



3-Bit 4:1 Mux-Latch

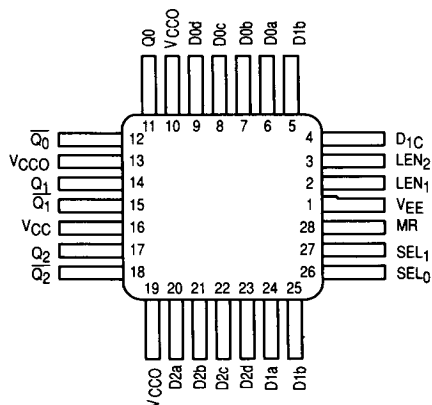
Product Preview ELECTRICALLY TESTED PER: 100E556

The 100E556 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.

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

PIN NAME

Pin	Function
D _{0x} - D _{3x}	Input Data
SEL0, SEL1	Select Inputs
LEN1, LEN2	Latch Enable
MR	Master Reset
Q ₀ - Q ₅	True Outputs
$\bar{Q}_0$ - $\bar{Q}_5$	Inverted Outputs



Military 100E556

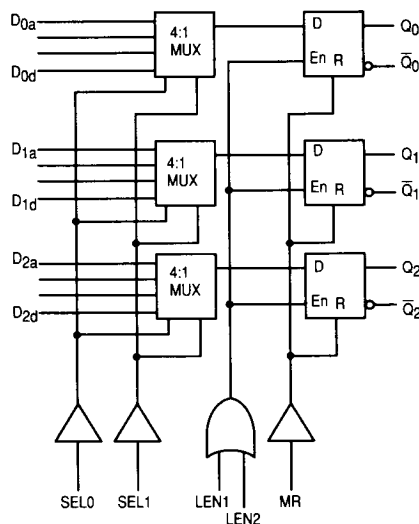


AVAILABLE AS

- 1) JAN: N/A
 - 2) SMD: N/A
 - 3) 883: Planned
- X = CASE OUTLINE AS FOLLOWS:

PACKAGE: NON-Compliant
QFP: X

LOGIC DIAGRAM



This document contains information on a product under development. Motorola reserves the right to change or discontinue this product without notice.

100E556

100E Series DC CHARACTERISTICS: $V_{EE} = -4.2 \text{ V to } -5.46 \text{ V}$, $V_{CC} = V_{CCO} = \text{GND}$; $-55^{\circ}\text{C to } +125^{\circ}\text{C}$

Symbol	Parameter	Min	Max	Units	TEST CONDITION APPLIED:	
V_{OH}	Output HIGH Voltage	-1025	-880	mV	$V_{IN} = V_{IH}(\text{max})$ or $V_{IN} = V_{IL}(\text{min})$	Loading with
V_{OL}	Output LOW Voltage	-1810	-1620	mV		50Ω to -2.0 V
V_{OHA}	Output HIGH Voltage	-1035		mV	$V_{IN} = V_{IH}(\text{min})$ or $V_{IN} = V_{IL}(\text{max})$	Loading with
V_{OLA}	Output LOW Voltage		-1610	mV		50Ω to -2.0 V
V_{IH}	Input HIGH Voltage	-1165	-880	mV	Guaranteed HIGH Signal for All Inputs	
V_{IL}	Input LOW Voltage	-1810	-1475	mV	Guaranteed LOW Signal for All Inputs	
I_{IL}	Input LOW Current	0.5		μA	$V_{IN} = V_{IL}(\text{min})$	

DC CHARACTERISTICS: $V_{EE} = V_{EE}(\text{min})$ to $V_{EE}(\text{max})$, $V_{CC} = V_{CCO} = \text{GND}$

Symbol	Parameter	Limits						Units	TEST CONDITION APPLIED:
	Functional Parameters:	+ 25° C		+ 125° C		- 55° C			
		Min	Max	Min	Max	Min	Max		
I _{IH}	Input Current High		150		150		150	μA	V _{IL} = - 1.810 V, V _{IH} = - 0.880 V, R _L = 50Ω to - 2.0 V.
I _{EE}	Power Supply Current		90		103		90	mA	V _{EE} (MAX), V _{IL} = - 1.810 V, V _{IH} = - 0.880 V, R _L = 50Ω to - 2.0 V.

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

FUNCTION TABLE		
LEN1	LEN2	Latch
L	L	Transp.
H	X	Latch
X	H	Latch

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

Symbol	Parameter	Limits						Units	TEST CONDITION APPLIED:
	Functional Parameters:	+ 25° C		+ 125° C		– 55° C			
		Min	Max	Min	Max	Min	Max		
t_{PLH} t_{PHL}	Propagation Delay to Output								$V_{IL} = 0.295\text{ V}$, $V_{IH} = 1.045\text{ V}$, $R_L = 50\Omega$ to Gnd.
	D	400	900	400	900	400	900	ps	
	SEL0	550	1050	550	1050	550	1050	ps	
	SEL1	450	900	450	900	450	900	ps	
	LEN	350	800	350	900	350	800	ps	
	MR	350	825	350	825	350	825	ps	
t_S	Setup Time								$V_{IL} = 0.295\text{ V}$, $V_{IH} = 1.045\text{ V}$, $R_L = 50\Omega$ to Gnd.
	D	400		400		400		ps	
	SEL0	700		700		700		ps	
	SEL1	600		600		600		ps	
t_H	Hold Time								$V_{IL} = 0.295\text{ V}$, $V_{IH} = 1.045\text{ V}$, $R_L = 50\Omega$ to Gnd.
	D	300		300		300		ps	
	SEL0	100		100		100		ps	
	SEL1	200		200		200		ps	
t_{RR}	Reset Recovery Time	800		800		800		ps	
t_{PW}	Minimum Pulse Width MR	400		400		400		ps	
t_{Skew}	Within-device Skew	50		50		50		ps	(Note 1)
t_r t_f	Rise/Fall Times 20 - 80%	275	700	275	700	275	700	ps	

1. Within-device skew is defined as identical transitions on similar paths through a device.