

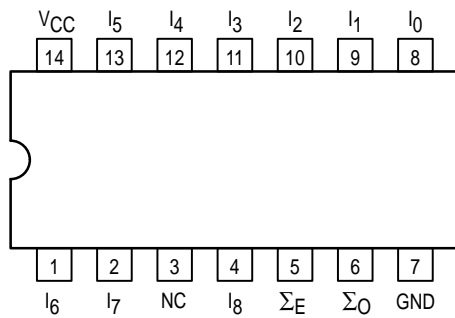


**MOTOROLA**

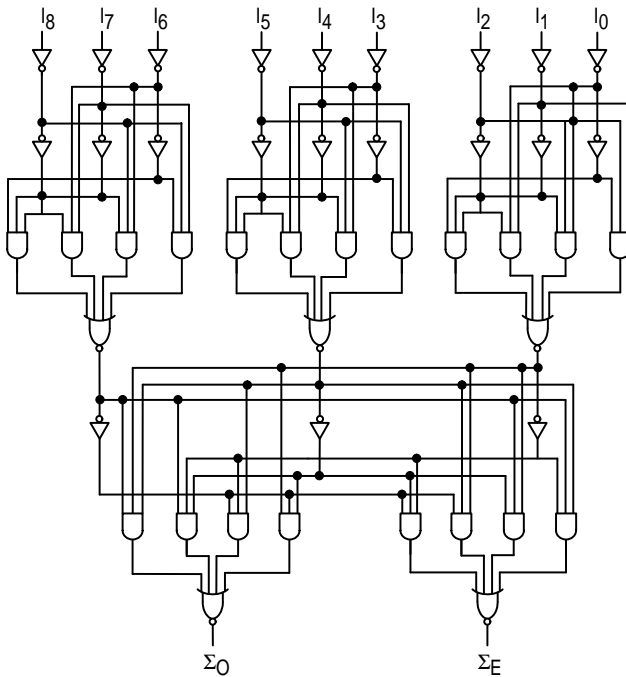
# 9-BIT PARITY GENERATOR/ CHECKER

The MC54/74F280 is a high-speed parity generator/checker that accepts nine bits of input data and detects whether an even or an odd number of these inputs is HIGH. If an even number of inputs is HIGH, the Sum Even output is HIGH. If an odd number is HIGH, the Sum Even output is LOW. The Sum Odd output is the complement of the Sum Even output.

### CONNECTION DIAGRAM



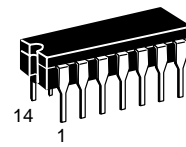
### LOGIC DIAGRAM



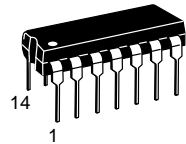
**NOTE:**  
This diagram is provided only for the understanding of logic operations and should not be used to estimate propagation delays.

## MC54/74F280

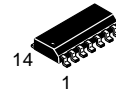
**9-BIT PARITY  
GENERATOR/CHECKER**  
**FAST™ SCHOTTKY TTL**



**J SUFFIX  
CERAMIC  
CASE 632-08**



**N SUFFIX  
PLASTIC  
CASE 646-06**

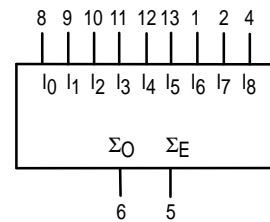


**D SUFFIX  
SOIC  
CASE 751A-02**

### ORDERING INFORMATION

MC54FXXXJ	Ceramic
MC74FXXXN	Plastic
MC74FXXXD	SOIC

### LOGIC SYMBOL



VCC = PIN 14  
GND = PIN 7

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# MC54/74F280

## FUNCTION TABLE

Number of HIGH Inputs $I_0-I_8$	Outputs	
	$\Sigma$ Even	$\Sigma$ Odd
0, 2, 4, 6, 8	H	L
1, 3, 5, 7, 9	L	H

H = HIGH Voltage Level; L = LOW Voltage Level

## GUARANTEED OPERATING RANGES

Symbol	Parameter		Min	Typ	Max	Unit
$V_{CC}$	Supply Voltage	54, 74	4.5	5.0	5.5	V
$T_A$	Operating Ambient Temperature Range	54	-55	25	125	°C
		74	0	25	70	
$I_{OH}$	Output Current — High	54, 74			-1.0	mA
$I_{OL}$	Output Current — Low	54, 74			20	mA

## DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (unless otherwise specified)

Symbol	Parameter	Limits			Unit	Test Conditions
		Min	Typ	Max		
$V_{IH}$	Input HIGH Voltage	2.0			V	Guaranteed Input HIGH Voltage for All Inputs
$V_{IL}$	Input LOW Voltage			0.8	V	Guaranteed Input LOW Voltage for All Inputs
$V_{IK}$	Input Clamp Diode Voltage			-1.2	V	$V_{CC} = \text{MIN}, I_{IN} = -18 \text{ MA}$
$V_{OH}$	Output HIGH Voltage	54, 74	2.5	3.4	V	$I_{OH} = -1.0 \text{ mA}$ $V_{CC} = 4.5 \text{ V}$
		74	2.7	3.4	V	$I_{OH} = 1.0 \text{ mA}$ $V_{CC} = 4.75 \text{ V}$
$V_{OL}$	Output Low Voltage		0.35	0.5	V	$I_{OL} = 20 \text{ mA}$ $V_{CC} = \text{MIN}$
$I_{IH}$	Input HIGH Current			20	$\mu\text{A}$	$V_{CC} = \text{MAX}, V_{IN} = 2.7 \text{ V}$
				100	$\mu\text{A}$	$V_{CC} = \text{MAX}, V_{IN} = 7.0 \text{ V}$
$I_{IL}$	Input LOW Current			-0.6	mA	$V_{CC} = \text{MAX}, V_{IN} = 0.5 \text{ V}$
$I_{OS}$	Short Circuit Current (Note 2)	-60		-150	mA	$V_{CC} = \text{MAX}, V_{OUT} = 0 \text{ V}$
$I_{CC}$	Power Supply Current		25	38	mA	$V_{CC} = \text{MAX}$

### NOTES:

- For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions for the applicable device type.
- Not more than one output should be shorted at a time, nor for more than 1 second.

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## AC CHARACTERISTICS

Symbol	Parameter	54/74F		54F		74F		Unit
		T <sub>A</sub> = +25°C V <sub>CC</sub> = +5.0 V C <sub>L</sub> = 50 pF		T <sub>A</sub> = -55°C to +125°C V <sub>CC</sub> = 5.0 V ±10% C <sub>L</sub> = 50 pF		T <sub>A</sub> = 0°C to +70°C V <sub>CC</sub> = 5.0 V ±10% C <sub>L</sub> = 50 pF		
		Min	Max	Min	Max	Min	Max	
t <sub>PLH</sub>	Propagation Delay	4.5	15	4.5	20	4.5	16	ns
t <sub>PHL</sub>	I <sub>n</sub> to ΣE	4.5	16	4.5	21	4.5	17	
t <sub>PLH</sub>	Propagation Delay	4.5	15	4.5	20	4.5	16	ns
t <sub>PHL</sub>	I <sub>n</sub> to ΣO	4.5	16	4.5	21	4.5	17	


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