

QUAD 2-INPUT NAND SCHMITT TRIGGER

The MC54/74F132 contains four 2-input NAND gates which accept standard TTL input signals and provide standard TTL output levels. They are capable of transforming slowly changing input signals into sharply defined, jitter-free output signals. In addition, they have greater noise margin than conventional NAND gates.

Each circuit contains a 2-input Schmitt trigger followed by a Darlington level shifter and a phase splitter driving a TTL totem-pole output. The Schmitt trigger uses positive feedback to effectively speed up slow input transitions and provide different input threshold voltages for positive and negative-going transitions. This hysteresis between the positive-going and negative-going input threshold (typically 800 mV) is determined by resistor ratios and is essentially insensitive to temperature and supply voltage variations.



Parameter

Operating Ambient Temperature Range

54.74

54

74

54,74

54,74

GUARANTEED OPERATING RANGES

Supply Voltage

QUAD 2-INPUT NAND SCHMITT TRIGGER FAST™ SHOTTKY TTL							
14		J SU CER CASE	IFFIX AMIC 632-08				
14		N SU PLA CASE	N SUFFIX PLASTIC CASE 646-06				
	14 18848688	D SU SC CASE T	JFFIX DIC 751A-02				
ORDERING INFORMATION MC54FXXXJ Ceramic MC74FXXXN Plastic MC74FXXXD SOIC							
/lin	Тур	Max	Unit				
4.5	5.0	5.5	V				
-55	25	125	°C				
0	25	70					
		-1.0	mA				

20

mΑ

FUNCTION TABLE

Symbol

Vcc

TΑ

IOH

IOL

Inj	outs	Output		
Α	В	Y		
L L H H	L H L H	ΗΗΗ		

Output Current - High

Output Current - Low

H = HIGH Voltage level

L= LOW voltage level

MC54/74F132

MC54/74F132

DC CHARACTERISTICS OVER OPERATING TE	EMPERATURE RANGE (u	nless otherwise specified)
--------------------------------------	---------------------	----------------------------

			Limits						
Symbol	Parameter		Min	Тур	Max	Unit	Test Conditions		
V _T +	Positive-Going Threshold Voltage		1.5		2.0	V	V _{CC} = 5.0 V		
V _T -	Negative-Going Threshold Voltag	е	0.7		1.1	V	V _{CC} = 5.0 V		
V _T +-V _T -	Hysteresis		0.4	0.8		V	V _{CC} = 5.0 V		
VIH	Input HIGH Voltage		2.0			V	Guaranteed Input HI	GH Voltage	
VIL	Input LOW Voltage				0.8	V	Guaranteed Input LOW Voltage		
VIK	Input Clamp Diode Voltage				-1.2	V	$V_{CC} = MIN, I_{IN} = -18 \text{ mA}$		
VOH	Output HIGH Voltage	54,74	2.5			V	I _{OH} = -1.0 mA	V _{CC} = 4.50 V	
		74	2.7			V	I _{OH} = -1.0 mA	V _{CC} = 4.75 V	
VOL	Output LOW Voltage				0.5	V	I _{OL} = 20 mA	$V_{CC} = MIN$	
IT+	Input Current at Positive-Going Threshold			0		μΑ	$V_{CC} = 5.0 \text{ V}, \text{ V}_{IN} = \text{V}_{T} + $		
IT-	Input Current at Negative-Going T	Threshold		-350		μΑ	V _{CC} = 5.0 V, V _{IN} = V _T -		
Ιн	Input HIGH Current				20	μΑ	$V_{CC} = MAX, V_{IN} = 2.7 V$		
					0.1	mA	$V_{CC} = MAX, V_{IN} = 7$	7.0 V	
١ _{IL}	Input LOW Current				-0.6	mA	$V_{CC} = MAX, V_{IN} = 0.5 V$		
los	Output Short Circuit Current (Note	e 2)	-60		-150	mA	V _{CC} = MAX, V _{OUT} = 0 V		
lcc	Total, Supply Current	ІССН		8.5	12	mA	V _{IN} = GND	V _{CC} = MAX	
			13	19.5]	V _{IN} = 4.5 V			

İ.

NOTES: 1. For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions for the applicable device type.

AC ELECTRICAL CHARACTERISTICS

		54/74F		54	lF	74F			
		Т	A = +25°	С	T _A = -55°C	to +125°C	T _A = 0°C	to +70°C	
		٧c	C = +5.0	v	V _{CC} = 5.0) V ± 10%	V _{CC} = 5.0	$0V \pm 10\%$	
		C _L = 50 pF		C _L = 50 pF		C _L = 50 pF			
Symbol	Parameter	Min	Тур	Max	Min	Max	Min	Max	Unit
tPLH	Propagation delay	3.5	5.5	7.0	3.5	9.0	3.5	8.0	ns
^t PHL	A, B to Y	3.0	5.0	6.5	3.0	8.0	3.0	7.0	113

Mfax is a trademark of Motorola, Inc.

Motorola reserves the right to make changes without further notice to any products herein. Motorola makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Motorola assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters which may be provided in Motorola data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. Motorola does not convey any license under its patent rights nor the rights of others. Motorola products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Motorola product could create a situation where personal injury or death may occur. Should Buyer purchase or use Motorola products for any such unintended or unauthorized application, Buyer shall indemnify and hold Motorola and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Motorola was negligent regarding the design or manufacture of the part. Motorola and **(**) are registered trademarks of Motorola, Inc. is an Equal Opportunity/Affirmative Action Employer.

How to reach us:

E BUY

USA/EUROPE/Locations Not Listed: Motorola Literature Distribution; P.O. Box 5405, Denver, Colorado 80217. 1–303–675–2140 or 1–800–441–2447

JAPAN: Motorola Japan Ltd.; SPS, Technical Information Center, 3–20–1, Minami–Azabu. Minato–ku, Tokyo 106–8573 Japan. 81–3–3440–3569

ASIA/PACIFIC: Motorola Semiconductors H.K. Ltd.; Silicon Harbour Centre, 2 Dai King Street, Tai Po Industrial Estate, Tai Po, N.T., Hong Kong. 852–26668334

Customer Focus Center: 1-800-521-6274

Mfax™: RMFAX0@email.sps.mot.com	- TOUCHTONE 1-602-244-6609
Motorola Fax Back System	- US & Canada ONLY 1-800-774-1848
	http://sps.motorola.com/mfax/

HOME PAGE: http://motorola.com/sps/

