Error Detection/Correction Circuit

The MC10E/100E193 is an error detection and correction (EDAC) circuit. Modified Hamming parity codes are generated on an 8-bit word according to the pattern shown in the logic symbol. The P5 output gives the parity of the whole word. The word parity is also provided at the PGEN pin, after Odd/Even parity control and gating with the BPAR input. This output also feeds to a 1-bit shiftable register, for use as part of a scan ring.

Used in conjunction with 12-bit parity generators such as the E160, a SECDED (single error correction, double error detection) error system can be designed for a multiple of an 8-bit word.
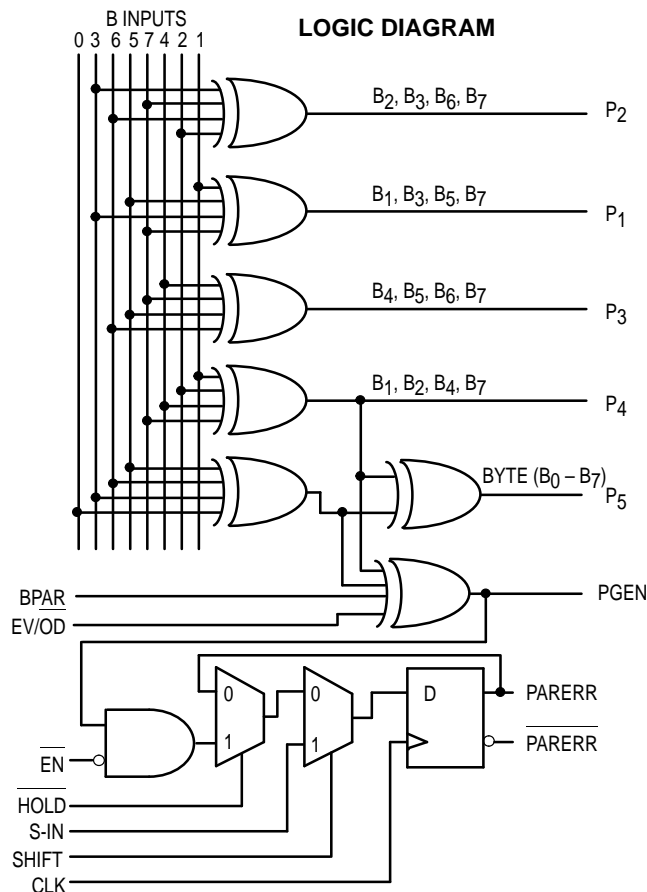
- Hamming Code Generation
- 8-Bit Word, Expandable
- Provides Parity of Whole Word
- Scannable Parity Register
- Extended 100E V_{EE} Range of $-4.2V$ to $-5.46V$
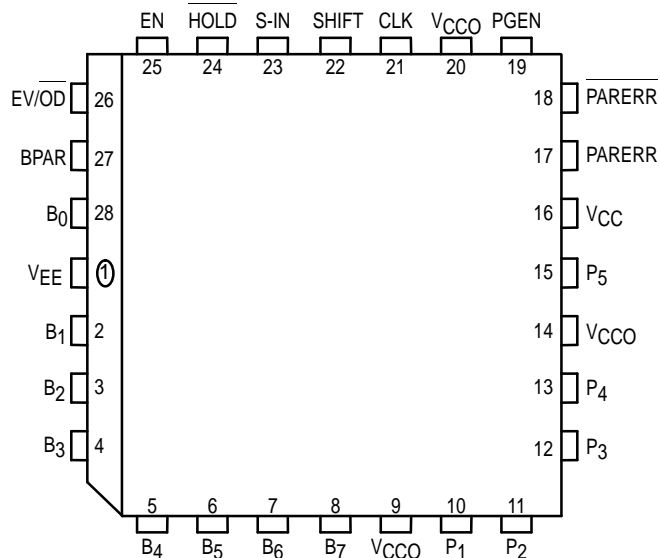- 75kΩ Input Pulldown Resistors

MC10E193
MC100E193

ERROR DETECTION/ CORRECTION CIRCUIT
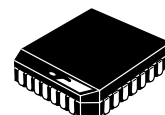
FN SUFFIX
PLASTIC PACKAGE
CASE 776-02

LOGIC DIAGRAM

Pinout: 28-Lead PLCC (Top View)

* All V_{CC} and V_{CCO} pins are tied together on the die.

MC10E193 MC100E193

DC CHARACTERISTICS (V_{EE} = V_{EE}(min) to V_{EE}(max); V_{CC} = V_{CCO} = GND)

Symbol	Characteristic	0°C min	0°C typ	0°C max	25°C min	25°C typ	25°C max	85°C min	85°C typ	85°C max	Unit	Condition
I_{IH}	Input HIGH Current			150			150			150	μA	
I_{EE}	Power Supply Current										mA	
	10E		112	134		112	134		112	134		
	100E		112	134		112	134		129	155		

AC CHARACTERISTICS (V_{EE} = V_{EE}(min) to V_{EE}(max); V_{CC} = V_{CCO} = GND)

Symbol	Characteristic	0°C min	0°C typ	0°C max	25°C min	25°C typ	25°C max	85°C min	85°C typ	85°C max	Unit	Condition
t_{PLH} t_{PHL}	Propagation Delay to Output										ps	
	B to P1, P2, P3, P4	350	700	1000	350	700	1000	350	700	1000		
	B to P5	400	775	1150	400	775	1150	400	775	1150		
	EV/OD, BPAR to PGEN	350	650	850	350	650	850	350	650	850		
	B to PGEN	600	1000	1450	600	1000	1450	600	1000	1450		
	CLK to PARERR	300	550	850	300	550	850	300	550	850		
t_S	Setup Time										ps	
	SHIFT	400	150		400	150		400	150			
	S-IN	300	50		300	50		300	50			
	HOLD	750	350		750	350		750	350			
	EN	500	250		500	250		500	250			
	EV/OD	1300	850		1300	850		1300	850			
	BPAR	1300	850		1300	850		1300	850			
	B	1700	1100		1700	1100		1700	1100			
t_h	Hold Time										ps	
	SHIFT	200	−150		200	−150		200	−150			
	S-IN	300	− 50		300	− 50		300	− 50			
	HOLD	100	− 350		100	− 350		100	− 350			
	EN	100	− 250		100	− 250		100	− 250			
	EV/OD	− 200	− 850		− 200	− 850		− 200	− 850			
	BPAR	− 200	− 850		− 200	− 850		− 200	− 850			
	B	− 300	−1100		− 300	−1100		− 300	−1100			
t_r t_f	Rise/Fall Times 20 - 80%	300	700	1100	300	700	1100	300	700	1100	ps	

OUTLINE DIMENSIONS

FN SUFFIX
PLASTIC PLCC PACKAGE
CASE 776–02
ISSUE D

VIEW D-D

VIEW S

NOTES:
1. DATUMS -L-, -M-, AND -N- DETERMINED WHERE TOP OF LEAD SHOULDER EXITS PLASTIC BODY AT MOLD PARTING LINE.
2. DIM G1, TRUE POSITION TO BE MEASURED AT DATUM -T-, SEATING PLANE.
3. DIM R AND U DO NOT INCLUDE MOLD FLASH. ALLOWABLE MOLD FLASH IS 0.010 (0.250) PER SIDE.
4. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
5. CONTROLLING DIMENSION: INCH.
6. THE PACKAGE TOP MAY BE SMALLER THAN THE PACKAGE BOTTOM BY UP TO 0.012 (0.300). DIMENSIONS R AND U ARE DETERMINED AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY EXCLUSIVE OF MOLD FLASH, TIE BAR BURRS, GATE BURRS AND INTERLEAD FLASH, BUT INCLUDING ANY MISMATCH BETWEEN THE TOP AND BOTTOM OF THE PLASTIC BODY.
7. DIMENSION H DOES NOT INCLUDE DAMBAR PROTRUSION OR INTRUSION. THE DAMBAR PROTRUSION(S) SHALL NOT CAUSE THE H DIMENSION TO BE GREATER THAN 0.037 (0.940). THE DAMBAR INTRUSION(S) SHALL NOT CAUSE THE H DIMENSION TO BE SMALLER THAN 0.025 (0.635).

DIM	INCHES MIN	MAX	MILLIMETERS MIN	MAX
A	0.485	0.495	12.32	12.57
B	0.485	0.495	12.32	12.57
C	0.165	0.180	4.20	4.57
E	0.090	0.110	2.29	2.79
F	0.013	0.019	0.33	0.48
G	0.050 BSC		1.27 BSC	
H	0.026	0.032	0.66	0.81
J	0.020	—	0.51	—
K	0.025	—	0.64	—
R	0.450	0.456	11.43	11.58
U	0.450	0.456	11.43	11.58
V	0.042	0.048	1.07	1.21
W	0.042	0.048	1.07	1.21
X	0.042	0.056	1.07	1.42
Y	—	0.020	—	0.50
Z	2°	10°	2°	10°
G1	0.410	0.430	10.42	10.92
K1	0.040	—	1.02	—

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