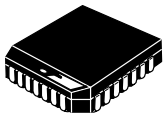
3-Bit 4:1 Mux-Latch

MC10E156
MC100E156

3-BIT 4:1
MUX-LATCH

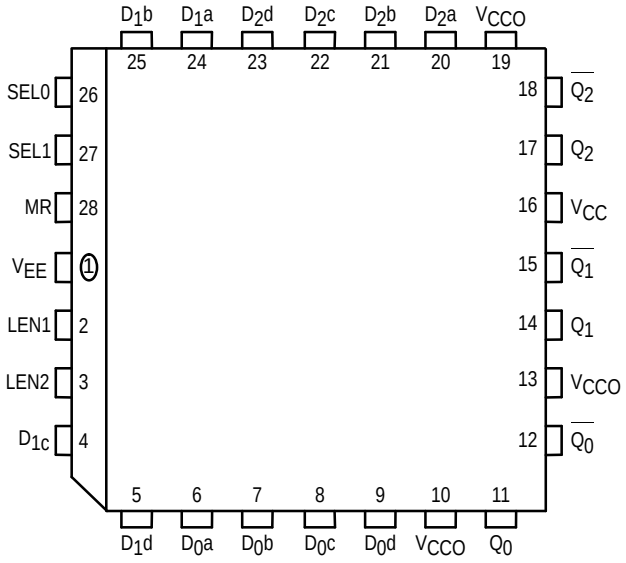
The MC10E/100E156 contains three 4:1 multiplexers followed by transparent latches with differential outputs. When both Latch Enables (LEN1, LEN2) are LOW, the latch is transparent, and output date is controlled by the multiplexer select controls (SEL0, SEL1). A logic HIGH on either LEN1 or LEN2 (or both) latches the outputs. The Master Reset (MR) overrides all other controls to set the Q outputs LOW.

- 950ps Max. D to Output
- 850ps Max. LEN to Output
- Differential Outputs
- Asynchronous Master Reset
- Dual Latch-Enables
- Extended 100E V_{EE} Range of – 4.2V to – 5.46V
- 75kΩ Input Pulldown Resistors



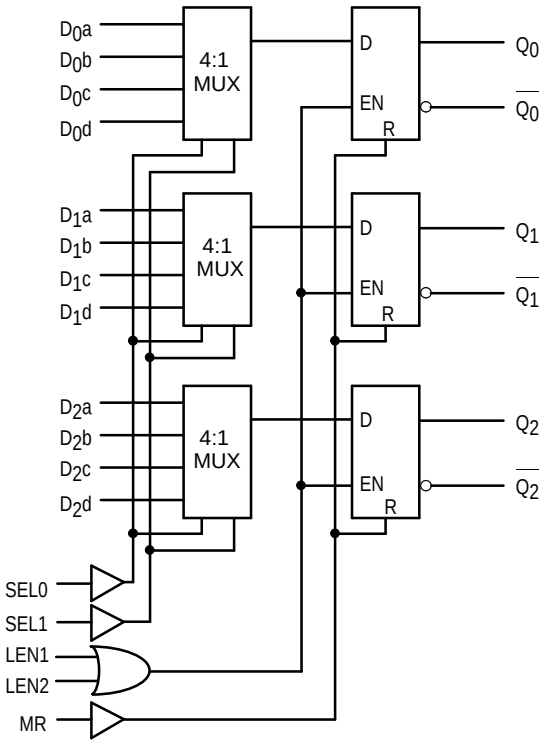
FN SUFFIX
PLASTIC PACKAGE
CASE 776-02

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
$D_0x - D_3x$	Input Data
SEL0, SEL1	Select Inputs
LEN1, LEN2	Latch Enables
MR	Master Reset
$\underline{Q_0} - \underline{Q_2}$	True Outputs
$Q_0 - Q_2$	Inverted Outputs

FUNCTION TABLE

SEL1	SEL0	Data
L	L	a
L	H	b
H	L	c
H	H	d

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MOTOROLA

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			150			150			150	μA	
I_{EE}	Power Supply Current										mA	
	10E		75	90		75	90		75	90		
	100E		75	90		75	90		86	103		

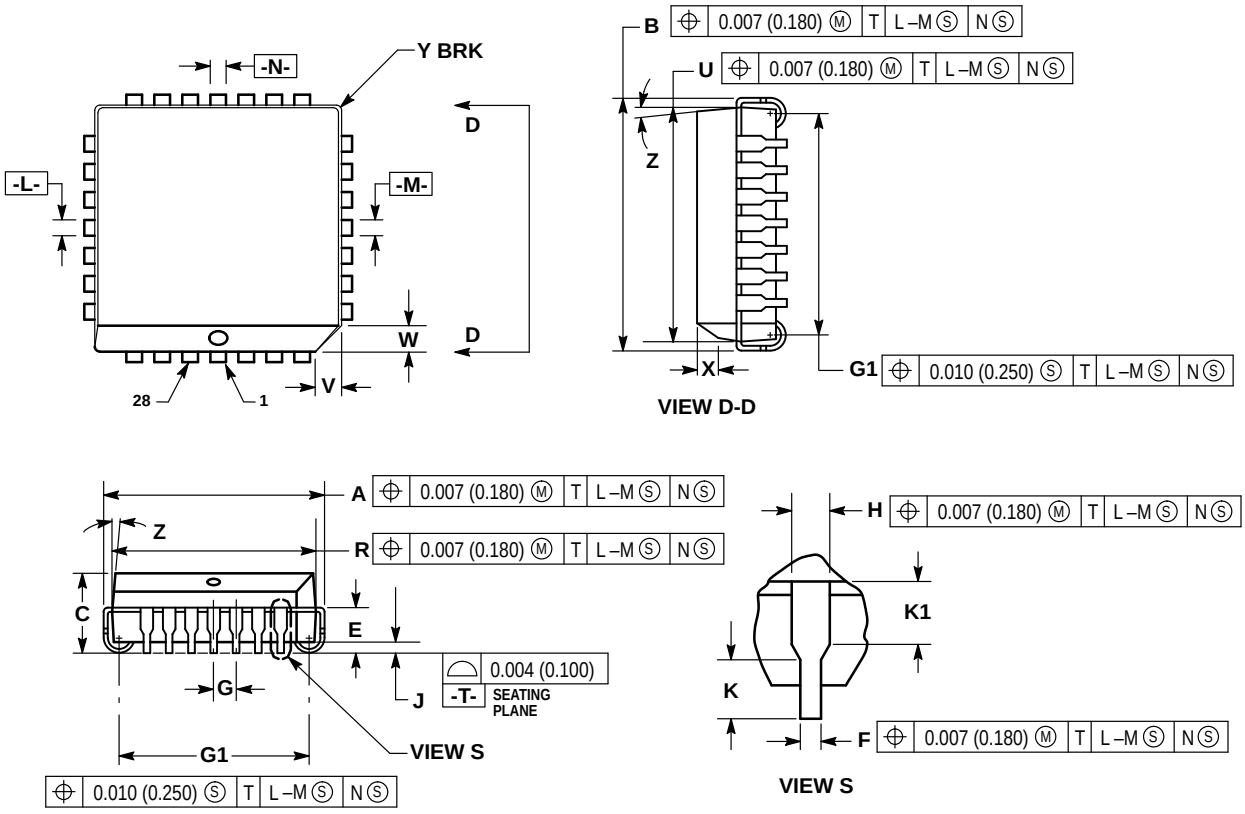
AC CHARACTERISTICS (V_{EE} = V_{EE}(min) to V_{EE}(max); V_{CC} = V_{CCO} = GND)

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}	D	400	600	900	400	600	900	400	600	900		
	SEL0	550	775	1050	550	775	1050	550	775	1050		
	SEL1	450	650	900	450	650	900	450	650	900		
	LEN	350	500	800	350	500	800	350	500	800		
	MR	350	600	825	350	600	825	350	600	825		
t_S	Setup Time										ps	
	D	400	275		400	275		400	275			
	SEL0	700	300		700	300		700	300			
	SEL1	600	400		600	400		600	400			
t_h	Hold Time										ps	
	D	300	– 275		300	– 275		300	– 275			
	SEL0	100	– 300		100	– 300		100	– 300			
	SEL1	200	– 400		200	– 400		200	– 400			
t_{RR}	Reset Recovery Time	800	600		800	600		800	600			ps
t_{PW}	Minimum Pulse Width										ps	
	MR	400			400			400				
t_{SKEW}	Within-Device Skew		50			50			50		ps	1
t_r	Rise/Fall Times										ps	
t_f	20 - 80%	275	475	700	275	475	700	275	475	700		

1. Within-device skew is defined as 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	—

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