

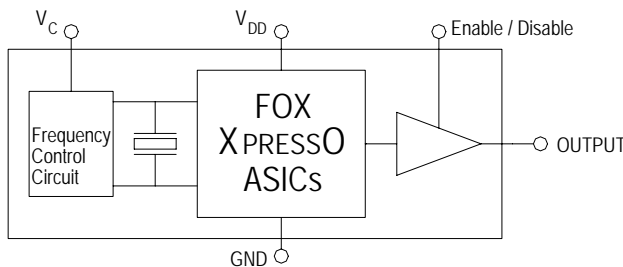
Features

- XTREMELY Low Jitter
- Low Cost
- XPRESS Delivery
- Frequency Resolution to six decimal places
- Absolute Pull Range (APR) of ± 50 ppm
- -20 to +70°C or -40 to +85°C operating temperatures
- Tri-State Enable / Disable Feature
- Industry Standard Package, Footprint & Pin-Out
- Fully RoHS compliant
- Gold over Nickel Termination Finish
- Serial ID with Comprehensive Traceability



Applications

- ANY application requiring an oscillator
- SONET
- Ethernet
- Storage Area Network
- Broadband Access
- Microprocessors / DSP / FPGA
- Industrial Controllers
- Test and Measurement Equipment
- Fiber Channel



For more information -- Click on the drawing

Description

The Fox XPRESSO Crystal Oscillator is a breakthrough in configurable Frequency Control Solutions. XPRESSO utilizes a family of proprietary ASICs, designed and developed by Fox, with a key focus on noise reduction technologies.

The 3rd order Delta Sigma Modulator reduces noise to the levels that are comparable to traditional Bulk Quartz and SAW oscillators. The ASICs family has ability to select the output type, input voltages, and temperature performance features.

With the XPRESS lead-time, low cost, low noise, wide frequency range, excellent ambient performance, XpressO is an excellent choice over the conventional technologies.

Finished XPRESSO parts are 100% final tested.

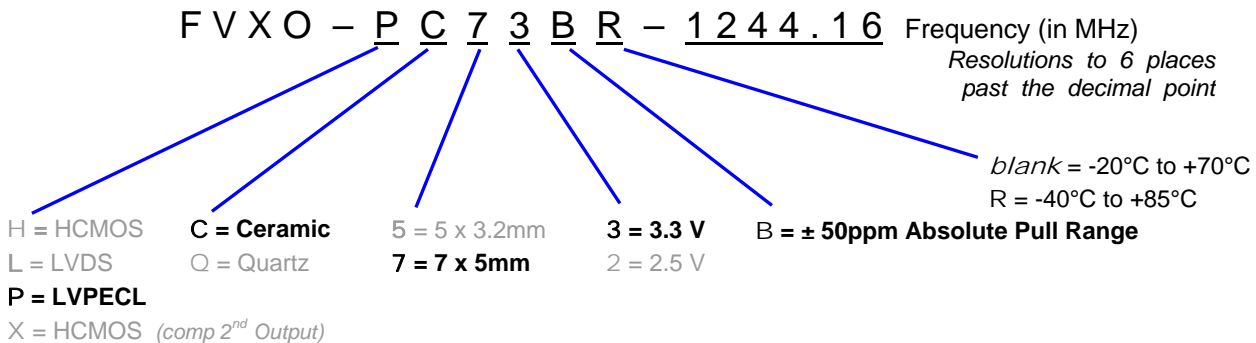
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Model Selection Guide & Fox Part Number

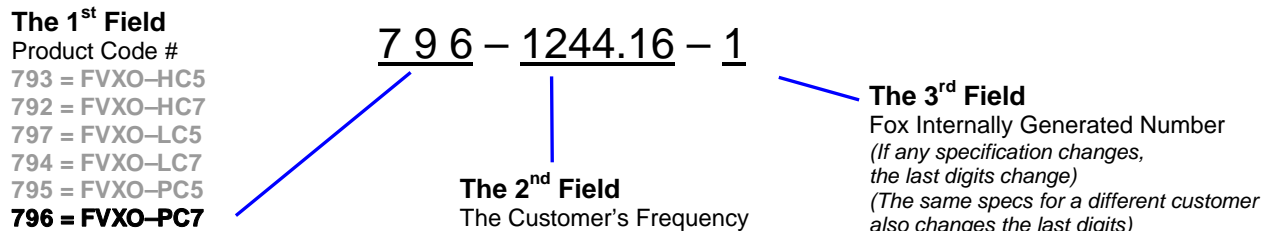
STEP #1: Customer selects the Model Description and provides to Fox Customer Service

Model Description



STEP #2: The Fox Customer Service team provides a customer specific Part Number for use on their Bill Of Materials (BOM).

Fox Part Number (The assigned Fox Part Number must be on the BOM – not the above Model Description)
 (This will ensure receipt of the proper part)



*This example, **FVXO-PC73BR-1244.16** = Voltage Controlled, LVPECL Output, Ceramic, 7 x 5mm Package, 3.3V, ±50 PPM Absolute Pull Range, -40 to +85°C Temperature Range, at 1244.16 MHz*

Absolute Maximum Ratings (Useful life may be impaired. For user guidelines only, not tested)

Parameters	Symbol	Condition	Maximum Value (unless otherwise noted)
Input Voltage	V _{DD}		-0.5V to +5.0V
Operating Temperature	T _{AMAX}		-55°C to +105°C
Storage Temperature	T _{STG}		-55°C to +125°C
Junction Temperature			150°C
ESD Sensitivity	HBM	Human Body Model	1 kV



Electrical Characteristics

Parameters	Symbol	Condition	Maximum Value (unless otherwise noted)
Frequency Range	F _O		0.750 MHz to 1.35 GHz
Absolute Pull Range ^{Note 1}	APR		± 50 ppm MIN
Temperature Range	T _O	Standard operating <i>Optional operating</i> Storage	-20°C to +70°C
	T _{STG}		-40°C to +85°C -55°C to +125°C
Supply Voltage	V _{DD}	Standard	3.3 V ± 5%
Input Current (@ Standard Load)	I _{DD}	Standard Load	120 mA
Output Load		Standard	50 Ohms into V _{DD} -2V _{DC} . TYP.
Start-Up Time	T _S		10 mS
Output Enable / Disable Time			100 nS
Moisture Sensitivity Level	MSL	JEDEC J-STD-20	1
Termination Finish			Au

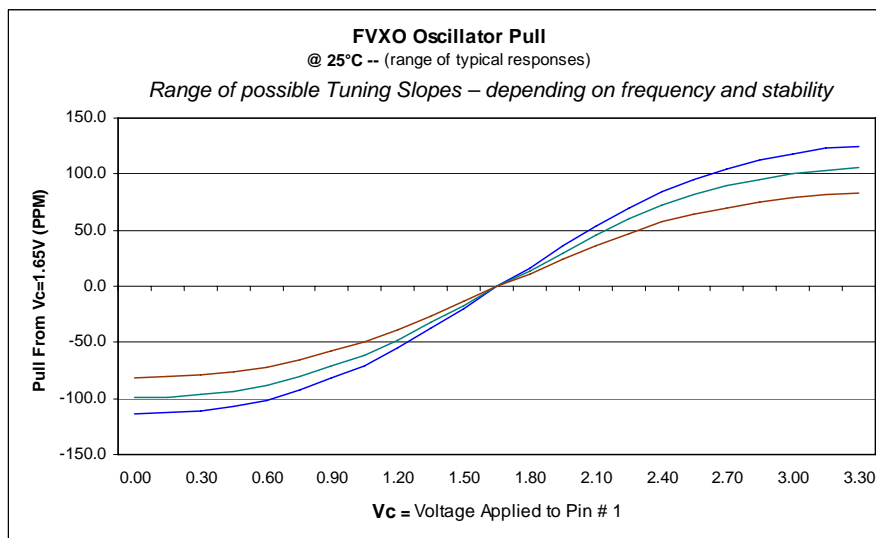
Note 1 – Inclusive of 25°C tolerance, operating temperature range, input voltage change, load change, aging, shock and vibration.

Frequency Control (V_C) Input -- pin # 1

Parameters	Symbol	Condition	Maximum Value (unless otherwise noted)
Control Voltage Tuning Slope ¹		0V to V _{DD}	40 ~ 75 ppm/V Typ ²
Control Voltage Linearity ²	L _{VC}		± 10%
Control Voltage Tuning Range	V _C		0V ~ 3.3V
Modulation Bandwidth	BW		10 kHz
Nominal Control Voltage	V _{CNOM}		1.65V

NOTES:

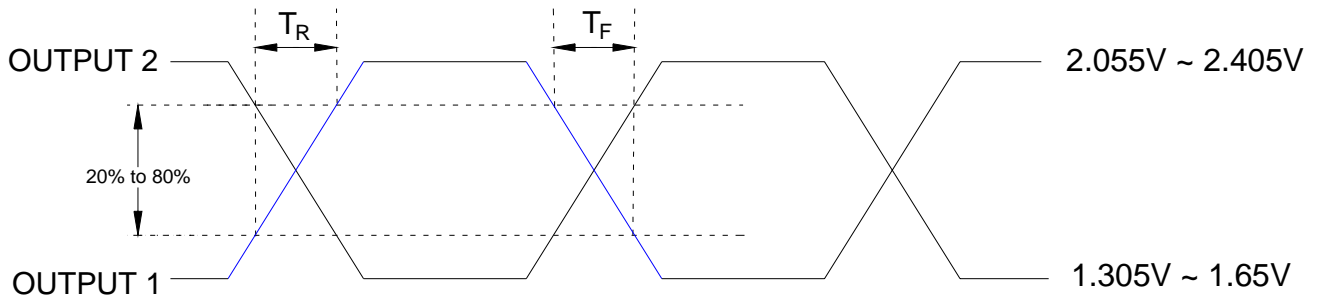
- ¹ Actual slope is affected by frequency and accuracy settings.
- ² For an example of linearity, see the graph below. *(The middle line represents the default Fox factory setting)*



Output Wave Characteristics

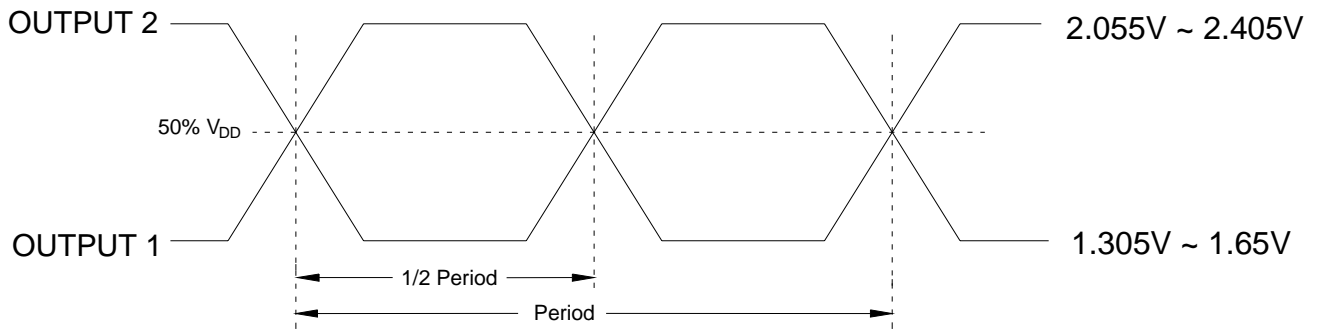
Parameters	Symbol	Condition	Maximum Value (unless otherwise noted)
Low Output Voltage	V_{OL}	0.75 MHz to 1.35 GHz	1.305V ~ 1.65V
High Output Voltage	V_{OH}	0.75 MHz to 1.35 GHz	2.055V ~ 2.405V
Typical Complementary Difference	V_{P-P}	0.75 MHz to 1.35 GHz	0.750 V_{P-P} Typ
Output Symmetry (See Drawing Below)		@ 50% V_{P-P} Level	45% ~ 55%
Output Enable (PIN # 2) Voltage	V_{IH}		> 70% V_{DD}
Output Disable (PIN # 2) Voltage	V_{IL}		< 30% V_{DD}
Cycle Rise Time (See Drawing Below)	T_R	0.75 MHz to 1.35 GHz	400 pS (20%~80%)
Cycle Fall Time (See Drawing Below)	T_F	0.75 MHz to 1.35 GHz	400 pS (80%~20%)

Rise Time / Fall Time Measurements

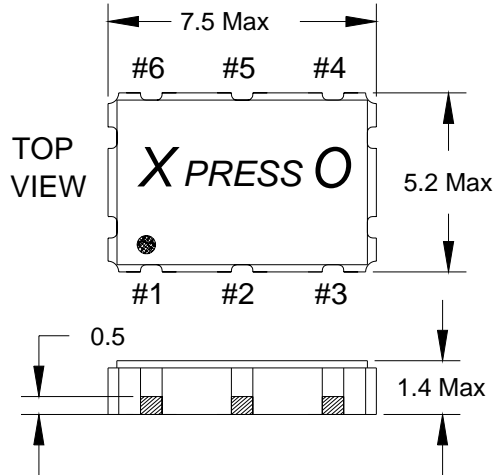


Oscillator Symmetry

Ideally, Symmetry should be 50/50 for 1/2 period -- Other expressions are 45/55 or 55/45

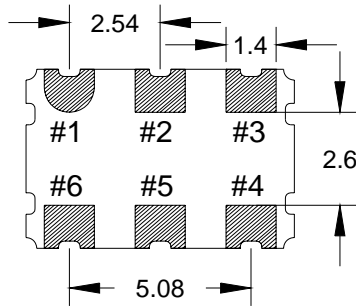
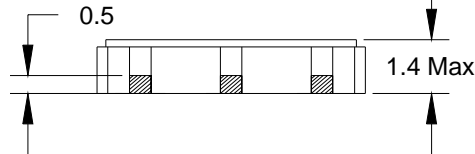


Mechanical Dimensional Drawing & Pad Layout

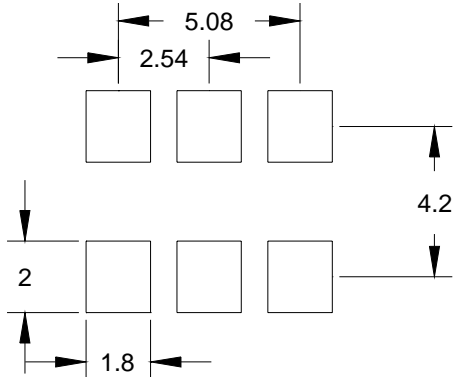


Actual part marking is depicted.

See **Traceability** (pg. 9) for more information



Recommended Solder Pad Layout



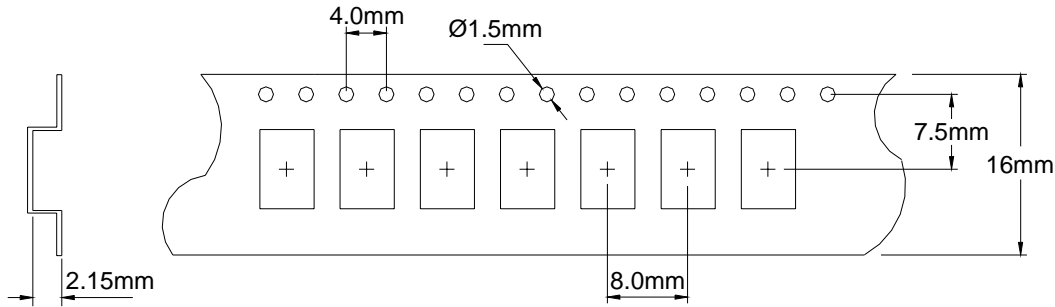
Note: XPRESSO LVDS XO's are designed to fit on Industry standard, 6 pad, layouts.

Pin Connections

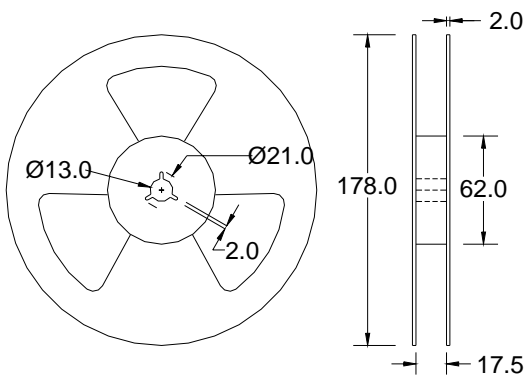
- #1) V_C
- #2) E/D
- #3) GND
- #4) Output
- #5) Output 2
- #6) V_{DD}

Drawing is for reference to critical specifications defined by size measurements. Certain non-critical visual attributes, such as side castellations, reference pin shape, etc. may vary

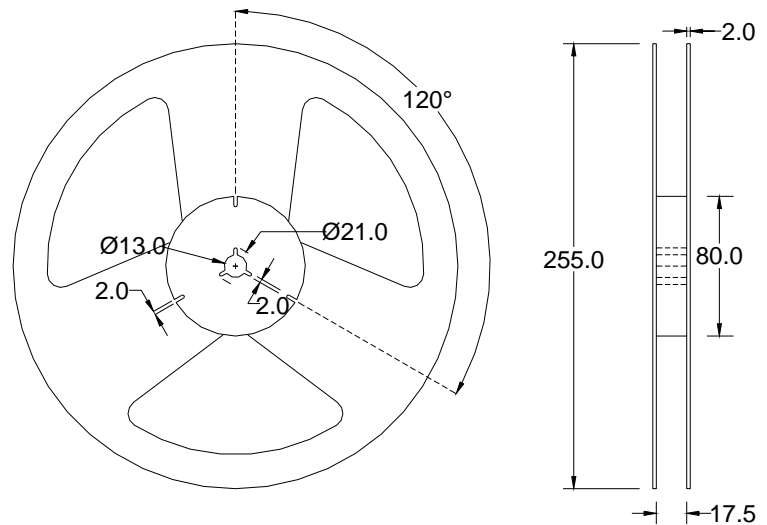
Tape and Reel Dimensions



1k Reel Dimensions in mm



2k Reel Dimensions in mm



Labeling (Reels and smaller packaging are labeled with the below)

- Fox Part Number: **796-1244.16-1**
- Quantity: **2000** pieces
- Description: **FVXO-PC73BR-1244.16**
- Date Code: **0745**
(YYWW 2007 45th wk)
- LOT #: **24435**
If traceability should become necessary

SKU 796-1244.16-1

QTY: 2000

DESC FVXO-PC73BR-1244.16

DATE CODE: 0745

LOT: 24435

Pb-Free RoHS Compliant Category (e4)

FOX Xpress0®

Covered by one or more of listed U.S. Patents: 6,664,860, 5,960,403, 5,960,405, 5,952,890, 6,188,290

Foreign Patents:
 China ZL 98802217.6 Mexico 23277
 R.S.A. 98/0806, ROC 120851, Singapore 67081; 67082, EP 0958052 Hong Kong HK1026079
 Malaysia MY-118540-A Philippines Patent: 1-1998-000246
 US and Foreign Patents Pending

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An additional identification code is contained internally if tracking should ever be necessary

