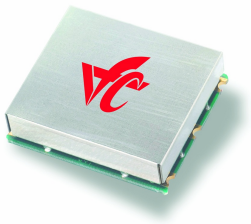
# VFJA100
## Jitter Attenuator to 1GHz
## 25.4x22mm SMD, PECL/LVPECL

Valpey Fisher Corporation
*High Frequency, Low Phase Noise Timing Solutions*

### Features
- **1.0 GHz Output** Frequency Range
- Ultra Low Jitter: <0.200 ps
- Meets OC-192 Jitter transfer, generation, and tolerance
- Low Power: <220mW typical
- Low Profile SMD package



**RoHS Status**

RoHS 6/6

### Applications
- Sonet / SDH / ATM
- 10 Gigabit Ethernet
- Forward Error Correction (FEC)

### Description
The VFJA100 is a Jitter Attenuator capable of providing an output frequency up to 1 GHz. An internal synthesizer locks to the input reference clock and multiplies it up to the desired output frequency. The output frequency is determined by a VCXO designed for a wide pull range. An internal voltage regulator offers improved stability and noise performance. The output is configured as a differential LVPECL signal and requires external termination resistors. The VFJA100 is available in a 25.4mm x 22 mm surface mount package.

### Electrical Specifications

| Parameter | Symbol | Condition | Min | Typ | Max | Unit | Note |
|---|---|---|---|---|---|---|---|
| **Input Frequency** | Fref | | 0.008 | | 100 | MHz | |
| **Output Frequency** | Fout | | 50 | | 1000 | MHz | |
| **Operating Temperature Range** | T | | 0°<br>-40° | | 70°<br>+85° | °C | *Order Code B*<br>*Order Code G* |
| **Output** | | Signal | PECL / LVPECL | | | | |
| **Supply Voltage** | Vcc | | 4.75<br>3.15 | 5.00<br>3.30 | 5.25<br>3.45 | V | *Order Code D*<br>*Order Code E* |
| **Jitter** | | 12KHz to 20MHz | | 0.2 | 0.8 | ps | |
| **SSB Phase Noise** | | 100Hz<br>1KHz<br>10KHz<br>100KHz | | -90<br>-118<br>-142<br>-145 | | dBc/Hz | @ 622.08MHz |

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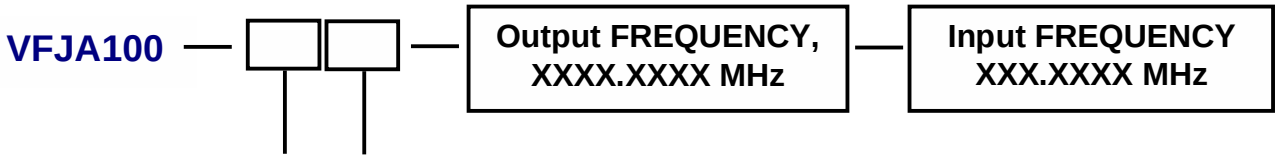
## Electrical Specifications

| Parameter | Symbol | Condition | Min | Typ | Max | Unit | Note |
|---|---|---|---|---|---|---|---|
| **Supply Current** | Icc | 50 Ohm Load | | 62 | 75 | mA | |
| **Load** | 50 Ohm to Vcc-2V or Thevenin Equivalent | | | | | | |
| **Duty Cycle** | | @ 50% | 45 | 50 | 55 | % | |
| **Logic "1" Level** | Voh | | Vcc-0.96 | | Vcc-0.81 | V | |
| **Logic "0" Level** | Vol | | Vcc-1.85 | | Vcc-1.65 | V | |
| **Lock Range** | | | 50 | 100 | | ppm | |
| **Input Level** | | AC Coupled Internally | 0.4 | | 3.3 | V p-p | |
| **Enable / Disable Function** | Input HIGH (>2.5V): DISABLED<br>Input LOW (<0.5V) or floating: ACTIVE | | | | | | LVCMOS |
| **Enable / Disable Time** | Te/Td | | | | 100 | ns | |

## Absolute Maximum Ratings

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

## How to Order




**Temperature Range**

| Code | Specification |
|---|---|
| B | 0°C to +70°C |
| G | -40°C to +85°C |

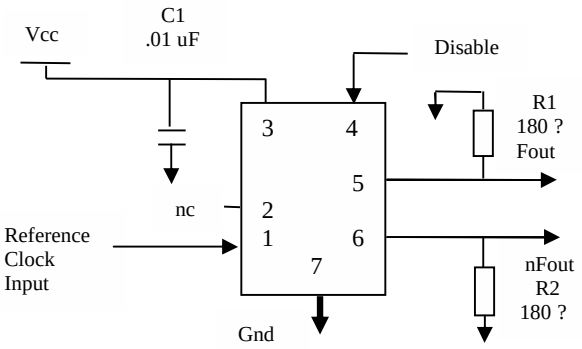
**Supply Voltage**

| Code | Specification |
|---|---|
| D | 5V ± 5% |
| E | 3.3V ± 5% |

## 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) |

### Connection Diagram




| Pin # | Connection |
|---|---|
| 1 | Vref |
| 2 | N/C |
| 3 | Vcc |
| 4 | Disable |
| 5 | Fout |
| 6 | $\overline{\text{nFout}}$ |
| 7 | GND |

### Mechanical Outline