



6-Bit D Register

Product Preview

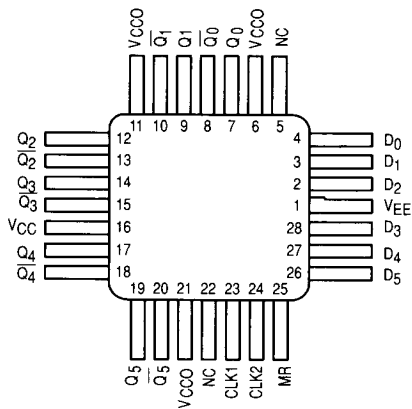
ELECTRICALLY TESTED PER:
10E551

The 10E551 contains 6 D-type, edge-triggered, master-slave flip-flops with differential outputs. Data enters the master when both Clk1 and Clk2 are Low, and is transferred to the slave when Clk1 or Clk2 (or both) go High. The asynchronous Master Reset (MR) makes Q outputs go Low.

- 1100 MHz Min. Toggle Frequency
- Differential Outputs
- Asynchronous Master Reset
- Dual Clocks
- 75 k Ω Input Pulldown Resistors

PIN NAME

Pin	Function
D ₀ - D ₅	Data Inputs
Clk1, Clk2	Clock Inputs
MR	Master Reset
Q ₀ - Q ₅	True Outputs
$\bar{Q}_0$ - $\bar{Q}_5$	Inverted Outputs



Military 10E551

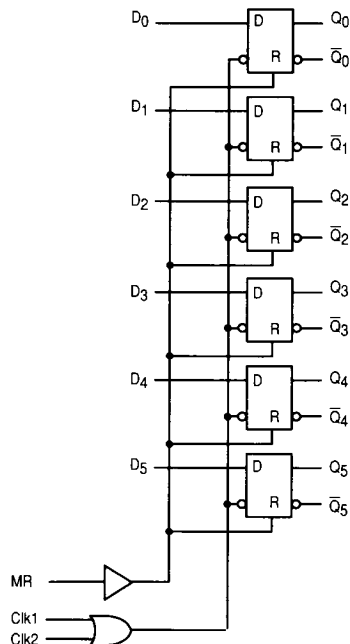


AVAILABLE AS

- 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.

10E Series DC CHARACTERISTICS: $V_{EE} = -5.2 \text{ V} \pm 5\%$; $V_{CC} = V_{CCO} = \text{GND}$ ¹

Symbol	Parameter	Limits						Units
		+ 25° C		+ 125° C		– 55° C		
		Min	Max	Min	Max	Min	Max	
V _{OH}	Output HIGH Voltage	-980	-810	TBA		TBA		mV
V _{OL}	Output LOW Voltage	-1950	-1630	TBA		TBA		mV
V _{IH}	Input HIGH Voltage	-1130	-810	TBA		TBA		mV
V _{IL}	Input LOW Voltage	-1950	-1480	TBA		TBA		mV
I _{IL}	Input LOW Current	0.5		TBA		TBA		μA

1. 10E series circuits are designed to meet the dc specifications shown in the table, after thermal equilibrium has been established. The circuit is in a test socket or mounted on a printed circuit board and transverse air flow greater than 500 lfm is maintained. Outputs are terminated through a 50 Ω resistor to -2.0 volts, except bus outputs where specified, are terminated into 25 Ω .

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 High Current		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		78		78		78	mA	V _{EE} (MAX), V _{IL} = – 1.810 V, V _{IH} = – 0.880 V, R _L = 50Ω to – 2.0 V.

AC 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		
f _{max}	Maximum Toggle Frequency	1100		1100		1100		MHz	V _{IL} = 0.295 V, V _{IH} = 1.045 V, R _L = 50Ω to Gnd.
t _{PLH}	Propagation Delay to Output								V _{IL} = 0.295 V, V _{IH} = 1.045 V, R _L = 50Ω to Gnd.
t _{PHL}	MR	475	800	475	800	475	800	ps	
	CLK	475	850	475	850	475	850	ps	
t _S	Setup Time, D	0		0		0		ps	V _{IL} = 0.295 V, V _{IH} = 1.045 V, R _L = 50Ω to Gnd.
t _H	Hold Time, D	350		350		350		ps	V _{IL} = 0.295 V, V _{IH} = 1.045 V, R _L = 50Ω to Gnd.
t _{RR}	Reset Recovery Time	750		750		750		ps	V _{IL} = 0.295 V, V _{IH} = 1.045 V, R _L = 50Ω to Gnd.
t _{PW}	Minimum Pulse Width								
	CLK, MR	400		400		400		ps	
t _{Skew}	Within-device Skew	65		65		65		ps	(Note 1)
t _r t _f	Rise/Fall Times 20 - 80%	300	700	300	700	300	700	ps	

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