92D 10666 D T-52-31

HD74HCT640, HD74HCT643

● Octal Bus Transceivers (with 3-state outputs)

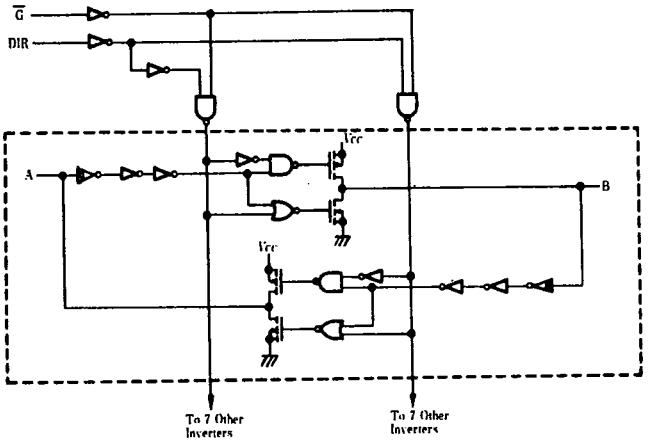
Both the HD74HCT640 and the HD74HCT643 have one active low enable input ($\overline{G}$), and a direction control (DIR). When the DIR input is high, data flows from the A inputs to the B outputs. When DIR is low, data flows from B to A. The HD74HCT640 transfers inverted data from one bus to the other. The HD74HCT643 transfers inverted data from the A bus to the B bus and non-inverted data from the B bus to the A bus.

■ FEATURES

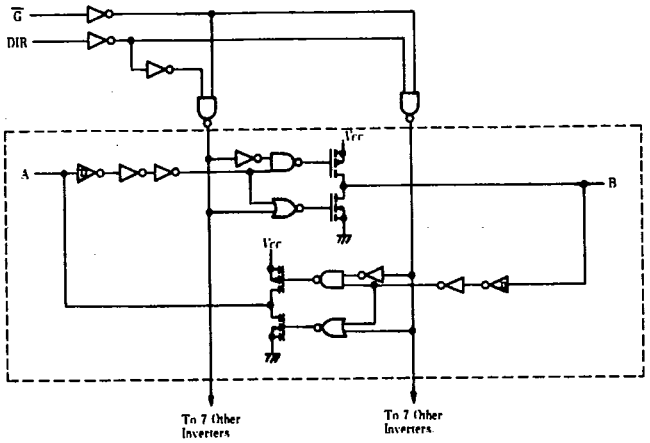
- LSTTL Output Logic Level Compatibility as well as CMOS Output Compatibility
- High Speed Operation: t_{pd} (A to B)=10ns typ. (C_L=50pF)
- High Output Current: Fanout of 15 LSTTL Loads
- Wide Operating Voltage: Vcc=4.5~5.5V
- Low Input Current: 1μA max.
- Low Quiescent Supply Current: Icc (static)=4μA max. (Ta=25°C)

■ BLOCK DIAGRAM

● HD74HCT640

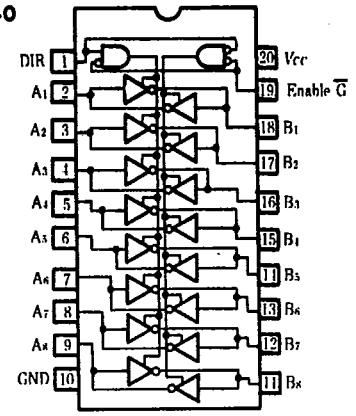


● HD74HCT643



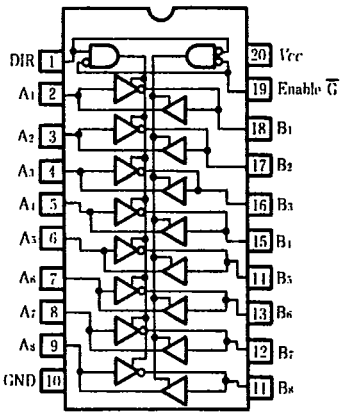
■ PIN ARRANGEMENT

● HD74HCT640



(Top View)

● HD74HCT643



(Top View)

HD74HCT640, HD74HCT643

T-52-31

■ FUNCTION TABLE

Control Input		Operation	
$\overline{G}$	DIR	HD74HCT640	HD74HCT643
L	L	$\overline{B}$ data to A bus	B data to A bus
L	H	$\overline{A}$ data to B bus	$\overline{A}$ data to B bus
H	X	isolation	isolation

■ ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Rating	Unit
Supply Voltage Range	V_{CC}	−0.5~+7.0	V
Input Voltage	V_{IN}	−0.5~V_{CC}+0.5	V
Output Voltage	V_{OUT}	−0.5~V_{CC}+0.5	V
DC Current Drain per pin	I_{OUT}	±35	mA
DC Current Drain per Vcc, GND	I_{CC}, I_{GND}	±75	mA
DC Input Diode Current	I_{IK}	±20	mA
DC Output Diode Current	I_{OK}	±20	mA
Power Dissipation per Package	P_T	500	mW
Storage Temperature	T_{stg}	−65~+150	°C

■ DC CHARACTERISTICS

Item	Symbol	V_{CC}(V)	Test Conditions		Ta=25°C min	typ	max	Ta=−40~+85°C min	max	Unit
Input Voltage	V_{IH}	4.5~5.5			2.0	—	—	2.0	—	V
	V_{IL}	4.5~5.5			—	—	0.8	—	0.8	V
Output Voltage	V_{OH}	4.5	V_{in}=V_{IH} or V_{IL}	I_{OH}=−20μA	4.4	—	—	4.4	—	V
		4.5		I_{OH}=−6mA	4.18	—	—	4.13	—	
	V_{OL}	4.5	V_{in}=V_{IH} or V_{IL}	I_{OL}=20μA	—	—	0.1	—	0.1	V
		4.5		I_{OL}=6mA	—	—	0.26	—	0.33	
Off-state output current	I_{OZ}	5.5	V_{in}=V_{IH} or V_{IL}, V_{out}=V_{CC} or GND		—	—	±0.5	—	±5.0	μA
Input Current	I_{in}	5.5	V_{in}=V_{CC} or GND		—	—	±0.1	—	±1.0	μA
Quiescent Current	I_{CC}	5.5	V_{in}=V_{CC} or GND, I_{out}=0 μA		—	—	4.0	—	40	μA

■ AC CHARACTERISTICS (C_L=50pF, Input t_r=t_f=6ns)

Item	Symbol	V_{CC}(V)	Test Conditions	Ta=25°C min	typ	max	Ta=−40~+85°C min	max	Unit
Propagation Delay Time	t_{PLH}	4.5		—	9	18	—	23	ns
	t_{PHL}	4.5		—	11	18	—	23	ns
Output Enable Time	t_{ZH}	4.5		—	14	46	—	58	ns
	t_{ZL}	4.5		—	17	46	—	58	ns
Output Disable Time	t_{HZ}	4.5		—	20	43	—	54	ns
	t_{LZ}	4.5		—	18	43	—	54	ns
Output Rise/Fall Time	t_{TLH} t_{THL}	4.5		—	4	12	—	15	ns
Input Capacitance	C_{in}	—		—	5	10	—	10	pF

PACKAGE INFORMATION

T-90-20

In the HD74HC series of HS-CMOS logic, either of plastic DIP and small outline packages can be selected.
For your ordering, please refer to the following package code.

●Package code of HS-CMOS Logic

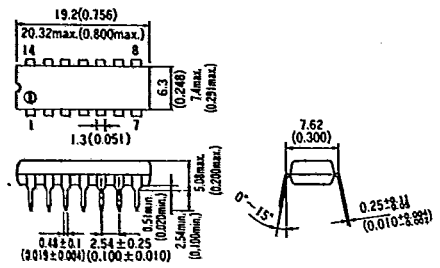
HD74HC XXXX P

- P : Package code (P : Plastic DIP, FP : Small outline package)
- XXXX : Individual device code
- HC : Series code of HS-CMOS logic
- HD74 : Initial code of Hitachi digital IC

■PLASTIC DIP PACKAGE [Unit: mm(inch), scale: 1/1]

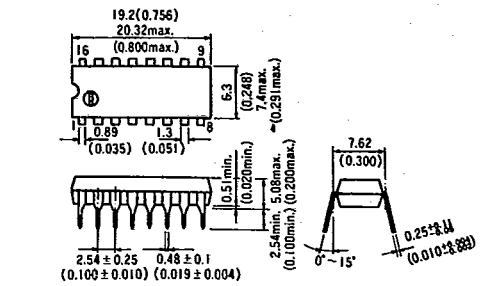
●14-pin type

DP-14



●16-pin type

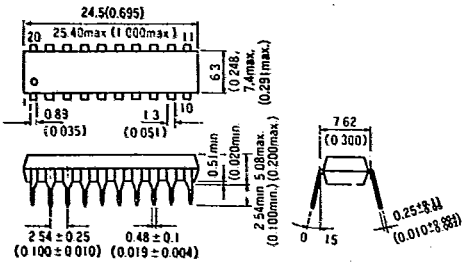
DP-16



Note) For the present, both packages of 0.89 and 1.3 can be used. Please refer to the Technical Marketing Dept. for further details.

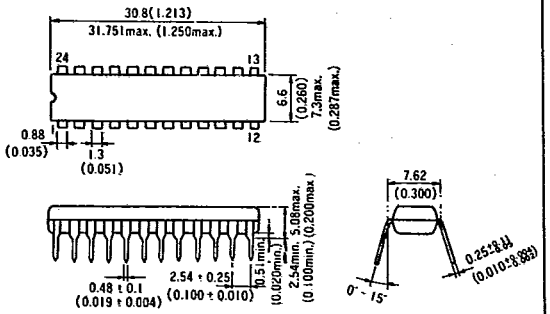
●20-pin type

DP-20N



●24-pin type

DP-24N



Note) Because this is under development, the dimentions may be changed partly.

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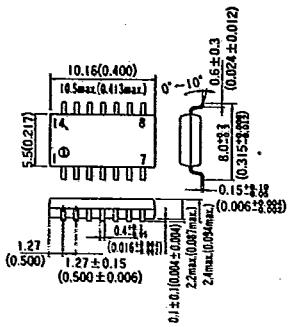
PACKAGE INFORMATION

■SMALL OUTLINE PACKAGE [Unit: mm(inch), scale: 1½]

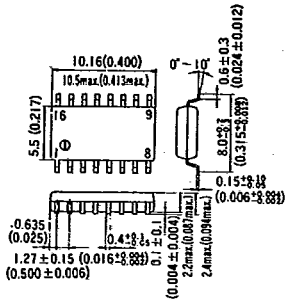
●14—pin type

FP—14D



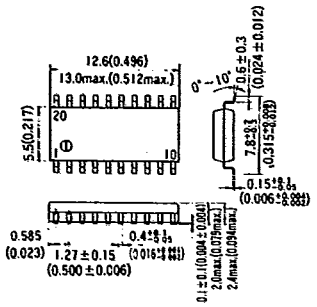
●16—pin type

FP—16D



●20—pin type

FP—20DN



Note) Preliminary

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