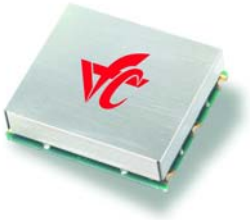
VFJA401

Quad Input to 800MHz Jitter Attenuator w/ F_{OUT} to 200 MHz

Valpey Fisher Corporation
High Frequency, Low Phase Noise Timing Solutions

Features

- 10 MHz to 200MHz Output Frequency Range
- 200 MHz to 800 MHz Input Frequency Range
- Ultra Low Jitter and Phase Noise: -130 dBc/Hz @ 1KHz
- Low Power: < 150mW typical



RoHS Status

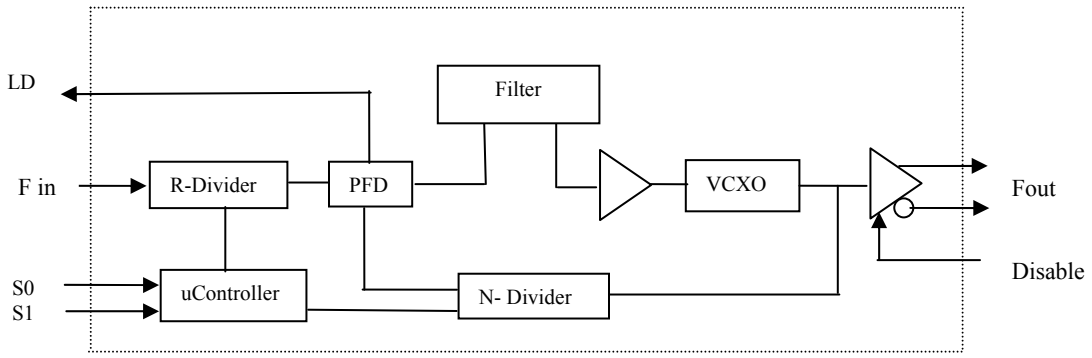
RoHS 6/6

Applications

- Sonet / SDH / ATM
- 10 Gigabit Ethernet
- Wireless Infrastructure

Description

The VFJA401 is a Jitter Attenuator capable of providing an output frequency up to 200 MHz. Two select inputs [S1,S0] allow the user to select 1 of 4 preset input frequencies. A Lock Detect signal indicates when the output signal is frequency locked to the input. Operating with a +3.3 volt power supply the device typically consumes 150 mW. The output is configured as a differential LVPECL signal and requires external termination resistors. The VFJA401 is available in a 19.5mm x 15.5 mm surface mount package.



Block Diagram

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Absolute Maximum Ratings

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Supply Break Down Voltage	Vcc		-0.5		5.5	V	
Storage Temperature	Ts		-55		+105°	°C	

Electrical Specifications

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Output Frequency Range	Fout		10		200	MHz	
Input Frequency Range	Fin		200		800	MHz	
Input Level	Vin	AC coupled internally	0.4		3.3	V p-p	
Output Level Logic "1"	Voh	50 Ohm to Vcc-2V or Thevenin Equivalent	Vcc-0.96		Vcc-0.81	V	
Output Level Logic "0"	Vol		Vcc-1.85		Vcc-1.65	V	
Phase Jitter		12KHz to 20MHz		0.20	0.5	ps(rms)	
SSB Phase Noise	Φn	100Hz 1KHz 10KHz 100KHz		-100 -130 -145 -150		dBc/Hz	@ 155.52MHz
APR			± 32			ppm	
Modulation BW			10			Hz	Note 1
Duty Cycle		@ 50%	45	50	55	%	
Rise / Fall Time	Tr/Tf	20% to 80%			0.6	ns	
Start up time				2	10	ms	
Supply Voltage	Vcc		3.15	3.30	3.45	V	
Input Current	Icc			45	55	mA	
Operating Temperature Range	Ta		-40°		+85°	°C	
Lock Detect	LD	Output HIGH (> 2.5 V) : In Lock; Output LOW (< .5V): Out of Lock					LVCMOS
Enable / Disable Function	Input HIGH (>2.5V): Output Disabled Input LOW (<0.5V) or floating: Output Enabled						LVCMOS
Enable / Disable Time	Te/Td				100	ns	

Notes:
1. Consult factory for Bandwidth options

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How to Order

VFJA401 — 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)
-001	00	622.080	19.44	-002	00	622.080	38.88
	01	644.5314	19.44		01	644.5314	38.88
	10	669.32658	19.44		10	669.32658	38.88
	11	693.48315	19.44		11	693.48315	38.88
-003	00	622.080	77.76	-004	00	622.080	155.52
	01	644.5314	77.76		01	644.5314	155.52
	10	669.32658	77.76		10	669.32658	155.52
	11	693.48315	77.76		11	693.48315	155.52

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

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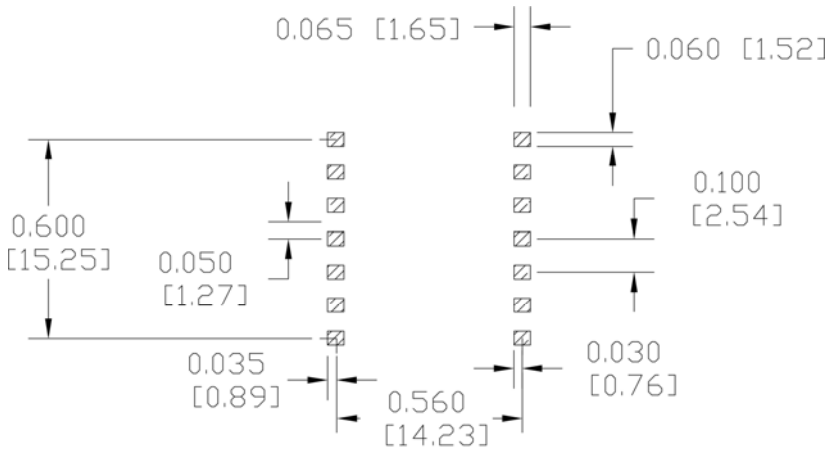
Environmental and Mechanical

Parameter	Specification
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 (crystal only)

Pin #	Description
1	Fin
2	Lock Detect
3	Vcc
4	Vcc
5	S1
6	DNC
7	S0
8	Gnd
9	N/C
10	Disable
11	nFout
12	Fout
13	N/C
14	Gnd

Mechanical Outline



Connection Diagram