October 2010

74AUP1G97
TinyLogic® Low Power Universal Configurable Two-Input Logic Gate

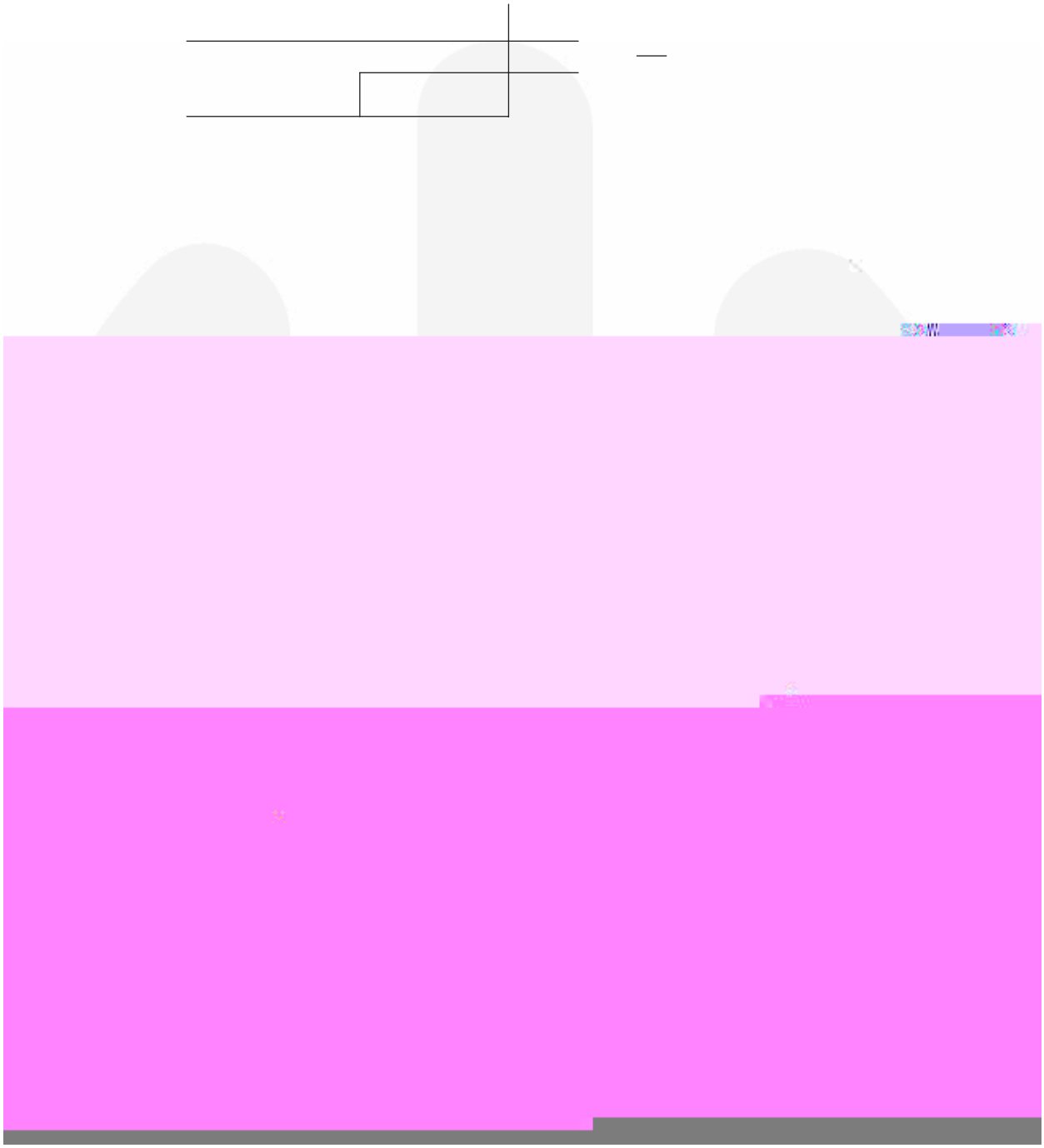
Features

- 0.8V to 3.6V V_{CC} Supply Operation
- 3.6V Over-Voltage Tolerant I/Os at V_{CC} from 0.8V to 3.6V
- High Speed t_{PD}
  - 3.1ns: Typical at 3.3V
- Power-Off High-Impedance Inputs and Outputs
- Low Static Power Consumption
  - I_{CC}=0.9µA Maximum

Ordering Information

Part Number	Top Mark	Package	Packing Method
74AUP1G97L6X	AD	6-Lead MicroPak™, 1.0mm Wide	5000 Units on

Logic Diagram



Function Table

Inputs			74AUP1G97
C	B	A	Y=Output

74AUP1G97 Logic Configurations

Figure 3 through Figure 9 show the logical functions that can be implemented using the 74AUP1G97. The

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	HIGH or LOW State[3]	-0.5	V_{CC} + 0.5	V
		V_{CC}=0V	-0.5	4.6	
I_{IK}	DC Input Diode Current	V_{IN} < 0V		-50	mA
I_{OK}	DC Output Diode Current	V_{OUT} < 0V		-50	mA
		V_{OUT} > V_{CC}		+50	
I_{OH} / I_{OL}	DC Output Source / Sink Current			±50	mA
I_O	Continuous Output Current			±20	mA
I_{CC} or I_{GND}	DC V_{CC}				

DC Electrical Characteristics

Symbol	Parameter	V_{CC}	Conditions	T_A=+25°C		T_A=-40 to +85°C		Units
				Min.	Max.	Min.	Max.	
V_P	Positive Threshold Voltage	0.80		0.30	0.60	0.30	0.60	V
		1.10		0.53	0.90	0.53	0.90	
		1.40		0.74	1.11	0.74	1.11	
		1.65		0.91	1.29	0.91	1.29	
		2.30		1.37	1.77	1.37	1.77	
		3.00		1.88	2.29	1.88	2.29	
V_N	Negative Threshold Voltage	0.80		0.10	0.60	0.10	0.60	V
		1.10		0.26	0.65	0.26	0.65	
		1.40		0.39	0.75	0.3	75	
		1.65		0.47	0.84	0.47	.84	
		2.30		0.69	1.04	0.69	1.04	
		3.00		0.88	1.2	0.8	1.24	
V_H	Hysteresis Voltage	0.80		0.0	0.50	0.07	0.50	V
		1.10		0.08		0.08	0.46	
		1.40		0.1	0.56	0.18	0.56	
		1.65		0.17	0.66	0.27	0.66	
		2.30		0.53	0.92	0.53	0.92	
		3.00		0.79	1.31	0.79	1.31	
V_{OH}	HIGH Level Output Voltage	0.80 ≤ V_{CC} ≤ 3.6	I=-2 µA	V_{CC}-0.1		V_{CC}-0.1		V
		1.10 ≤ V_{CC} ≤ 1.30	I_{OH}=-1.1mA	0.75 x V_{CC}		0.70 x V_{CC}		
		1.40 ≤ V_{CC} ≤ 1.60	I_{OH}=-1.7mA	1.11		1.03		
		1.65 ≤ V_{CC} ≤ 1.95	I_{OH}=-1.9mA	1.32		1.30		
		2.30 ≤ V_{CC} ≤ 2.70	I_{OH}=-2.3mA	2.05		1.97		
			I_{OH}=-3.1mA	1.90		1.85		
		3.00 ≤ V_{CC} ≤ 3.60	I_{OH}=-2.7mA	2.72		2.67		
			I_{OH}=-4.0mA	2.60		2.55		
V_{OL}	LOW Level Output Voltage	0.80 ≤ V_{CC} ≤ 3.60	I_{OL}=20µA		0.10		0.10	V
		1.10 ≤ V_{CC} ≤ 1.30	I_{OL}=1.1mA		0.30 x V_{CC}		0.30 x V_{CC}	
		1.40 ≤ V_{CC} ≤ 1.60	I_{OL}=1.7mA		0.31		0.37	
		1.65 ≤ V_{CC} ≤ 1.95	I_{OL}=1.9mA		0.31		0.35	
		2.30 ≤ V_{CC} ≤ 2.70	I_{OL}=2.3mA		0.31		0.33	
			I_{OL}=3.1mA		0.44		0.45	
		2.70 ≤ V_{CC} ≤ 3.60	I_{OL}=2.7mA		0.31		0.33	
			I_{OL}=4.0mA		0.44		0.45	
I_{IN}	Input Leakage Current	0V to 3.6V	0 ≤ V_{IN} ≤ 3.6		±0.1		±0.5	µA
I_{OFF}	Power Off Leakage Current	0V	0 ≤ (V_{IN},V_O)≤ 3.6		0.2		0.6	µA
ΔI_{OFF}	Additional Power Off Leakage Current	0V to 0.2V	V_{IN} or V_O = 0V to 3.6V		0.2		0.6	µA
I_{CC}	Quiescent Supply Current	0.8V to 3.6V	V_{IN} - V_{CC} or GND		0.5		0.9	µA
			V_{CC} ≤ V_{IN} ≤ 3.6				±0.9	
ΔI_{CC}	Increase in I_{CC} per Input	3.3V	V_{IN} = V_{CC} -0.6V		40.0		50.0	µA

AC Electrical Characteristics

AC Loadings and Waveforms

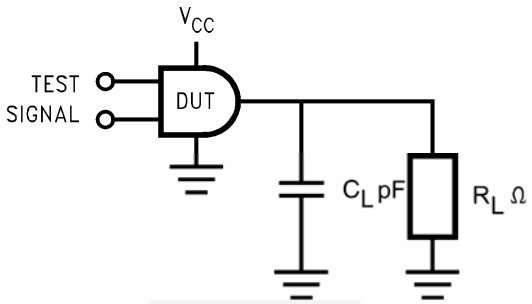


Figure 10. AC Test Circuit

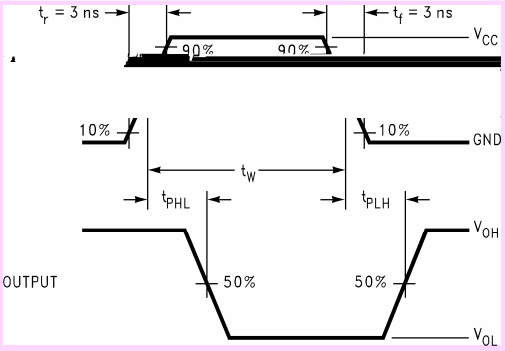
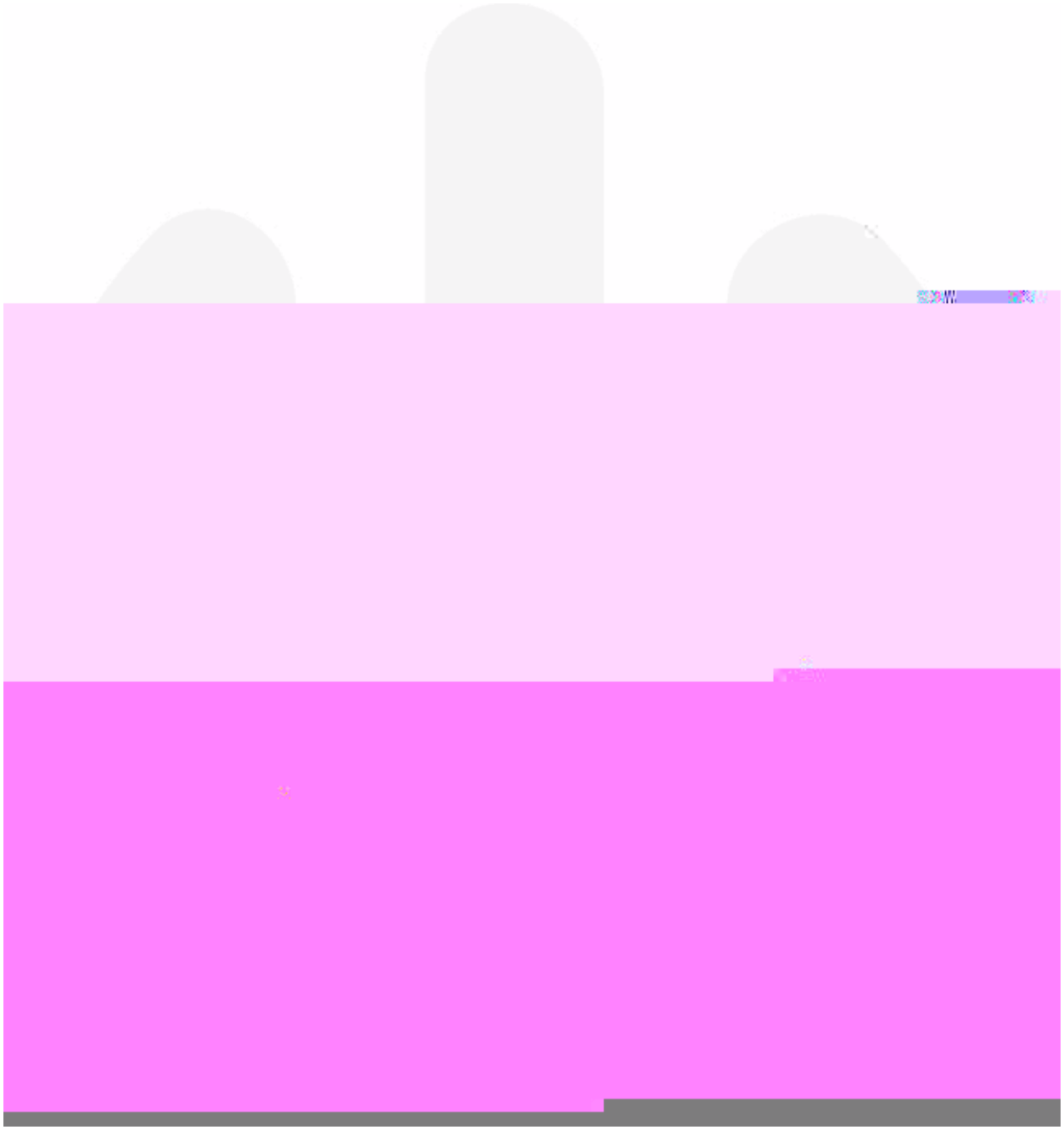
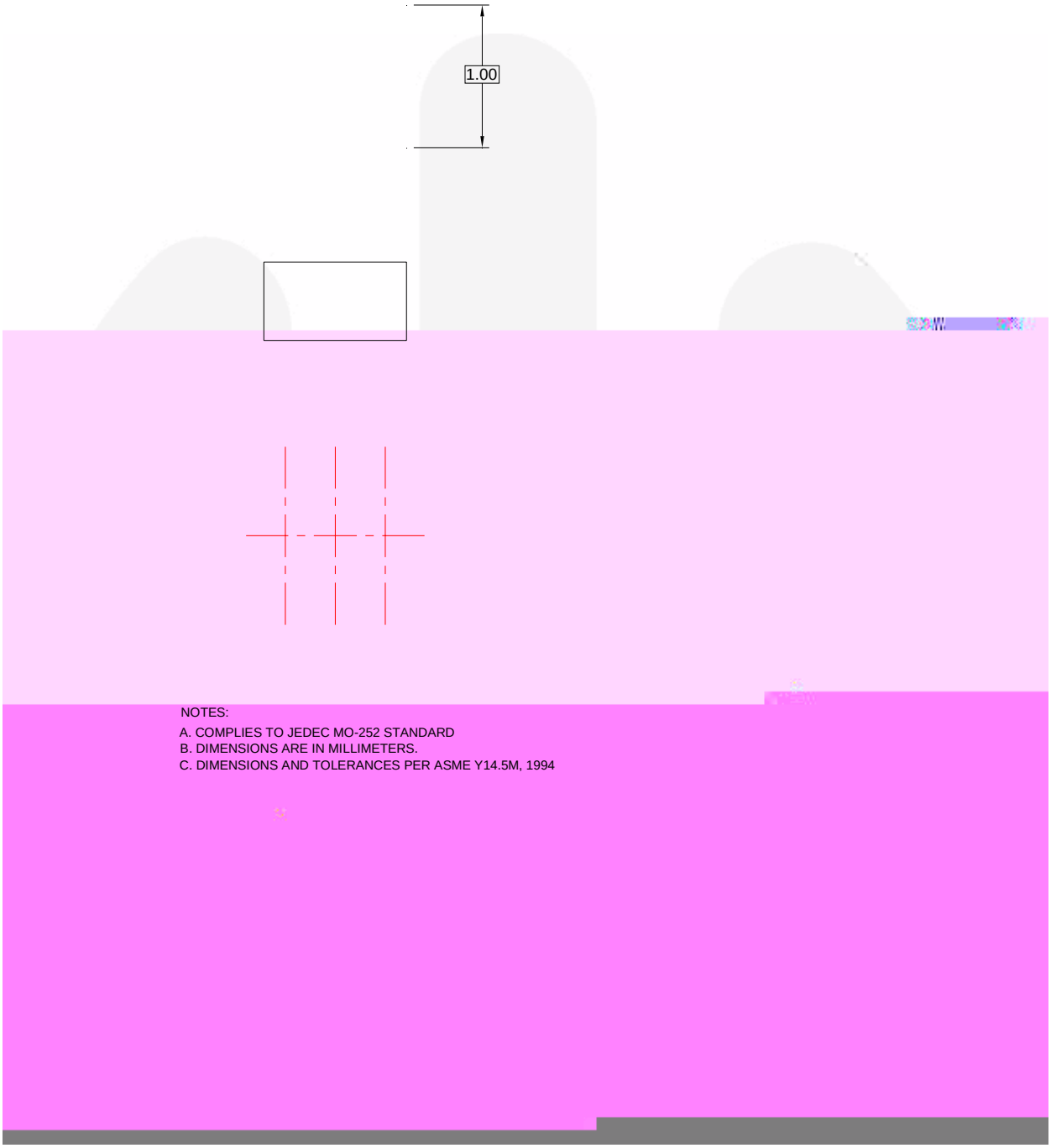


Figure 11. AC Waveforms

Symbol	V_{CC}		
	3.3V ± 0.3V	2.5V ± 0.2V	1.8V ±

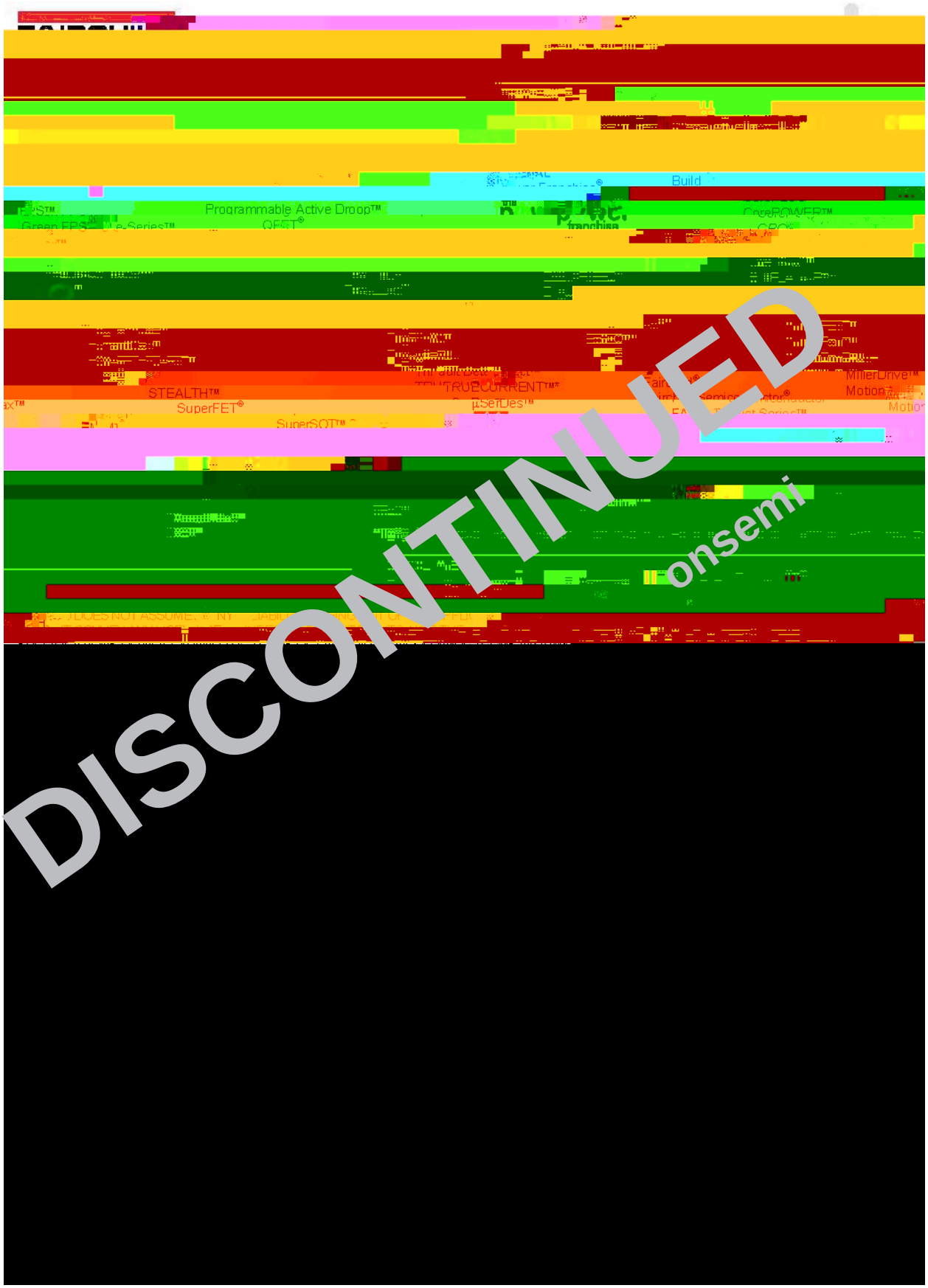


Physical Dimensions



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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