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Renesas Electronics website: <http://www.renesas.com>

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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HD151005

Octal Inverter Buffers/Drivers With Open Drain High Voltage Outputs

REJ03D0297-0200Z
 (Previous ADE-205-594 (Z))
 Rev.2.00
 Jul.16.2004

Description

The HD151005 features octal inverter buffers and drivers with open drain high voltage outputs with N channel power MOSFET.

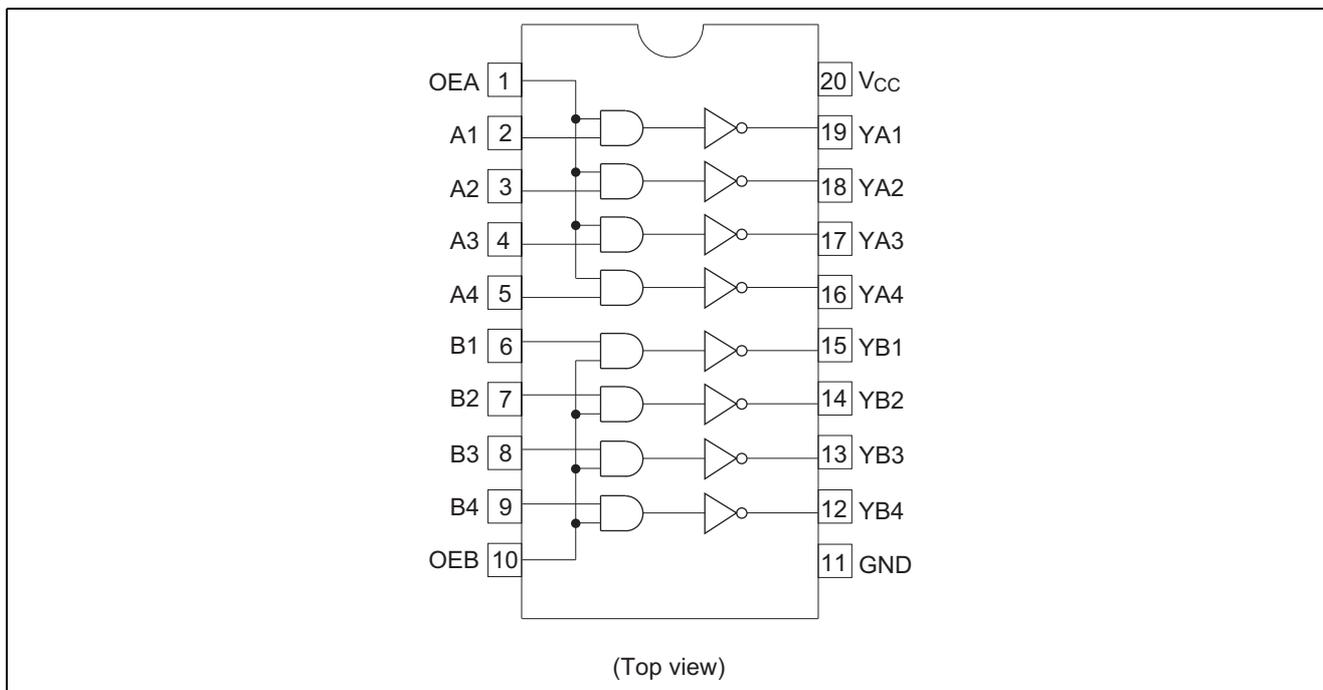
Features

- Wired connection available with open drain outputs
- Output voltage: 30 V Max
- Output current: 100 mA Max
- Ensures $V_{OL} \leq 0.4$ V when the output current is 48 mA
- Low power dissipation: 10 μ A
- Ordering Information

Part Name	Package Type	Package Code	Package Abbreviation	Taping Abbreviation (Quantity)
HD151005P	DILP-20 pin	DP-20N, -20NEV	P	—
HD151005FPEL	SOP-20 pin (JEITA)	FP-20DAV	FP	EL (2,000 pcs/reel)

Note: Please consults the sales office for the above package availability.

Pin Arrangement



Function Table

Inputs		Outputs	Inputs		Outputs
OEA	A	YA	OEB	B	YB
H	L	Z	H	L	Z
H	H	L	H	H	L
L	X	Z	L	X	Z

H : High level
 L : Low level
 Z : High impedance
 X : Irrelevant

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Supply voltage	V _{CC}	0.5 to 7.0	V
Input voltage	V _{IN}	-0.5 to V _{CC} + 0.5	V
Input Current	I _{IN}	-10 to +0.1	mA
Output voltage	V _{OUT}	-0.5 to +30	V
Output Current	I _{OUT}	+100	mA/Unit
Power Dissipation	P _T	835 (FP), 1375 (DP)	mW
Storage Temperature Range	Tstg	-65 to +150	°C

Note: 1. The absolute maximum ratings are values which must not individually be exceeded, and furthermore, no two of which may be realized at the same time.

Recommended Operating Conditions

Item	Symbol	Min	Typ	Max	Unit
Supply Voltage	V _{CC}	4.5	5.0	5.5	V
Input Voltage	V _{IN}	0	—	V _{CC}	V
Output Voltage	V _{OUT}	—	—	24	V
Output Current	I _{OL}	0	48	100	mA
Operating Temperature	Topr	0	25	70	°C
Input Voltage	V _{IH}	0.7 × V _{CC}	—	—	V
	V _{IL}	—	—	0.3 × V _{CC}	V
Input Rise and Fall Time *1	t _r , t _f	0	—	500	ns

Note: 1. This item guarantees maximum limit when one input switches.
 Waveform: Refer to test circuit of switching characteristics.

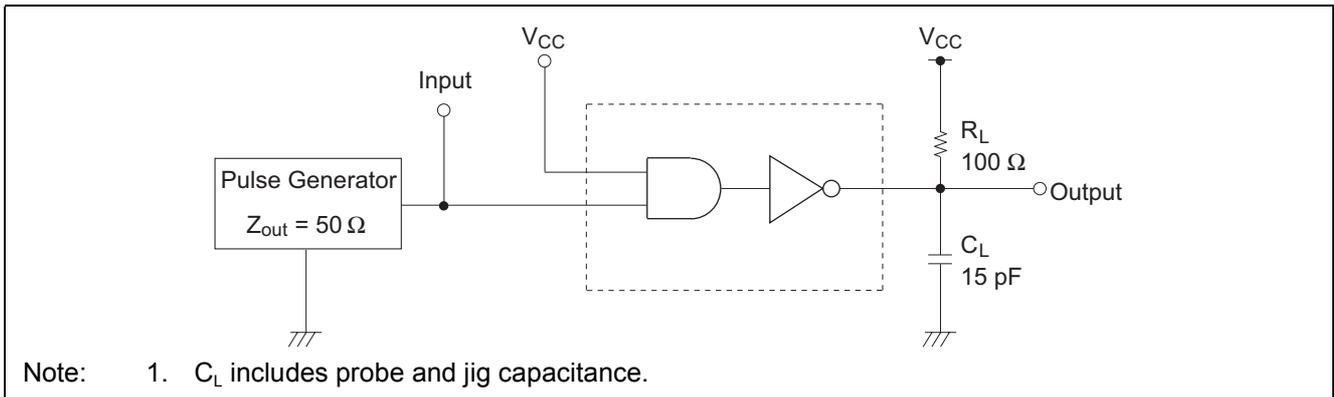
Electrical Characteristics (Ta = 0 to +70°C)

Item	Symbol	V _{CC} (V)	Min	Max	Unit	Conditions
Output voltage	V _{OL1}	4.5	—	0.2	V	I _{OL} = 24 mA, V _I = V _{IH}
	V _{OL2}	4.5	—	0.4	V	I _{OL} = 48 mA, V _I = V _{IH}
	V _{OL3}	4.5	—	0.8	V	I _{OL} = 100 mA, V _I = V _{IH}
Output Current	I _O	5.5	—	5	μA	V _O = 30 V, V _I = 0 V
	I _{O(off)}	0	—	5	μA	V _O = 30 V
Input voltage	V _{IH}	5.0	3.5	—	V	V _O = 0.4 V, I _O ≥ 48 mA
	V _{IL}	5.0	—	1.5	V	V _O = 30 V, I _O ≤ 5 mA
Input Current	I _I	5.5	—	±1	μA	V _I = 0 V or V _{CC}
	I _{I(off)}	0	—	±1	μA	V _I = 5.5 V
Power Supply Current	I _{CC}	5.5	—	10	μA	V _I = 0 V or V _{CC} , No Load

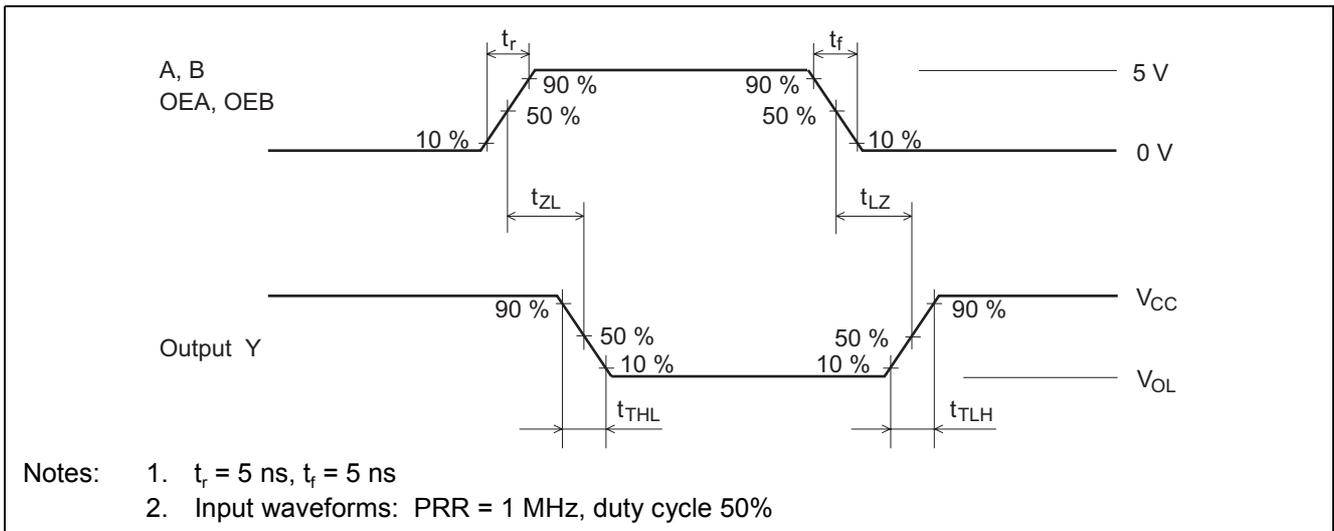
Switching Characteristics ($T_a = 25^\circ\text{C}$, $V_{CC} = 5\text{ V}$)

Item	Symbol	Min	Typ	Max	Unit	Conditions
Propagation Delay Time	t_{ZL}	—	15	30	ns	See next page
	t_{LZ}	—	20	30	ns	See next page
Transition Time	t_{THL}	—	10	30	ns	See next page
	t_{TLH}	—	15	30	ns	See next page
Input Capacitance	C_{IN}	—	7	15	pF	See next page
Power Dissipation Capacitance	C_{PD}	—	30	—	pF	See next page

Test Circuit

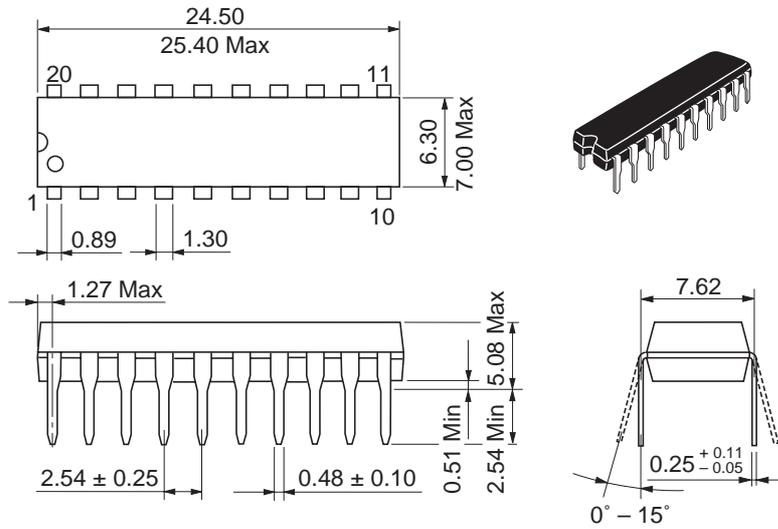


Waveforms-1



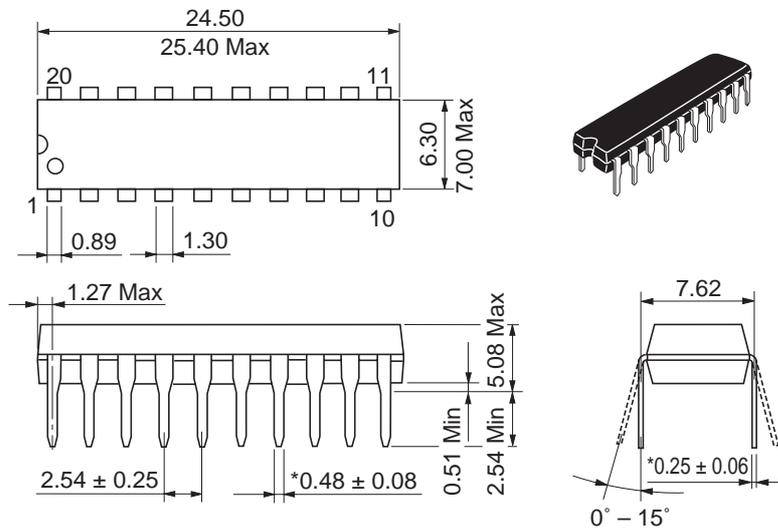
Package Dimensions

As of January, 2003
Unit: mm



Package Code	DP-20N
JEDEC	—
JEITA	Conforms
Mass (reference value)	1.26 g

Unit: mm

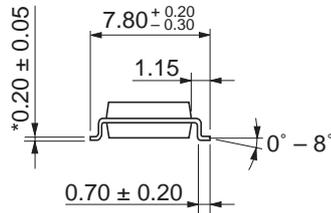
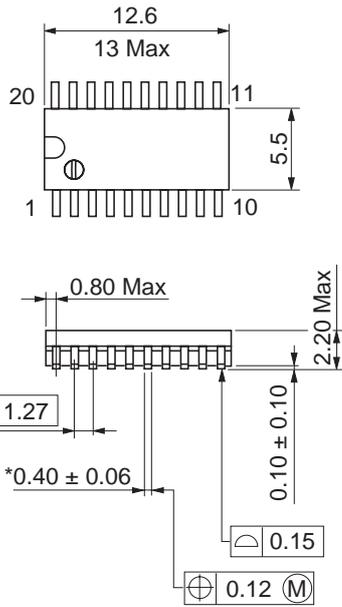


*Ni/Pd/AU Plating

Package Code	DP-20NEV
JEDEC	—
JEITA	Conforms
Mass (reference value)	1.26 g

As of January, 2003

Unit: mm



*Ni/Pd/Au plating

Package Code	FP-20DAV
JEDEC	—
JEITA	Conforms
Mass (reference value)	0.31 g

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