

VFXO401

XO 2.5V, 3.3V

5x7mm SMD, LVPECL / LVDS



Features

- 10MHz to 320MHz frequency range
- 2.5V, 3.3V supply voltage
- Tight duty cycle
- <1 ps RMS jitter over 12kHz ~ 20MHz (frequency dependent)



RoHS Status

RoHS
6/6

Applications

- Optical Networking, SONET / SDH
- 10 Gigabit Ethernet
- Broadband Access

NOT RECOMMENDED FOR NEW DESIGNS
Use CTS Model 637

Electrical Specifications

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Frequency Range	F	LVPECL Output Logic LVDS Output Logic	10 80		320 300	MHz	
Frequency Stability	$\Delta F/F$	Over all conditions of :- Operating Temperature; Supply Voltage; 10 Years Aging; shock & vibration			± 100 ± 50 ± 25 ± 20	ppm	Order Code A Order Code B Order Code C Order Code D
Operating Temperature	T		0° -40°		+70° +85°	°C	Order Code B Order Code G
Output			LVPECL LVDS				Order Code L Order Code D
Supply Voltage	V _{CC}		3.15 2.38	3.30 2.50	3.45 2.63	V	Order Code G Order Code E
Input Current	I _{CC}	LVPECL LVDS		58 45	88 66	mA	
Output Load	50 Ohms to V _{CC} -2V or Thevenin Equivalent Bias Required						LVPECL
	100 Ohms (1.2V offset typical)						LVDS
Duty Cycle			45 47.5	50 50	55 52.5	%	Order Code B Order Code C

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Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Rise / Fall Time	Tr/Tf	20% to 80%		0.5	0.8	ns	
HIGH Level Output Voltage	V _{OH}	3.3V LVPECL	2.275 2.215	2.350 2.295	2.42 2.42	V	0°C to +85°C -40°C to 0°C
		2.5V LVPECL	1.475 1.415	1.550 1.495	1.76 1.62	V	0°C to +85°C -40°C to 0°C
		LVDS	-	1.43	1.60	V	
LOW Level Output Voltage	V _{OL}	3.3V LVPECL	1.49 1.47	1.600 1.605	1.680 1.745	V	0°C to +85°C -40°C to 0°C
		2.5V LVPECL	0.69 0.67	0.800 0.805	1.095 1.195	V	0°C to +85°C -40°C to 0°C
		LVDS	0.90	1.10	-	V	
Enable Function "1"	V _{IH}		0.7V _{CC}		-	V	
Disable Function "0"	V _{IL}		-		0.3V _{CC}	V	
Start Up Time				2	10	ms	
RMS Jitter 12kHz~20MHz	1σ				0.7	ps	@ 156.25MHz

Absolute Maximum Ratings

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Supply Break Down Voltage	V _{CC}		-0.5		4.6	V	
Storage Temperature	T _S		-55		+125°	°C	
Junction Temperature	T _J				+125°	°C	

Environmental and Mechanical Conditions

Parameter	Conditions
Mechanical Shock	Per MIL-STD-202, Method 213, Condition E
Thermal Shock	Per MIL-STD-883, Method 1011, Condition A
Vibration	Per MIL-STD-883, Method 2007, Condition A
Soldering Conditions	260°C for 10s max
Hermetic Seal	Leak rate less than 5x10 ⁻⁸ atm.cc/s of helium
Terminal Finish	Gold (Au) 0.30 - 1.00 μm Nickel (Ni) 1.3 - 8.9 μm
Marking	Epoxy ink or laser engraved

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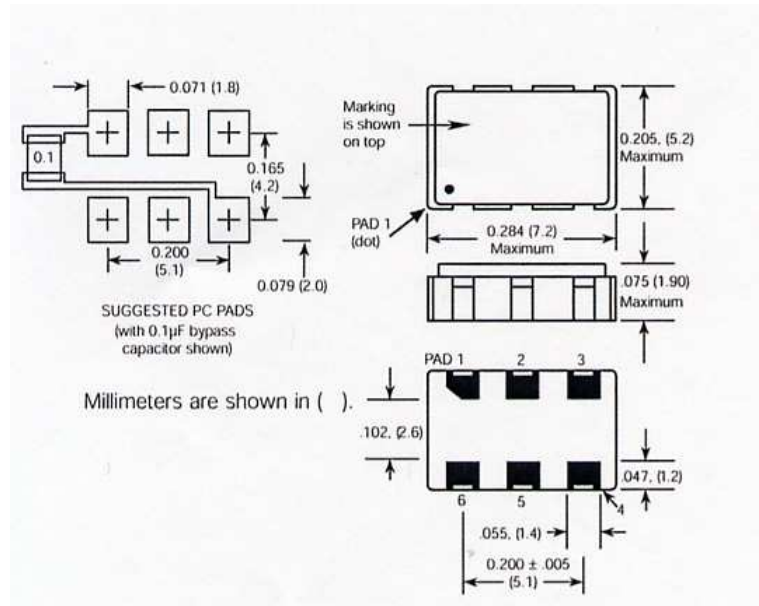
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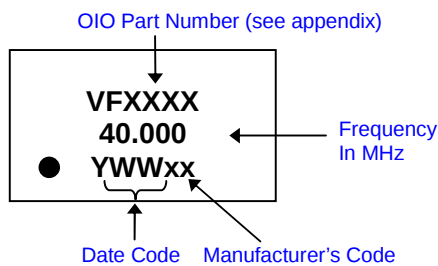
Pin Assignments

Pin #	Connection
1	N/C or Tristate
2	N/C
3	Case GND
4	Output
5	Output
6	V _{CC}

Mechanical Outline



Marking Specification



How to Order

VFXO401 — — FREQUENCY, MHz

Stability

Code	Specification
A	100 ppm
B	50 ppm
C	25 ppm
D	20 ppm *

Temp. Range

Code	Specification
B	0~70°C std.
G	-40~+85°C

Supply Voltage

Code	Specification
E	2.5V
G	3.3V

Output Logic

Code	Output
L	LVPECL
D	LVDS

Duty Cycle

Code	Specification
B	45 / 55
C	47.5 / 52.5

Tristate

Code	Specification
T	Tristate
N	Non-Tristate

* : ± 20 ppm over -40 to +85C does not include Aging.

Not all performance combinations and frequencies may be available.
Contact your local CTS Representative or CTS Customer Service for availability.

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Appendix

4 Digit part numbers are used for marking.

SN	PART NUMBER	ORDERING CODE
1	OIO7855	VFXO401-BBGBDT-100.00MHz
2	OIO7870	VFXO401-BGGBLT-312.5MHz
3	OIO7905	VFXO401-BBEBDT-156.250MHz
4	OIO7945	VFXO401-DGEBLT-250.00MHz
5	OIO8054	VFXO401-BGGBLT-125.00MHz
6	OIO8055	VFXO401-BGGBLT-156.25MHz
7	OIO8127	VFXO401-BGGBDT-150.000MHz
8	OIO8174	VFXO401-BGGBDT-200.000MHz
9	OIO8185	VFXO401-BBEBDT-200.000MHz
10	OIO8322	VFXO401-BGEBDT-100.00MHz TR
11	OIO8323	VFXO401-BGEBDT-102.3360MHz TR
12	OIO8325	VFXO401-BGEBDT-200.000MHz TR
13	OIO8394	VFXO401-BBGBLT-156.25MHz
14	OIO8450	VFXO401-BBGBDT-125MHz
15	OIO8469	VFXO401-BGGBLT-100MHz
16	OIO8474	VFXO401-BBGBDN-156.25MHz
17	OIO8480	VFXO401-BBEBDT-100.00MHz
18	OIO8537	VFXO401-BGGBLT-172.5MHz
19	OIO8541	VFXO401-DGGBLT-178.01897MHz
20	OIO8623	VFXO401-DGECN-266.66MHz
21	OIO8625	VFXO401-DBGBLT-161.1328MHz
22	OIO8670	VFXO401-BBGCLN-245.760MHz
23	OIO8692	VFXO401-BGGBLT-25.000MHz
24	OIO8725	VFXO401-BBECLT-25.00MHz
25	OIO8744	VFXO401-BBEBLT-212.5MHz
26	OIO8745	VFXO401-BBEBLT-178.125MHz
27	OIO8749	VFXO401-DGGCDT-184.320MHz
28	OIO8766	VFXO401-DGGBLT-19.440MHz
29	OIO8768	VFXO401-BGGBLT-62.500MHz
30	OIO8769	VFXO401-AGGBLT-156.250MHz

SN	PART NUMBER	ORDERING CODE
31	OIO8772	VFXO401-ABGBLN-80MHz
32	OIO8775	VFXO401-DGEBLT-155.52MHz
33	OIO8796	VFXO401-ABGBLN-94MHz
34	OIO8800	VFXO401-ABGBLN-86MHz
35	OIO8804	VFXO401-BBEBDT-312.50MHz
36	OIO8809	VFXO401-DGGBLT-25.000MHz
37	OIO8810	VFXO401-BGEBDN-98.000MHz
38	OIO8813	VFXO401-BGEBDN-100.000MHz
39	OIO8817	VFXO401-BBEBLT-100.000MHz
40	OIO8818	VFXO401-BBEBLT-25.000MHz
41	OIO8820	VFXO401-BBGCLT-100.000MHz
42	OIO8841	VFXO401-BBEBDN-125.000MHz
43	OIO8843	VFXO401-BGGBLT-25.00125MHz
44	OIO8848	VFXO401-BGEBDT-156.250MHz
45	OIO8849	VFXO401-BGGBLT-161.1328MHz
46	OIO8860	VFXO401-BGGCLT-100.000MHz
47	OIO8873	VFXO401-BGGBLT-114.2850MHz
48	OIO8896	VFXO401-DBGBLT-25.00125MHz
49	OIO8903	VFXO401-BGEBDN-125.000MHz
50	OIO8911	VFXO401-CGGCLN-125.000MHz
51	OIO8917	VFXO401-CGGCLN-156.250MHz
52	OIO8963	VFXO401-CBGBDT-156.25MHz