

# VFOV302

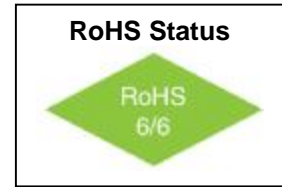
## OCXO – STRATUM 2 Compliant

### HCMOS / SINE WAVE



#### Features

- Ø Standard frequencies: 10MHz, 12.8MHz
- Ø ± 0.1 ppb frequency stability over temperature
- Ø Ultra low jitter and phase noise



#### Applications

- Ø Telecommunication Systems
- Ø Rubidium Standard Replacement
- Ø Data Communications
- Ø Stratum II Clocking Systems

#### Electrical Specifications

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Frequency Range	$F_{NOM}$		8.0	10.0	100	MHz	
Frequency Stability	$\Delta F/F$	Vs. Operating temperature A: 0°C to +50°C			± 0.1	ppb	See "How to Order" Chart
		Vs. Supply voltage		± 0.2		ppb	
		Vs. Aging / Day Vs. Aging / Year After 20 years			±0.2 ±30 ±0.35	ppb ppb ppm	After 30 days. (8-10MHz) See "How to Order" Chart
Temperature Range	T		-40		+85	°C	Order Code G
Supply Voltage	$V_{CC}$		4.75 11.4	5.0 12.0	5.25 12.6	V	Order Code D Order Code B
Power Consumption	P	Steady state @ 25°C Steady state @ -30°C Start-up @ -30°C		1.25 2.0 3.5	1.5 2.4 6.0	W	
Output		HCMOS $V_H / V_L$ Sine	3.9 +6	+8	0.4 +10	V dBm	
Load		50 Ohms (Sinewave), 10kOhms / 15pF (HCMOS)					Order Code S Order Code H
Duty Cycle		HCMOS	45		55	%	
Sub-Harmonics		< 30MHz > 30MHz		None	-40	dBc	Fundamental Multiplied
SSB Phase Noise		1Hz 10Hz 100Hz 1kHz 10kHz		-95 -125 -145 -155 -165		dBc/Hz	@ 10MHz



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**Electrical Specifications**

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Warm Up Time		To 0.01ppm accuracy @ +25°C		3	5	min	
Retrace		After 30 minutes			± 1.0	ppb	
G-Sensitivity		Worst direction			± 1.0	ppb/g	
Control Voltage	V <sub>C</sub>		0		4.2	V	
Pullability			± 0.35	± 0.4		ppm	
Deviation Slope		Monotonic, positive		0.2		ppm/V	
Reference Output	V <sub>REF</sub>	@25°C, F <sub>NOM</sub>	4.19	4.3	4.41	V	

**Absolute Maximum Ratings**

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Supply Break Down Voltage	V <sub>CC</sub>	5V Model 12V Model	-0.5 -0.5		+6.0 +15.0	V	
Control Voltage	V <sub>C</sub>		-1		6	V	

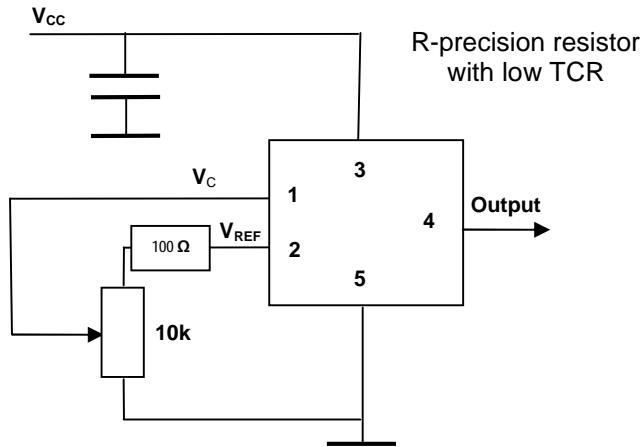
**Environmental and Mechanical Conditions**

Parameter	Condition
Mechanical Shock	Per MIL-STD-202, 30G, half sine pulse, 11ms
Vibration	Per MIL-STD-202, 5G swept sine 10 to 500Hz
Soldering Conditions	260°C for 10s max
Storage Temperature	-60°C to +90°C
Markings	Epoxy ink or laser engraved

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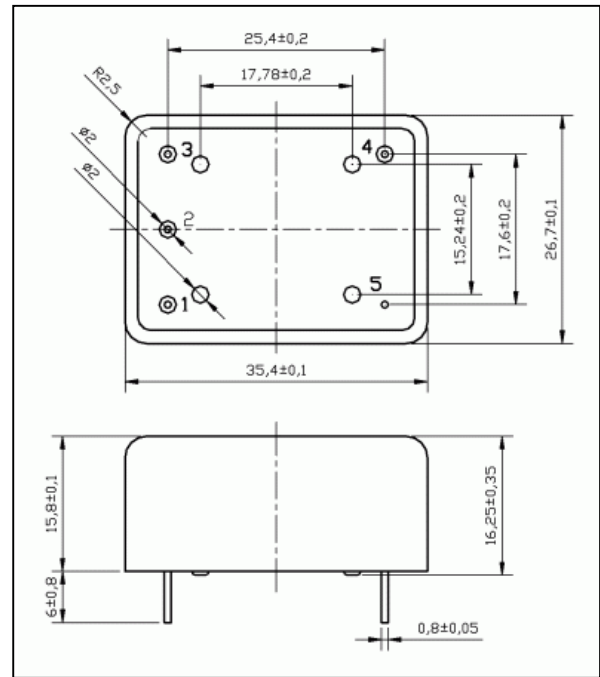
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Pin #	Connection
1	V <sub>C</sub>
2	V <sub>REF</sub>
3	V <sub>CC</sub>
4	Output
5	GND

### VFOV302 package



### How to Order

Model	Stability	Temperature Range	Supply Voltage	APR	Aging	Output	Frequency, MHz
VFOV302	1	B	D	V	C	H	10

Package Dimensions (mm)	
VFOV302	35 x 26

Code	Specification
3	3x10 <sup>-10</sup>
2	1x10 <sup>-10</sup>
1	2x10 <sup>-10</sup>
Z	5x10 <sup>-10</sup>
Y	1x10 <sup>-9</sup>

Code	Specification
A	0°C to 50°C
B	0°C to 70°C
C	-10°C to 60°C
D	-20°C to 70°C
E	-30°C to 70°C
G	-40°C to 85°C

Code	Spec.
V	VCXO
T	No tuning

Code	Specification
D	5V ± 5%
B	12V ± 5%

Code	Specification
H	HCMOS
S	Sine wave

Code	Per day	Per year
C	1ppb	0.1ppm
D	0.5ppb	50ppb
G	0.2ppb	30ppb

Available Frequency Stabilities over Operating Temperature Ranges

Code	Temperature Range	Stability				
		1x10 <sup>-9</sup>	5x10 <sup>-10</sup>	3x10 <sup>-10</sup>	2x10 <sup>-10</sup>	1x10 <sup>-10</sup>
A	0°C to 50°C	*	*	*	*	*
C	-10°C to 60°C	*	*	*	*	*
B	0°C to 70°C	*	*	*	*	
D	-20°C to 70°C	*	*	*	*	
E	-30°C to 70°C	*	*	*		
G	-40°C to 85°C	*	*	*		

