

# VFVX301

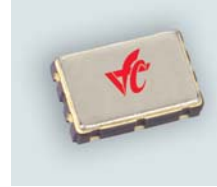
## VCXO Low Jitter 2.5V, 3.3V

### 5x7mm SMD, LVPECL / LVDS



#### Features

- 38MHz to 700MHz Frequency Range
- Ultra Low Phase Noise
- <0.5ps jitter over 12KHz ~ 20MHz
- APR to  $\pm 150$ ppm



#### RoHS Status



#### Applications

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

#### Electrical Specifications

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Frequency Range	F		38		700	MHz	
Frequency Stability	$\Delta F/F$	Vs. Operating Temperature			$\pm 50$ $\pm 25$ $\pm 20$	ppm	Order Code B Order Code C Order Code D
		Vs. Supply Voltage Vs. Aging / Year		$\pm 1.5$ $\pm 3$ $\pm 1$	$\pm 3$	ppm/V ppm ppm	First Year After first year
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 <sub>cc</sub>		3.15 2.35	3.3 2.5	3.45 2.65	V	Order Code E Order Code G
Voltage Control	V <sub>c</sub>		0 0		3.3 2.5	V	0.3 – 3.0 available
APR			100	150		ppm	
Period Jitter RMS		77.76 MHz		2.5	4	ps	
		155.52 MHz		3	4		
		311.08 MHz		3	5		
		622.08 MHz		6	8		
Integrated Jitter RMS 12KHz to 20MHz		155.52MHz		0.4	0.5	ps	
		311.04MHz		0.4	0.5		
		622.08MHz		0.4	0.5		
Period Jitter Peak-to-Peak		77.76MHz		18	30	ps	
		155.52MHz		20	30		
		311.08MHz		25	30		
		622.08MHz		42	55		



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Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note	
Symmetry		$(V_{DD}-1.3)V_{DC}$ $1.25V_{DC}$	45 45		55 55	%	PECL LVDS	
Phase Noise		10Hz		-66		dBc/Hz	@77.76MHz	
		100Hz		-96				
		1KHz		-124				
		10KHz		-136				
		100KHz		-132				
		1MHz		-145				
		10Hz		-62		dBc/Hz	@155.52MHz	
		100Hz		-92				
		1KHz		-120				
		10KHz		-132				
		100KHz		-128				
		1MHz		-144				
		10Hz		-59		dBc/Hz	@311.04MHz	
		100Hz		-86				
		1KHz		-116				
		10KHz		-129				
		100KHz		-124				
		1MHz		-140				
Supply Current	I <sub>CC</sub>	38 – 100MHz			65	mA	PECL	
		100 – 300MHz			80			
		300 – 640MHz			90			
			38 – 100MHz			45	mA	LVDS
			100 – 320MHz			60		
			320 – 640MHz			70		
Load	50 Ohm to $V_{DD}-2V$ (PECL) 100 Ohm (LVDS)							
Output High Voltage	V <sub>OH</sub>			$V_{DD}-1.025$ 1.4	1.6	V	PECL LVDS	
Output Low Voltage	V <sub>OL</sub>		0.9	1.1	$V_{DD}-1.620$	V	PECL LVDS	
Output Differential Voltage	V <sub>OD</sub>		247	355	454	mV	LVDS	
Offset Voltage	V <sub>OS</sub>		1.125	1.2	1.375	V	LVDS	
Rise / Fall Time	Tr/Tf	20% to 80%		0.6 0.7	1.5 1.0	ns	PECL LVDS	
Tristate	"1": On-Pin 1 may float 2.8V min (3.3V $V_{DD}$ ) or 2.25V min (2.5V $V_{DD}$ ) "0": Tristate – Pin 1 requires 0.4V max (3.3V or 2.5V $V_{DD}$ )							



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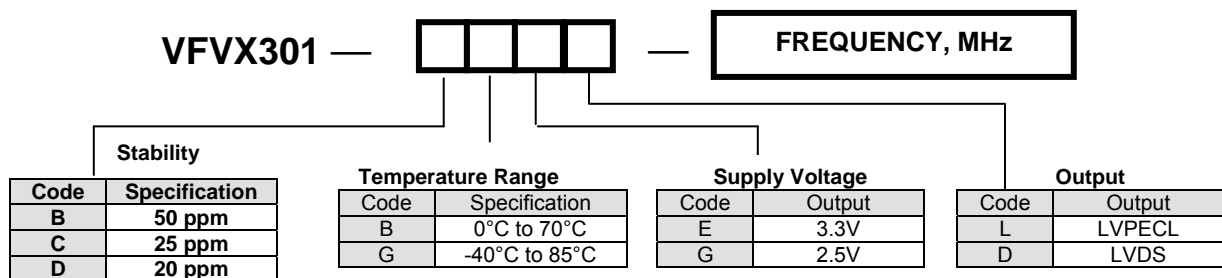
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#### Absolute Maximum Ratings

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Lead Temperature		Soldering, 10s max			260	°C	
Storage Temperature	T <sub>s</sub>		-55		+125°	°C	
Junction Temperature	T <sub>j</sub>				+125°	°C	
Supply Voltage	V <sub>c</sub>		-1		4.6	V	
ESD Protection		Human Body Model			2	kV	

#### How to Order



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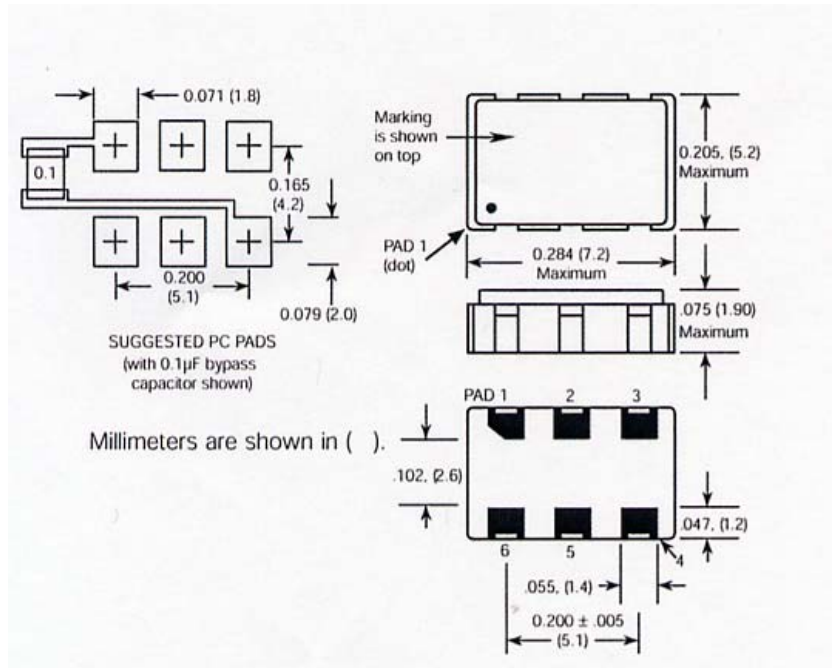
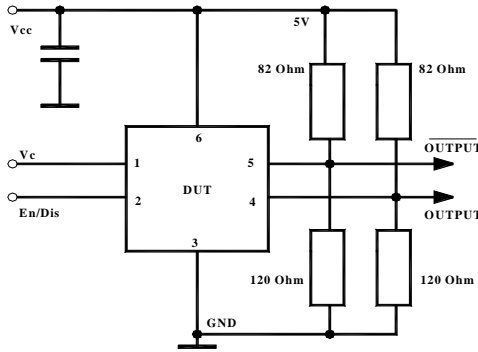
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#### Environmental and Mechanical Conditions

Parameter	Specification
<b>Shock</b>	1000 Gs, 0.35ms, ½ sine wave, 3 shocks in each plane
<b>Humidity</b>	Resistant to 85 °R.H. at 85 °C
<b>Vibration</b>	10-2000 Hz of 0.06" d.a. or 20 Gs, whichever is less
<b>Leak</b>	Leak rate less than $5 \times 10^{-8}$ atm.cc/s of helium (crystal only)
<b>Case</b>	Ceramic with hermetic resistance-welded metal lid
<b>Pads</b>	Solderable gold over nickel
<b>Marking</b>	Epoxy ink or laser engraved
<b>Resistance to Solvents</b>	MIL STD 202, Method 215



Pin #	Connection
1	Vc
2	Tristate
3	Case, GND
4	Output
5	Output
6	Supply Voltage

