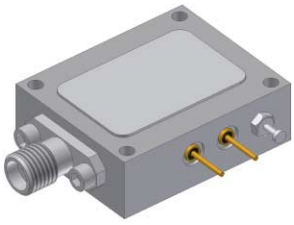
Agilent VTO-0995-SMA, VTO-1070-SMA Voltage Controlled Oscillator

Data Sheet

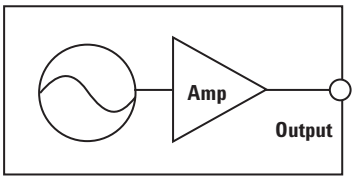


Description

The VTO-0995-SMA/ VTO-1070-SMA provides a fundamental, low jitter source as a key component for the data re-timing in the transmitter subsystem and clock and data recovery in the receiver of the 10 Gb fiber optic systems.

The oscillator uses an extremely high performance low noise Agilent Silicon Bipolar transistor in conjunction with a hyperabrupt varactor diode to provide the tuning capability. The oscillator output is then coupled through a filter to the output.

Functional Block Diagram



Features

- **Operating frequency: 9.95328 GHz or 10.754 GHz**
- **Output power (50Ω load): 2 dBm minimum**
- **Modulation sensitivity: 5 to 10 MHz/V**
- **Tuning voltage: 0 to 10 Volts**
- **Low jitter (Less than 50 femto seconds from 50 KHz to 80 MHz)**
- **Frequency drift over 0°C to +75°C: 20 MHz**
- **1.180" x 0.950" x 0.400"**

Applications

- **Transmitter and receiver sub-systems for OC-192/STM-64 applications**
- **10 GHz source**

VTO-0995-SMA, VTO-1070-SMA Absolute Maximum Ratings[1]

Parameter	Units	Ratings
Positive Supply Voltage	V	0 to +10
Tuning Voltage	V	0 to +12
Operating Temperature	°C	-10 to +95
Storage Temperature	°C	-40 to +130

Note:

1. Operation of this device in excess of any of these limits may cause permanent damage.

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VTO-0995-SMA, VTO-1070-SMA Summary Characterization, 0°C to 75°C

Parameter	Units	Min	Typ	Max
Frequency Range	GHz		9.95328 or 10.754	
Vt @ 9.95 GHz	V	0		10
Power Output (50Ω Load)	dBm	2		7
Modulation Sensitivity Modulation Sensitivity Variation	MHz/V %	5 -20		10 20
Modulation Bandwidth	MHz	20		
Output Return Loss	dB	12	15	
Second Harmonic (Below Carrier)	dBc			-20
Third Harmonic (Below Carrier)	dBc			-20
Spurious Output (Below Carrier)	dBc			-60
Phase Noise @ 100 KHz from F_o (Below Carrier)	dBc/Hz		-106	-103
Frequency Drift over Temperature	MHz			20
Pulling Figure (12 dB Return Loss)	MHz			1
Pushing Figure, ±0.2V Supply	MHz			6
Positive Supply Voltage	V	7.8	8	8.2
Positive Supply Current	mA			100
Tuning Port Input Capacitance	pf		23	
Dimensions	Inches		1.180" x 0.950" x 0.400"	

Typical Performance Curves @ +25°C

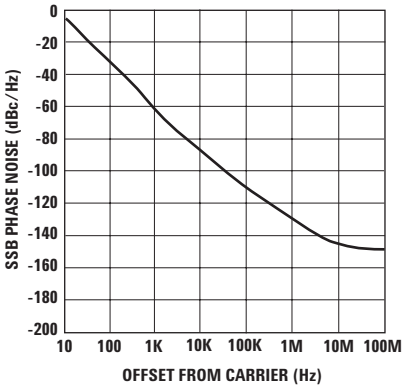


Figure 1. Typical Phase Noise Performance.

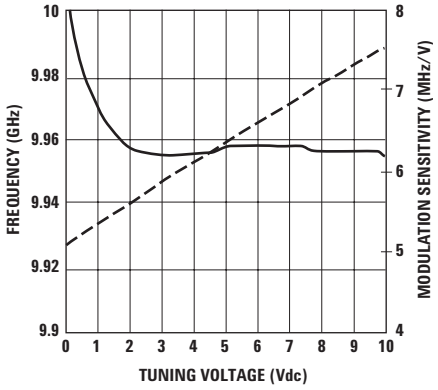


Figure 2. Frequency and Modulation Sensitivity vs. Tuning Voltage.

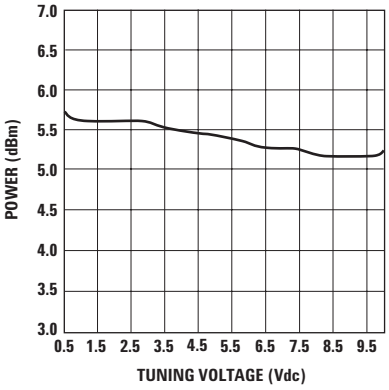
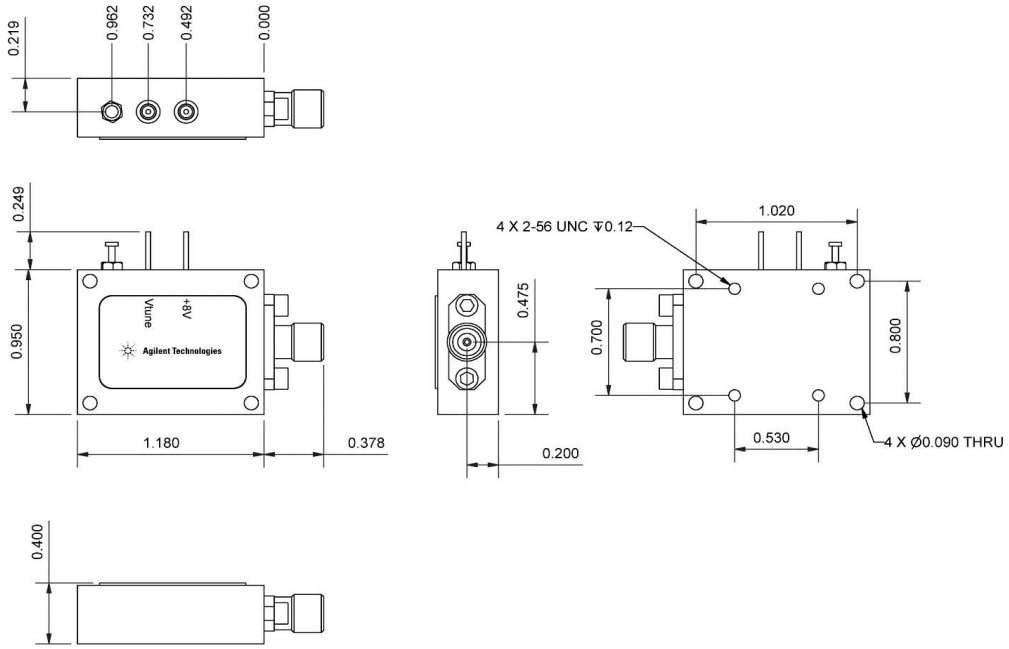


Figure 3. Power Output.

Ordering Information

Part Number	
VTO-0995-SMA:	SONET/SDH 9.95 GHz
VTO-1070-SMA:	FEC 10.75 GHz

Package Drawing and Mechanical Dimensions (inches)



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Data subject to change.

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