

MC3121F • MC3021F MC3121L • MC3021L,P



This device consists of four 2-input Exclusive OR gates. They can be used to build parity checking/generating functions. Up/down counters can be built using these gates and J-K flip-flops.



Positive Logic: $3 = 1 \cdot \overline{2} + \overline{1} \cdot 2$

Input Loading Factor = 1.6 Output Loading Factor = 8 Total Power Dissipation = 100 mW typ/pkg Propagation Delay Time = 14 ns typ

SWITCHING TIME TEST CIRCUIT AND WAVEFORMS



The coax delays from input to scope and output to scope must be matched. The scope must be terminated in 50-ohm impedance. The 950-ohm resistor and the scope termination impedance constitute a 20:1 attenuator probe. Coax shall be CT-070-50 or equivalent.

See General Information section for packaging.



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Test procedures are shown for only one gate. The other gate is tested in the same manner. Further, test proceduresare shown for only one input of the gate under test. To complete testing, sequence through re-maining inputs.



													Te	Temperature		٥ ا	-HO	5	1 9	V.II. V	V _{tH}	۷ _F	× R	V _{RH}	Vcc	VccL	V _{CCH}	V _{IHX}	V _{max}	
														-	-55°C	16	-1.6		-	1.1 2	2.0	0.4	2.4	4.0	5.0	4.5	5.5			
												ž	MC3121	~	+25°C	16	-1.6 1	1.0 1	1.0 1	1.1 1	1.8	0.4	2.4	4.0	5.0	4.5	5.5	2.5	7.0	
														(+125°C		16	-1.6			0.8 1	1.8	0.4	2.4	4.0	5.0	4.5	5.5	,		
														_		16	-1.6		-	1.1 2	2.0	0.4	2.5	4.0	5.0	4.75	5.25	1	-	
												Ň	MC3021	~	+25°C	16	-1.6	1.0 1	1.0 1	1.1 1	1.8	0.4	2.5	4.0	5.0	4.75	5.25	2.5	7.0	
														-1		16	-1.6	-	-	0.9 1	1.8	0.4	2.5	4.0	5.0	4.75	5.25		•	
		ì		W	MC3121 1	Test Limits	nits		-		MC30.	21 Tes	MC3021 Test Limits	s					TEST	CURRE	OV/TNE	LTAGE APP	LIED TO	TEST CURRENT/VOLTAGE APPLIED TO PINS LISTED BELOW:	BELOW	۷:				
		Inder	-55°C		+25°C	+	+125°C	-	_	0°C	+2	+25°C	+75°C	°c		F	t	F	F	F	+	T	F		Γ	T	T		T	
Characteristic	Symbol	Test		Max N	Min Max Min Max		Min Max	K Unit		Min Max		Max	Min Max Min Max	_	Unit	Jo I	н	5	<u>م</u>	۲ ۲۳	۲. H	۷۶	× ×	V _{RH}	Vcc	VccL	VccH	V _{IHX}	Vmax	Gnd
Input Forward Current	IF	1	,	-3.0	3.0	- 0.	1	-3.0 mAdc		-3.0		-3.0	· ·	-3.0 mAdc	Adc					<u> </u>	<u> </u>	-		2,5,10,13			14	,	,	4,7,9,12
Leakage Current	I _R	-		100	- 100	-	100	μAdc	•	100		100	-	100 11	μAdc					-	-		T	5,10,13			14			2,4,7,9,12
Breakdown Voltage	BVin	-		- 2	5.5 -	•	•	Vdc	•	'	5.5				Vdc			1			-			5,10,13			14			2,4,7,9,12
Clamp Voltage	VD	-		-	1.5	- 2	•	Vdc		•		-1.5		-	Vdc			1	-		-			5,10,13		14	,			4,7,9,12
Output Output Voltage	10 ₁			0.4	- 0.4	4.4.	0.4	Vdc		0.4		0.4		0.4 1	Vdc Vdc					1,2	- 1,2			5,10,13 5,10,13	1.1	14 14		. ,		4,7,9,12 4,7,9,12
	нол	~ ~	2.4	1 1	2.4 -	2.4	1,1	Vdc	2.5	• •	2.5		2.5		Vdc Vdc		~ ~			- 01	12			5,10,13 5,10,13	• •	14		, ,	1.1	4,7,9,12 4,7,9,12
Short-Circuit Current	lsc	m	-20	- 65	-20 -65	5 -20	-65	mAdc	c -20	-65	-20	-65	-20 -	-65 m.	mAdc	1		1				1		2,5,10,13	'		14	,	1	3,4,7,9,12
Power Requirements (Total Device) Maximum Power Supply Current	Imax	14			32			mAdc	، ت	,	,	40	1	e ,	mAdc	1		1				1,4,9,12		2,5,10,13	ı		1		14	L
Power Supply Drain	IPDH	14	1	28.6	- 28.	- 9	28.6	5 mAdc	•	28.6	,	28.6	- 28	28.6 m	mAdc	1		1			-	1,4,9,12		2,5,10,13	•	,	14			7
	IPDL	14	12	42.4	- 42.	4	42.4	4 mAdc	-	42.4	,	42.4	- 42	42.4 m	mAdc			1			1 .	1,2,4,5		,		•	14	-		7
Switching Parameters Turn-On Delay	t pd-	1,3	· •,		- 25	,		su		1	-	25		-	su		,	1						/ -	14	,		2,5,10,13		4,7,9,12
Turn-Off Delay	tpd+	1,3	•		- 25			su				25	1.	-	su	-									14			2,5,10,13		4,7,9,12

Volts

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@ Test

TEST CURRENT/VOLTAGE VALUES

Pins not listed are left open.