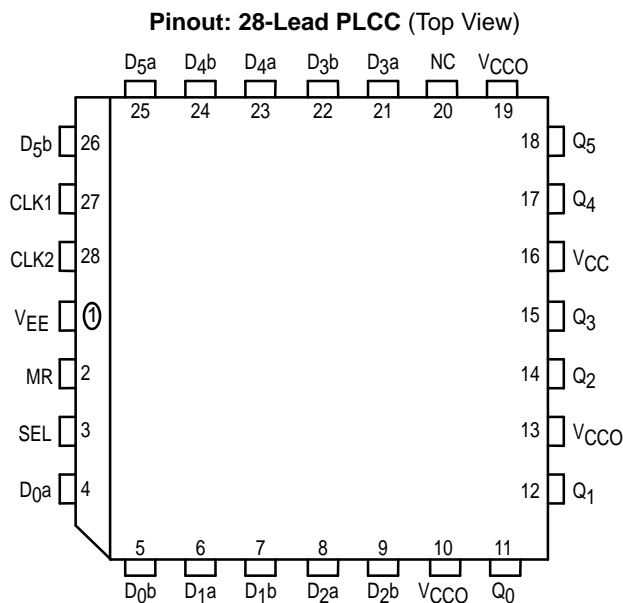


## 6-Bit 2:1 Mux-Register

The MC10E/100E167 contains six 2:1 multiplexers followed by D flip-flops with single-ended outputs. Input data are selected by the Select control, SEL. The selected data are transferred to the flip-flop outputs by a positive edge on CLK1 or CLK2 (or both). A HIGH on the Master Reset (MR) pin asynchronously forces all Q outputs LOW.

- 1000MHz Min. Operating Frequency
- 800ps Max. Clock to Output
- Single-Ended Outputs
- Asynchronous Master Resets
- Dual Clocks
- Extended 100E  $V_{EE}$  Range of - 4.2V to - 5.46V
- 75k $\Omega$  Input Pulldown Resistors



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

### PIN NAMES

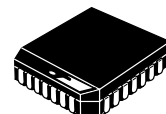
Pin	Function
D <sub>0a</sub> – D <sub>5a</sub>	Input Data a
D <sub>0b</sub> – D <sub>5b</sub>	Input Data b
SEL	Select Input
CLK1, CLK2	Clock Inputs
MR	Master Reset
Q <sub>0</sub> – Q <sub>5</sub>	Data Outputs

### FUNCTIONS

SEL	Data
H	a
L	b

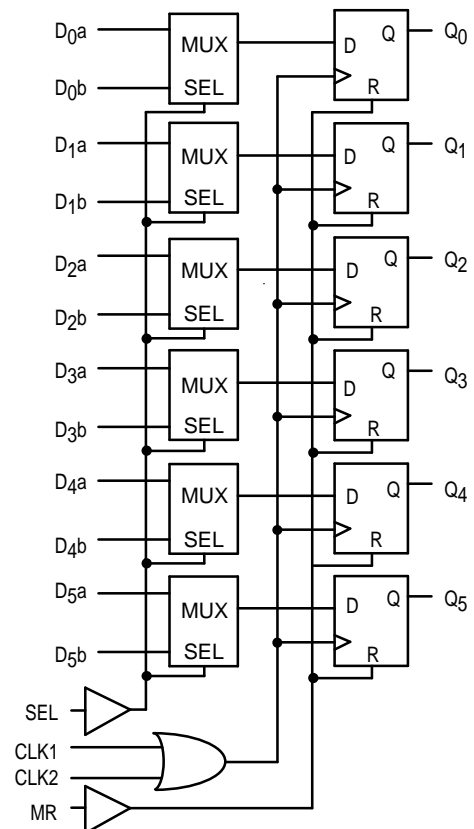
**MC10E167**  
**MC100E167**

**6-BIT 2:1**  
**MUX-REGISTER**



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

### LOGIC DIAGRAM



# MC10E167 MC100E167

## DC CHARACTERISTICS (V<sub>EE</sub> = V<sub>EE</sub>(min) to V<sub>EE</sub>(max); V<sub>CC</sub> = V<sub>CCO</sub> = GND)

Symbol	Characteristic	0°C			25°C			85°C			Unit	Condition
		min	typ	max	min	typ	max	min	typ	max		
I <sub>IH</sub>	Input HIGH Current			150			150			150	μA	
I <sub>EE</sub>	Power Supply Current										mA	
	10E		94	113		94	113		94	113		
	100E		94	113		94	113		108	130		

## AC CHARACTERISTICS (V<sub>EE</sub> = V<sub>EE</sub>(min) to V<sub>EE</sub>(max); V<sub>CC</sub> = V<sub>CCO</sub> = GND)

Symbol	Characteristic	0°C			25°C			85°C			Unit	Condition
		min	typ	max	min	typ	max	min	typ	max		
f <sub>MAX</sub>	Max. Toggle Frequency	1000	1400		1000	1400		1000	1400		MHz	
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation Delay to Output Clk MR	450	650	800	450	650	800	450	650	800	ps	
		450	650	850	450	650	850	450	650	850		
t <sub>s</sub>	Setup Time D SEL	100	-50		100	-50		100	-50		ps	
		275	125		275	125		275	125			
t <sub>h</sub>	Hold Time D SEL	300	50		300	50		300	50		ps	
		75	-125		75	-125		75	-125			
t <sub>RR</sub>	Reset Recovery Time	750	550		750	550		750	550		ps	
t <sub>PW</sub>	Minimum Pulse Width Clk, MR	400			400			400			ps	
t <sub>SKEW</sub>	Within-Device Skew		75			75			75		ps	1
t <sub>r</sub> t <sub>f</sub>	Rise/Fall Times 20 - 80%	300	450	800	300	450	800	300	450	800	ps	

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°	
G1	0.410	0.430	10.42	10.92
K1	0.040	—	1.02	—

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