

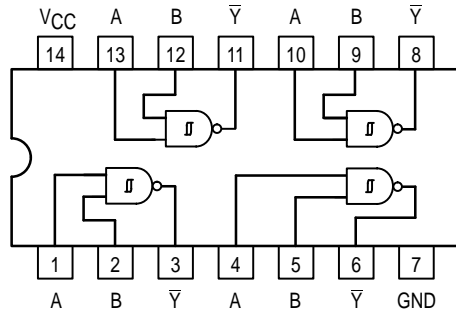


MC54/74F132

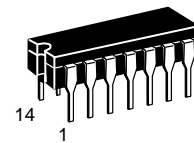
QUAD 2-INPUT NAND SCHMITT TRIGGER

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.

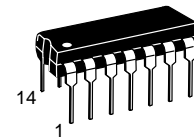
Each circuit contains a 2-input Schmitt trigger followed by a Darlington level shifter and a phase splitter driving a TTL totem-pole output. The Schmitt trigger uses positive feedback to effectively speed up slow input transitions and provide different input threshold voltages for positive and negative-going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



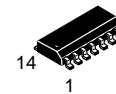
**QUAD 2-INPUT NAND
SCHMITT TRIGGER**
FAST™ SHOTTKY TTL



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:

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