

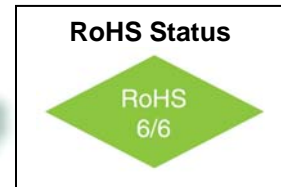
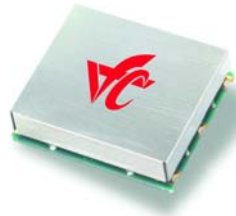
VFJA915

Jitter Attenuator with 3 Input Frequency Selections plus Free-run Mode



Features

- 25MHz Output Frequency
- Wide Lock Range
- Ultra Low Jitter and Phase Noise: -143 dBc/Hz @ 1KHz
- Low Power: < 150mW typical

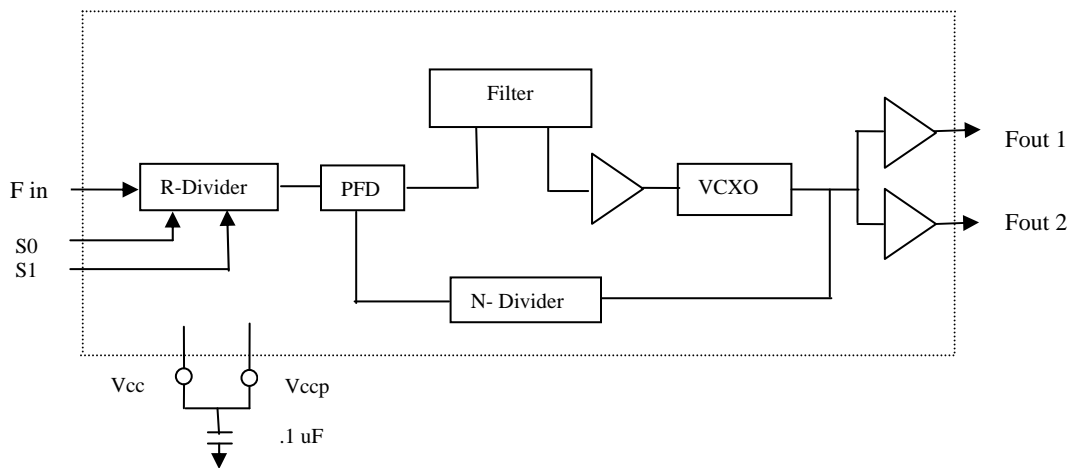


Applications

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

Description

The VFJA915 is a Jitter Attenuator that provides two LVCMOS outputs with a frequency of 25MHz. The device will frequency lock to an input frequency with an error in excess of +/- 130ppm from nominal. Two select inputs [S1,S0] allow the user to select 1 of 3 preset input frequencies or Free-run Mode. In Free-run mode the device outputs a 25MHz clock that is not locked to the input reference frequency. Operating with a +3.3 volt power supply the device typically consumes 150mW. The VFJA915 is available in a 19.5mm x 15.5mm surface mount package.



Block Diagram

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} | | | 25 | | MHz | |
| Input Frequency Range | F _{in} | Slew Rate 2.5V / ns (min) | | 2.5 25.0 125 | | MHz | See Table 1 |
| Input Level | V _{in} | AC coupled internally | 0.4 | | 3.3 | V p-p | |
| Output Level Logic "1" | V _{oh} | I _{OH} = 8 mA | V _{cc} -0.6 | | V _{cc} | V | |
| Output Level Logic "0" | V _{ol} | I _{OL} = 8 mA | 0.0 | | 0.3 | V | |
| Phase Jitter | | 12KHz to 20MHz | | 0.20 | | ps(rms) | |
| SSB Phase Noise | φ _n | 100Hz 1KHz 10KHz 100KHz | | -120 -143 -153 -163 | | dBc/Hz | @ 25 MHz |
| APR | | | ± 130 | ± 145 | | ppm | |
| Free-run Accuracy | | -40°C to +85°C | | | ±60 | ppm | |
| Modulation BW | | | 10 | | | Hz | Note 1 |
| Duty Cycle | | @ 50% | 45 | 50 | 55 | % | |
| Rise / Fall Time | T _r /T _f | 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 | |

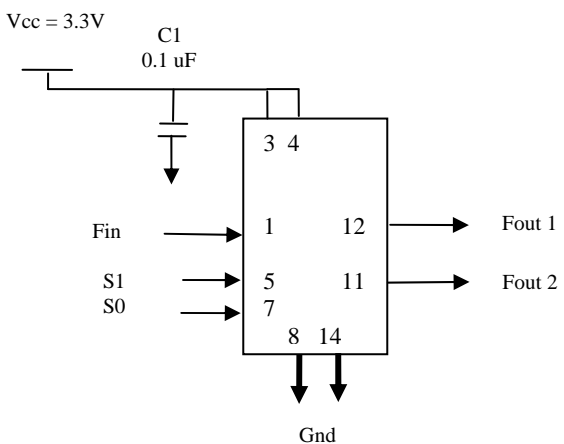
Notes:

1. Consult Factory for optional bandwidths

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 | N/C |
| 11 | Fout 2 |
| 12 | Fout 1 |
| 13 | N/C |
| 14 | Gnd |

* Connect pin #3 to pin #4 and add 0.1 uF

Mechanical Outline

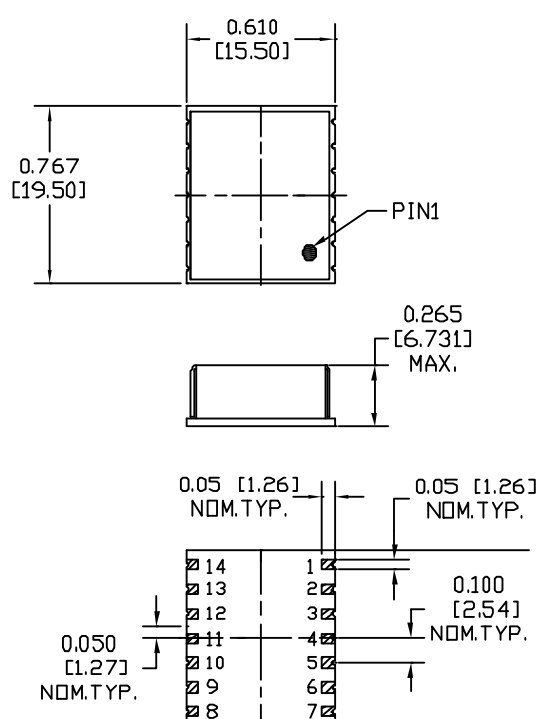


Table 1

| S1:S0 | Input Frequency (MHz) | Output Frequency (MHz) |
|-------|-----------------------|------------------------|
| 00 | Free-run Mode | 25.00 |
| 01 | 2.5 | 25.00 |
| 10 | 25.0 | 25.00 |
| 11 | 125 | 25.00 |