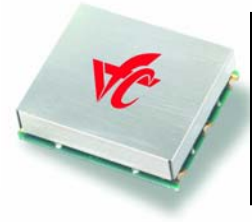
VFFT100
Frequency Translator to 1GHz
25.4x22mm SMD, PECL/LVPECL

Valpey Fisher Corporation
High Frequency, Low Phase Noise Timing Solutions

Features

- **1.0 GHz Output** Frequency Range
- Ultra Low Jitter and Phase Noise: -118 dBc/Hz @ 1KHz
- 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 VFFT100 is a Frequency Translator 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. An internal voltage regulator offers improved stability and noise performance. The output configured as a differential LVPECL signal and requires external termination resistors. The VFFT100 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		250	MHz	
Output Frequency	Fout		50		1000	MHz	
Operating Temperature Range	T		0° -40°		70° +85°	°C	*Order Code B* *Order Code G*
Output		Signal	PECL / LVPECL				
Supply Voltage	Vcc		4.75 3.15	5.00 3.30	5.25 3.45	V	*Order Code D* *Order Code E*
Jitter		12KHz to 20MHz		0.3	1.0	ps	
SSB Phase Noise		100Hz 1KHz 10KHz 100KHz		-90 -118 -142 -145		dBc/ Hz	@ 622MHz

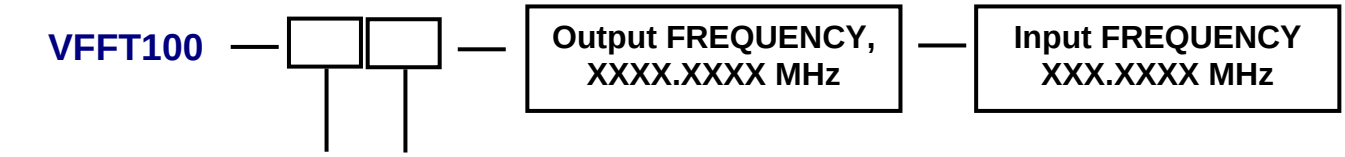
Electrical Specifications

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	
Input Level		AC Coupled Internally	0.4		3.3	V p-p	
Lock Range			70	100		ppm	
Enable / Disable Function	Input HIGH (>2.5V): DISABLED 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

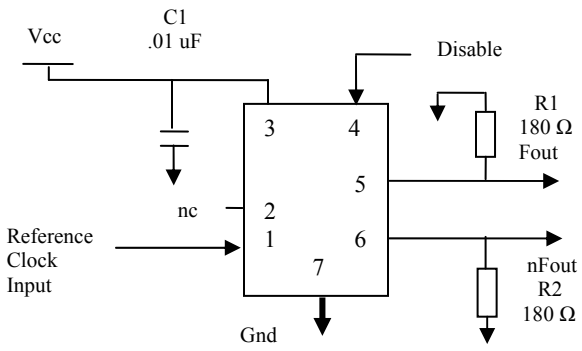
Supply Voltage

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