Sylvania ECG Semiconductors

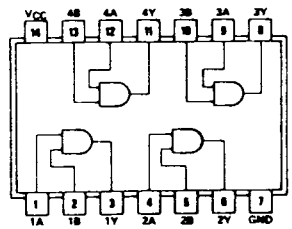
ECG7408,74H08,74LS08, 74S08

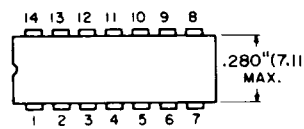
Quad 2-Input AND Gate

Max Ratings/Operating Conditions

RATINGS	74 SERIES	74H SERIES	74LS SERIES		74S SERIES	UNITS
			DIODE INPUTS	EMITTER INPUTS		
Maximum Allowable Supply Voltage	7	7	7	7	7	V
Guaranteed Operating Supply Voltage Range	4.75 to 5.25					V
Maximum Input Voltage	5.5	5.5	7	5.5	5.5	V
Maximum Voltage to Open-Collector Outputs*	7	7	7	7	7	V
Operating Free-Air Temperature Range	0 to +70					°C
Storage Temperature Range	-65 to +150					°C

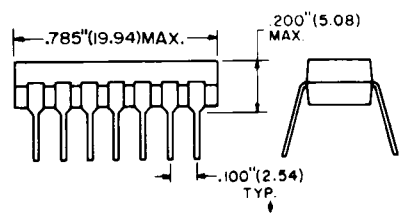
*Except for selected high voltage types, as specified in electrical tables.





Supply Currents

DEVICE	I_{CCH} (mA) Total With Outputs High		I_{CCL} (mA) Total With Outputs Low	
	TYP	MAX	TYP	MAX
08	11	21	20	33
H08	28	40	42	64
LS08	2.4	4.8	4.4	8.8
S08	18	32	32	57



Switching Characteristics at V_{CC} = 5V, T_A = 25°C

DEVICE	CONDITIONS	t_{PLH} (ns) Propagation Delay Time Low-To-High Level Output			t_{PHL} (ns) Propagation Delay Time, High-To-Low Level Output		
		MIN	TYP	MAX	MIN	TYP	MAX
08	C_L = 15 pF R_L = 400Ω		17.5	27		12	19
H08	C_L = 25 pF R_L = 280Ω		7.6	12		8.8	12
LS08	C_L = 15 pF R_L = 2 kΩ		10	15		12	20
S08	C_L = 15 pF R_L = 280Ω	2.5	4.5	7	2.5	5	7.5
	C_L = 50 pF R_L = 280Ω		6	9		7.5	11

Electrical Characteristics over recommended operating free-air temperature range (unless otherwise noted).

PARAMETER		CONDITIONS		ECG74 08			ECG74 H08			ECG74 LS08			ECG74 S08			UNITS
				MIN	TYP(1)	MAX	MIN	TYP(1)	MAX	MIN	TYP(1)	MAX	MIN	TYP(1)	MAX	
V_{IH}	High Level Input Voltage			2			2			2			2			V
V_{IL}	Low Level Input Voltage					0.8			0.8			0.8			0.8	V
V_I	Input Clamp Voltage	V_{CC} = Min	I_I = −8 mA						−1.5							V
			I_I = −12 mA			−1.5										
			I_I = −18 mA									−1.5			−1.2	
I_{OH}	High Level Output Current					−800			−500			−400			−1000	μA
V_{OH}	High Level Output Voltage	V_{CC} = Min, V_{IH} = 2V I_{OH} = Max		2.4	3.4		2.4	3.4		2.7	3.4		2.7	3.4		V
I_{OL}	Low Level Output Current					16			20			8			20	mA
V_{OL}	Low Level Output Voltage	V_{CC} = Min V_{IL} = Max	I_{OL} = Max		0.2	0.4		0.2	0.4		0.35	0.5			0.5	V
			I_{OL} = 4 mA									0.4				
I_I	Input Current at Maximum Input Voltage	V_{CC} = Max	V_I = 5.5V			1			1						1	mA
			V_I = 7V									0.1				
I_{IH}	High Level Input Current	V_{CC} = Max	V_I = 2.4V			40			50							μA
			V_I = 2.7V									20			50	
I_{IL}	Low Level Input Current	V_{CC} = Max	V_I = 0.3V													mA
			V_I = 0.4V			−1.6			−2			−0.36				
			V_I = 0.5V												−2	
I_{OS}	Short Circuit Output Current	V_{CC} = Max(2)		−18		−55	−40		−100	−30		−130	−40		−100	mA
I_{CC}	Supply Current	V_{CC} = Max		See Table												

Notes

(1) All typical values are at V_{CC} = 5V, T_A = 25°C.

(2) Not more than one output should be shorted at a time, and for ECG7408, ECG74LS08, ECG74S08 duration of short circuit should not exceed one second.