Fairchild VCX Family

Product Line Card

VCX Solutions
The 2.5V Family of Choice

Overview

- Optimized for 2.5V operation
- 1.65V-3.6V operating range
- Over-Voltage Tolerance (OVT) ensures device integrity
- Sub-2.0ns typical speed

VCX is supported by the Low-Voltage Logic Alliance of Fairchild, Toshiba, and ON Semiconductor. The Alliance's support for VCX means precise, contractually-binding specification alignment, coordinated standards development, and multiple sources for high-volume production.

VCX Features

Features	Benefits
*Fastest speed—1.8 V ns typical at 3.3V	Guarantees state-of-the-art designs
*Patented Quiet Series™ noise and EMI reduction circuitry	Superb noise control without speed penalty
*OVT delivers smooth voltage translation in mixed-voltage systems	Protects device signal integrity
*Guarantees AC and DC specs from 1.65V to 3.6V VCC	Provides lower voltage operation without moving to a new family
*Low noise	Low ground bounce, overshoot, undershoot and EMI
*Balanced +/-24 mA output drive	Drives transmission lines down to 50Ω
*Power up/down high-impedance inputs and outputs	Supports live insertion and removal, and power management
*Optional bushold on data inputs	Eliminates need for external pull-up or pull-down resistors
*Optional 26 ohm series resistors in B Port outputs	Reduces line noise, especially for memory or clock drivers, and bus transceivers
*Very low static and dynamic power	Saves power and extends battery life

	Alliance
Parameter	***VCX***
Speed	
t_{PD} (max @ 3.3V)	2.5ns
t_{PD} (max @ 2.5V)	3.2ns
t_{PD} (max @ 1.8V)	5.7ns
I_{OL}/I_{OH}*	±24mA
I_{CC}	20µA
OVT at 3.3V	3.6V
(Based on I_I and I_{OZ})	
OVT at 2.5V	3.6V
(Based on I_I and I_{OZ})	
OVT at 1.8V	3.6V
(Based on I_I and I_{OZ})	
Operating Range	1.65 - 3.6V
Process	CMOS
Suppliers	Fairchild
	ON Semiconductor
	Toshiba

Easy to Choose: VCX and other Fairchild low-voltage solutions offer a comprehensive portfolio, the stability of multiple suppliers, and effective specification tools.

Easy to Use: High-speed CMOS enables interoperability between 3.3V, 2.5V and 1.8V systems, with OVT up to 3.6V on both inputs and outputs.

CROSSVOLT™ Logic Series
VCX™
High-speed CMOS enables interoperability between 3.3V and 2.5V systems, with 3.6 V-tolerant inputs and outputs.

FAIRCHILD
SEMICONDUCTOR™

VCX Application Solutions

Over-voltage Tolerance (OVT)

Fairchild developed over-voltage tolerance (OVT) to enable semiconductor devices to accommodate input and output voltages which are higher than their operating voltages, with no damage to the devices or to signal integrity.

OVT is especially important in mixed-voltage design environments. OVT enables you to combine the features and benefits of devices with different performance attributes for more versatile and valuable system performance characteristics.

VCX is just one of Fairchild's four *CROSSVOLT*™ advanced low-voltage logic families, all of which are protected by Fairchild' innovative OVT feature.

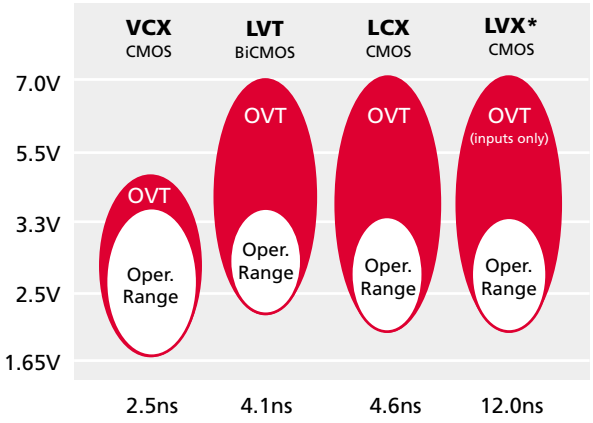


Figure 1.

*LVX 244, others '16244 function

Bushold Solves the Problem of Floating Inputs

Bushold circuitry maintains a valid logic state on floating or undriven inputs—without the need for external pull-up or pull-down resistors. Floating inputs can lead to increased current leakage and oscillation that compromise system data integrity.

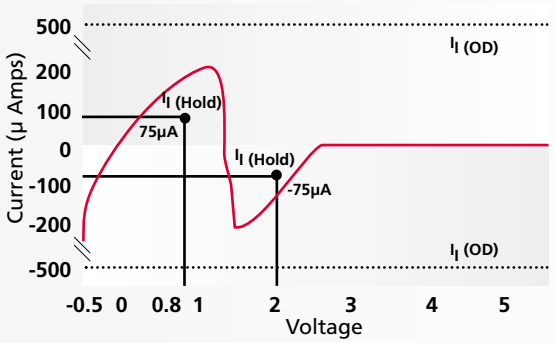


Figure 2. Voltage-In versus Current-In Sweep of CROSSVOLT LVT Device with Bushold (74LVTHxxx)

Edge-Rate Control Enhances Signal Integrity

Fairchild Logic with edge rate control improves signal integrity by minimizing switching noise, EMI and signal settling time.

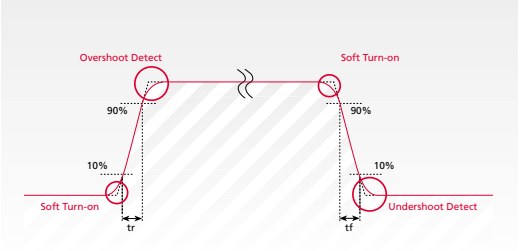


Figure 3. High-speed VCX logic carries no noise penalty and produces very low levels of EMI and ground bounce.

Ideal for DIMMs (clarify headline)

VCX devices offer an optimal solution for today's 100 MHz DIMM applications. Key devices are tuned to maximize register performance, improve timing margin and simplify registered-DIMM design. The VCX family also supports PC100 and PC133 standards.

Product Listing

Device	Description	Leads	Packaging
VCX00	Quad 2-Input AND Gate	14	TSSOP, SOIC
VCX08	Quad 2-Input AND Gate	14	TSSOP, SOIC
VCX32	Quad 2-Input OR Gate	14	TSSOP, SOIC
VCX38	Quad 2-Input NAND Gate with Open Collector Outputs	14	TSSOP, SOIC
VCX86	Quad 2-Input Exclusive-OR Gate	14	TSSOP, SOIC
VCX132	Quad 2-Input NAND Gate with Schmitt Trigger Inputs	14	TSSOP, SOIC
VCX245	8-Bit Bidirectional Transceiver	20	TSSOP, SOIC
VCXH245	8-Bit Bidirectional Transceiver with Bushold	20	TSSOP, SOIC
VCX2245	8-Bit Bidirectional Transceiver with 26 Ohm Series Resistors in B-Outputs	20	TSSOP, SOIC
VCXH2245	8-Bit Bidirectional Transceiver with Bushold and 26 Ohm Series Resistors in B Outputs	20	TSSOP,SOIC
VCX16240	16-Bit Inverting Buffer/Line Driver	48	TSSOP
VCX16244	16-Bit Buffer/Line Driver	48	TSSOP
VCX16245	16-Bit Transceiver	48	TSSOP
VCX16373	16-Bit Transparent Latch	48	TSSOP
VCX16374	16-Bit D Flip-Flop	48	TSSOP
VCX16500	18-Bit Universal Bus Transceiver	56	TSSOP
VCX16501	18-Bit Universal Bus Transceiver	56	TSSOP
VCX16601	18-Bit Universal Bus Transceiver	56	TSSOP
VCX16721	20-Bit D Flip-Flop	56	TSSOP
VCX16722	22-Bit Register	64	TSSOP
VCX16821	20-Bit D Flip-Flop	56	TSSOP
VCX16827	20-Bit Buffer/Line Driver	56	TSSOP
VCX16835	18-bit Universal Buffer/Driver	56	TSSOP
VCX16838	16-Bit Selectable Register/Buffer	48	TSSOP
VCX16839	20-Bit Selectable Register/Buffer	56	TSSOP
VCX16841	20-Bit Transparent Latch	56	TSSOP
VCX162240	16-Bit Inverting Buffer/Line Driver with 25 Ohm Series Resistors	48	TSSOP
VCX162244	16-Bit Buffer/Line Driver with 25 Ohm Series Resistors	48	TSSOP
VCX162245	16-Bit Transceiver with 25 Ohm Series Resistors	48	TSSOP
VCX162601	18-Bit Universal Bus Transceiver with 25 Ohm Series Resistors	56	TSSOP
VCX162827	20-Bit Buffer/Line Driver with 25 Ohm Series Resistors	56	TSSOP
VCX162835	18-bit Universal Buffer/Driver with 25 Ohm Series Resistors	56	TSSOP
VCXF162835	16-Bit Selectable Register/Buffer with 25 Ohm Series Resistors	48	TSSOP
VCX162839	20-Bit Selectable Register/Buffer with 25 Ohm Series Resistors	56	TSSOP
VCXR162601	18-Bit Universal Bus Transceiver with 25 Ohm Series Resistors	56	TSSOP

VCX Logic Industry Cross-Reference

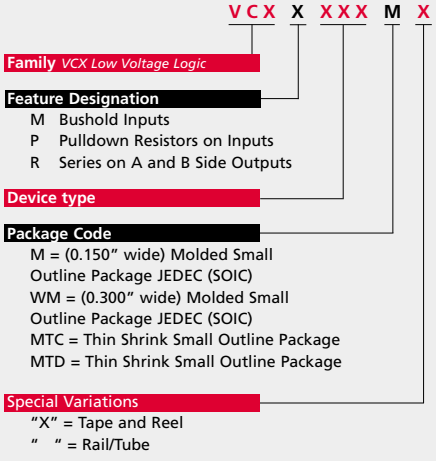
Select the low-voltage supplier with which you're most familiar, read down that column to find your reference product, and across in either direction to find comparable devices from other logic suppliers.

Family	*Package*	*Fairchild*	*IDT*	*ON Semiconductor*	*Pericom*	*Philips*	*Texas Instruments*	*Toshiba*
VCX	SOIC JEDEC	74VCXxxxM					SN74ALVCxxxD	
	SOIC/Wide body	74VCXxxxWM					SN74ALVCxxxDW	
	TSSOP	74VCXxxxMTC					SN74ALVCxxxPW	TC74VCXxxxFT
	48/56 lead TSSOP	74VCXxxxMTD	IDT74ALVCxxxPA	MC74VCXxxxDT	PI74ALVCxxxA	74ALVCxxxDGG	SN74ALVCxxxDGG	TC74VCXxxxFT

Product Line

VCX00	VCX16721
VCX08	VCX16722
VCX32	VCX16821
VCX38	VCX16827
VCX86	VCX16835
VCX132	VCX16838
VCX245	VCX16839
VCXH245	VCX16841
VCXH2245	VCX162240
VCX2245	VCX162244
VCX16240	VCX162245
VCX16244	VCX162601
VCX16245	VCX162827
VCX16373	VCXF162835
VCX16374	VCX162835
VCX16500	VCX162838
VCX16501	VCX162839
VCX16601	VCXR162601

Ordering Codes



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