5425/7425 Dual 4-Input Positive-NOR Gate with Strobe

	Schottky TTL					High-Speed TTL					Low-Power Schottky TTL					Standard TTL					Low-Power TTL				
	Device Type	Package				Device Type	Package				Device Type	Package				Device Type	Package				Device Type	Package			
		C	P	M	CF		C	P	M	CF		C	P	M	CF		C	P	M	CF		C	P	M	CF
T.I.																SN5425	J ①			W①					
																SN7425	J ①	N①							
FAIRCHILD																FM5425/FM9N25	D①								
																FC7425/FC9N25	D①	P①							
MOTOROLA																									
																SN7425		P①							
N.S.C.																DM5425	J ①	N①		W①					
																DM7425	J ①	N①		W①					
PHILIPS																									
																N7425		①							
SIGNETICS																									
																N7425		A①							
SIEMENS																									
																FLH521		①							
FUJITSU																									
HITACHI																									
																HD7425		P①							
MITSUBISHI																									
																M53225		P①							
NEC																									
TOSHIBA																									

Electrical Characteristics SN5425/SN7425

absolute maximum ratings over operating free-air temperature range

Supply voltage, V_{CC}	7V	Operating free-air temperature range	SN54'	−55°C to 125°C
Input voltage	5.5V		SN74'	0°C to 70°C
Interemitter voltage	5.5V	Storage temperature range		−65°C to 150°C

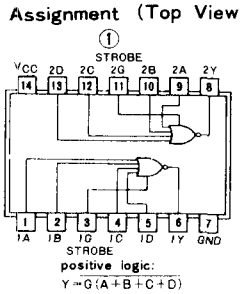
recommended operating conditions

	SN5425			SN7425			UNIT
	MIN	NOM	MAX	MIN	NOM	MAX	
Supply voltage, V_{CC}	4.5	5	5.5	4.75	5	5.25	V
High-level output current, I_{OH}			−800			−800	μA
Low-level output current, I_{OL}			16			16	mA
Operating free-air temperature, T_A	−55		125	0		70	°C

electrical characteristics over recommended operating free-air temperature range

PARAMETER			TEST CONDITIONS†		MIN	TYP‡	MAX	UNIT
V_{IH}	High-level input voltage				2			V
V_{IL}	Low-level input voltage						0.8	V
V_I	Input clamp voltage		V_{CC} = MIN, I_I = −12mA				−1.5	V
V_{OH}	High-level output voltage		V_{CC} = MIN, V_{IL} = V_{IL} max, I_{OH} = MAX		2.4	3.4		V
V_{OL}	Low-level output voltage		V_{CC} = MIN, V_{IH} = 2V, I_{OL} = MAX			0.2	0.4	V
I_I	Input current at maximum input voltage		V_{CC} = MAX, V_I = 5.5V				1	mA
I_{IH}	High-level input current	Data inputs	V_{CC} = MAX, V_{IH} = 2.4V				40	μA
		Strobe of '25					160	
I_{IL}	Low-level input current	Data inputs	V_{CC} = MAX, V_{IL} = 0.4V				−1.6	mA
		Strobe of '25					−6.4	
I_{OS}	Short-circuit output current◆		V_{CC} = MAX	54 Family	−20		−55	mA
				74 Family	−18		−55	
I_{CCH}	Supply current		V_{CC} = MAX	Total, outputs high		8	16	mA
I_{CCL}	Supply current			Total, outputs low		10	19	mA
I_{CC}	Supply current		V_{CC} = 5V	Average per gate (50% duty cycle)		2.25		mA
t_{PLH}	Propagation delay time, low-to-high-level output		V_{CC} = 5V, T_A = 25°C, C_L = 15pF, R_L = 400Ω			13	22	ns
t_{PHL}	Propagation delay time, high-to-low-level output					8	15	ns

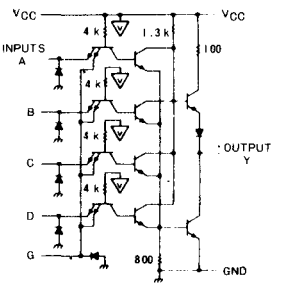
Pin Assignment (Top View)



positive logic:

$Y = \overline{G(A+B+C+D)}$

Schematic (each gate)



'25 CIRCUIT

Resistor values shown are nominal and in ohms.

† For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.
‡ All typical values are at V_{CC} = 5V, T_A = 25°C
◆ Not more than one output should be shorted at a time.