



# MC54F/74F21

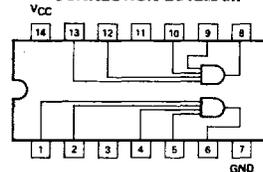
## DUAL 4-INPUT AND GATE

FAST™ SCHOTTKY TTL

### GUARANTEED OPERATING RANGES

SYMBOL	PARAMETER		MIN	TYP	MAX	UNIT
V <sub>CC</sub>	Supply Voltage	54, 74	4.5	5.0	5.5	V
T <sub>A</sub>	Operating Ambient Temperature Range	54	-55	25	125	°C
		74	0	25	70	
I <sub>OH</sub>	Output Current — High	54, 74			-1.0	mA
I <sub>OL</sub>	Output Current — Low	54, 74			20	mA

### CONNECTION DIAGRAM



J Suffix — Case 632-08 (Ceramic)  
 N Suffix — Case 646-06 (Plastic)  
 D Suffix — Case 751A-02 (SOIC)

### DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (unless otherwise specified)

SYMBOL	PARAMETER	LIMITS			UNITS	TEST CONDITIONS
		MIN	TYP	MAX		
V <sub>IH</sub>	Input HIGH Voltage	2.0			V	Guaranteed Input HIGH Voltage
V <sub>IL</sub>	Input LOW Voltage			0.8	V	Guaranteed Input LOW Voltage
V <sub>IK</sub>	Input Clamp Diode Voltage			-1.2	V	V <sub>CC</sub> = MIN, I <sub>IN</sub> = -18 mA
V <sub>OH</sub>	Output HIGH Voltage	54, 74	2.5		V	I <sub>OH</sub> = -1.0 mA, V <sub>CC</sub> = 4.5 V
		74	2.7		V	I <sub>OH</sub> = -1.0 mA, V <sub>CC</sub> = 4.75 V
V <sub>OL</sub>	Output LOW Voltage			0.5	V	I <sub>OL</sub> = 20 mA, V <sub>CC</sub> = MIN
I <sub>IH</sub>	Input HIGH Current			20	μA	V <sub>CC</sub> = MAX, V <sub>IN</sub> = 2.7 V
				0.1	mA	V <sub>CC</sub> = MAX, V <sub>IN</sub> = 7.0 V
I <sub>IL</sub>	Input LOW Current			-0.6	mA	V <sub>CC</sub> = MAX, V <sub>IN</sub> = 0.5 V
I <sub>OS</sub>	Output Short Circuit Current (Note 2)	-60		-150	mA	V <sub>CC</sub> = MAX, V <sub>OUT</sub> = 0 V
I <sub>CC</sub>	Power Supply Current Total, Output HIGH			4.1	mA	V <sub>CC</sub> = MAX, V <sub>IN</sub> = Open
	Total, Output LOW			6.4	mA	V <sub>CC</sub> = MAX, V <sub>IN</sub> = GND

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AC CHARACTERISTICS

SYMBOL	PARAMETER	54F/74F		54F		74F		UNITS
		$T_A = +25^\circ\text{C}$ $V_{CC} = +5.0\text{ V}$ $C_L = 50\text{ pF}$		$T_A = -55^\circ\text{C to } +125^\circ\text{C}$ $V_{CC} = 5.0\text{ V } \pm 10\%$ $C_L = 50\text{ pF}$		$T_A = 0^\circ\text{C to } 70^\circ\text{C}$ $V_{CC} = 5.0\text{ V } \pm 10\%$ $C_L = 50\text{ pF}$		
		MIN	MAX	MIN	MAX	MIN	MAX	
$t_{PLH}$	Propagation Delay	2.0	5.6	2.0	7.5	2.0	6.6	ns
$t_{PHL}$	Propagation Delay	2.5	5.3	2.0	7.5	2.5	6.3	ns

AC TEST CIRCUIT

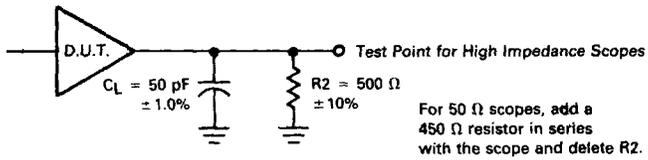


FIGURE 1