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Please note: As part of the Fairchild Semiconductor integration, some of the Fairchild orderable part numbers will need to change in order to meet ON Semiconductor's system requirements. Since the ON Semiconductor product management systems do not have the ability to manage part nomenclature that utilizes an underscore (_), the underscore (_) in the Fairchild part numbers will be changed to a dash (-). This document may contain device numbers with an underscore (_). Please check the ON Semiconductor website to verify the updated



Pin Configuration

B 1

Logic Configurations

Figure 2 through Figure 8 show the logical functions that can be implemented using the 74AUP1G56. The diagrams show the DeMorgan's equivalent logic duals for a given two-input function. The logical

implementation is next to the board-level physical implementation of how the pins should be connected.



Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only.

Symbol	Parameter		Min.	Max.	Unit
V_{CC}	Supply Voltage		-0.5	4.6	V
V_{IN}	DC Input Voltage		-0.5	4.6	V
V_{OUT}	DC Output Voltage ⁽²⁾		-0.5	4.6	V
I_{IK}	DC Input Diode Current	$V_{IN} < 0V$		-50	mA
I_{OK}	DC Output Diode Current	$V_{OUT} < 0V$		-50	mA
I_{OL}	DC Output Sink Current			+50	mA
I_{CC} or I_{GND}	DC V_{CC} or Ground Current per Supply Pin			±50	mA
T_{STG}	Storage Temperature Range		-65	+150	°C
T_J	Junction Temperature Under Bias			+150	°C
T_L	Junction Lead Temperature, Soldering 10s			+260	°C
P_D	Power Dissipation at +85°C	MicroPak™-6		130	mW
		MicroPak2™-6		120	
ESD	Human Body Model, JEDEC:JESD22-A114			4000	V
	Charged Device Model, JEDEC:JESD22-C101			2000	

Note:

- I_O absolute maximum rating must be observed.

Recommended Operating Conditions⁽³⁾

The Recommended Operating Conditions table defines the conditions for actual device operation. Recommended operating conditions are specified to ensure optimal performance to the datasheet specifications. Fairchild does not recommend exceeding them or designing to Absolute Maximum Ratings.

Symbol	Parameter	Condition	Min.	Max.	Unit
V_{CC}	Supply Voltage		0.8	3.6	V
V_{IN}	Input Voltage		0	3.6	V
V_{OUT}	Output Voltage	$V_{CC}=0 V$	0	3.6	V
I_{OL}	Output Current	$V_{CC}=3.0 V$ to $3.6 V$		4.0	mA
		$V_{CC}=2.3 V$ to $2.7 V$		3.1	
		$V_{CC}=1.65 V$ to $1.95 V$		1.9	
		$V_{CC}=1.4 V$ to $1.6 V$		1.7	
		$V_{CC}=1.1 V$ to $1.3 V$		1.1	
		$V_{CC}=0.8 V$		20.0	µA
T_A					

DC Electrical Characteristics

Symbol	Parameter	V _{CC}	Condition	T _A =25°C		T _A =-40 to 85°C		Unit
				Min.	Max.	Min.	Max.	

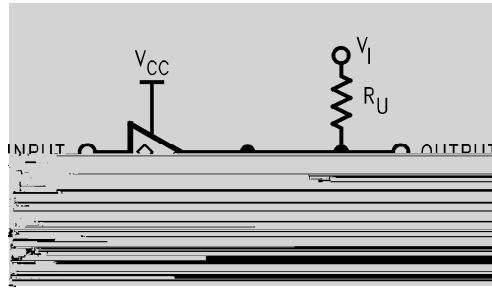
V _P	Positive Threshold Voltage							
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AC Electrical Characteristics

Symbol	Parameter	V _{CC}	Condition	T _A =25°C			T _A =-40 to 85°C		Unit
				Min.	Typ.	Max.	Min.	Max.	
t _{PZL} , t _{PLZ}	Propagation Delay	0.80	C _L =15 pF, R _U =R _D =5 KΩ V _I = 2 × (V _{CC}) (see Figure 9)		30				ns
		1.10 ≤ V _{CC} ≤ 1.30		1.0	10.1	18.9	1.0	19.9	
		1.40 ≤ V _{CC} ≤ 1.60		1.0	6.6	11.4	1.0	12.2	
		1.65 ≤ V _{CC} ≤ 1.95		1.0	6.3	8.7	1.0	9.7	
		2.30 ≤ V _{CC} ≤ 2.70		1.0	4.7	6.9	1.0	7.5	
		3.00 ≤ V _{CC} ≤ 3.60		1.0	4.6	6.8	1.0	7.4	
C _{IN}	Input Capacitance	0			0.8				pF

C_{OUT}

AC Loadings and Waveforms



Notes:

4. C_L includes load and stray capacitance.
5. Input PRR = 1.0 MHz, $t_W = 500$ ns.

Figure 9. AC Test Circuit

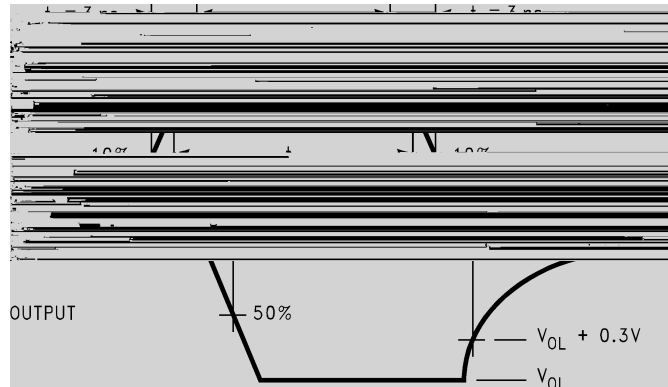
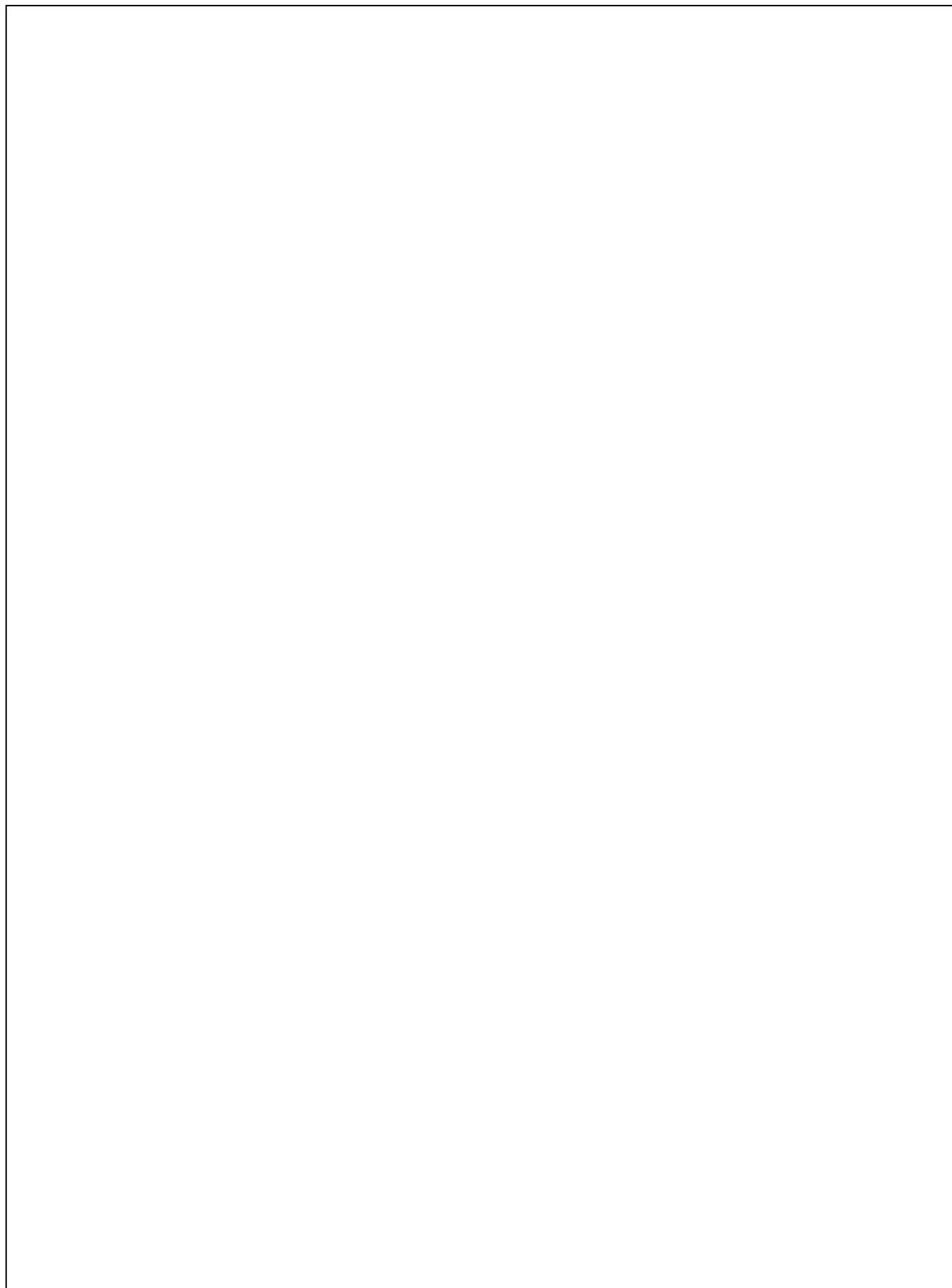


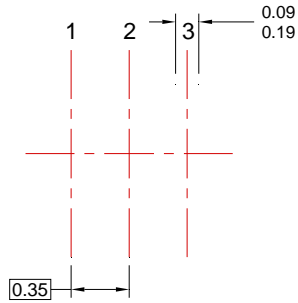
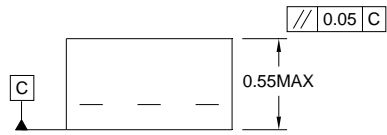
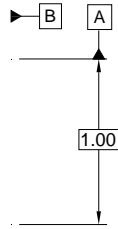
Figure 10. AC Waveforms

Symbol	V_{CC}					
	3.3 V ± 0.3 V	2.5 V ± 0.2 V	1.8 V ± 0.15 V	1.5 V ± 0.10 V	1.2 V ± 0.10 V	0.8 V
V_{mi}	$V_{CC}/2$	$V_{CC}/2$	$V_{CC}/2$	$V_{CC}/2$	$V_{CC}/2$	$V_{CC}/2$
V_x	$V_{OL} + 0.3$ V	$V_{OL} + 0.15$ V	$V_{OL} + 0.15$ V	$V_{OL} + 0.1$ V	$V_{OL} + 0.1$ V	$V_{OL} + 0.1$ V

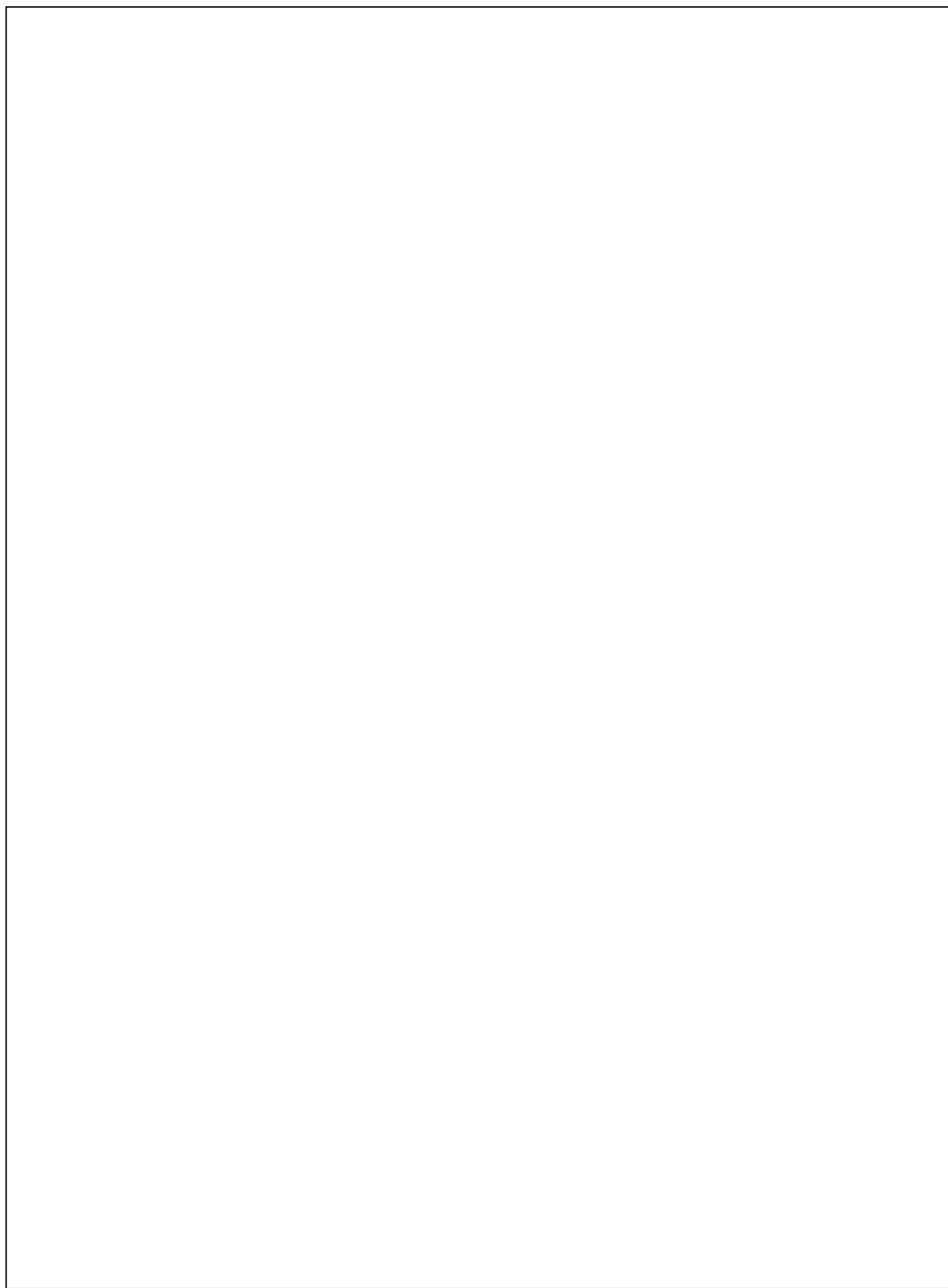


Physical Dimensions

0.05 C



- NOTES:
 A. COMPLIES TO JEDEC MO-252 STANDARD
 B. DIMENSIONS ARE IN MILLIMETERS.
 C. DIMENSIONS AND TOLERANCES PER ASME Y14.5M, 1994



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