



9 – 12 GHz VOLTAGE TUNED OSCILLATOR

VTO-10500-29M
VTO-10500-29T
VTO-10500-29S

Overview:

Phase Matrix's VTO-10500-29 is a low-noise fundamental voltage-controlled source, which covers 9 to 12 GHz and can be used as a clock in high-speed systems or as a local oscillator or transmitter oscillator for high-frequency communications and radar systems. This low-noise source uses a high-performance, low-noise silicon bi-polar junction transistor (Si BJT) in conjunction with a hyper-abrupt varactor diode to tune the X-band frequency range. A GaAs MMIC buffer amplifier is used to provide the necessary power output and load isolation of the oscillator.

Features:

- Operating frequency 9 to 12 GHz
- Output power 7 dBm min.
- Phase noise < -95 dBc/Hc @ 100 kHz
- Low power consumption
- Modulation sensitivity 125 to 250 MHz/V
- Tuning voltage 0 to 20 V

Applications:

- Low-noise X-band source
- Radars/Communications



Specifications

ABSOLUTE MAXIMUM RATINGS

PARAMETER	UNITS	RATING
Positive Supply Voltage	V	+6
Tuning Voltage	V	0 to +20
Operating Temperature	C	-10° to +85°
Storage Temperature	C	-40° to +125°

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

PARAMETER	UNITS	MIN.	TYP.	MAX.
Center Frequency f_0	GHz	9		12
Vt @ 9 GHz	V	0		
Vt @ 12 GHz	V			20

ELECTRICAL SPECIFICATIONS (continued)

PARAMETER	UNITS	MIN.	TYP.	MAX.
Output Power (50 ohms load)	dBm	7	10	13
Tuning Sensitivity	MHz/V	125		250
Tuning Sensitivity Ratio			2:1	
Modulation Bandwidth	MHz	20		
Output Return Loss	dB	10	12	
Second Harmonic (below carrier)	dBc			-20
Third Harmonic (below carrier)	dBc			-20
Spurious Output (below carrier)	dBc			-60
Phase Noise @ 100 kHz from f_0	dBc/Hz		-95	-90
Phase Noise @ 10 MHz from f_0	dBc/Hz			-130

9 – 12 GHz VOLTAGE TUNED OSCILLATOR

Model VTO-105000-29

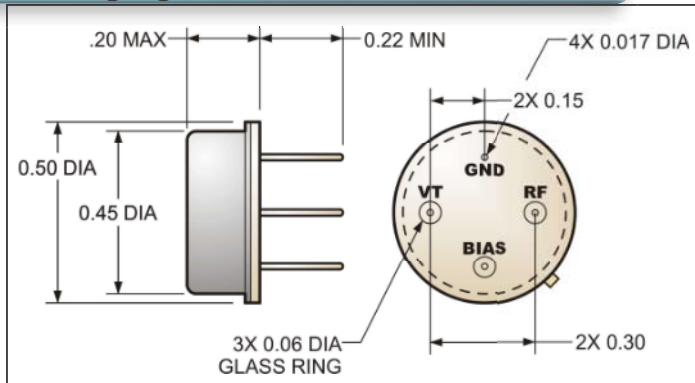
Specifications and ordering information subject to change without notice.

Specifications (continued)

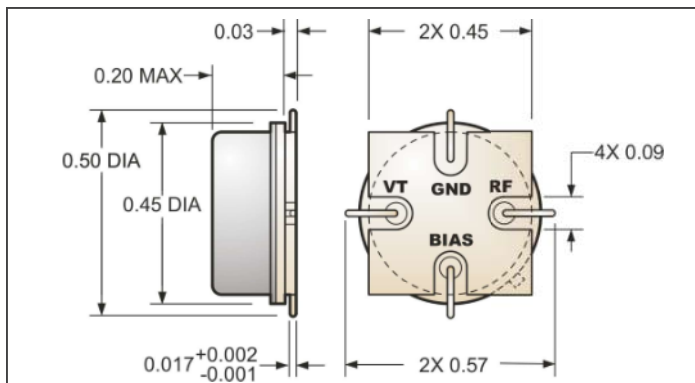
ELECTRICAL SPECIFICATIONS (continued)

PARAMETER	UNITS	MIN.	TYP.	MAX.
Frequency Drift over Temp.	MHz			80
Pulling Figure (12 dB Return Loss)	MHz		10	
Pushing Figure (± 25 V)	MHz		40	
Supply Voltage	V	+4.85	+5	+5.15
Positive Supply Current	mA		75	85

Packaging Information

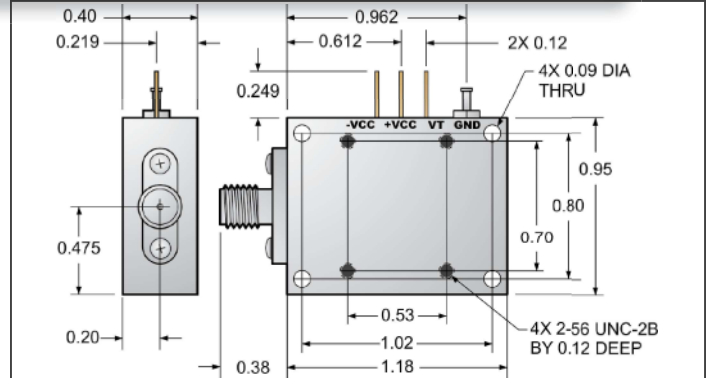


T = TO-8



S = Surface Mount TO-8

Packaging Information (continued)



M = Connectorized

Ordering Information

ORDERING INFORMATION

DESCRIPTION	SPECIFICATION
Model No.	VTO-10500-29
Packaging Options	S, T, or M

Notes:

- 1) See our [catalog](#) for information about other microwave components and sub-assemblies.

Data sheet PN: DS_VTO-10500-29 Rev. 2

Copyright © 2009 Phase Matrix, Inc. All rights reserved.