

To our customers,

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## Old Company Name in Catalogs and Other Documents

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April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

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# HD29029

## Dual CCD Drivers

REJ03D0303-0200Z  
 (Previous ADE-205-580 (Z))  
 Rev.2.00  
 Jul.16.2004

### Description

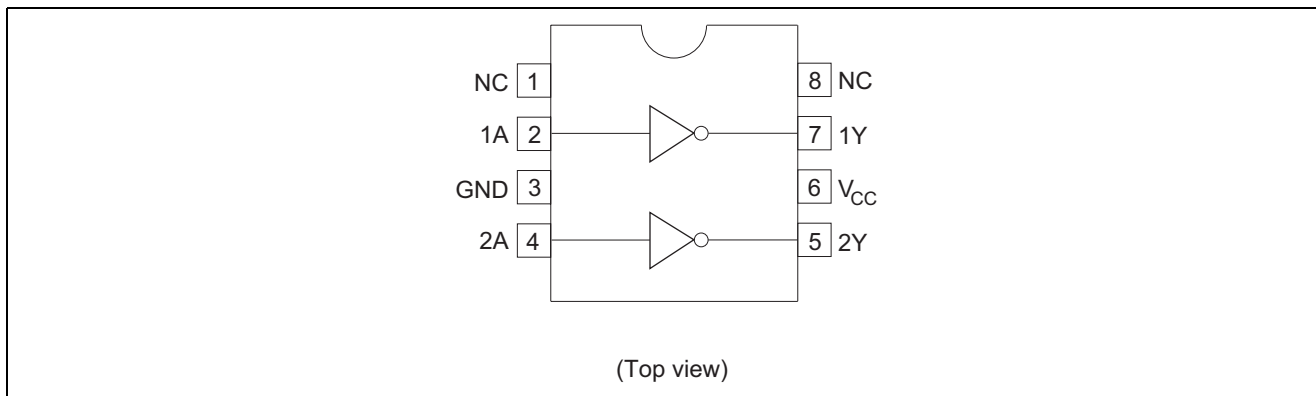
The HD29029 is optimum for CCD drive and has two drivers in a package. The input circuit is operated at TTL level. The outputs are capable of source or sink currents of 0.5 A.

### 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/Source currents: 0.5 A (for each)
- Output cross voltage: 50% typ
- Ordering Information

Part Name	Package Type	Package Code	Package Abbreviation	Taping Abbreviation (Quantity)
HD29029FPEL	SOP-8 pin (JEITA)	FP-8DGV	FP	EL (2,500 pcs/reel)

### Pin Arrangement



**Function Table**

Input A	Output Y
H	L
L	H

H: High level

L: Low level

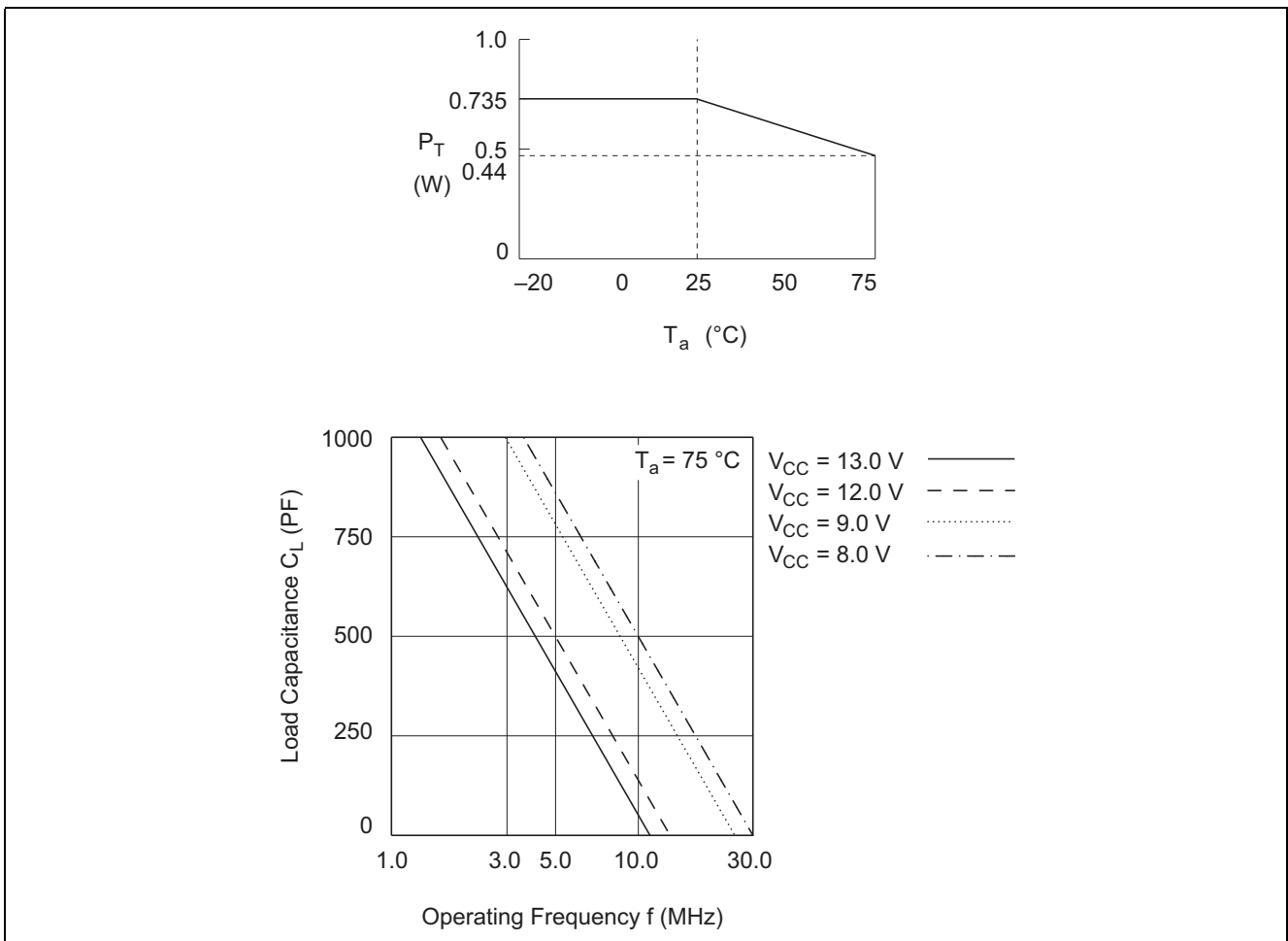
**Absolute Maximum Ratings**

Item	Symbol	Ratings	Unit
Supply Voltage	$V_{CC}^{*1}$	15	V
Input Voltage	$V_{IN}$	7	V
Output Current	$I_{O(peak)}$	$\pm 0.5$	A
Operating Temperature	$T_a$	-20 to +75	$^{\circ}C$
Storage Temperature	$T_{stg}$	-65 to +150	$^{\circ}C$
Junction Temperature	$T_J$	150	$^{\circ}C$
Power Dissipation per Package	$P_T^{*2}$	0.735	W

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

2. The total power dissipation is at  $T_a = 25^{\circ}C$ . When driving large capacity with high frequency radiation is needed. There fore, delating with 5.9 mW/ $^{\circ}C$  must be done as shown below.

3. The absolute maximum ratings are values which must not individually be eceeded, and furthermore, 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, $T_a = -20$ to $75$ °C)

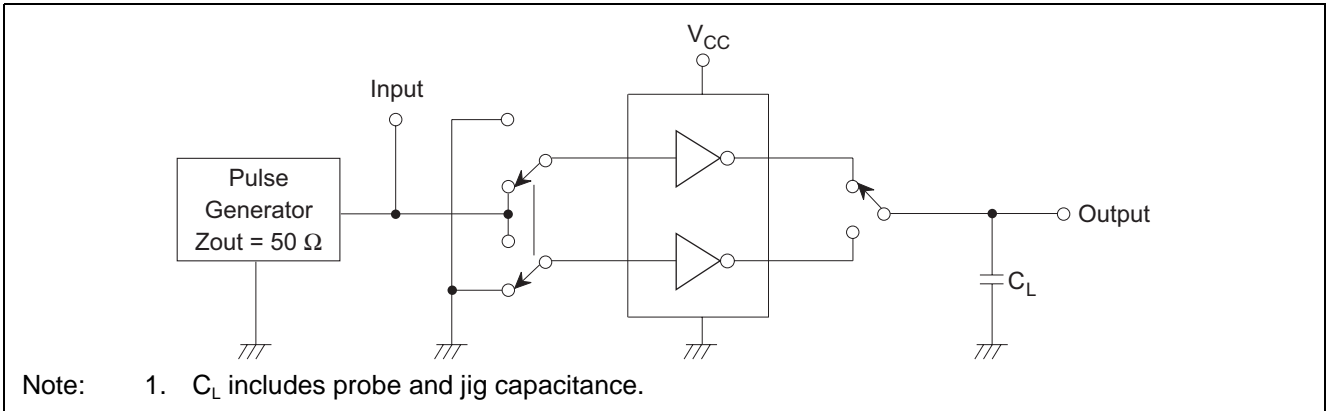
Item	Symbol	Min	Typ	Max	Unit	Conditions
Input Voltage	$V_{IH}$	2.0	—	—	V	
	$V_{IL}$	—	—	0.6	V	
Output Voltage	$V_{OH}$	$V_{CC}-2$	—	—	V	$V_{IL} = 0.6$ V, $I_{OH} = -1$ mA
	$V_{OL}$	—	—	0.5	V	$V_{IH} = 2.0$ V, $I_{OH} = 1$ mA
Input Current	$I_{IH}$	—	—	20	μA	$V_I = 2.7$ V
	$I_{IL}$	—	—	-100	μA	$V_I = 0.4$ V
Supply Current	$I_{CCH}$	—	—	10	mA	
	$I_{CCL}$	—	—	25	mA	
Input Current	$I_{LI}$	—	—	100	μA	$V_I = 7$ V
Input Clamp Voltage	$V_{IK}$	—	—	-1.5	V	$I_{IN} = -18$ mA

## Switching Characteristics ( $C_L = 200$ pF, $T_a = 25$ °C)

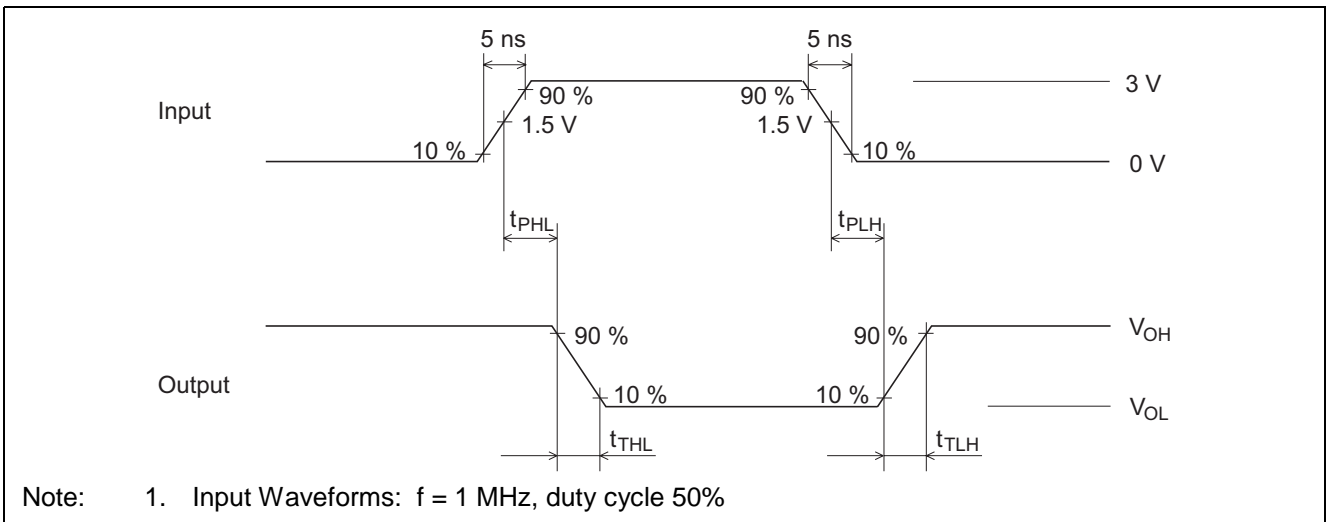
Item	Symbol	Min	Typ	Max	Unit	Conditions
Propagation Delay Time	$t_{PHL}$	—	4.0	15.0	ns	$V_{CC} = 9$ V
		—	4.0	13.0	ns	$V_{CC} = 12$ V
	$t_{PLH}$	—	6.0	15.0	ns	$V_{CC} = 9$ V
		—	6.0	13.0	ns	$V_{CC} = 12$ V
Transition Time	$t_{THL}$	—	8.0	14.0	ns	$V_{CC} = 9$ V
		—	7.0	12.0	ns	$V_{CC} = 12$ V
	$t_{TLH}$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

## Switching Time Test Method

### Test circuit



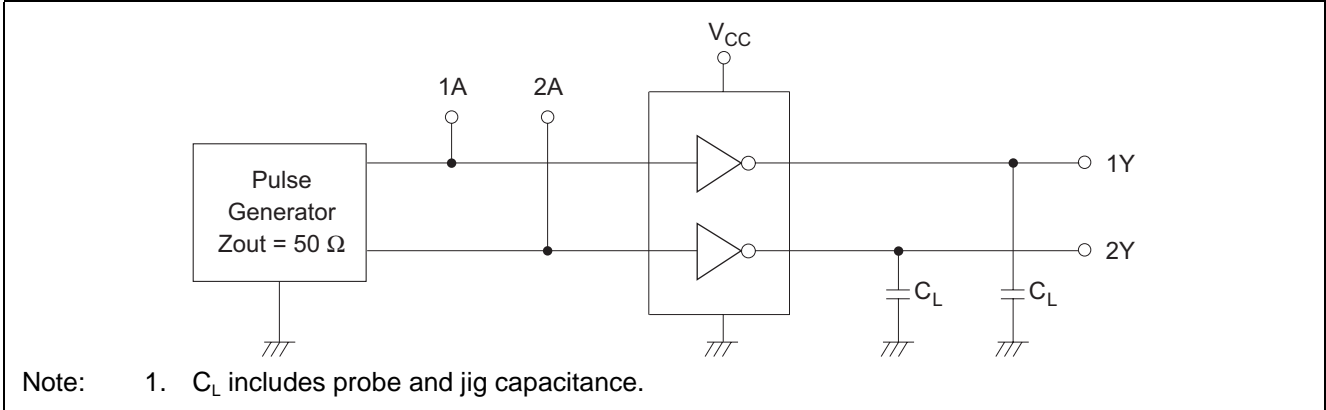
### Waveforms



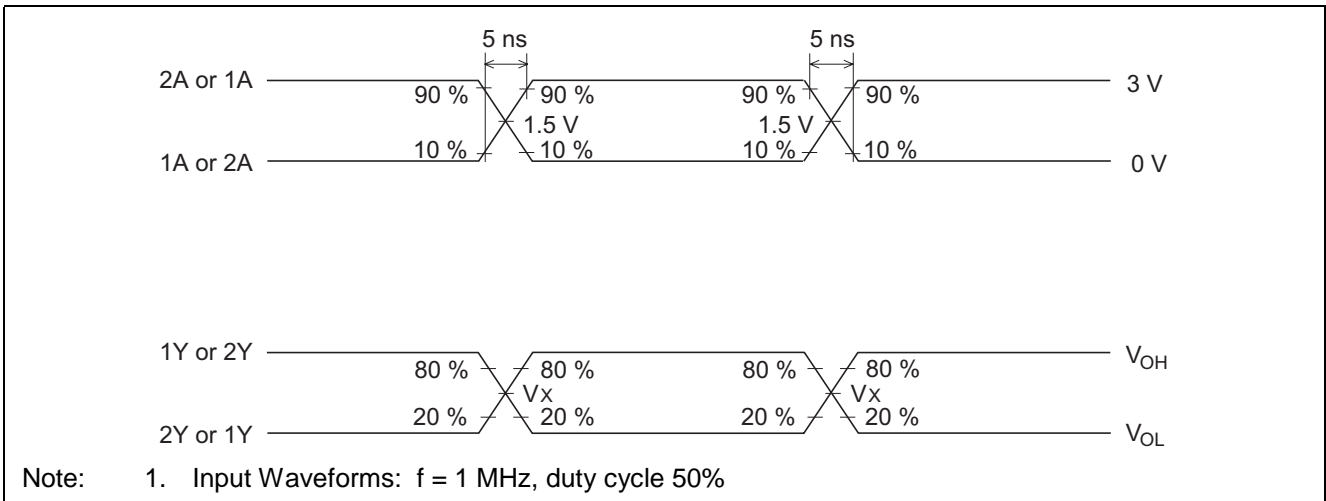
**Output Characteristics** ( $C_L = 200\text{ pF}$ ,  $T_a = 25^\circ\text{C}$ )

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

**Test circuit**

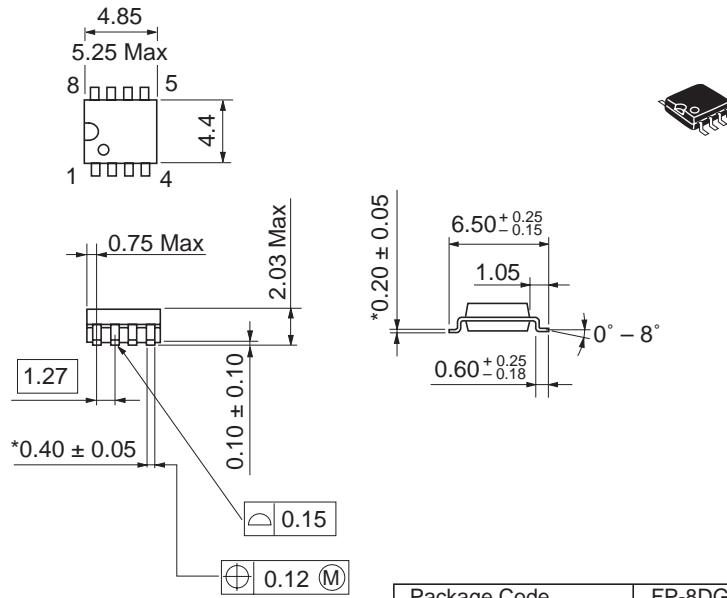


**Waveforms**



Package Dimensions

Unit: mm



\*This dimension include Pd plating

Package Code	FP-8DGV
JEDEC	—
JEITA	Conforms
Mass (reference value)	0.10 g



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