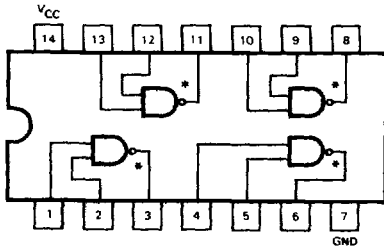




# SN54/74LS38



\*OPEN COLLECTOR OUTPUTS

J Suffix — Case 632-08 (Ceramic)  
N Suffix — Case 646-06 (Plastic)

## QUAD 2-INPUT NAND BUFFER LOW POWER SCHOTTKY

### GUARANTEED OPERATING RANGES

SYMBOL	PARAMETER		MIN	TYP	MAX	UNIT
V <sub>CC</sub>	Supply Voltage	54	4.5	5.0	5.5	V
		74	4.75	5.0	5.25	
T <sub>A</sub>	Operating Ambient Temperature Range	54	-55	25	125	°C
		74	0	25	70	
V <sub>OH</sub>	Output Voltage — High	54, 74			5.5	V
I <sub>OL</sub>	Output Current — Low	54			12	mA
74				24		

### 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 for All Inputs
V <sub>IL</sub>	Input LOW Voltage	54		0.7	V	Guaranteed Input LOW Voltage for All Inputs
		74		0.8		
V <sub>IK</sub>	Input Clamp Diode Voltage		-0.65	-1.5	V	V <sub>CC</sub> = MIN, I <sub>IJ</sub> = -18 mA
I <sub>OH</sub>	Output HIGH Current	54, 74		250	μA	V <sub>CC</sub> = MIN, V <sub>OH</sub> = MAX
V <sub>OL</sub>	Output LOW Voltage	54, 74	0.25	0.4	V	I <sub>OL</sub> = 12 mA, V <sub>CC</sub> = V <sub>CC</sub> MIN, V <sub>IN</sub> = V <sub>IL</sub> or V <sub>IH</sub> per Truth Table
		74	0.35	0.5	V	I <sub>OL</sub> = 24 mA
I <sub>IH</sub>	Input HIGH Current			20	μA	V <sub>CC</sub> = MAX, V <sub>IN</sub> = 2.4 V
				0.1	mA	V <sub>CC</sub> = MAX, V <sub>IN</sub> = 7.0 V
I <sub>IL</sub>	Input LOW Current			-0.4	mA	V <sub>CC</sub> = MAX, V <sub>IN</sub> = 0.4 V
I <sub>CC</sub>	Power Supply Current Total, Output HIGH Total, Output LOW			2.0	mA	V <sub>CC</sub> = MAX
				12		

### AC CHARACTERISTICS: T<sub>A</sub> = 25°C

SYMBOL	PARAMETER	LIMITS			UNITS	TEST CONDITIONS
		MIN	TYP	MAX		
t <sub>PLH</sub>	Turn Off Delay, Input to Output		20	32	ns	V <sub>CC</sub> = 5.0 V, R <sub>L</sub> = 667 Ω, C <sub>L</sub> = 45 pF
t <sub>PHL</sub>	Turn On Delay, Input to Output		18	28		