

27 to 40 GHz

VOLTAGE TUNED OSCILLATOR

VTO-33500-40L

Overview:

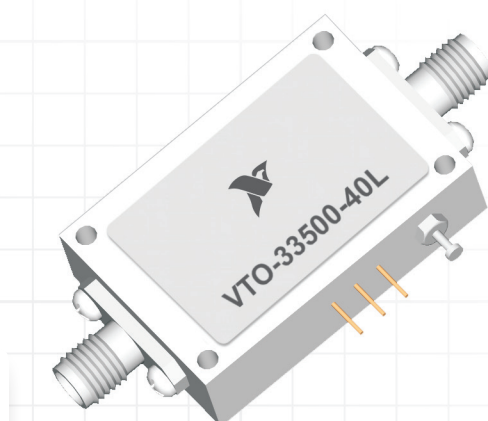
NI's VTO-33500-40L is a low-noise voltage-controlled source, which covers 27 to 40 GHz and can be used as a clock in high-speed systems or as a local oscillator or transmitter oscillator in high-frequency communications and radar systems or in wideband instrumentation applications. This low-noise source uses a high-performance, wideband oscillator followed by a frequency multiplier to cover an octave band from 27 to 40 GHz frequency range. A GaAs MMIC buffer amplifier is used to provide the necessary power output and load isolation of the oscillators.

Features:

- Operating frequency 27 to 40 GHz
- Output power 18 dBm typ.
- Phase noise < -83 dBc/Hc @ 100 kHz
- Low power consumption
- Tuning voltage 4 to 22 V
- Tuning sensitivity ratio 2:1 typ.

Applications:

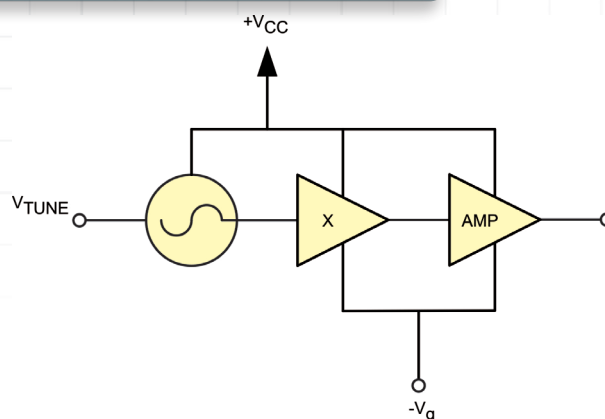
- Low-noise X/Ku-band source
- Instrumentation



Absolute Maximum Ratings

PARAMETER	UNITS	RATING
Positive Supply Voltage	V	+5.5
Negative Supply Voltage	V	-3.0 to +0.5
Tuning Voltage	V	0 to +25
Operating Temperature	C	0° to +70°
Storage Temperature	C	-40° to +125°

Block Diagram



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Model VTO-33500-40L

Specifications and ordering information subject to change without notice.

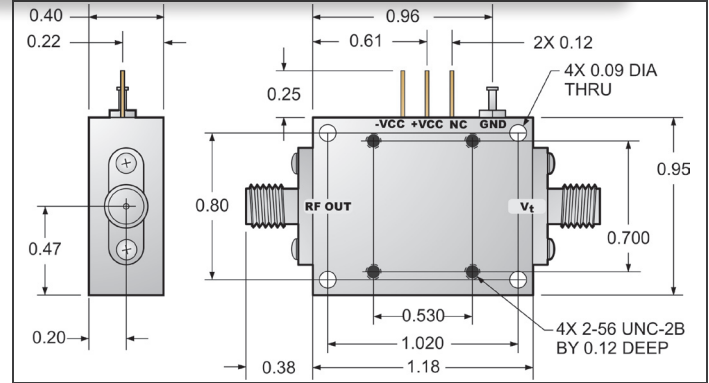
Specifications (continued)

ELECTRICAL SPECIFICATIONS (measured at 0° to +70°)

PARAMETER	UNITS	MIN.	TYP.	MAX.
Center Frequency f_o	GHz	27		40
Vt @ 27 GHz	V	4		
Vt @ 40 GHz	V			22
Output Power (50 ohms load)	dBm	16	18	22
Tuning Sensitivity	MHz/V	600		1500
Tuning Sensitivity Ratio			2:1	
Modulation Bandwidth	MHz	20		
Output Return Loss	dB	8	10	
Sub-Harmonics ($1/2 f_o$)	dBc		-40	
Second Harmonic (below carrier)	dBc		-20	
Sub-Harmonics ($3/2 f_o$)	dBc		-35	
Spurious Output (below carrier)	dBc			-60
Phase Noise @ 100 kHz from f_o	dBc/Hz		-83	-77
Phase Noise @ 1 MHz from f_o	dBc/Hz		-113	
Freq. Drift over Temp.	MHz			150
Pulling Figure (12 dB Return Loss)	MHz		20*	
Pushing Figure ($\pm 0.25 V$)	MHz		100*	
Positive Supply Voltage	V	+4.85	+5	+5.15
Positive Supply Current	mA		400	450
Negative Supply Voltage	V		-1.2	

*Estimate

Packaging Information



L = Connectorized

Ordering Information

ORDERING INFORMATION

DESCRIPTION	SPECIFICATION
Model No.	VTO-33500-40
Packaging Options	L

Data sheet PN: DS_VTO-33500-67 Rev. 3

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