12-Bit Parity Generator/Checker

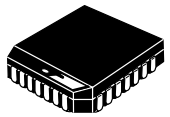
MC10E160
MC100E160

12-BIT PARITY GENERATOR/CHECKER

The MC10E/100E160 is a 12-bit parity generator/checker. The Q output is HIGH when an odd number of inputs are HIGH. A HIGH on the Enable input (EN) forces the Q output LOW.

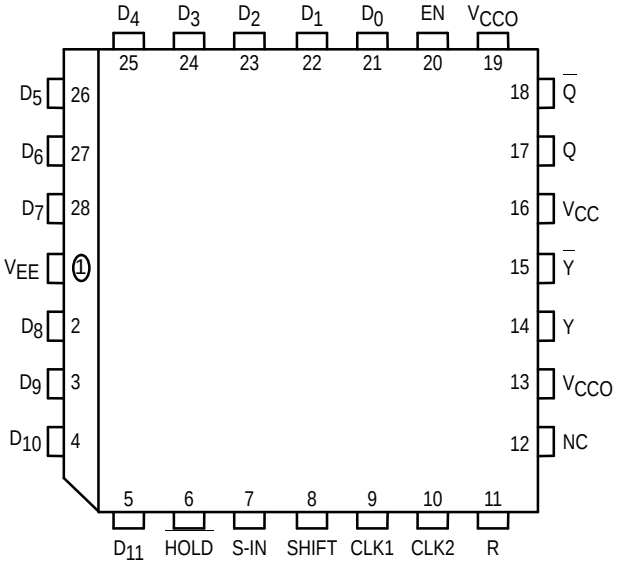
The E160 also features an output register. Multiplexers direct the register input, giving the option of holding present data by asserting HOLD LOW, or of shifting data in through the S-IN pin by asserting SHIFT HIGH. The output register itself is clocked by a positive edge on CLK1 or CLK2 (or both). A HIGH on the reset pin (R) overrides to force the Y output LOW.

- Provides Odd-HIGH Parity of 12 Inputs
- Shiftable Output Register with Hold
- 900ps Max. D to Q/$\overline{Q}$ Output
- Enable
- Asynchronous Register Reset
- Dual Clocks
- Extended 100E V_{EE} Range of – 4.2V to – 5.46V
- 75kΩ Input Pulldown Resistors



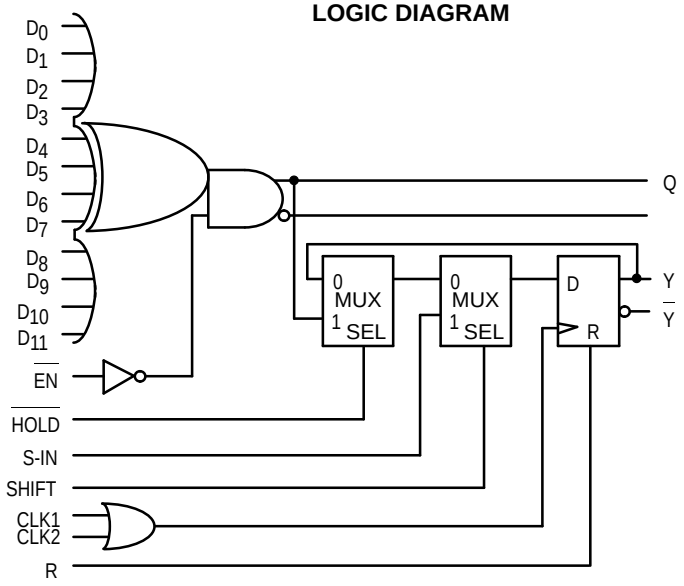
FN SUFFIX
PLASTIC PACKAGE
CASE 776-02

Pinout: 28-Lead PLCC (Top View)



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

LOGIC DIAGRAM



PIN NAMES

Pin	Function
$D_0 – D_{11}$	Data Inputs
S-IN	Serial Data Input
EN	Enable, active LOW
HOLD	Hold, active LOW
SHIFT	Shift, active HIGH
CLK1, CLK2	Clock Inputs
R	Reset Inputs
Q, Q	Direct Output
Y, Y	Register Output

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

Symbol	Characteristic	0°C			25°C			85°C			Unit	Condition
		min	typ	max	min	typ	max	min	typ	max		
I_{IH}	Input HIGH Current										µA	
	CLK1, CLK2			200			200			200		
	R			300			300			300		
	All Other Inputs			150			150			150		
I_{EE}	Power Supply Current										mA	
	10E		82	98		82	98		82	98		
	100E		82	98		82	98		94	113		

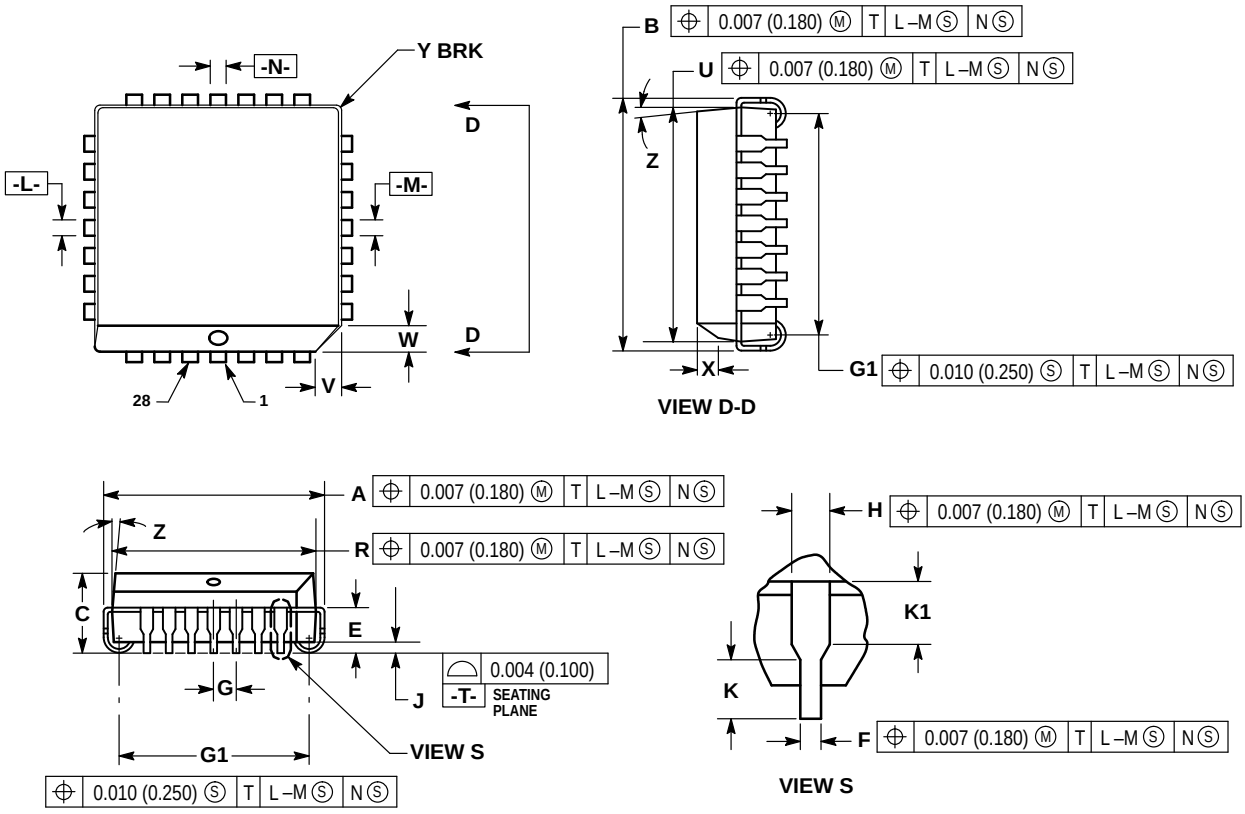
AC CHARACTERISTICS (V_{EE} = V_{EE}(min) to V_{EE}(max); V_{CC} = V_{CCO} = GND)

Symbol	Characteristic	0°C			25°C			85°C			Unit	Condition
		min	typ	max	min	typ	max	min	typ	max		
t_{PLH}	Propagation Delay to Output										ps	
t_{PHL}	$\overline{D}$ to Q	400	650	950	400	650	950	400	650	950		
	En to Q	300	550	750	300	550	750	300	550	750		
	CLK to Y	275	500	700	275	500	700	275	500	700		
	R to Y	275	500	725	275	500	725	275	500	725		
t_S	Setup Time										ps	
	$\overline{D}$	1200	900		1200	900		1200	900			
	HOLD	600	300		600	300		600	300			
	S-IN	350	150		350	150		350	150			
	SHIFT	500	250		500	250		500	250			
t_h	Hold Time										ps	
	$\overline{D}$	– 400	– 900		– 400	– 900		– 400	– 900			
	HOLD	100	– 300		100	– 300		100	– 300			
	S-IN	300	–150		300	–150		300	–150			
	SHIFT	200	– 250		200	– 250		200	– 250			
t_r	Rise/Fall Time										ps	
t_f	20 - 80%	300	450	650	300	450	650	300	450	650		

1. Within a device skew is guaranteed for identical transitions on similar paths through a device.

OUTLINE DIMENSIONS

FN SUFFIX
PLASTIC PLCC PACKAGE
CASE 776–02
ISSUE D



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).

	INCHES		MILLIMETERS	
DIM	MIN	MAX	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	—

How to reach us:
USA/EUROPE/Locations Not Listed: Motorola Literature Distribution;
P.O. Box 20912; Phoenix, Arizona 85036. 1–800–441–2447 or 602–303–5454

MFAX: RMFAX0@email.sps.mot.com – TOUCHTONE 602–244–6609
INTERNET: http://Design–NET.com

JAPAN: Nippon Motorola Ltd.; Tatsumi–SPD–JLDC, 6F Seibu–Butsuryu–Center,
3–14–2 Tatsumi Koto–Ku, Tokyo 135, Japan. 03–81–3521–8315

ASIA/PACIFIC: Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park,
51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852–26629298