

HD74HC280

9-bit Odd/Even Parity Generator/Checker

REJ03D0606–0200
(Previous ADE-205-484)
Rev.2.00
Jan 31, 2006

Description

This parity generator/checker features odd/even outputs to facilitate operation of either odd or even parity applications. The word length capability is easily expanded by cascading devices.

Features

- High Speed Operation: t_{pd} (Data to Σ Even or Σ Odd) = 22 ns typ ($C_L = 50$ pF)
- High Output Current: Fanout of 10 LSTTL Loads
- Wide Operating Voltage: $V_{CC} = 2$ to 6 V
- Low Input Current: 1 μ A max
- Low Quiescent Supply Current: I_{CC} (static) = 4 μ A max ($T_a = 25^\circ\text{C}$)
- Ordering Information

Part Name	Package Type	Package Code (Previous Code)	Package Abbreviation	Taping Abbreviation (Quantity)
HD74HC280P	DILP-14 pin	PRDP0014AB-B (DP-14AV)	P	—
HD74HC280FPEL	SOP-14 pin (JEITA)	PRSP0014DF-B (FP-14DAV)	FP	EL (2,000 pcs/reel)

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

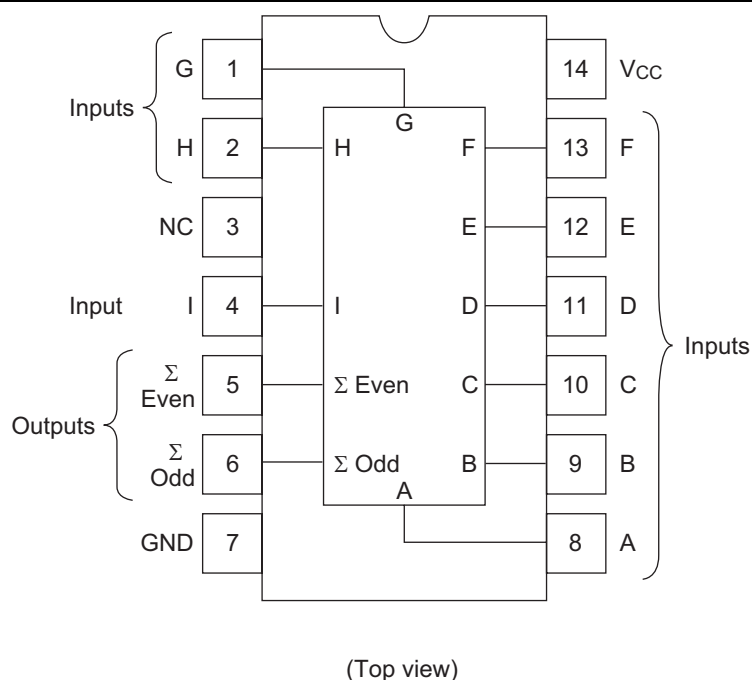
Function Table

Number of inputs A through I that are high	Outputs	
	Σ Even	Σ Odd
0, 2, 4, 6, 8	H	L
1, 3, 5, 7, 9	L	H

H : High level

L : Low level

Pin Arrangement



Absolute Maximum Ratings

Item	Symbol	Ratings	Unit
Supply voltage range	V_{CC}	-0.5 to 7.0	V
Input / Output voltage	V_{in}, V_{out}	-0.5 to $V_{CC} + 0.5$	V
Input / Output diode current	I_{IK}, I_{OK}	±20	mA
Output current	I_O	±25	mA
V_{CC} , GND current	I_{CC} or I_{GND}	±50	mA
Power dissipation	P_T	500	mW
Storage temperature	T_{stg}	-65 to +150	°C

Note: 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	Ratings	Unit	Conditions
Supply voltage	V_{CC}	2 to 6	V	
Input / Output voltage	V_{IN}, V_{OUT}	0 to V_{CC}	V	
Operating temperature	T_a	-40 to 85	°C	
Input rise / fall time ^{*1}	t_r, t_f	0 to 1000	ns	$V_{CC} = 2.0\text{ V}$
		0 to 500		$V_{CC} = 4.5\text{ V}$
		0 to 400		$V_{CC} = 6.0\text{ V}$

Notes: 1. This item guarantees maximum limit when one input switches.

Waveform: Refer to test circuit of switching characteristics.

Electrical Characteristics

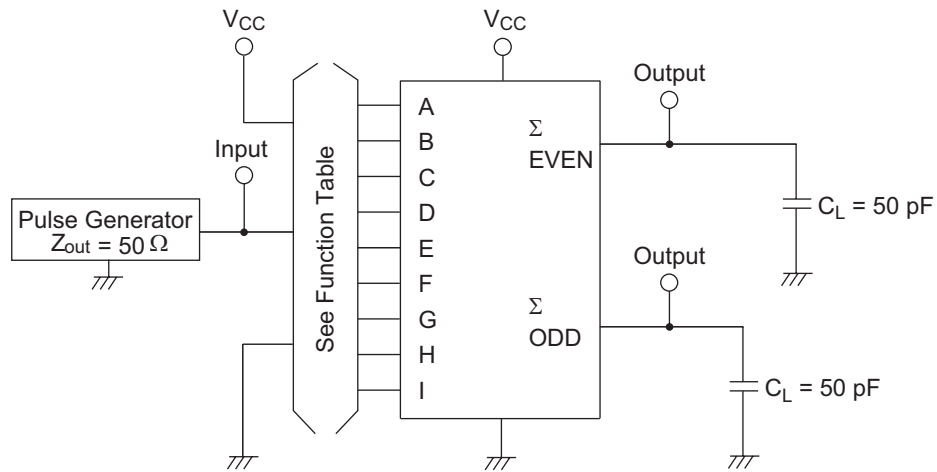
Item	Symbol	V _{CC} (V)	Ta = 25°C			Ta = -40 to +85°C		Unit	Test Conditions	
			Min	Typ	Max	Min	Max			
Input voltage	V _{IH}	2.0	1.5	—	—	1.5	—	V		
		4.5	3.15	—	—	3.15	—			
		6.0	4.2	—	—	4.2	—			
	V _{IL}	2.0	—	—	0.5	—	0.5	V		
		4.5	—	—	1.35	—	1.35			
		6.0	—	—	1.8	—	1.8			
Output voltage	V _{OH}	2.0	1.9	2.0	—	1.9	—	V	Vin = V _{IH} or V _{IL}	I _{OH} = -20 µA
		4.5	4.4	4.5	—	4.4	—			
		6.0	5.9	6.0	—	5.9	—			
		4.5	4.18	—	—	4.13	—			I _{OH} = -4 mA
		6.0	5.68	—	—	5.63	—			I _{OH} = -5.2 mA
	V _{OL}	2.0	—	0.0	0.1	—	0.1	V	Vin = V _{IH} or V _{IL}	I _{OL} = 20 µA
		4.5	—	0.0	0.1	—	0.1			
		6.0	—	0.0	0.1	—	0.1			
		4.5	—	—	0.26	—	0.33			I _{OL} = 4 mA
		6.0	—	—	0.26	—	0.33			I _{OL} = 5.2 mA
Input current	I _{in}	6.0	—	—	±0.1	—	±1.0	µA	Vin = V _{CC} or GND	
Quiescent supply current	I _{CC}	6.0	—	—	4.0	—	40	µA	Vin = V _{CC} or GND, I _{out} = 0 µA	

Switching Characteristics

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

Item	Symbol	V _{CC} (V)	Ta = 25°C			Ta = -40 to +85°C		Unit	Test Conditions	
			Min	Typ	Max	Min	Max			
Propagation delay time	t _{PLH}	2.0	—	—	205	—	255	ns	Data to Σ Even or Σ Odd	
	t _{PHL}	4.5	—	22	41	—	51			
		6.0	—	—	35	—	43			
Output rise/fall time	t _{TLH}	2.0	—	—	75	—	95	ns		
	t _{THL}	4.5	—	5	15	—	19			
		6.0	—	—	13	—	16			
Input capacitance	C _{in}	—	—	5	10	—	10	pF		

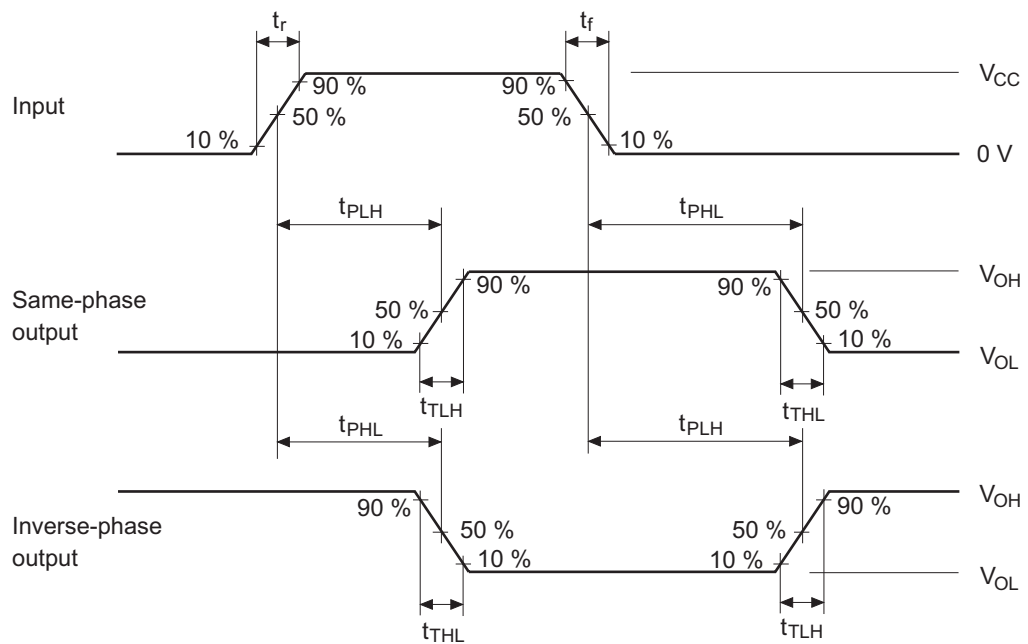
Test Circuit



Note : 1. C_L includes probe and jig capacitance.

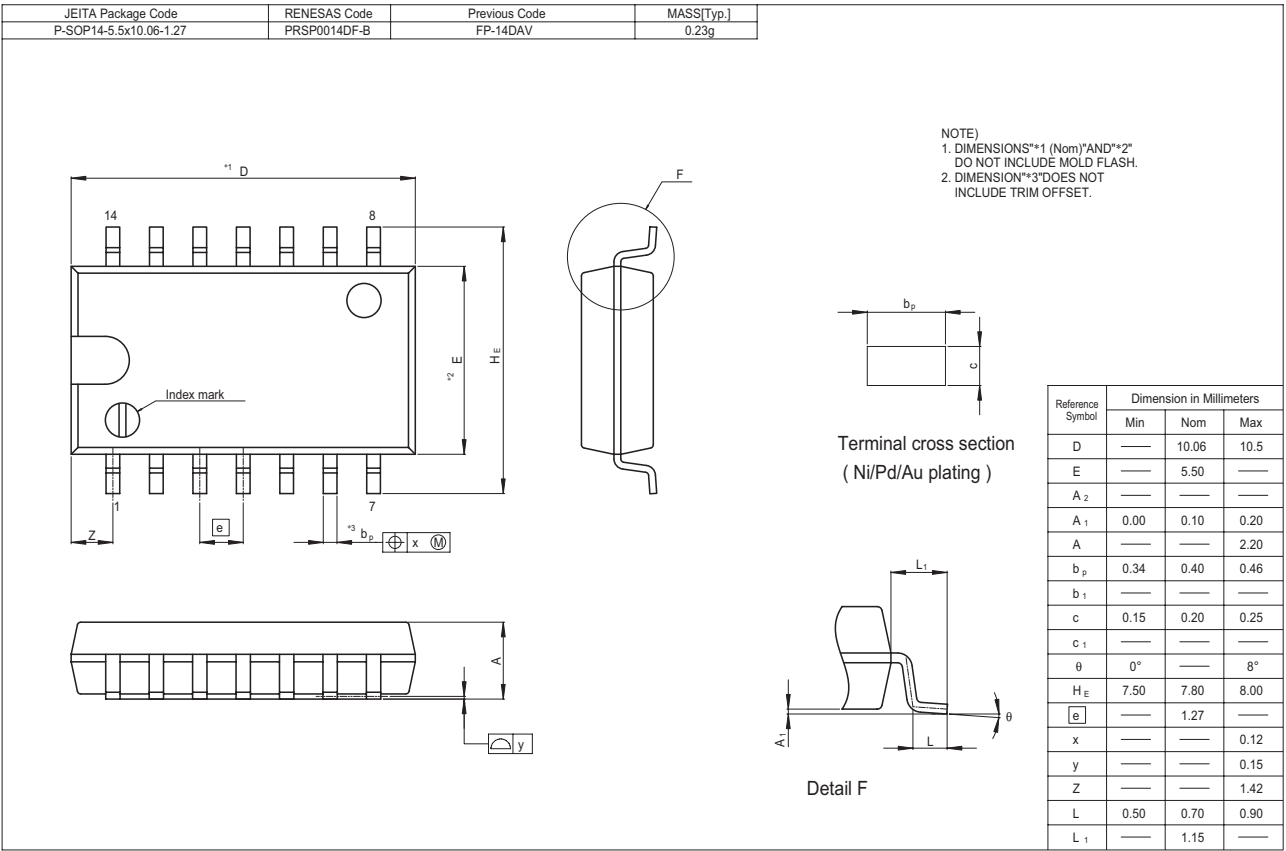
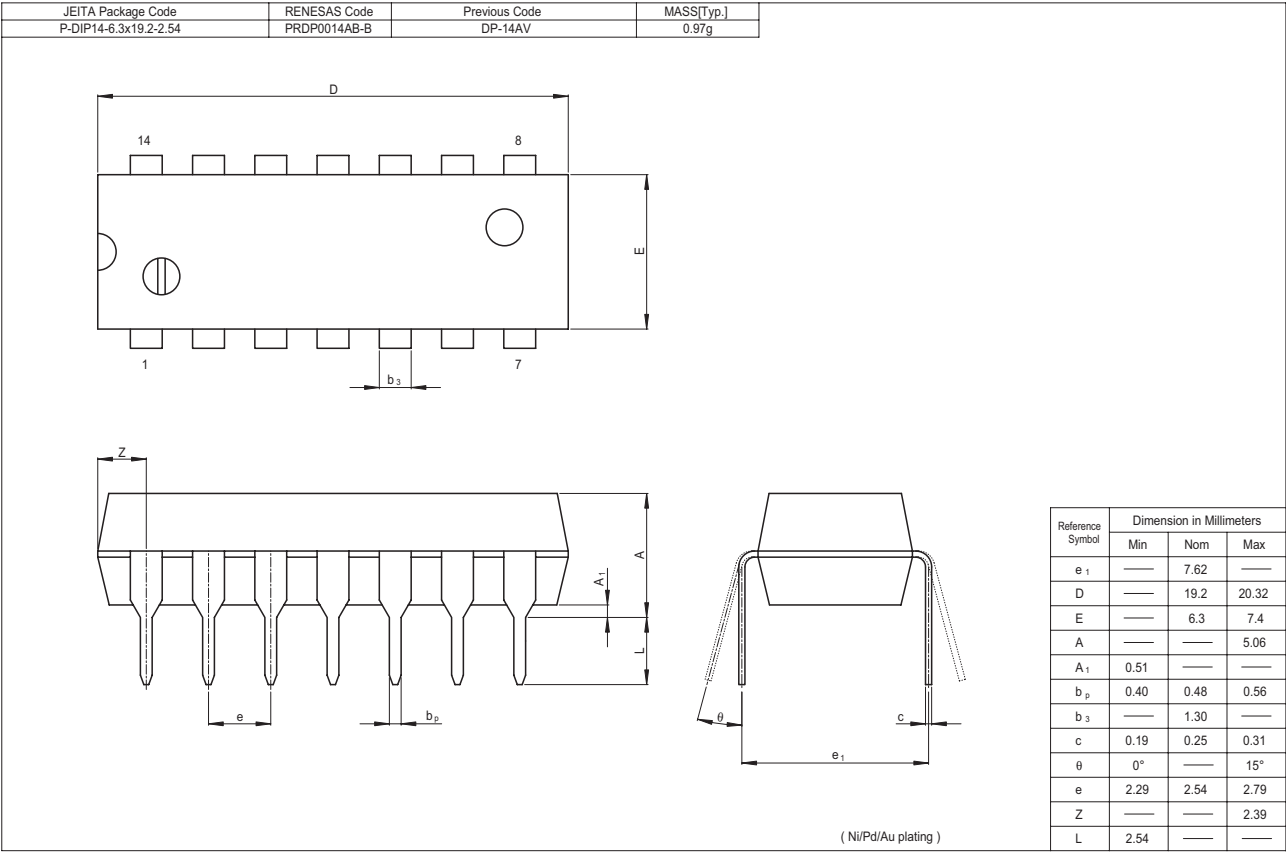
Waveforms

• Waveform – 1



Note : 1. Input waveform : PRR $\leq$ 1 MHz, duty cycle 50%, $t_r \leq$ 6 ns, $t_f \leq$ 6 ns

Package Dimensions



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