

# 4 to 8 GHz VOLTAGE TUNED OSCILLATOR

VTO-6000-67M  
VTO-6000-67T

## Overview:

Phase Matrix's VTO-6000-67 is a low-noise fundamental voltage-controlled source and can be used as a clock for 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 over an octave from 4 to 8 GHz. A GaAs MMIC buffer amplifier is used to provide the necessary power output and load isolation of the oscillators.

## Features:

- Operating frequency 4 to 8 GHz
- Output power 10 dBm typ.
- Phase noise < -95 dBc/Hc @ 100 kHz.
- Low power consumption
- Tuning sensitivity ratio 2:1 typ.
- Tuning voltage 0 to 20 V

## Applications:

- X-band, low-noise source
- Instrumentation



## Specifications

### ABSOLUTE MAXIMUM RATINGS

PARAMETER	UNITS	RATING
Positive Supply Voltage	V	+6
Tuning Voltage	V	0 to +20 V
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	4		8
Vt @ 4 GHz	V	0		
Vt @ 8 GHz	V			20

### ELECTRICAL SPECIFICATIONS (continued)

PARAMETER	UNITS	MIN.	TYP.	MAX.
Output Power (50 ohms load)	dBm	7	10	13
Tuning Sensitivity	MHz/V	200		500
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			-135

# 4 to 8 GHz VOLTAGE TUNED OSCILLATOR

Model VTO-6000-67

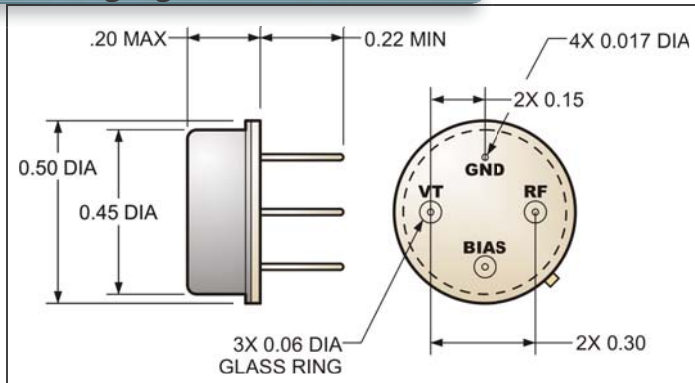
Specifications and ordering information subject to change without notice.

## Specifications (continued)

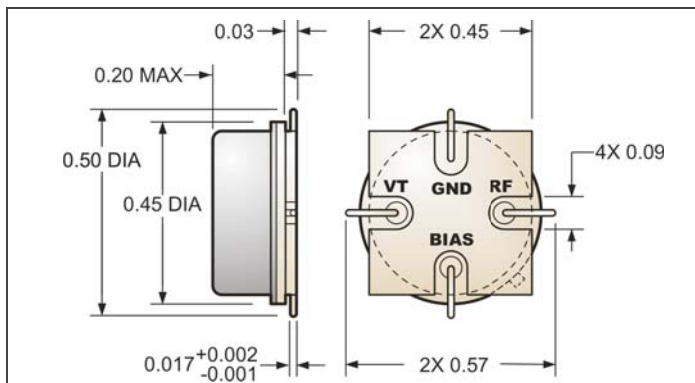
### ELECTRICAL SPECIFICATIONS (continued)

PARAMETER	UNITS	MIN.	TYP.	MAX.
Frequency Drift over Temp.	MHz			80
Pulling Figure (12 dB Return Loss)	MHz		10	
Pushing Figure ( $\pm 0.25$ V)	MHz		40	
Supply Voltage	V	+4.85	+5	+5.15
Positive Supply Current	mA		65	75

## Packaging Information

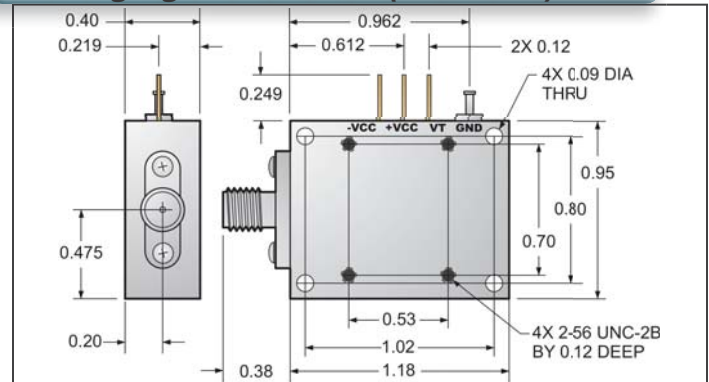


T = TO-8



S = Surface Mount TO-8

## Packaging Information (continued)



M = Connectorized

## Ordering Information

### ORDERING INFORMATION

DESCRIPTION	SPECIFICATION
Model No.	VTO-6000-67
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-6000-67 Rev. 2

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