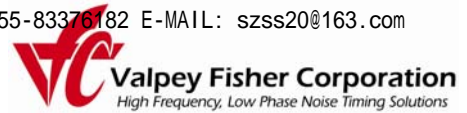
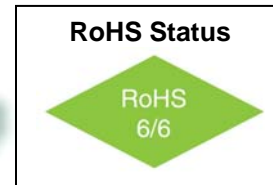
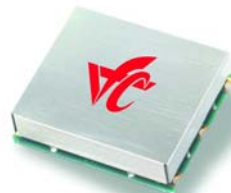


VFJA402 Jitter Attenuator with 3 Input Frequency Selections plus Free Run Mode



Features

- Free Run Mode
- 8KHz to 200MHz Input Frequency Range
- Ultra Low Jitter and Phase Noise: -130dBc/Hz @ 1KHz
- Low Power: < 150mW typical

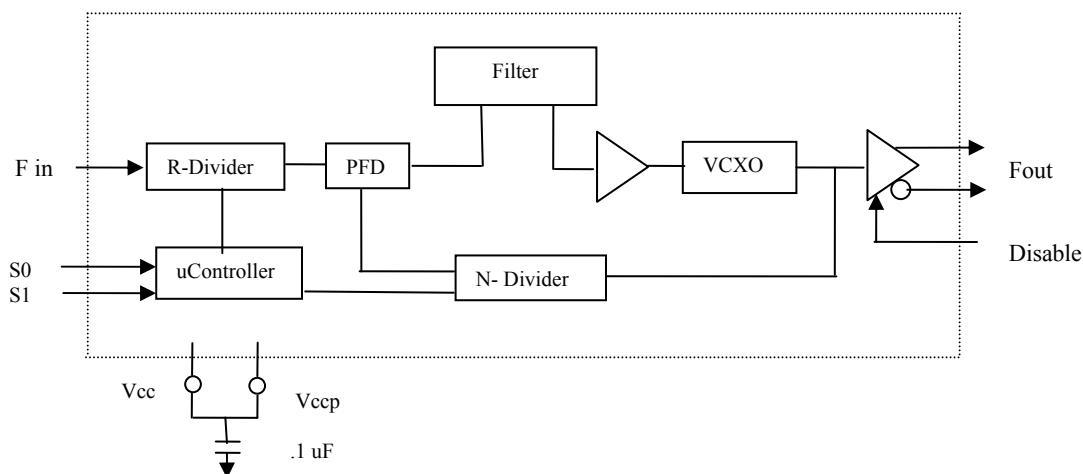


Applications

- Synchronous Ethernet
- Wireless Infrastructure

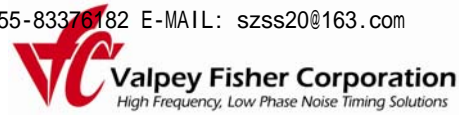
Description

The VFJA402 is a jitter attenuator capable of providing an output frequency up to 200MHz. Two select inputs [S1,S0] allow the user to select 1 of 3 preset input frequencies or the free run mode. In free run mode the device provides the nominal output frequency and is not phase locked to the input frequency. Operating with a +3.3 volt power supply the device typically consumes 150mW. The output is configured as a differential LVPECL signal and requires external termination resistors. The VFJA402 is available in a 19.5mm x 15.5mm surface mount package.



Block Diagram

VFJA402 Jitter Attenuator with 3 Input Frequency Selections plus Free Run Mode



Absolute Maximum Ratings

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Supply Break Down Voltage	V _{cc}		-0.5		5.5	V	
Storage Temperature	T _s		-55		+105°	°C	

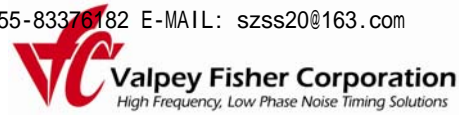
Electrical Specifications

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note	
Output Frequency Range	F _{out}		10		200	MHz		
Input Frequency Range	F _{in}		0.008		200	MHz	See Table 1	
Input Level	V _{in}	AC coupled internally	0.4		3.3	V p-p	Note 2	
Output Level Logic "1"	V _{oh}	50 Ohm to V _{cc} -2V or Thevenin Equivalent	V _{cc} -0.96		V _{cc} -0.81	V		
Output Level Logic "0"	V _{ol}		V _{cc} -1.85		V _{cc} -1.65	V		
Phase Jitter		12KHz to 20MHz		0.20	0.5	ps(rms)		
SSB Phase Noise	Φ _n	100Hz 1KHz 10KHz 100KHz		-100 -130 -145 -150		dBc/Hz	@ 155.52MHz	
APR			± 32			ppm		
Modulation BW			10			Hz	Note 1	
Free run Accuracy		-40 °C to +85 °C			+/- 35	ppm		
Duty Cycle		@ 50%	45	50	55	%		
Rise / Fall Time	Tr/Tf	20% to 80%			0.6	ns		
Start up time				3		s		
Supply Voltage	V _{cc}		3.15	3.30	3.45	V		
Input Current	I _{cc}			45	55	mA		
Operating Temperature Range	T _a		-40°		+85°	°C		
Enable / Disable Function		Input HIGH (>2.5V): Output Disabled (F _{out} ="0"; nF _{out} ="1") Input LOW (<0.5V) or floating: Output Enabled						LVC MOS
Enable / Disable Time	Te/Td				100	ns		

Notes:

1. Consult factory for Bandwidth options
2. For F_{in} < 20 MHz , ensure SR > 50 V/μs
3. For best noise immunity use [S1, S0] = [0, 0]

VFJA402 Jitter Attenuator with 3 Input Frequency Selections plus Free Run Mode



How to Order

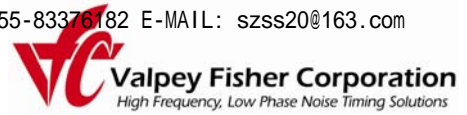
VFJA402 — Suffix (See Table 1)

Standard Frequencies **Table 1**

P/N suffix	S1:S0	Input Frequency (MHz)	Output Frequency (MHz)	P/N suffix	S1:S0	Input Frequency (MHz)	Output Frequency (MHz)
-001	00	Free Run Mode	156.25	-002	00	Free Run Mode	155.52
	01	0.008	156.25		01	0.008	155.52
	10	19.44	156.25		10	19.44	155.52
	11	161.1328125	156.25		11	155.52	155.52
-003	00	Free Run Mode	156.25	-004 Note 3	00	25	155.52
	01	161.1328125	156.25		01	25	155.52
	10	19.44	156.25		10	25	155.52
	11	125	156.25		11	25	155.52
-005	00	Free Run Mode	155.52	-006	00	Free Run Mode	156.25
	01	25	155.52		01	25	156.25
	10	100	155.52		10	125	156.25
	11	100	155.52		11	156.25	156.25
-007	00	Free Run Mode	125.00	-008	00	Free Run Mode	153.60
	01	161.1328125	125.00		01	19.20	153.60
	10	19.44	125.00		10	19.20	153.60
	11	125	125.00		11	19.20	153.60

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

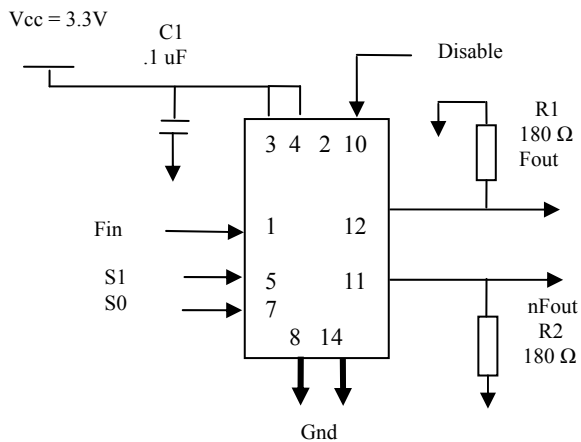
VFJA402 Jitter Attenuator with 3 Input Frequency Selections plus Free Run Mode



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 5×10^{-8} atm.cc/s of helium (crystal only)

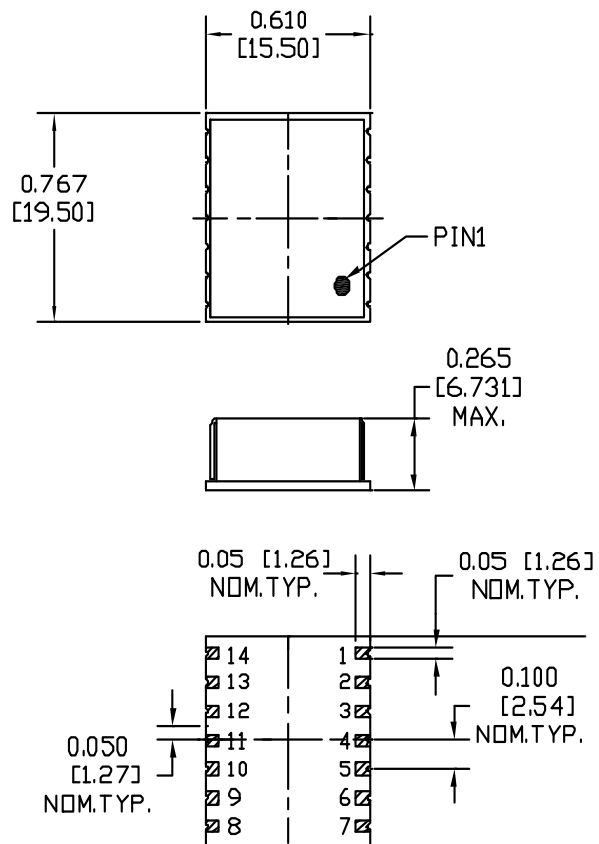
Connection Diagram



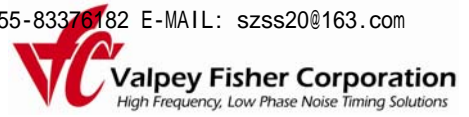
Pin #	Description
1	Fin
2	DNC
3	Vccp
4	Vcc
5	S1
6	DNC
7	S0
8	Gnd
9	N/C
10	Disable
11	nFout
12	Fout
13	N/C
14	Gnd

* Connect pin #3 to pin #4 and add .1 uF

Mechanical Outline



VFJA402 Jitter Attenuator with 3 Input Frequency Selections plus Free Run Mode



Recommended Pad Layout

