



6-Bit D Register

Product Preview

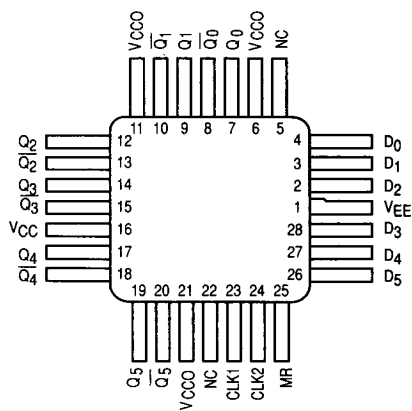
**ELECTRICALLY TESTED PER:
100E551**

The 100E551 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
- Extended 100E V_{EE} Range of - 4.2 V to - 5.46V
- 75 kΩ 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 100E551

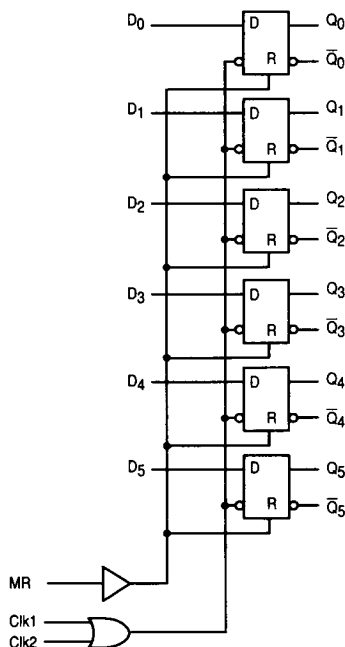


AVAILABLE AS

- 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.

MOTOROLA MILITARY MECL DATA
5-63

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	$V_{IN} = V_{IH}(\text{max})$	Loading with
V_{OL}	Output LOW Voltage	-1810	-1620	mV	or $V_{IN} = V_{IL}(\text{min})$	50Ω to -2.0 V
V_{OHA}	Output HIGH Voltage	-1035		mV	$V_{IN} = V_{IH}(\text{min})$	Loading with
V_{OLA}	Output LOW Voltage		-1610	mV	or $V_{IN} = V_{IL}(\text{max})$	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 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		90		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.