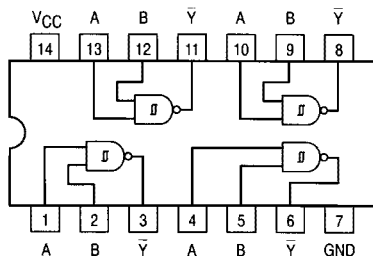




QUAD 2-INPUT NAND SCHMITT TRIGGER

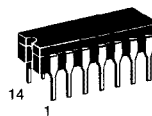
The MC54/74F132 contains four 2-input NAND gates which accept standard TTL input signals and provide standard TTL output levels. They are capable of transforming slowly changing input signals into sharply defined, jitter-free output signals. In addition, they have greater noise margin than conventional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

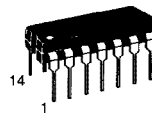


MC54/74F132

**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
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	$V_{CC} = 5.0$ V
V_{T-}	Negative-Going Threshold Voltage	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
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	$V_{CC} = \text{MIN}$, $I_{IN} = -18$ mA
V_{OH}	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
V_{OL}	Output LOW Voltage			0.5	V	$I_{OL} = 20$ mA, $V_{CC} = \text{MIN}$
I_{T+}	Input Current at Positive-Going Threshold		0		μ A	$V_{CC} = 5.0$ V, $V_{IN} = V_{T+}$
I_{T-}	Input Current at Negative-Going Threshold		-350		μ A	$V_{CC} = 5.0$ V, $V_{IN} = V_{T-}$
I_{IH}	Input HIGH Current			20	μ A	$V_{CC} = \text{MAX}$, $V_{IN} = 2.7$ V
				0.1	mA	$V_{CC} = \text{MAX}$, $V_{IN} = 7.0$ V
I_{IL}	Input LOW Current			-0.6	mA	$V_{CC} = \text{MAX}$, $V_{IN} = 0.5$ V
I_{OS}	Output Short Circuit Current (Note 2)	-60		-150	mA	$V_{CC} = \text{MAX}$, $V_{OUT} = 0$ 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		$V_{IN} = 4.5$ 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	