HD29029

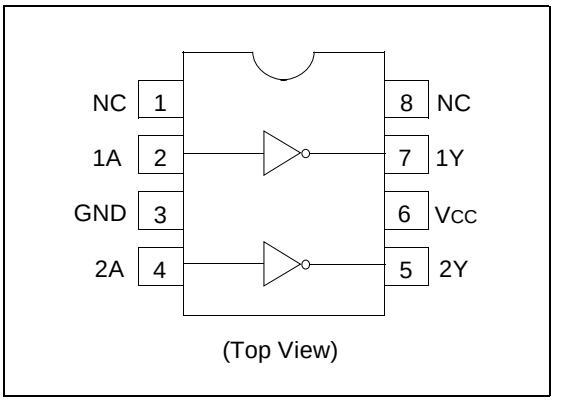
Dual CCD Drivers

The HD29029 is optimum for CCD drive and has two drivers in a package. The input circuit is operated at TTL level. The outputs are capable of source or sink currents of 0.5 A.

Features

- High-speed operation 7 ns typ in transition times (t_{TLH}, t_{THL}) at C_L = 200 pF
- No external components needed because direct drive is available at TTL level inputs
- Output swing voltage : 12 V
  Sink / Sourse currents : 0.5 A (for each)
- Output cross voltage : 50 % typ.

Pin Arrangement



(Top View)

Function Table

Input A	Output Y
H	L
L	H

H : High level
L : Low level

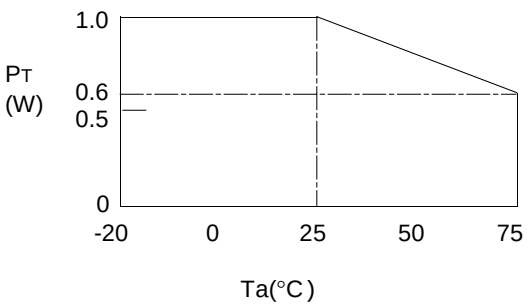
Absolute Maximum Ratings

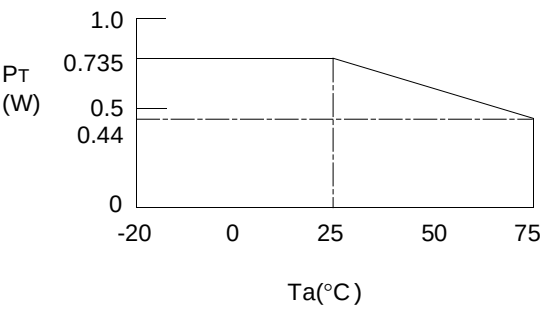
Item	Symbol		Ratings	Unit
Supply Voltage	V_{CC} *1		15	V
Input Voltage	V_{IN}		7	V
Output Current	$I_{O(peak)}$		±0.5	A
Operating Temperature	T_a		–20 to +75	°C
Storage Temperature	T_{stg}		–65 to +150	°C
Junction Temperature	T_j		150	°C
Power Dissipation per Package	P_T *2	DP–8	1	W
		FP–8	0.735	

Notes: 1. The voltage value is defined with respect to ground terminal unless otherwise noted.

2. The total power dissipation is at Ta = 25°C. When driving large capacity with high frequency radiation is needed. There fore, delating with 8mW/°C (DP–8) or 5.9 mW/°C(FP–8) must be done as shown below.

3. The absolute maximum ratings are values which must not individually be exceeded, and furthmore, no two of which may be realized at same time.





Recommended Operating Conditions

Item	Symbol	Min	Typ	Max	Unit
Supply Voltage	V_{CC}	8.0	9.0	13.0	V
Operating Temperature	T_a	–20	25	75	°C

Electrical Characteristics (V_{CC} = 8 to 13 V, Ta = –20 to 75 °C)

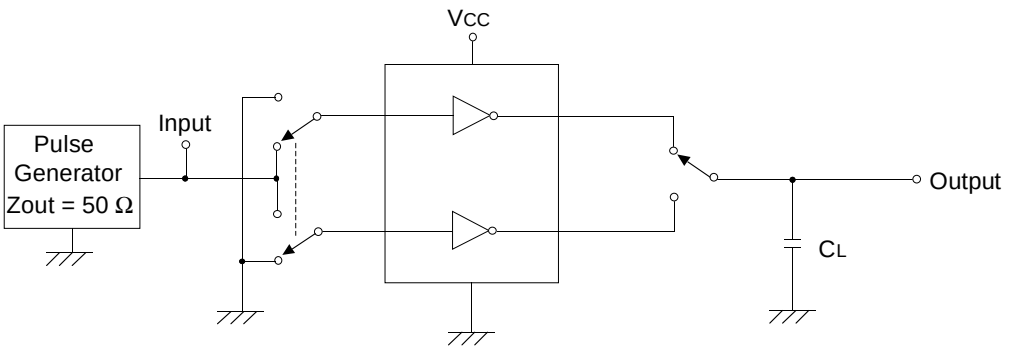
Item	Symbol	Min	Typ	Max	Unit	Conditions
Input Voltage	V_{IH}	2.0	—	—	V	
	V_{IL}	—	—	0.6	V	
Output Voltage	V_{OH}	V_{CC}–1	—	—	V	V_{IL} = 0.6 V, I_{OH} = –1 mA
	V_{OL}	—	—	0.5	V	V_{IH} = 2.0 V, I_{OL} = 1 mA
Input Current	I_{IH}	—	—	20	µA	V_I = 2.7 V
	I_{IL}	—	—	–100	µA	V_I = 0.4 V
Supply Current	I_{CCH}	—	—	10	mA	
	I_{CCL}	—	—	25	mA	
Input Current	I_I	—	—	100	µA	V_I = 7 V
Input Clamp Voltage	V_{IK}	—	—	–1.5	V	I_{IN} = –18 mA

Switching Characteristics (C_L = 200 pF, Ta = 25 °C)

Item	Symbol	Min	Typ	Max	Unit	Conditions
Propagation Delay Time	t_{PHL}	—	4.0	15.0	ns	V_{CC} = 9 V
		—	4.0	13.0	ns	V_{CC} = 12 V
	t_{PLH}	—	6.0	15.0	ns	V_{CC} = 9 V
		—	6.0	13.0	ns	V_{CC} = 12 V
Transition Time	t_{THL}	—	8.0	14.0	ns	V_{CC} = 9 V
		—	7.0	12.0	ns	V_{CC} = 12 V
	t_{TLH}	—	8.0	14.0	ns	V_{CC} = 9 V
		—	7.0	12.0	ns	V_{CC} = 12 V

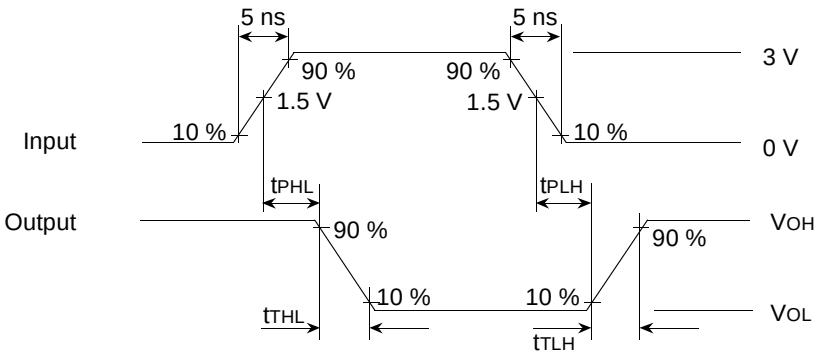
Switching Time Test Method

Test circuit



Note: 1. C_L includes probe and jig capacitance.

Waveforms

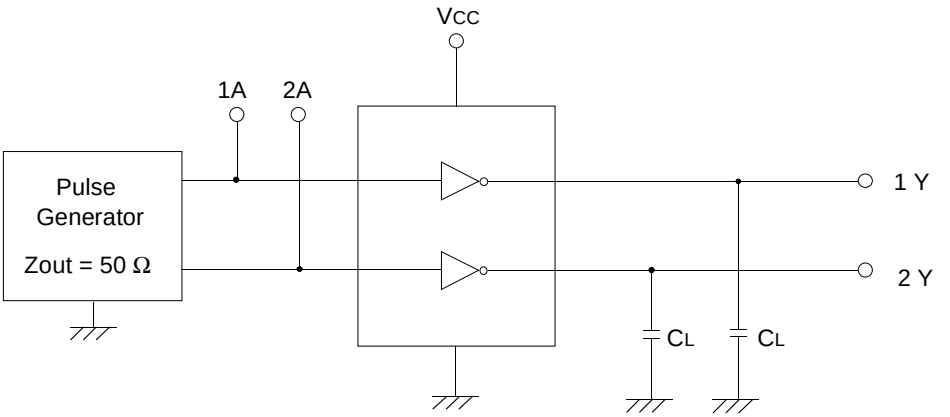


Note: 1. Input Waveforms : f =1 MHz, duty cycle 50 %

Output Characteristics (C_L = 200 pF, Ta = 25°C)

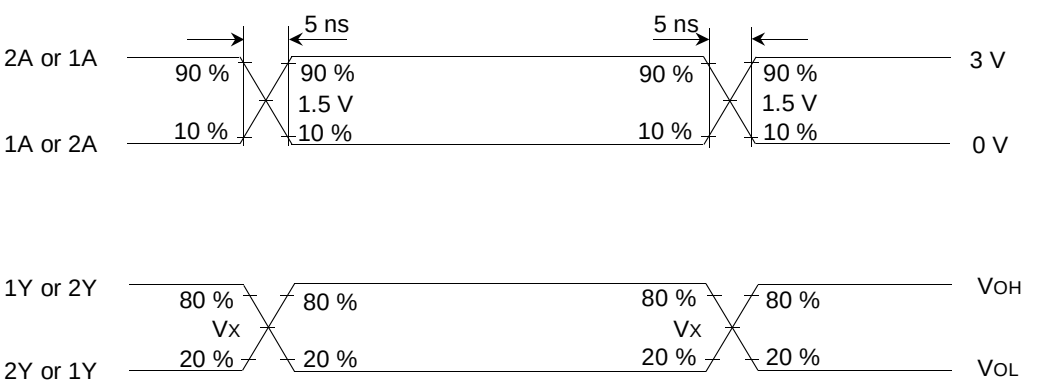
Item	Symbol	Min	Typ	Max	Unit	Conditions
Output Cross Voltage	V_X	20	50	80	%	V_{CC} = 9 V
		20	50	80	%	V_{CC} = 12 V

Test circuit



Note: 1. C_L includes probe and jig capacitance.

Waveforms



Note: 1.Input Waveforms : f =1 MHz, duty cycle 50 %