ERROR DETECTION/ CORRECTION CIRCUIT

FEATURES

- **Hamming code generation**
- **Extended 100E V_{EE} range of –4.2V to –5.5V**
- **8-bit wide**
- **Expandable for more width**
- **Provides parity register**
- **Fully compatible with industry standard 10KH, 100K ECL levels**
- **Internal75KΩ input pulldown resistors**
- **Fully compatible with Motorola MC10E/100E193**
- **Available in 28-pin PLCC package**

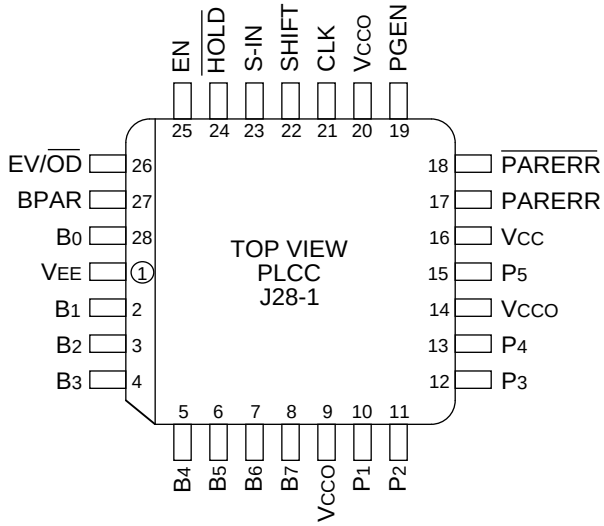
DESCRIPTION

The SY10/100E193 are error detection and correction (EDAC) circuits designed for use in new, high- performance ECL systems. The E193 generates hamming parity codes on an 8-bit word as shown in the block diagram. The P_5 output gives the parity of the whole word. PGEN provides word parity after Odd/Even parity control and gating with the BPAR input. PGEN also feeds into a 1-bit shiftable register for use as part of a scan ring.

The combinatorial part of the device generates the same code pattern as the Motorola MC10193.

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.

PIN CONFIGURATION



PIN NAMES

Pin	Function
B_0–B_7	Check Bit Inputs
BPAR	Check Bit Parity Input
EV/$\overline{OD}$	Even/Odd Parity Select
$\overline{EN}$	Parity Enable
$\overline{HOLD}$	Syndrome Hold Input
S-IN	Syndrome Bit Input
SHIFT	Syndrome Bit Shift
CLK	Clock Input
P_1–P_5	Parity Output
PGEN	Parity Generate Output
PARERR/$\overline{PARERR}$	Parity Error Output
V_{CCO}	V_{CC} to Output

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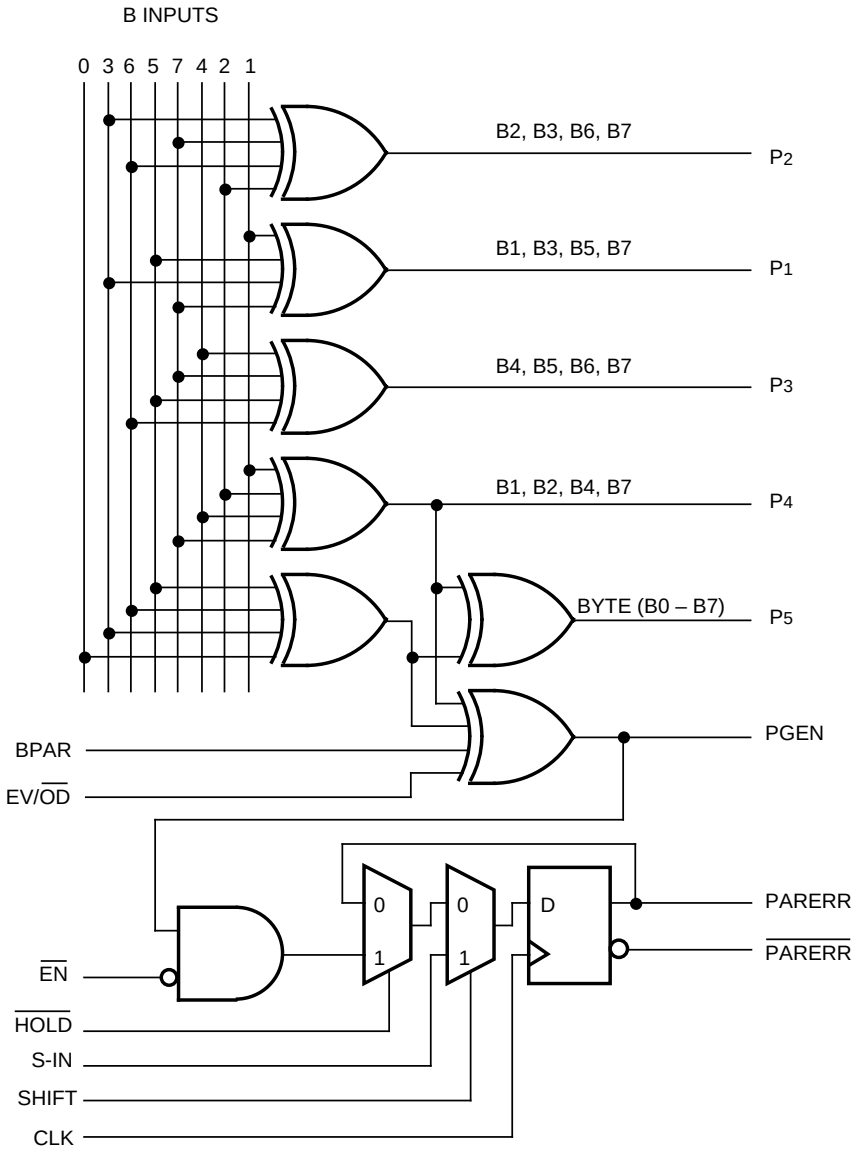
BLOCK DIAGRAM



DC ELECTRICAL CHARACTERISTICS

V_{EE} = V_{EE} (Min.) to V_{EE} (Max.); V_{CC} = V_{CCO} = GND

Symbol	Parameter	T_A = 0°C			T_A = +25°C			T_A = +85°C			Unit	Condition
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.		
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 ELECTRICAL CHARACTERISTICS

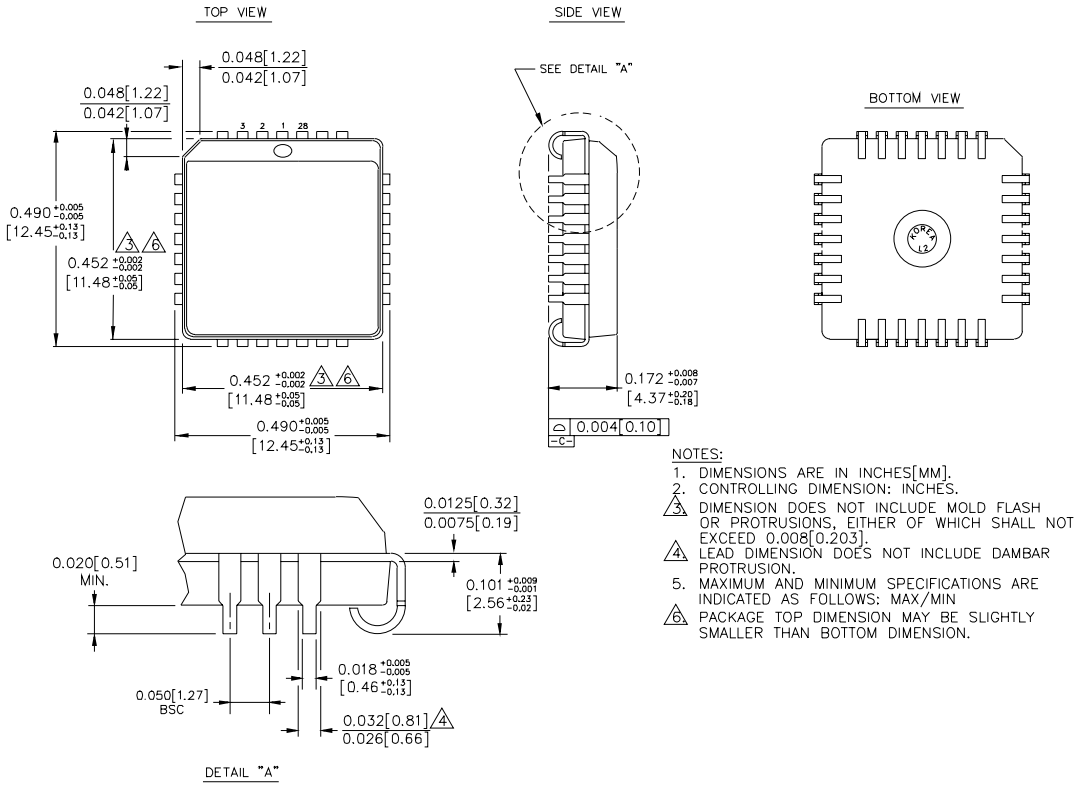
V_{EE} = V_{EE} (Min.) to V_{EE} (Max.); V_{CC} = V_{CCO} = GND

Symbol	Parameter	T_A = 0°C			T_A = +25°C			T_A = +85°C			Unit	Condition
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.		
t_{PLH}	Propagation Delay to Output										ps	—
t_{PHL}	B to P_1, P_2, P_3, P_4	350	700	1000	350	700	1000	350	700	1000		
	B to P5	400	775	1150	400	775	1150	400	775	1150		
	EV/$\overline{OD}$, 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	Set-up Time										ps	—
	SHIFT	400	150	—	400	150	—	400	150	—		
	$\overline{S\text{-IN}}$	300	50	—	300	50	—	300	50	—		
	$\overline{HOLD}$	750	350	—	750	350	—	750	350	—		
	$\overline{EN}$	500	250	—	500	250	—	500	250	—		
	EV/$\overline{OD}$	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	—		
	$\overline{S\text{-IN}}$	300	–50	—	300	–50	—	300	–50	—		
	$\overline{HOLD}$	100	–350	—	100	–350	—	100	–350	—		
	$\overline{EN}$	100	–250	—	100	–250	—	100	–250	—		
	EV/$\overline{OD}$	–200	–850	—	–200	–850	—	–200	–850	—		
	BPAR	–200	–850	—	–200	–850	—	–200	–850	—		
	B	–300	–1100	—	–300	–1100	—	–300	–1100	—		
t_r	Rise/Fall Time	300	700	1100	300	700	1100	300	700	1100	ps	—
t_f	20% to 80%											

PRODUCT ORDERING CODE

Ordering Code	Package Type	Operating Range
SY10E193JC	J28-1	Commercial
SY10E193JCTR	J28-1	Commercial
SY100E193JC	J28-1	Commercial
SY100E193JCTR	J28-1	Commercial

28 LEAD PLCC (J28-1)



NOTES:
1. DIMENSIONS ARE IN INCHES[MM].
2. CONTROLLING DIMENSION: INCHES.
3. DIMENSION DOES NOT INCLUDE MOLD FLASH OR PROTRUSIONS, EITHER OF WHICH SHALL NOT EXCEED 0.008[0.203].
4. LEAD DIMENSION DOES NOT INCLUDE DAMBAR PROTRUSION.
5. MAXIMUM AND MINIMUM SPECIFICATIONS ARE INDICATED AS FOLLOWS: MAX/MIN
6. PACKAGE TOP DIMENSION MAY BE SLIGHTLY SMALLER THAN BOTTOM DIMENSION.

Rev. 03

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