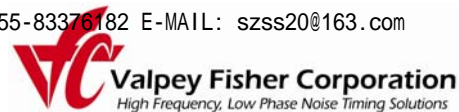
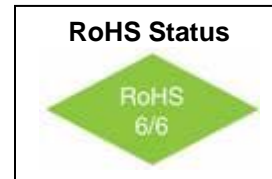
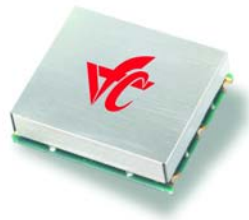


# Quad Output Frequency Translator



## Features

- 1.5 GHz Output Frequency Range
- Ultra Low Jitter and Phase Noise
- 4 Selectable Output Frequencies
- Low Power: <220mW typical
- Low Profile SMD package

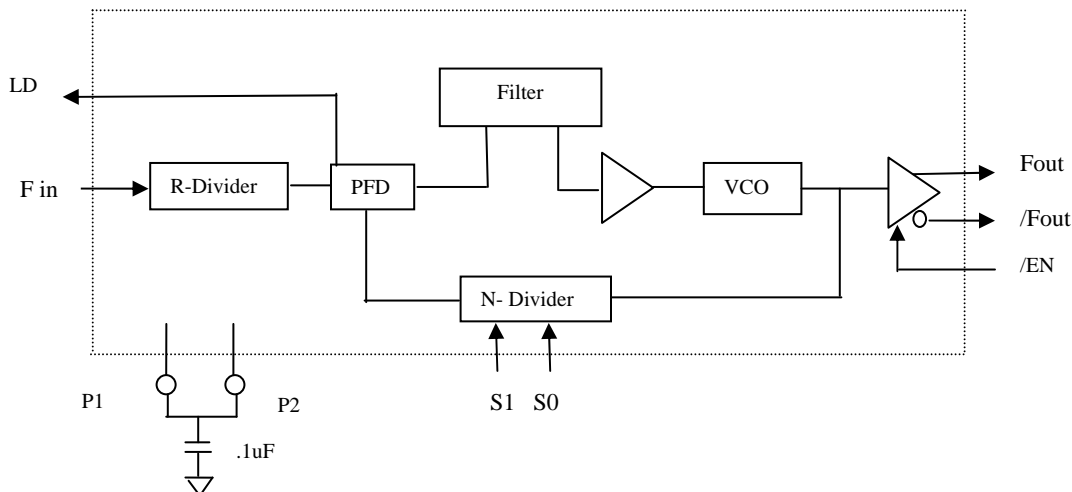


## Applications

- Optical Networking, Sonet / SDH / ATM
- 10 Gigabit Ethernet
- Forward Error Correction (FEC)

## Description

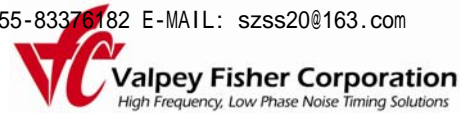
The VFF110 is a Frequency Translator which accepts an input frequency up to 800 MHz and provides an output frequency up to 1.5 GHz. Up to four Input and Output combinations are possible. Each I/O is preset and determined by the frequency select inputs [S1:S0]. A Lock Detect output signal indicates an “out of lock” condition. The device is implemented with a Phase Locked Loop where all Loop Filter components are integrated into the module. The VFF110 is offered in a 19.5mm x17mm surface mount package. Consult factory for frequency selections.



**Block Diagram**



# Quad Output Frequency Translator



### Absolute Maximum Ratings

Parameter	Min	Max	Units
Power Supply Voltage	-.50	+4.0	Volts
Storage Temperature	-45	+90	° C

### Operating Specification

Parameter	Specification	Notes
Supply Voltage	3.3 Volts +/- 5%	
Supply Current	80 mA (max)	
Output Frequencies (F0) – F0(3)	< 1500 MHz	See Table 2
Output Frequency Range	100MHz (max)	Fout Min to Fout Max
Output Configuration	Differential LVPECL	Unterminated
Jitter (rms)	0.250 pS (typ)	50 KHz to 80 MHz
Input frequency Fin( 0) – Fin (3)	< 800 MHz	See Table 2
Input configuration	Single-ended, AC coupled	
Input Level	150 mVp-p(min) / 900mV (max)	Fin > 200 MHz
Input Level	400 mVp-p (min) / 3 .3V (max)	
Modulation Bandwidth	1 K Hz	Consult Factory for options
Start up Time	300 mS (max)	
I/O Select Inputs	S1: S0	LVC MOS See Note 1
Lock Detect Output (LD)	Logic "1" : In lock Logic "0" : Out of lock	LVC MOS
Lock / Capture Range	1% ( min)	
Operating Temperature Range	-40 °C to +85 °C	

### Example

Table 1

Input Frequency	Output Frequency	I / O Ratio	Select inputs [S1 : S0]
669.32658 MHz	622.080 MHz	85 / 79	0 0
669.32658 MHz	669.32658 MHz	1 / 1	0 1
693.48315 MHz	644.5314 MHz	85 / 79	1 0
704.38 MHz	657.4213 MHz	90 / 84	1 1

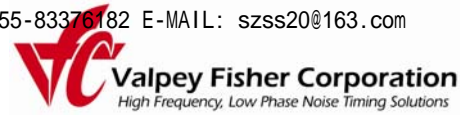
### Notes

1. The input frequency must be within 500 ppm of final value before asserting the "Select Inputs."



# VFFT110

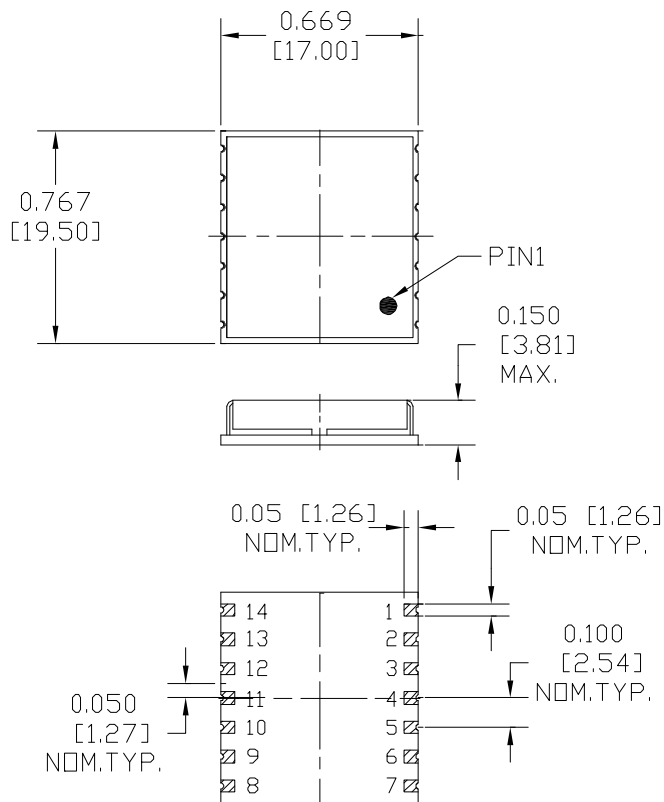
## Quad Output Frequency Translator



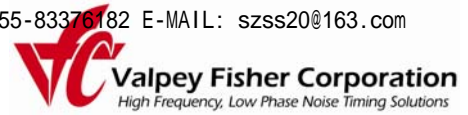
### Pin Assignments

Pin #	Symbol	Description	Notes
1	Fin	Input Frequency	
2	Gnd	Ground	
3	S1	I/O Select (msb)	
4	LD	Lock Detect	
5	S0	I/O Select (lsb)	
6	DNC	Do not connect to this pad	
7	DNC	Do not connect to this pad	
8	Vcc	3.3 Volt Power Supply	
9	Gnd	Ground	
10	/OE	Output Disable	
11	/Fout	Complimentary Output	
12	Fout	Output	
13	P1	Connect to P2 externally	Add .1 uF Capacitor
14	P2	Connect to P1 externally	

### Mechanical Outline



# Quad Output Frequency Translator



### Ordering Information:

Once Input and Output frequencies have been submitted and approved, the Factory will assign a part number.

VFFFT110 - 

suffix
--------

**Sample Frequencies** **Table 2**

P/N suffix	S1:S0	Input Frequency (MHz)	Output Frequency (MHz)	P/N suffix	S1:S0	Input Frequency (MHz)	Output Frequency (MHz)
-121	00	622.080	669.32658	-122	00	669.32658	622.080
	01	669.32658	669.32658		01	669.32658	669.32658
	10	644.5314	693.48315		10	693.48315	644.5314
	11	657.4213	704.38		11	704.38	657.4213
-123	00	155.5200	669.32658	-124	00	167.331645	622.080
	01	167.33164	669.32658		01	167.331645	669.32658
	10	161.13285	693.48315		10	173.370787	644.5314
	11	164.355325	704.38		11	176.09500	657.4213
-125	00	25.000 MHz	625.000	-126	00	19.44	622.0800
	01	125.000	625.000		01	19.44	644.5314
	10	156.250	625.000		10	19.44	669.32658
	11	25.000	625.000		11	19.44	690.5692
-127	00	19.44 MHz	155.52				
	01	19.44 MHz	156.25				
	10	25.000 MHz	155.52				
	11	25.000 MHz	156.25				