

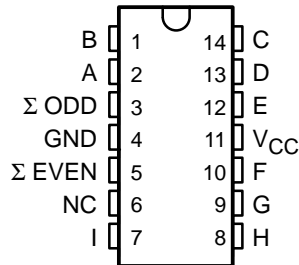
74AC11280

9-BIT PARITY GENERATOR/CHECKER

SCAS055A – D3201, APRIL 1989 – REVISED APRIL 1993

- Generates Either Odd or Even Parity for Nine Data Lines
- Cascadable for n-Bits Parity
- Flow-Through Architecture to Optimize PCB Layout
- Center-Pin V_{CC} and GND Configurations to Minimize High-Speed Switching Noise
- **EPIC™** (Enhanced-Performance Implanted CMOS) 1- μ m Process
- 500-mA Typical Latch-Up Immunity at 125°C
- Package Options Include Plastic Small-Outline Packages and Standard Plastic 300-mil DIPs

D OR N PACKAGE
(TOP VIEW)



description

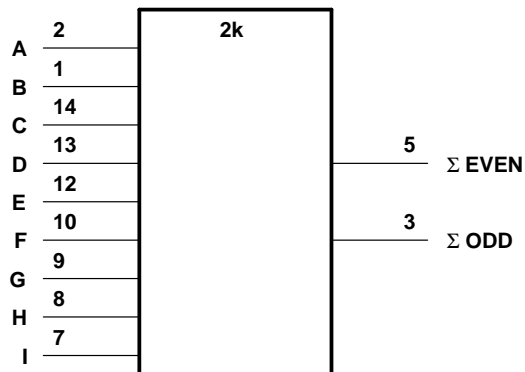
This universal, monolithic, nine-bit parity generator/checker features odd and even outputs to facilitate operation of either odd or even parity application. The word-length capability is easily expanded by cascading.

The 74AC11280 is characterized for operation from – 40°C to 85°C.

FUNCTION TABLE

NUMBER OF INPUTS A THRU I THAT ARE HIGH	OUTPUTS	
	Σ EVEN	Σ ODD
0, 2, 4, 6, 8	H	L
1, 3, 5, 7, 9	L	H

logic symbol†



† This symbol is in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.

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PRODUCTION DATA information is current as of publication date. Products conform to specifications per the terms of Texas Instruments standard warranty. Production processing does not necessarily include testing of all parameters.

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**TEXAS
INSTRUMENTS**

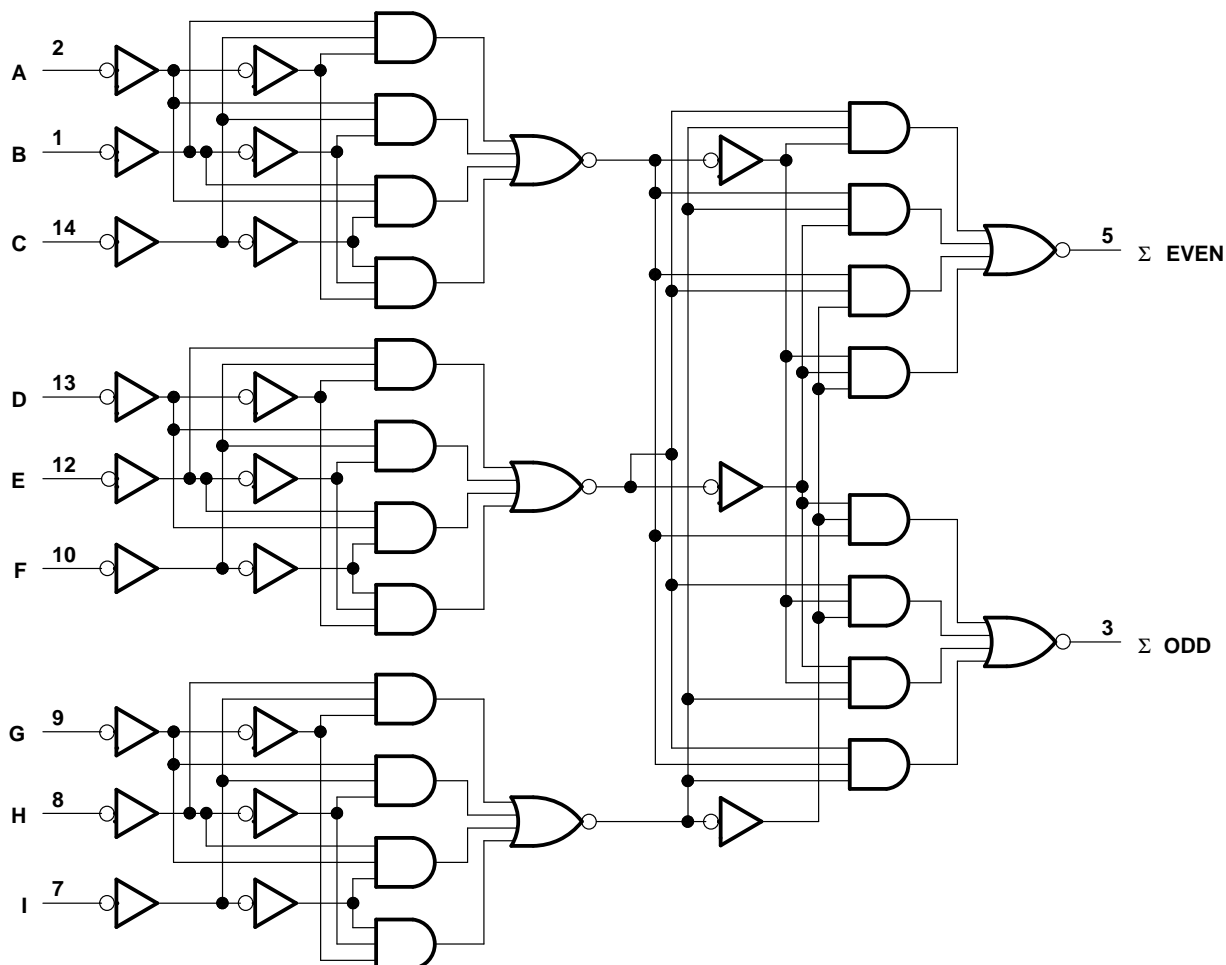
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logic diagram (positive logic)



absolute maximum ratings over operating free-air temperature range (unless otherwise noted)[†]

Supply voltage range, V_{CC}	–0.5 V to 7 V
Input voltage range, V_I (see Note 1)	–0.5 V to $V_{CC} + 0.5$ V
Output voltage range, V_O (see Note 1)	–0.5 V to $V_{CC} + 0.5$ V
Input clamp current, I_{IK} ($V_I < 0$ or $V_I > V_{CC}$)	± 20 mA
Output clamp current, I_{OK} ($V_O < 0$ or $V_O > V_{CC}$)	± 50 mA
Continuous output current, I_O ($V_O = 0$ to V_{CC})	± 50 mA
Continuous current through V_{CC} or GND	± 100 mA
Storage temperature range	–65°C to 150°C

[†] Stresses beyond those listed under “absolute maximum ratings” may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated under “recommended operating conditions” is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

NOTE 1: The input and output voltage ratings may be exceeded if the input and output current ratings are observed.

recommended operating conditions

		MIN	NOM	MAX	UNIT
V_{CC}	Supply voltage	3	5	5.5	V
V_{IH}	High-level input voltage	$V_{CC} = 3\text{ V}$	2.1		V
		$V_{CC} = 4.5\text{ V}$	3.15		
		$V_{CC} = 5.5\text{ V}$	3.85		
V_{IL}	Low-level input voltage	$V_{CC} = 3\text{ V}$		0.9	V
		$V_{CC} = 4.5\text{ V}$		1.35	
		$V_{CC} = 5.5\text{ V}$		1.65	
V_I	Input voltage	0		V_{CC}	V
V_O	Output voltage	0		V_{CC}	V
I_{OH}	High-level output current	$V_{CC} = 3\text{ V}$		– 4	mA
		$V_{CC} = 4.5\text{ V}$		– 24	
		$V_{CC} = 5.5\text{ V}$		– 24	
I_{OL}	Low-level output current	$V_{CC} = 3\text{ V}$		12	mA
		$V_{CC} = 4.5\text{ V}$		24	
		$V_{CC} = 5.5\text{ V}$		24	
$\Delta t/\Delta v$	Input transition rise or fall rate	0		10	ns/V
T_A	Operating free-air temperature	– 40		85	°C

electrical characteristics over recommended operating free-air temperature range (unless otherwise noted)

PARAMETER	TEST CONDITIONS	V_{CC}	$T_A = 25^\circ\text{C}$			MIN	MAX	UNIT
			MIN	TYP†	MAX			
V_{OH}	$I_{OH} = -50\text{ }\mu\text{A}$	3 V	2.9			2.9		V
		4.5 V	4.4			4.4		
		5.5 V	5.4			5.4		
	$I_{OH} = -4\text{ mA}$	3 V	2.58			2.48		
		4.5 V	3.94			3.8		
		5.5 V	4.94			4.8		
	$I_{OH} = -75\text{ mA}^\dagger$	5.5 V				3.85		
V_{OL}	$I_{OL} = 50\text{ }\mu\text{A}$	3 V			0.1		0.1	V
		4.5 V			0.1		0.1	
		5.5 V			0.1		0.1	
	$I_{OL} = 12\text{ mA}$	3 V			0.36		0.44	
		4.5 V			0.36		0.44	
		5.5 V			0.36		0.44	
	$I_{OL} = 75\text{ mA}^\dagger$	5.5 V					1.65	
I_I	$V_I = V_{CC}$ or GND	5.5 V			± 0.1		± 1	μA
I_{CC}	$V_I = V_{CC}$ or GND, $I_O = 0$	5.5 V			8		80	μA
C_i	$V_I = V_{CC}$ or GND	5 V		3.5				pF

† All typical values are at $V_{CC} = 5\text{ V}$, $T_A = 25^\circ\text{C}$.

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switching characteristics over recommended operating free-air temperature range,
 $V_{CC} = 3.3 \text{ V} \pm 0.3 \text{ V}$ (see Figure 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$T_A = 25^\circ\text{C}$			MIN	MAX	UNIT
			MIN	TYP	MAX			
t_{PLH}	Any input	EVEN	1.5	9.8	13.5	1.5	14.9	ns
t_{PHL}			1.5	10.5	13.9	1.5	15.4	
t_{PLH}	Any input	ODD	1.5	9.9	13.8	1.5	15.1	ns
t_{PHL}			1.5	10.6	14.4	1.5	15.6	

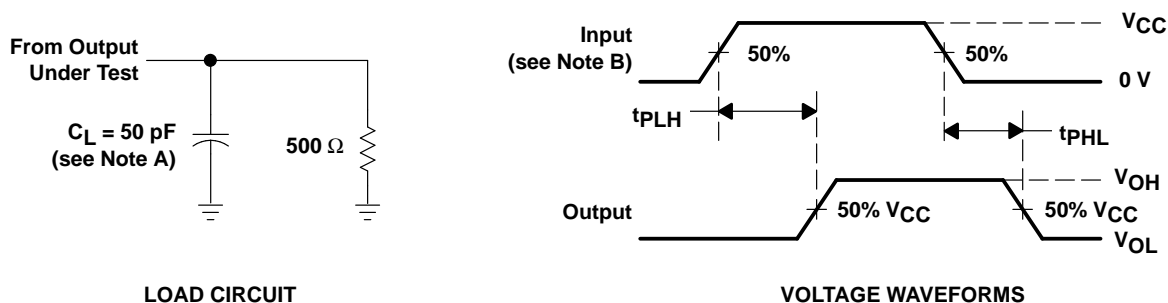
switching characteristics over recommended operating free-air temperature range,
 $V_{CC} = 5 \text{ V} \pm 0.5 \text{ V}$ (see Figure 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$T_A = 25^\circ\text{C}$			MIN	MAX	UNIT
			MIN	TYP	MAX			
t_{PLH}	Any input	EVEN	1.5	5.9	9.1	1.5	10.1	ns
t_{PHL}			1.5	6.7	9.9	1.5	10.9	
t_{PLH}	Any input	ODD	1.5	6	9.3	1.5	10.3	ns
t_{PHL}			1.5	6.8	10.3	1.5	11.1	

operating characteristics, $V_{CC} = 5 \text{ V}$, $T_A = 25^\circ\text{C}$

PARAMETER	TEST CONDITIONS	TYP	UNIT
C_{pd} Power dissipation capacitance	$C_L = 50 \text{ pF}$, $f = 1 \text{ MHz}$	68	pF

PARAMETER MEASUREMENT INFORMATION



- NOTES:
- A. C_L includes probe and jig capacitance.
 - B. Input pulses are supplied by generators having the following characteristics: $PRR \leq 10 \text{ MHz}$, $Z_O = 50 \Omega$, $t_r = 3 \text{ ns}$, $t_f = 3 \text{ ns}$.
 - C. The outputs are measured one at a time with one input transition per measurement.

Figure 1. Load Circuit and Voltage Waveforms

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