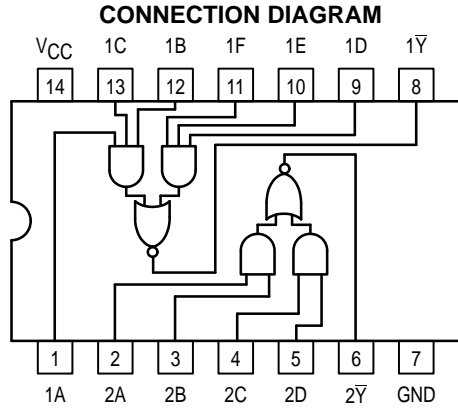


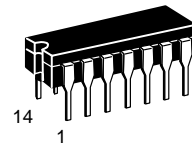


# DUAL 2-WIDE 2-INPUT, 2-WIDE 3-INPUT AND-OR-INVERT GATE

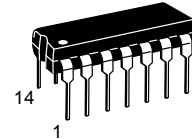


**MC54/74F51**

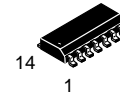
**DUAL 2-WIDE 2-INPUT, 2-WIDE 3-INPUT AND-OR-INVERT GATE**  
**FAST™ SCHOTTKY TTL**



**J SUFFIX**  
 CERAMIC  
 CASE 632-08



**N SUFFIX**  
 PLASTIC  
 CASE 646-06



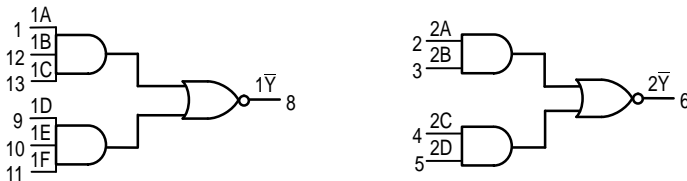
**D SUFFIX**  
 SOIC  
 CASE 751A-02

**FUNCTION TABLE**

For 3-Input Gates							For 2-Input Gates				
Inputs			Inputs			Output	Inputs				Output
A	B	C	D	E	F	1Ȳ	A	B	C	D	2Ȳ
H	H	H	X	X	X	L	H	H	X	X	L
X	X	X	H	H	H	L	X	X	H	H	L
All other combinations						H	All other combinations				H

H = HIGH Voltage Level  
 L = LOW Voltage Level  
 X = Don't Care

**LOGIC SYMBOL**



**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

# MC54/74F51

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

Symbol	Parameter	Limits			Unit	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> = 4.50 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>	Total Supply Current	I <sub>CC</sub> H	1.8	3.0	mA	V <sub>IN</sub> = GND	V <sub>CC</sub> = MAX
		I <sub>CC</sub> L	5.5	7.5		V <sub>IN</sub> = 4.5 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 <sub>A</sub> = +25°C V <sub>CC</sub> = +5.0 V C <sub>L</sub> = 50 pF			T <sub>A</sub> = -55°C to +125°C V <sub>CC</sub> = 5.0 V ± 10% C <sub>L</sub> = 50 pF		T <sub>A</sub> = 0°C to +70°C V <sub>CC</sub> = 5.0 V ± 10% C <sub>L</sub> = 50 pF		
		Min	Typ	Max	Min	Max	Min	Max	
t <sub>PLH</sub>	Propagation Delay	2.0		5.5	1.5	7.5	1.5	6.5	ns
t <sub>PHL</sub>	A, B, C, D, E, F, to n $\bar{Y}$	1.0		4.0	1.0	5.5	1.0	4.5	