

(1) t_{pd} is the same as t_{PLH} and t_{PHL}.

(2) t_t is the same as t_{THL} and t_{TLH}.

(3) C_{PD} is used to determine the dynamic power dissipation (P_D in uW).

$P_D = C_{PD} \times V_{CC}^2 \times f_i \times N + \sum (C_L \times V_{CC}^2 \times f_o)$ where:

f_i=input frequency in MHz;

f_o=output frequency in MHz;

C_L=output load capacitance in pF;

V_{CC}=supply voltage in V;

N=number of inputs switching;

$\sum (C_L \times V_{CC}^2 \times f_o)$ =sum of outputs.

6.4.5 AC Characteristics 2

$T_{amb} = -40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$, $GND=0V$, $C_L=50pF$, unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS		MIN.	TYP.	MAX.	UNIT
CJ74HC157							
t _{pd}	Propagation delay	nI0, nI1 to nY; See Figure 7-6 ⁽¹⁾	V _{CC} =2.0V	-	-	155	ns
			V _{CC} =4.5V	-	-	31	ns
			V _{CC} =6.0V	-	-	26	ns
		S to nY; See Figure 7-6 ⁽¹⁾	V _{CC} =2.0V	-	-	155	ns
			V _{CC} =4.5V	-	-	31	ns
			V _{CC} =6.0V	-	-	26	ns
		$\bar{E}$ to nY; See Figure 7-7 ⁽¹⁾	V _{CC} =2.0V	-	-	145	ns
			V _{CC} =4.5V	-	-	29	ns
			V _{CC} =6.0V	-	-	25	ns
t _t	Transition time	nY; See Figure 7-6 ⁽²⁾	V _{CC} =2.0V	-	-	95	ns
			V _{CC} =4.5V	-	-	19	ns
			V _{CC} =6.0V	-	-	16	ns
CJ74HCT157							
t _{pd}	Propagation delay	nI0, nI1 to nY; See Figure 7-6 ⁽¹⁾	V _{CC} =4.5V	-	-	34	ns
		S to nY; See Figure 7-6 ⁽¹⁾	V _{CC} =4.5V	-	-	46	ns
		$\bar{E}$ to nY; See Figure 7-7 ⁽¹⁾	V _{CC} =4.5V	-	-	33	ns
t _t	Transition time	nY; V _{CC} =4.5V; See Figure 7-6 ⁽²⁾		-	-	19	ns

(1) t_{pd} is the same as t_{PLH} and t_{PHL} .

(2) t_t is the same as t_{THL} and t_{TLH} .

6.4.6 AC Characteristics 3

$T_{amb} = -40^{\circ}\text{C}$ to $+125^{\circ}\text{C}$, GND=0V, $C_L=50\text{pF}$, unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS		MIN.	TYP.	MAX.	UNIT
CJ74HC157							
t _{pd}	Propagation delay	nI0, nI1 to nY; See Figure 7-6 ⁽¹⁾	V _{CC} =2.0V	-	-	190	ns
			V _{CC} =4.5V	-	-	38	ns
			V _{CC} =6.0V	-	-	32	ns
		S to nY; See Figure 7-6 ⁽¹⁾	V _{CC} =2.0V	-	-	190	ns
			V _{CC} =4.5V	-	-	38	ns
			V _{CC} =6.0V	-	-	32	ns
		$\bar{E}$ to nY; See Figure 7-7 ⁽¹⁾	V _{CC} =2.0V	-	-	175	ns
			V _{CC} =4.5V	-	-	35	ns
			V _{CC} =6.0V	-	-	30	ns
t _t	Transition time	nY; See Figure 7-6 ⁽²⁾	V _{CC} =2.0V	-	-	110	ns
			V _{CC} =4.5V	-	-	22	ns
			V _{CC} =6.0V	-	-	19	ns
CJ74HCT157							
t _{pd}	Propagation delay	nI0, nI1 to nY; See Figure 7-6 ⁽¹⁾	V _{CC} =4.5V	-	-	41	ns
		S to nY; See Figure 7-6 ⁽¹⁾	V _{CC} =4.5V	-	-	56	ns
		$\bar{E}$ to nY; See Figure 7-7 ⁽¹⁾	V _{CC} =4.5V	-	-	39	ns
t _t	Transition time	nY; V _{CC} =4.5V; See Figure 7-6 ⁽²⁾		-	-	22	ns

(1) t_{pd} is the same as t_{PLH} and t_{PHL} .

(2) t_t is the same as t_{THL} and t_{TLH} .

7 Detailed Description

7.1 Overview

The CJ74HC/HCT157 are quad 2-input multiplexers which select 4 bits of data from two sources under the control of a common data select input (S). The enable input (/E) is active LOW. When /E is HIGH, all of the outputs (1Y to 4Y) are forced LOW regardless of all other input conditions.

Moving the data from two groups of registers to four common output buses is a common use of the CJ74HC/HCT157. The state of the common data select input (S) determines the particular register from which the data comes. It can also be used as function generator. The device is useful for implementing highly irregular logic by generating any four of the 16 different functions of two variables with one variable common. The CJ74HC/HCT157 is logic implementation of a 4-pole, 2-position switch, where the position of the switch is determined by the logic levels applied to S.

The CJ74HC/HCT157 is identical to the CJ74HC/HCT158 but has non-inverting (true) outputs.

7.2 Functional Block Diagram

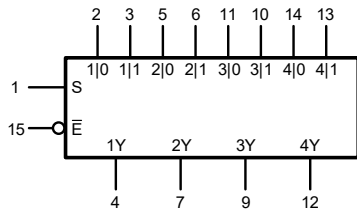


Figure 7-1 Logic symbol

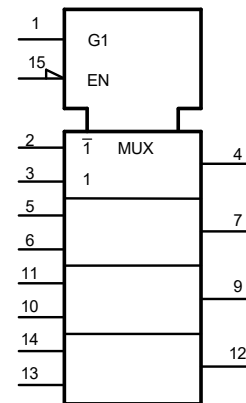


Figure 7-2 IEC Logic symbol

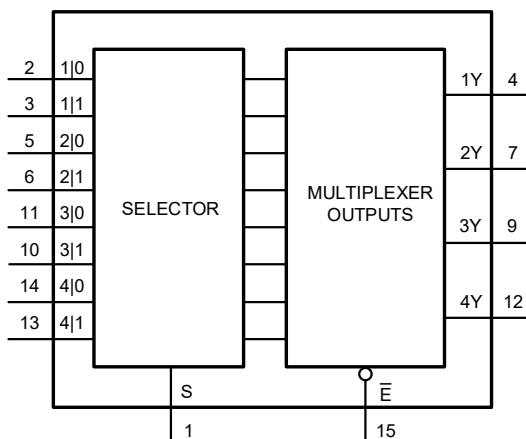


Figure 7-3 Functional diagram

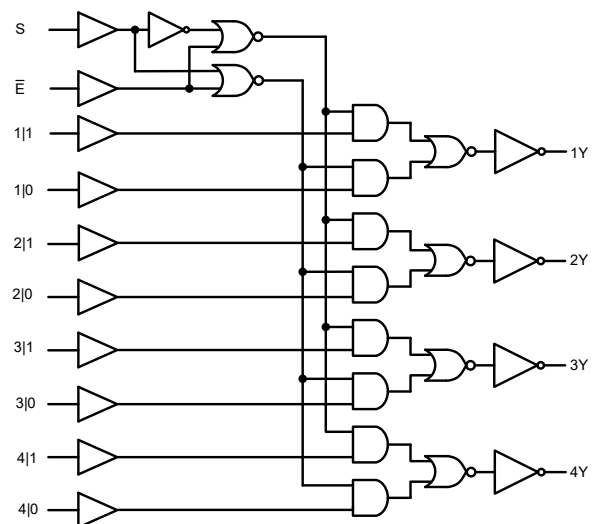


Figure 7-4 Logic diagram

7.3 Function Table⁽¹⁾

INPUT				OUTPUT
$\bar{E}$	S	nI0	nI1	nY
H	X	X	X	L
L	L	L	X	L
L	L	H	X	H
L	H	X	L	L
L	H	X	H	H

(1) H=HIGH voltage level; L=LOW voltage level; X=don't care.

7.4 Testing Circuit

7.4.1 AC Testing Circuit

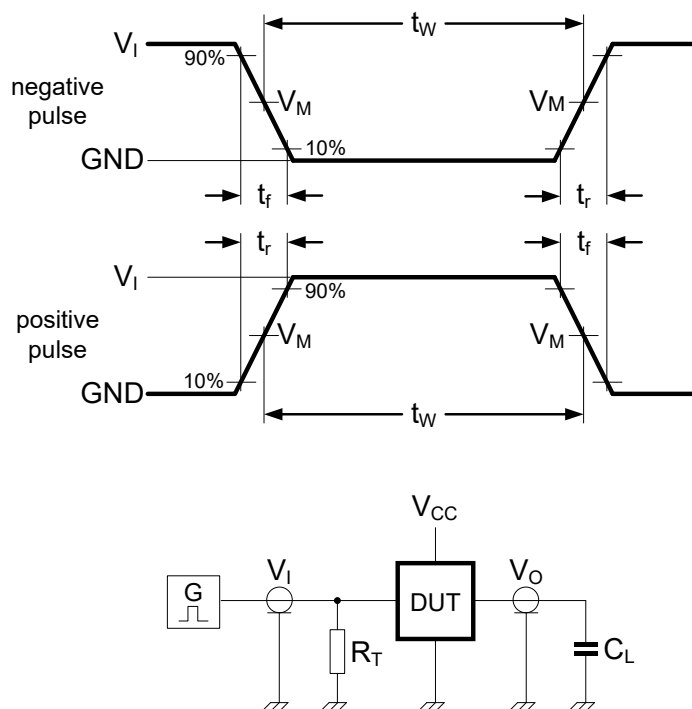


Figure 7-5 Test circuit for measuring switching times

Definitions for test circuit:

C_L =Load capacitance including jig and probe capacitance.

R_T =Termination resistance should be equal to the output impedance Z_o of the pulse generator.

7.4.2 AC Testing Waveforms

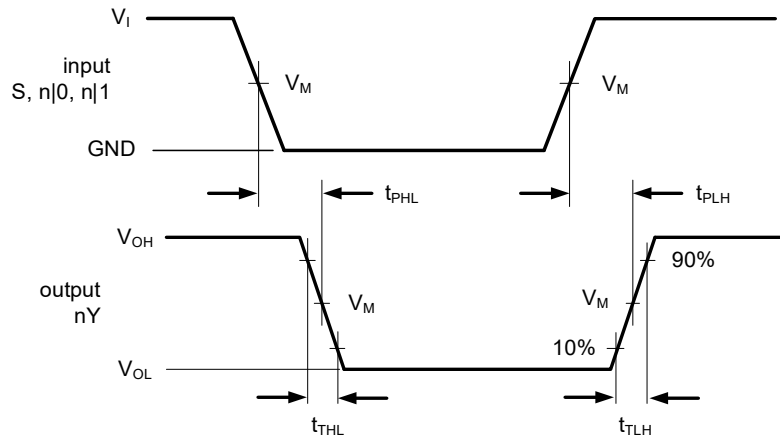


Figure 7-6 Propagation delay input (nI0, nI1, S) to output (nYn)

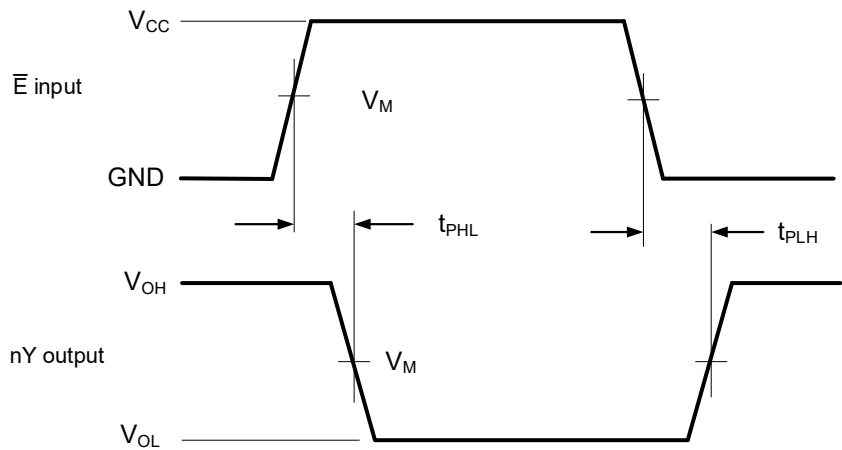


Figure 7-7 Propagation delay input ($\bar{E}$) to output (nY)

7.4.3 Measurement Points

TYPE	INPUT	OUTPUT
	V_M	V_M
CJ74HC157	$0.5 \times V_{CC}$	$0.5 \times V_{CC}$
CJ74HCT157	1.3V	1.3V

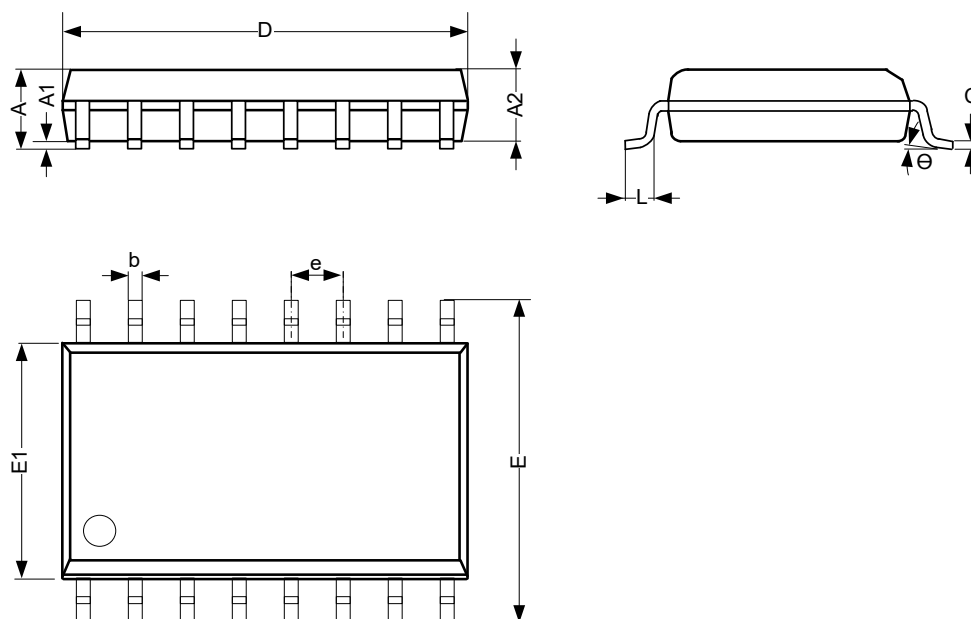
7.4.4 Test Data

TYPE	INPUT		LOAD	TEST
	V_I	t_r, t_f	C_L	
CJ74HC157	V_{CC}	6ns	15pF, 50pF	t_{PHL}, t_{PLH}
CJ74HCT157	3V	6ns	15pF, 50pF	t_{PHL}, t_{PLH}

8 Mechanical Information

8.1 SOP16 Mechanical Information

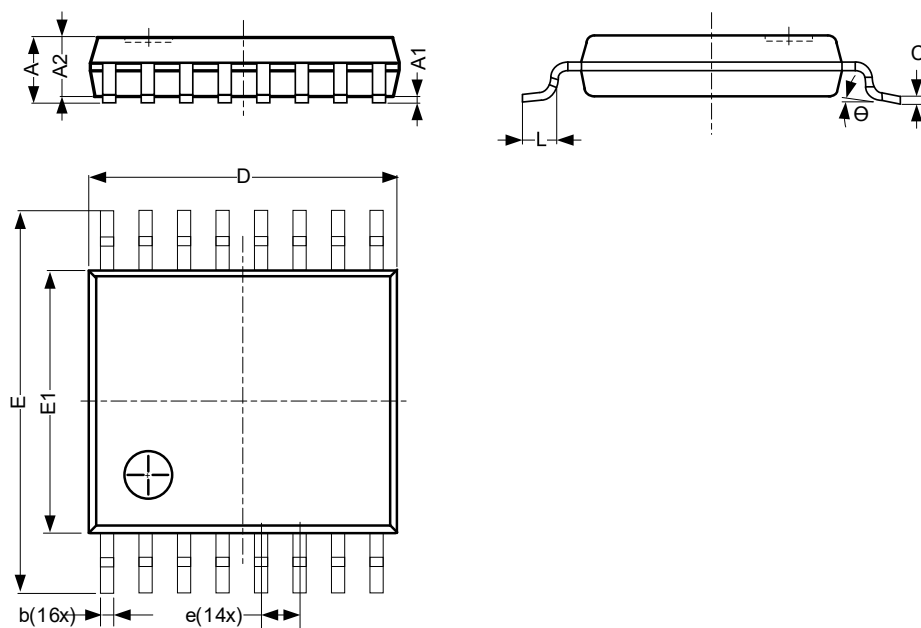
8.1.1 SOP16 Outline Dimensions



SYMBOL	Dimensions In Millimeters		
	Min.	Typ.	Max.
A	1.35	-	1.80
A1	0.10	-	0.25
A2	1.25	-	1.55
b	0.33	-	0.51
c	0.19	-	0.25
D	9.50	-	10.10
E	5.80	-	6.30
E1	3.70	-	4.10
e	1.27 BSC		
L	0.35	-	0.89
Θ	0°	-	8°
Unit: mm			

8.2 TSSOP16 Mechanical Information

8.2.1 TSSOP16 Outline Dimensions



SYMBOL	Dimensions In Millimeters		
	Min.	Typ.	Max.
A	-	-	1.20
A1	0.05	-	0.15
A2	0.80	-	1.05
b	0.19	-	0.30
c	0.09	-	0.20
D	4.90	-	5.10
E	6.20	-	6.60
E1	4.30	-	4.50
e	0.65 BSC		
L	0.45	-	0.75
θ	0°	-	8°
Unit: mm			

9 Notes and Revision History

9.1 Associated Product Family and Others

To view other products of the same type or IC products of other types, click the official website of JSCJ -- <https://www.jscj-elec.com> for more details.

9.2 Notes

Electrostatic Discharge Caution



This IC may be damaged by ESD. Relevant personnel shall comply with correct installation and use specifications to avoid ESD damage to the IC. If appropriate measures are not taken to prevent ESD damage, the hazards caused by ESD include but are not limited to degradation of integrated circuit performance or complete damage of integrated circuit. For some precision integrated circuits, a very small parameter change may cause the whole device to be inconsistent with its published specifications.

DISCLAIMER

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