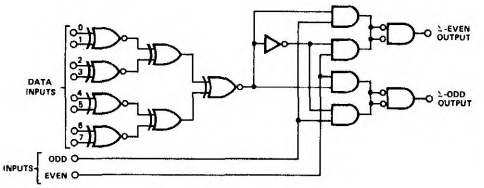
DESCRIPTION

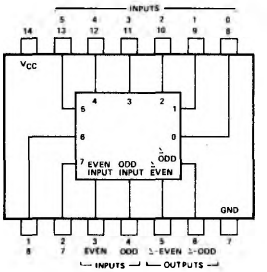
The 54/74180 8-Bit Odd/Even Parity Generator/Checker is a TTL monolithic array featuring gating logic arranged to generate or check odd or even parity.

LOGIC DIAGRAM

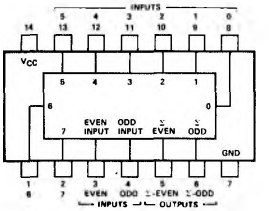


PIN CONFIGURATIONS

W PACKAGE



A,F PACKAGE



TRUTH TABLE

INPUTS			OUTPUTS	
Σ OF 1's AT 0 THRU 7	EVEN	ODD	Σ EVEN	Σ ODD
EVEN	1	0	1	0
ODD	1	0	0	1
EVEN	0	1	0	1
ODD	0	1	1	0
X	1	1	0	0
X	0	0	1	1

X = irrelevant

RECOMMENDED OPERATING CONDITIONS

		MIN	NOM	MAX	UNIT
Supply Voltage V_{CC}	S54180	4.5	5	5.5	V
	N74180	4.75	5	5.25	V
Normalized Fan-Out from each Output, N:	Logical 0			10	V
	Logical 1			20	V

ELECTRICAL CHARACTERISTICS (over recommended operating free-air temperature range unless otherwise noted)

PARAMETER		TEST CONDITIONS *		MIN	TYP **	MAX	UNIT
$V_{in(1)}$	Input voltage required to ensure logical 1 at any input terminal	V_{CC} = MIN		2			V
$V_{in(0)}$	Input voltage required to ensure logical 0 at any input terminal	V_{CC} = MIN				0.8	V
$V_{out(1)}$	Logical 1 output voltage	V_{CC} = MIN, $V_{in(1)}$ = 2V, $V_{in(0)}$ = 0.8V, I_{load} = -800 μA		2.4			V
$V_{out(0)}$	Logical 0 output voltage	V_{CC} = MIN, $V_{in(1)}$ = 2V $V_{in(0)}$ = 0.8V, I_{sink} = 16mA				0.4	V
$I_{in(1)}$	Logical 1 level input current at each data input	V_{CC} = MAX, V_{in} = 2.4V				40	μA
		V_{CC} = MAX, V_{in} = 5.5V				1	mA
$I_{in(0)}$	Logical 0 level input current at each data input	V_{CC} = MAX, V_{in} = 0.4V				-1.6	mA
$I_{in(1)}$	Logical 1 level input current at even or odd input	V_{CC} = MAX, V_{in} = 2.4V				80	μA
		V_{CC} = MAX, V_{in} = 5.5V				1	mA
$I_{in(0)}$	Logical 0 level input current at even or odd input	V_{CC} = MAX, V_{in} = 0.4V				-3.2	mA
I_{OS}	Short-circuit output current†	V_{CC} = MAX	S54180	-20		-55	mA
			N74180	-18		-55	mA
I_{CC}	Supply current	V_{CC} = MAX	S54180		34	49	mA
			N74180		34	56	mA

SWITCHING CHARACTERISTICS, V_{CC} = 5V, T_A = 25°C, N = 10

PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS		MIN	TYP	MAX	UNIT
t_{pd1}	Data	Σ Even	C_L = 15pF,	R_L = 400 Ω		40	60	ns
t_{pd0}	Data	Σ Even	C_L = 15pF,	R_L = 400 Ω		25	38	ns
t_{pd1}	Data	Σ Odd	C_L = 15pF,	R_L = 400 Ω		32	48	ns
t_{pd0}	Data	Σ Odd	C_L = 15pF,	R_L = 400 Ω		45	68	ns
t_{pd1}	Data	Σ Even	C_L = 15pF,	R_L = 400 Ω		32	48	ns
t_{pd0}	Data	Σ Even	C_L = 15pF,	R_L = 400 Ω		45	68	ns
t_{pd1}	Data	Σ Odd	C_L = 15pF,	R_L = 400 Ω		40	60	ns
t_{pd0}	Data	Σ Odd	C_L = 15pF,	R_L = 400 Ω		25	38	ns
t_{pd1}	Even or Odd	Σ Even or Σ Odd	C_L = 15pF,	R_L = 400 Ω		13	20	ns
t_{pd0}	Even or Odd	Σ Even or Σ Odd	C_L = 15pF,	R_L = 400 Ω		7	10	ns

*For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions of the applicable device type.

**All typical values are at V_{CC} = 5V, T_A = 25°C.

†Not more than one output should be shorted at a time.