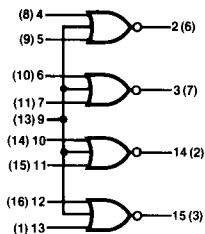


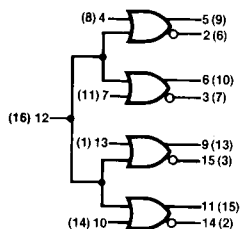
LOGIC DIAGRAMS

V<sub>CC1</sub> = Pin 1(5), V<sub>CC2</sub> = Pin 16(4), V<sub>EE</sub> = Pin 8(12), ( ) = Flatpak

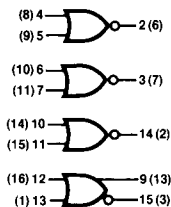
F10100/F10500



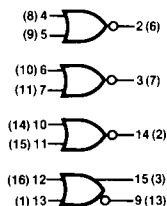
F10101/10501



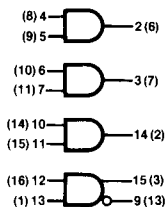
F10102/10502



F10103/10503

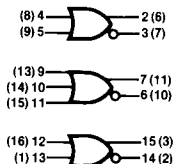


F10104/10504

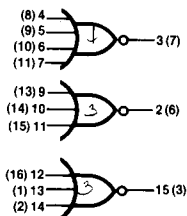


V<sub>CC1</sub> = Pin 1 (5)  
V<sub>CC2</sub> = Pin 16 (4)  
V<sub>EE</sub> = 8 (12)

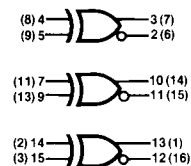
F10105/10505



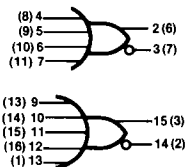
F10106/10506



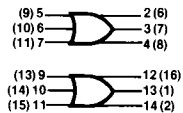
F10107/10507



F10109/10509

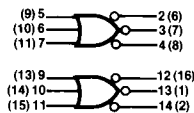


F10110/10510



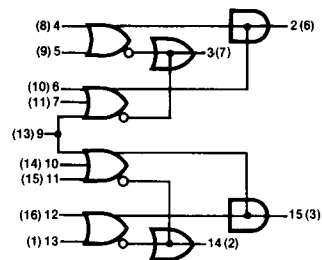
V<sub>CC1</sub> = 1, 15 (5, 3)  
V<sub>CC2</sub> = 16 (4)

F10111/10511

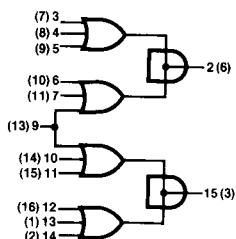


V<sub>CC1</sub> = 1, 15 (5, 3)  
V<sub>CC2</sub> = 16 (4)

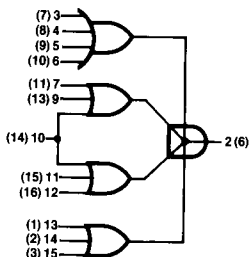
F10117/10517



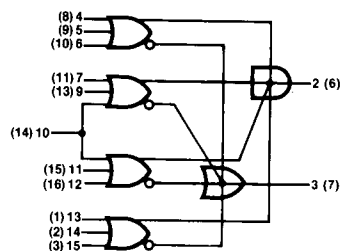
F10118/10518



F10119/10519



F10121/10521



F10K SERIES  
GATE FAMILY SPECIFICATIONS

DC CHARACTERISTICS:  $V_{EE} = -5.2V, V_{CC} = GND$

- |        |   |        |   |        |   |        |   |        |   |        |   |
|--------|---|--------|---|--------|---|--------|---|--------|---|--------|---|
| F10100 | • | F10500 | • | F10101 | • | F10501 | • | F10102 | • | F10502 | • |
| F10103 | • | F10503 | • | F10104 | • | F10504 | • | F10105 | • | F10505 | • |
| F10106 | • | F10506 | • | F10107 | • | F10507 | • | F10109 | • | F10509 | • |
| F10110 | • | F10510 | • | F10111 | • | F10511 | • | F10118 | • | F10518 | • |
| F10119 | • | F10519 | • | F10121 | • | F10521 | • |        |   |        |   |

SYMBOL	CHARACTERISTIC	LIMITS			UNITS	T <sub>A</sub>	CONDITIONS
		B	TYP	A			
I <sub>IH</sub>	All Input Current HIGH's are 265, unless otherwise noted				μA	25 °C	V <sub>IN</sub> = V <sub>IHA</sub>
	F10100 Pin 9			550			
	F10101 Pin 12			550			
	F10103 All Inputs			245			
	F10104 Pins 4, 6, 10, 12			220			
	F10107 Pins 5, 7, 15			220			
	F10110 All Inputs			425			
	F10111 All Inputs			425			
	F10118 Pin 9			370			
	F10119 Pin 10			370			
	F10121 Pin 10			370			
	I <sub>EE</sub>	Power Supply Current					
F10100		-26	-21				
F10101		-26	-20				
F10102		-26	-20				
F10103		-26	-20				
F10104		-35	-28				
F10105		-21	-15				
F10106		-21	-15				
F10107		-28	-22				
F10109		-14	-10				
F10110		-38	-28				
F10111		-38	-28				
F10118		-26	-20				
F10119	-26	-20					
F10121	-26	-20					

SWITCHING CHARACTERISTICS:  $V_{EE} = -5.2V, T_A = 25°C$

- |        |   |        |   |        |   |        |   |        |   |        |   |        |   |
|--------|---|--------|---|--------|---|--------|---|--------|---|--------|---|--------|---|
| F10100 | • | F10101 | • | F10102 | • | F10103 | • | F10105 | • | F10106 | • | F10109 | • |
| F10500 | • | F10501 | • | F10502 | • | F10503 | • | F10505 | • | F10506 | • | F10509 | • |

SYMBOL	CHARACTERISTIC	LIMITS			UNITS	CONDITIONS
		B	TYP	A		
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation Delay	1.0	2.0	2.9	ns	See Figure 1
t <sub>TLH</sub> t <sub>THL</sub>	Output Transition Time LOW to HIGH, HIGH to LOW 20% to 80%, 80% to 20%	1.5	2.2	3.3	ns	

# FAIRCHILD ECL • F10K SERIES

**SWITCHING CHARACTERISTICS:**  $V_{EE} = -5.2\text{ V}$ ,  $T_A = 25^\circ\text{C}$  **F10104 • F10504**

SYMBOL	CHARACTERISTIC	LIMITS			UNITS	CONDITIONS
		B	TYP	A		
$t_{PLH}$ , $t_{PHL}$	Propagation Delay Inputs 5, 6, 11, 12	1.4	2.2	3.4	ns	See Figure 1
$t_{PHL}$ , $t_{PLH}$	Propagation Delay, Inputs 4, 7, 10, 13	1.4	2.9	3.7	ns	
$t_{TLH}$ , $t_{THL}$	Output Transition Time LOW to HIGH, HIGH to LOW 20% to 80%, 80% to 20%	1.5	2.2	3.5	ns	

**SWITCHING CHARACTERISTICS:**  $V_{EE} = -5.2\text{ V}$ ,  $T_A = 25^\circ\text{C}$  **F10107 • F10507**

SYMBOL	CHARACTERISTIC	LIMITS			UNITS	CONDITIONS
		B	TYP	A		
$t_{PLH}$ , $t_{PHL}$	Propagation Delay	1.1	2.4	3.7	ns	See Figure 1
$t_{TLH}$ , $t_{THL}$	Output Transition Time LOW to HIGH, HIGH to LOW 20% to 80%, 80% to 20%	1.5	2.5	3.5	ns	

**SWITCHING CHARACTERISTICS:**  $V_{EE} = -5.2\text{ V}$ ,  $T_A = 25^\circ\text{C}$  **F10110 • F10510 • F10111 • F10511**

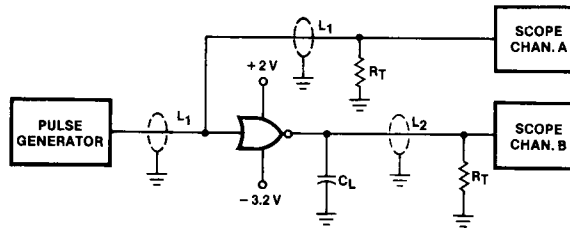
SYMBOL	CHARACTERISTIC	LIMITS			UNITS	CONDITIONS
		B	TYP	A		
$t_{PLH}$ , $t_{PHL}$	Propagation Delay	1.4	2.4	3.5	ns	See Figure 1
$t_{TLH}$ , $t_{THL}$	Output Transition Time LOW to HIGH, HIGH to LOW 20% to 80%, 80% to 20%	1.5	2.2	3.5	ns	

7

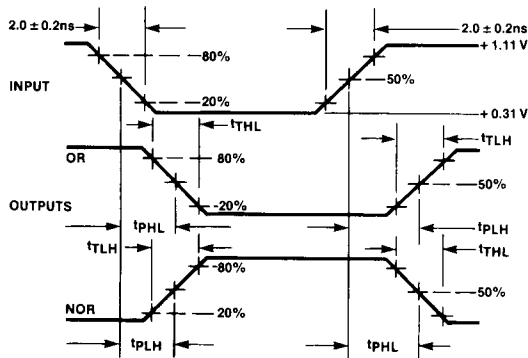
SWITCHING CHARACTERISTICS:  $V_{EE} = -5.2 \text{ V}$ ,  $T_A = 25^\circ\text{C}$  F10118 • F10518 • F10119 • F10519 • F10121 • F10521

SYMBOL	CHARACTERISTIC	LIMITS			UNITS	CONDITIONS
		B	TYP	A		
$t_{PLH}$ , $t_{PHL}$	Propagation Delay	1.4	2.3	3.4	ns	See Figure 1
$t_{TLH}$ , $t_{THL}$	Output Transition Time LOW to HIGH, HIGH to LOW 20% to 80%, 80% to 20%	1.5	2.2	4.0	ns	

SWITCHING CIRCUIT AND WAVEFORMS



$L_1$  and  $L_2$  = equal length  $50 \Omega$  impedance lines  
 $R_T = 50 \Omega$  termination of scope  
 $C_L$  = Jig and stray capacitance  $< 5.0 \text{ pF}$   
 Decoupling  $0.1 \mu\text{F}$  from gnd to  $V_{EE}$  and  $V_{CC}$



Jig set-up with no circuit under test  
 $V_{CC1} = V_{CC2} = 2.0 \text{ V}$   
 $V_{EE} = -3.2 \text{ V}$

Fig. 1