



Quint 2-Input XOR/XNOR Gate

Product Preview

ELECTRICALLY TESTED PER:
100E507

The 100E507 is a quint 2-input **XOR/XNOR** gate. The function output F is the OR of all five XOR outputs, while $\bar{F}$ is the NOR. The Q outputs need not be terminated if only the F outputs are to be used.

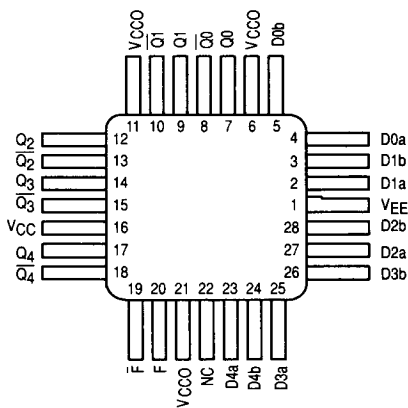
- 600 ps Max. Propagation Delay
- OR/NOR Function Outputs
- Extended 100E V_{EE} Range of - 4.2 V to - 5.46 V
- 75 k Ω Input Pulldown Resistors

PIN NAME

Pin	Function
$D_{0a} - D_{4b}$	Data Inputs
$Q_0 - Q_4$	XOR Outputs
$\bar{Q}_0 - \bar{Q}_4$	XNOR Outputs
F	OR Output
$\bar{F}$	NOR Output

FUNCTION OUTPUTS

$$F = (D_{0a} \oplus D_{0b}) + (D_{1a} \oplus D_{1b}) + (D_{2a} \oplus D_{2b}) + (D_{3a} \oplus D_{3b}) + (D_{4a} \oplus D_{4b})$$



Military 100E507

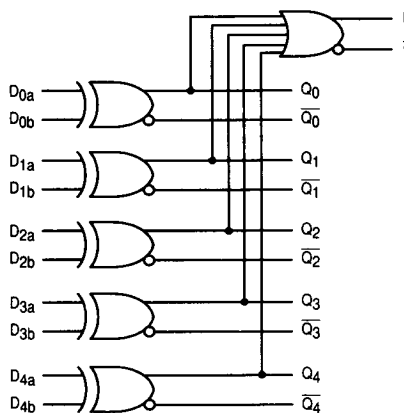


AVAILABLE AS

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

PACKAGE: NON-Compliant
QFP: X

LOGIC DIAGRAM



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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
5-45

100E507

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:	
VOH	Output HIGH Voltage	-1025	-880	mV	VIN = VIH(max)	Loading with
VOL	Output LOW Voltage	-1810	-1620	mV	or VIN = VIL(min)	50Ω to -2.0 V
VOHA	Output HIGH Voltage	-1035		mV	VIN = VIH(min)	Loading with
VOLA	Output LOW Voltage		-1610	mV	or VIN = VIL(max)	50Ω to -2.0 V
VIH	Input HIGH Voltage	-1165	-880	mV	Guaranteed HIGH Signal for All Inputs	
VIL	Input LOW Voltage	-1810	-1475	mV	Guaranteed LOW Signal for All Inputs	
II_L	Input LOW Current	0.5		μA	VIN = VIL(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		200		200		200	μA	
I_{EE}	Power Supply Current		50		58		50	mA	

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		
t_{PLH} t_{PHL}	Propagation Delay to Output								
	D to Q	250	600	250	600	250	600	ps	
	D to F	500	1000	500	1000	500	1000	ps	
t_{Skew}	Within-device Skew								
	D to Q	75		75		75		ps	(Note 1)
t_r t_f	Rise/Fall Times 20 - 80%								
	Q	275	700	275	700	275	700	ps	
	F	300	700	300	700	300	700	ps	

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