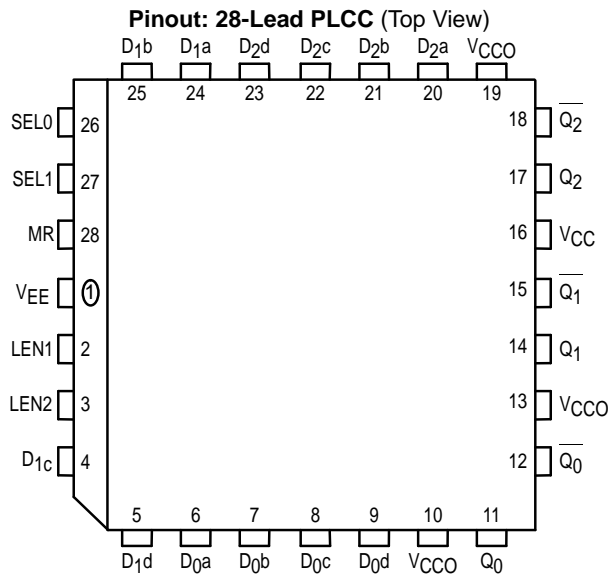


### 3-Bit 4:1 Mux-Latch

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 data 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<sub>EE</sub> Range of - 4.2V to - 5.46V
- 75kΩ Input Pulldown Resistors



\* All V<sub>CC</sub> and V<sub>CCO</sub> pins are tied together on the die.

**PIN NAMES**

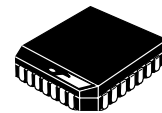
Pin	Function
D <sub>0x</sub> - D <sub>3x</sub>	Input Data
SEL0, SEL1	Select Inputs
LEN1, LEN2	Latch Enables
MR	Master Reset
Q <sub>0</sub> - Q <sub>2</sub>	True Outputs
Q <sub>0</sub> - Q <sub>2</sub>	Inverted Outputs

**FUNCTION TABLE**

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

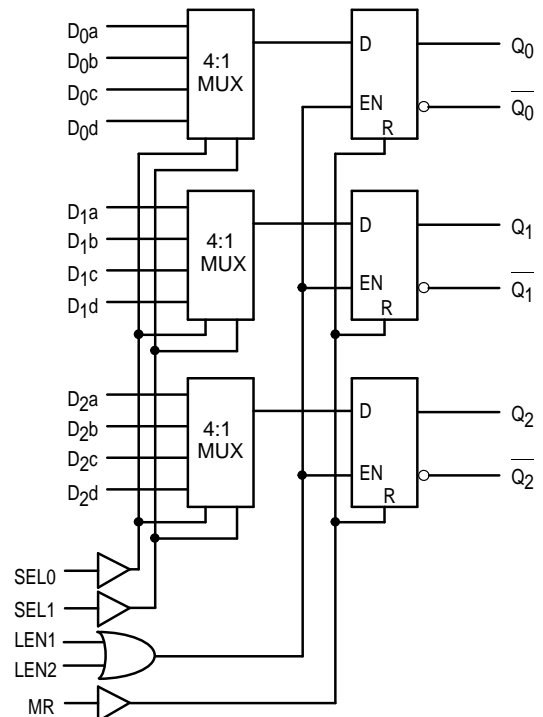
**MC10E156**  
**MC100E156**

**3-BIT 4:1**  
**MUX-LATCH**



**FN SUFFIX**  
PLASTIC PACKAGE  
CASE 776-02

**LOGIC DIAGRAM**



MC10E156 MC100E156

**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	$\mu A$	
$I_{EE}$	Power Supply Current										mA	
	10E		75	90		75	90		75	90		
	100E		75	90		75	90		86	103		

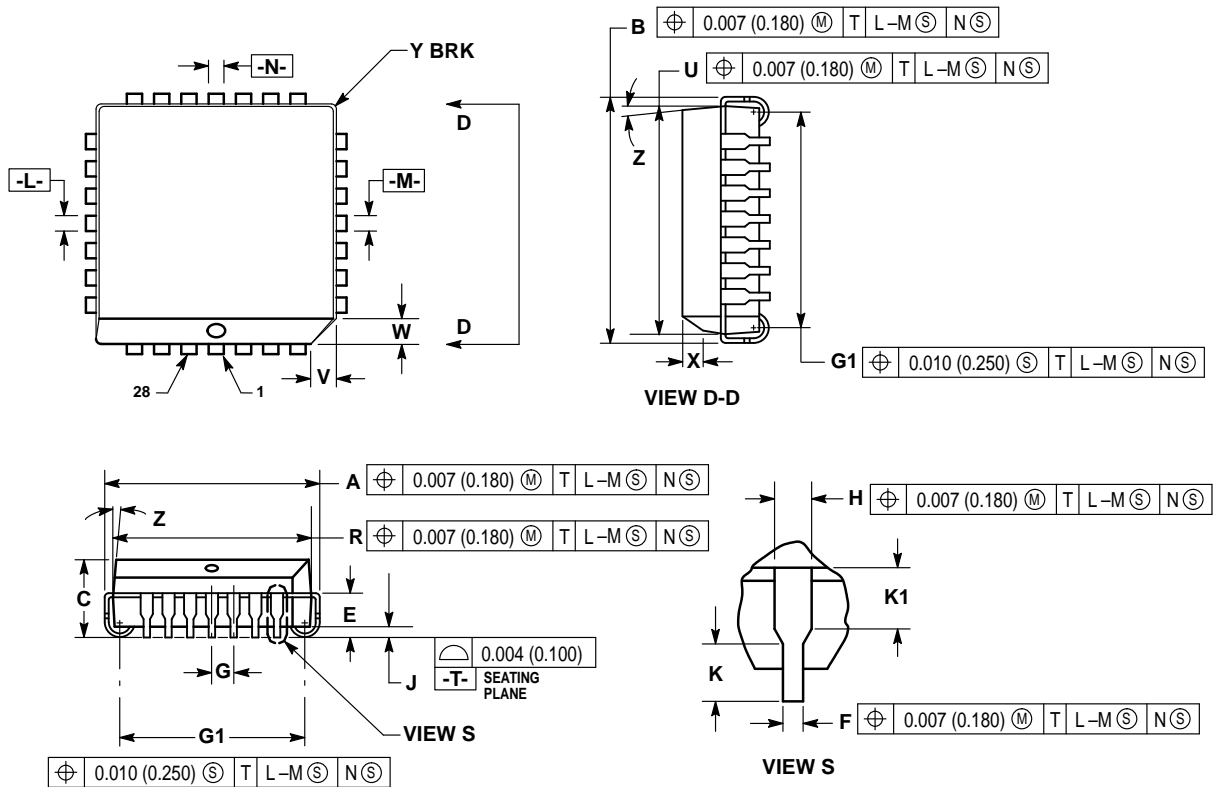
**AC CHARACTERISTICS** ( $V_{EE} = V_{EE(min)}$  to  $V_{EE(max)}$ ;  $V_{CC} = V_{CCO} = GND$ )

Symbol	Characteristic	0°C			25°C			85°C			Unit	Condition
		min	typ	max	min	typ	max	min	typ	max		
$t_{PLH}$ $t_{PHL}$	Propagation Delay to Output										ps	
	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
$t_r$ $t_f$	Rise/Fall Times										ps	
	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:

- DATUMS -L-, -M-, AND -N- DETERMINED WHERE TOP OF LEAD SHOULDER EXITS PLASTIC BODY AT MOLD PARTING LINE.
- DIM G1, TRUE POSITION TO BE MEASURED AT DATUM -T-, SEATING PLANE.
- DIM R AND U DO NOT INCLUDE MOLD FLASH. ALLOWABLE MOLD FLASH IS 0.010 (0.250) PER SIDE.
- DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
- CONTROLLING DIMENSION: INCH.
- 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.
- 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		MILLIMETERS	
	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	—

# MC10E156 MC100E156

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MC10E156/D

