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June 2011

FXL2SD106
Low-Voltage Dual-Supply 6-Bit Voltage Translator with Auto-Direction Sensing

Features

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	Rating
V_{CCA}, V_{CCB}	Supply Voltage	–0.5V to +4.6V
V_I	DC Input Voltage	
	I/O Port A	–0.5V to +4.6V
	I/O Port B	–0.5V to +4.6V
	OE, CLK IN	–0.5V to +4.6V
V_O	Output Voltage(1)	
	Outputs 3-STATE	–0.5V to +4.6V
	Outputs Active (A_n)	–0.5V to V_{CCA} + 0.5V
	Outputs Active (B_n, CLK OUT)	–0.5V to V_{CCB} + 0.5V
I_{IK}	DC Input Diode Current at V_I 0V	–50mA
I_{OK}	DC Output Diode Current at	
	V_O 0V	–50mA
	V_O V_{CC}	+50mA
I_{OH} / I_{OL}	DC Output Source/Sink Current	–50mA / +50mA
I_{CC}	DC V_{CC} or Ground Current11DrTmr(5T6 440.5C V)Tj2IT7V(5V)Tj-44.48 -.0017 Tc. 2pTm-.1ud06tral/O Pe A	

Note:

1. I_O Absolute Maximum Rating must be observed.

Recommended Operating Conditions(2)

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.

Note:

2. All unused inputs and I/O pins must be held at V_{CCI} or GND.

DC Electrical Characteristics (T_A = –40°C to +85°C)

Symbol	Parameter	V_{CCA} (V)	V_{CCB} (V)	Conditions	Min.	Typ.	Max.	Units
V_{IH}	High Level Input Voltage	1.4–3.6	1.1–3.6	Data inputs A_n, CLK IN, OE	0.6 x V_{CCA}			V
		1.1–1.4	1.1–3.6		0.9 x V_{CCA}			
		1.1–3.6	1.4–3.6	Data inputs B_n	0.6 x V_{CCB}			
		1.1–3.6	1.1–1.4		0.9 x V_{CCB}			
V_{IL}	Low Level Input Voltage	1.4–3.6	1.1–3.6	Data inputs A_n, CLK IN, OE			0.35 x V_{CCA}	V
		1.1 –1.4	1.1–3.6				0.1 x V_{CCA}	
		1.1–3.6	1.4–3.6	Data inputs B_n			0.35 x V_{CCB}	
		1.1–3.6	1.1–1.4				0.1 x V_{CCB}	
V_{OH}[3]	High Level Output Voltage							

I_{CCB}[7]	Quiescent Supply Current	1.1–3.6	0	VI = V_{CCB} or GND; IO = 0	-2.0	µA
		0	1.1–3.6	VI = V_{CCA} or GND; IO = 0	2.0	

Notes:

3. This is the output voltage for static conditions. Dynamic drive specifications are given in “Dynamic Output Electrical Characteristics.”
4. An external driver must source at least the specified current to switch LOW-to-HIGH.
5. An external driver must source at least the specified current to switch HIGH-to-LOW.
6. “Don’t Care” indicates any valid logic level.
7. V_{CCI} is the V_{CC} associated with the input side.
8. Reflects current per supply, V_{CCA} or V_{CCB}.

Dynamic Output Electrical Characteristics[9]

A Port (A_n)

Output Load: C_L = 15pF, R_L 1M

		T_A = -40°C to +85°C, V_{CCA} =									
		3.0V to 3.6V		2.3V to 2.7V		1.65V to 1.95V		1.4V to 1.6V		1.1V to 1.3V	
Symbol	**Parameter**	**Typ.**	**Max.**	**Typ.**	**Max.**	**Typ.**	**Max.**	**Typ.**	**Max.**	**Typ.**	**Units**
t_{rise}[10]	Output Rise Time A Port		3.0		3.5		4.0		5.0	7.5	ns
t_{fall}[11]	Output Fall Time A Port		3.0		3.5		4.0		5.0	7.5	ns
I_{OHD}[10]	Dynamic Output Current High	-18.0		-11.8		-7.4		-5.0		-2.6	mA
I_{OLD}[11]	Dynamic Output Current Low	+18.0		+11.8		+7.4		+5.0		+2.6	mA

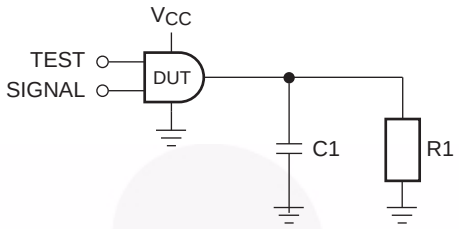
B Port (B_n, CLK OUT)

Output Load: C_L = 15pF, R_L 1M

		T_A
Symbol	**Parameter**	

Notes:

9. Dynamic Output Characteristics are guaranteed, but not tested.
10. See Figure 5.
11. See Figure 6.



Test	Input Signal	Output Enable Control
t_{PLH}, t_{PHL}	Data Pulses	V_{CCA}
t_{PZL}	0V	Low to High Switch
t_{PZH}	V_{CCI}	Low to High Switch

Figure 1. AC Test Circuit

AC Load Table

V_{CCO}	Cl	Rl
1.2V ± 0.1V	15pF	1M
1.5V ± 0.1V	15pF	1M
1.8V ± 0.15V	15pF	1M
2.5V ± 0.2V	15pF	1M
3.3 ± 0.3V	15pF	1M

Physical Dimensions

Figure 9. 16-Terminal Depopulated Quad, Very-Thin Flat Pack, No Leads (DQFN), JEDEC MO-241 2.5mm x 3.5mm

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