

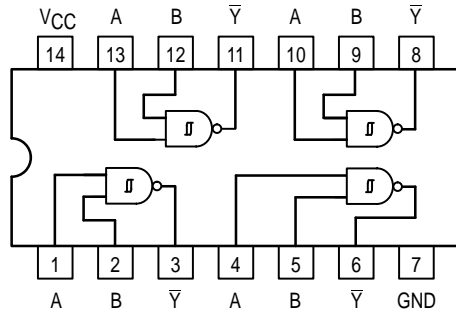


MC54/74F132

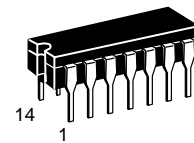
QUAD 2-INPUT NAND SCHMITT TRIGGER

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.

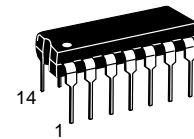
Each circuit contains a 2-input Schmitt trigger followed by a Darlington level shifter and a phase splitter driving a TTL totem-pole output. The Schmitt trigger uses positive feedback to effectively speed up slow input transitions and provide different input threshold voltages for positive and negative-going 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.



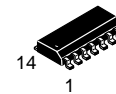
**QUAD 2-INPUT NAND
SCHMITT TRIGGER**
FAST™ SHOTTKY TTL



J SUFFIX
CERAMIC
CASE 632-08



N SUFFIX
PLASTIC
CASE 646-06



D SUFFIX
SOIC
CASE 751A-02

ORDERING INFORMATION

MC54FXXXJ Ceramic
MC74FXXXN Plastic
MC74FXXXD SOIC

GUARANTEED OPERATING RANGES

Symbol	Parameter		Min	Typ	Max	Unit
V _{CC}	Supply Voltage	54,74	4.5	5.0	5.5	V
T _A	Operating Ambient Temperature Range	54	-55	25	125	°C
		74	0	25	70	
I _{OH}	Output Current — High	54,74			-1.0	mA
I _{OL}	Output Current — Low	54,74			20	mA

FUNCTION TABLE

Inputs		Output
A	B	Y-bar
L	L	H
L	H	H
H	L	H
H	H	L

H = HIGH Voltage level
L = LOW voltage level

MC54/74F132

DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (unless otherwise specified)

Symbol	Parameter	Limits			Unit	Test Conditions	
		Min	Typ	Max			
V_{T+}	Positive-Going Threshold Voltage	1.5		2.0	V	$V_{CC} = 5.0\text{ V}$	
V_{T-}	Negative-Going Threshold Voltage	0.7		1.1	V	$V_{CC} = 5.0\text{ V}$	
$V_{T+} - V_{T-}$	Hysteresis	0.4	0.8		V	$V_{CC} = 5.0\text{ V}$	
V_{IH}	Input HIGH Voltage	2.0			V	Guaranteed Input HIGH Voltage	
V_{IL}	Input LOW Voltage			0.8	V	Guaranteed Input LOW Voltage	
V_{IK}	Input Clamp Diode Voltage			-1.2	V	$V_{CC} = \text{MIN}$, $I_{IN} = -18\text{ mA}$	
V_{OH}	Output HIGH Voltage	54,74	2.5		V	$I_{OH} = -1.0\text{ mA}$, $V_{CC} = 4.50\text{ V}$	
		74	2.7		V	$I_{OH} = -1.0\text{ mA}$, $V_{CC} = 4.75\text{ V}$	
V_{OL}	Output LOW Voltage			0.5	V	$I_{OL} = 20\text{ mA}$, $V_{CC} = \text{MIN}$	
I_{T+}	Input Current at Positive-Going Threshold		0		μA	$V_{CC} = 5.0\text{ V}$, $V_{IN} = V_{T+}$	
I_{T-}	Input Current at Negative-Going Threshold		-350		μA	$V_{CC} = 5.0\text{ V}$, $V_{IN} = V_{T-}$	
I_{IH}	Input HIGH Current			20	μA	$V_{CC} = \text{MAX}$, $V_{IN} = 2.7\text{ V}$	
				0.1	mA	$V_{CC} = \text{MAX}$, $V_{IN} = 7.0\text{ V}$	
I_{IL}	Input LOW Current			-0.6	mA	$V_{CC} = \text{MAX}$, $V_{IN} = 0.5\text{ V}$	
I_{OS}	Output Short Circuit Current (Note 2)	-60		-150	mA	$V_{CC} = \text{MAX}$, $V_{OUT} = 0\text{ V}$	
I_{CC}	Total, Supply Current	I_{CCH}		8.5	12	mA	$V_{IN} = \text{GND}$, $V_{CC} = \text{MAX}$
		I_{CCL}		13	19.5		$V_{IN} = 4.5\text{ V}$

NOTES:

1. For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions for the applicable device type.
2. Not more than one output should be shorted at a time, nor for more than 1 second.

AC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	54/74F			54F		74F		Unit
		$T_A = +25^\circ\text{C}$ $V_{CC} = +5.0\text{ V}$ $C_L = 50\text{ pF}$			$T_A = -55^\circ\text{C to } +125^\circ\text{C}$ $V_{CC} = 5.0\text{ V} \pm 10\%$ $C_L = 50\text{ pF}$		$T_A = 0^\circ\text{C to } +70^\circ\text{C}$ $V_{CC} = 5.0\text{ V} \pm 10\%$ $C_L = 50\text{ pF}$		
		Min	Typ	Max	Min	Max	Min	Max	
t_{PLH}	Propagation delay	3.5	5.5	7.0	3.5	9.0	3.5	8.0	ns
t_{PHL}	A, B to \bar{Y}	3.0	5.0	6.5	3.0	8.0	3.0	7.0	