



# Die Datasheet, Logic Gate Device

74AC08

## Quad 2-Input AND GATE

### Die Source:



27 mils x 31 mils x 14 mils

Backside : Silicon  
Topside Metal: Aluminum

### General Description:

The 74AC08 is a member of the Industries 74xxx series of Logic devices. The 74AC08 is a device description which contains (4) 2-Input AND Gates.

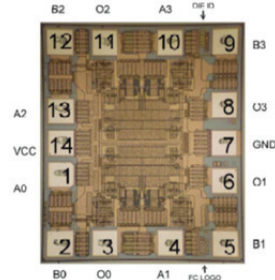
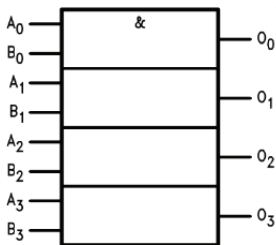
### ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	CONDITIONS	LIMIT	UNITS
Supply Voltage	$V_{CC}$		-0.5 to +7.0	V
DC Input Diode Current	$I_{IK}$	$V_I = -0.5V$	-20.0	mA
		$V_I = V_{CC} + 0.5V$	20.0	mA
DC Input Voltage	$V_I$		-0.5 to $V_{CC} + 0.5$	V
DC Output Diode Current	$I_{OK}$	$V_O = -0.5V$	-20.0	mA
		$V_O = V_{CC} + 0.5V$	20.0	mA
DC Output Voltage	$V_O$		-0.5 to $V_{CC} + 0.5$	V
DC Output Source or Sink Current	$I_O$		±50.0	mA
DC VCC Current	$I_{CC}$		±50.0	mA
DC GND Current	$I_{DD}$		±50.0	mA
Storage Temp	$T_{STG}$		-65.0 to +150	°C
Max Junction Temp	$T_J$		150.0	°C

### RECOMMENDED OPERATING CONDITIONS

PARAMETER	TECH	SYMBOL	LIMIT	UNITS
Supply Voltage	AC	$V_{CC}$	2.0 to 6.0	V
Input Voltage		$V_I$	0 to $V_{CC}$	V
Output Voltage		$V_O$	0 to $V_{CC}$	V
Operating Temperature		$T_A$	-40 to +85	°C
Minimum Input Edge Rate	AC	$\Delta V/\Delta t$	125	mV/ns

IEEE / IEC LOGIC SYMBOL



### DC ELECTRICAL CHARACTERISTICS

PARAMETER	TECH	SYMBOL	VCC (V)	CONDITIONS	Guarenteed Limits		UNITS	NOTE
					Min@25C	Min@85C		
Minimum HIGH level Input Voltage	AC	$V_{IH}$	3.0	$V_{OUT} = 0.1V$ or $V_{CC} - 0.1V$	2.10	2.10	V	
			4.5		3.15	3.15		
			5.5		3.85	3.85		
Maximum LOW level Input Voltage	AC	$V_{IL}$	3.0	$V_{OUT} = 0.1V$ or $V_{CC} - 0.1V$	0.90	0.90	V	
			4.5		1.35	1.35		
			5.5		1.65	1.65		
Minimum HIGH level Output Voltage	AC	$V_{OH}$	3.0	$I_{OUT} = -50\mu A$	2.90	2.90	V	
			4.5		4.40	4.40		
			5.5		5.40	5.40		
	AC	$V_{OH}$	3.0	$V_{IN} = V_{IL}$ or $V_{IH}$ , $I_{OL} = -12mA$	2.56	2.46	V	1
			4.5	$V_{IN} = V_{IL}$ or $V_{IH}$ , $I_{OL} = -12mA$	3.86	3.76		
			5.5	$V_{IN} = V_{IL}$ or $V_{IH}$ , $I_{OL} = -24mA$	4.86	4.76		



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### DC ELECTRICAL CHARACTERISTICS - CONT'D

PARAMETER	TECH	SYMBOL	VCC (V)	CONDITIONS	Guarenteed Limits		UNITS	NOTE
					Min@25C	Min@85C		
Maximum LOW level Output Voltage	AC	V <sub>OL</sub>	3.0	I <sub>OUT</sub> = -50uA	0.1	0.1	V	
			4.5		0.1	0.1		
			5.5		0.1	0.1		
	AC	V <sub>OL</sub>	3.0	V <sub>IN</sub> = V <sub>IL</sub> or V <sub>IH</sub> , I <sub>OL</sub> = -12mA	0.36	0.44	V	1
			4.5	V <sub>IN</sub> = V <sub>IL</sub> or V <sub>IH</sub> , I <sub>OL</sub> = -24mA	0.36	0.44		
			5.5	V <sub>IN</sub> = V <sub>IL</sub> or V <sub>IH</sub> , I <sub>OL</sub> = -24mA	0.36	0.44		
Maximum Input Leakage Current	AC	I <sub>IN</sub>	5.5	V <sub>I</sub> = V <sub>CC</sub> or GND	±0.1	±1.0	uA	2
Minimum Dynamic Output Current	AC	I <sub>OLD</sub>	5.5	V <sub>OLD</sub> = 1.65V Max	--	75	mA	
	AC	I <sub>OHD</sub>	5.5	V <sub>OHD</sub> = 3.85V Min	--	-75	mA	
Maximum Quiescent Supply Current	AC	I <sub>CC</sub>	5.5	V <sub>IN</sub> = V <sub>CC</sub> or GND	2	20	uA	2

- Note(s):
1. All Outputs Loaded; thresholds on input associated with output under test
  2. I<sub>IN</sub> and I<sub>CC</sub> @ 3.0V are guaranteed to be less than or equal to the respective limit @ 5.5V VCC

### AC ELECTRICAL CHARACTERISTICS

PARAMETER	TECH	SYMBOL	VCC (V)	CONDITIONS	Guarenteed Limits		Guarenteed Limits		UNITS
					Min@25C	Max@25C	Min@85C	Max@85C	
Propagation Delay	AC	t <sub>PLH</sub>	5.0		1.5	9.0	1.0	9.5	ns
	AC	t <sub>PHL</sub>	5.0		1.5	7.0	1.0	8.0	ns