

VFOV100 Series

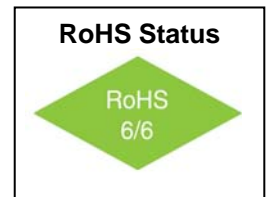
OCXO – Ultra Low Noise, Ultra Stable

HCMOS / SINEWAVE



Features

- 5MHz to 120MHz Frequency Range
- Ultra Low Phase Noise: (fundamental crystal)
 - -155 dBc/Hz @ 1KHz offset
 - -168 dBc/Hz floor
- Sine Wave or HCMOS output
- Multiple package options



Applications

- PLL reference for Telecommunication Systems
- Microwave Communications / RADAR signal source
- GPS holdover
- Instrumentation / Test and Measurement

Replaces Valpey Fisher Part Number(s): VFTCS, VFTCR, VFTCE, and VFTCI

Electrical Specifications

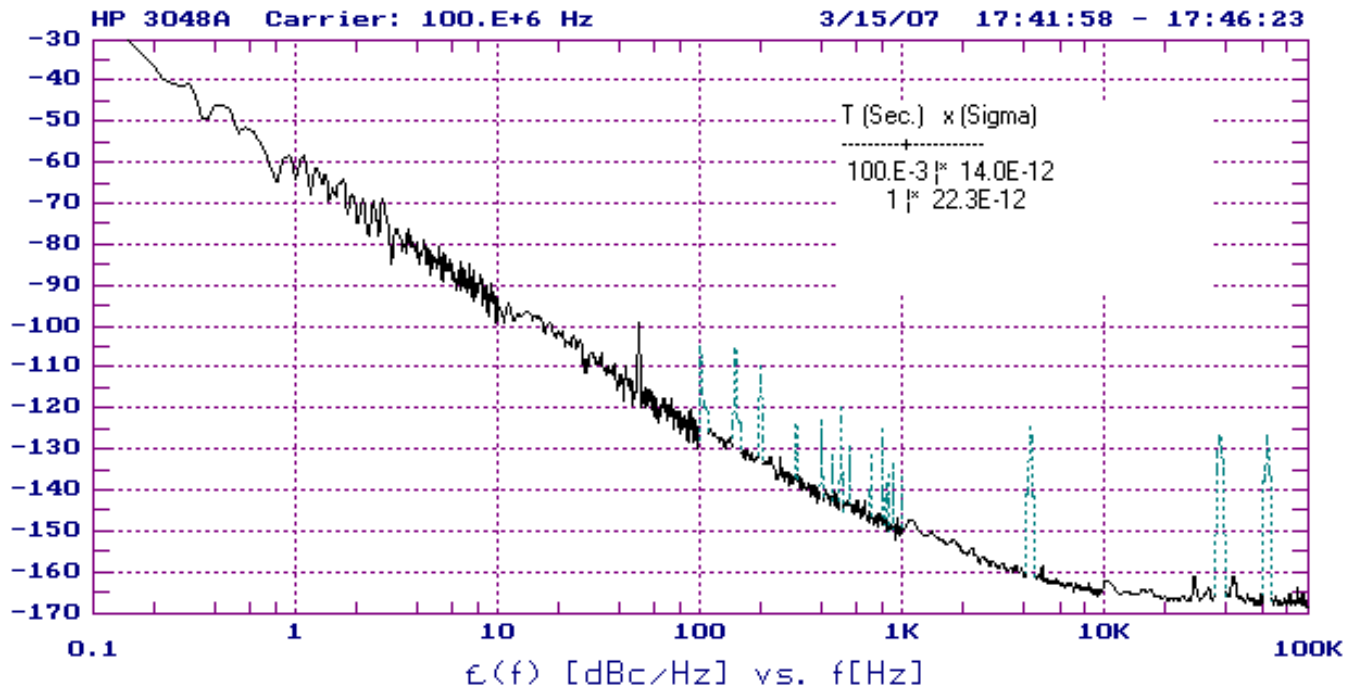
Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Frequency Range	F		5		120	MHz	
Frequency Stability	$\Delta F/F$	Vs. Operating Temp. E: -30°C to +70°C		± 10		ppb	STD option shown. See "How to Order" Chart below
		Vs. Supply Voltage		± 3	± 5	ppb	Ref. Vcc typ.
	Vs. Aging / Day Vs. Aging / Year		3 0.3		ppb ppm	after 30 days 0.2ppb available	
Operating Temperature Range	T		-30°		+70°	°C	STD option shown. See "How to Order" Chart below
Allan Variance		1s		10e-12			
SSB Phase Noise		1Hz		-95		dBc/Hz	For 10MHz Oscillator (For 100MHz see plot on next page)
		10Hz		-125			
		100Hz		-145			
		1KHz		-155			
		10KHz		-165			
		100KHz		-168			
Retrace		After 30 min.			± 20	ppb	
G-sensitivity		worst direction			± 1	ppb/g	
Supply Voltage	Vcc		11.4 4.75 3.14	12.0 5.0 3.3	12.6 5.25 3.47	V	
Power Consumption	P	steady state, 25°C steady state, -30°C start-up		1.0 2.0 3.2	1.2 2.2 3.5	W	
Warm up time	τ	+25°C		2	3	min	to 0.1ppm accuracy

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Electrical Specifications

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
HCMOS / TTL Output Levels		HCMOS/TTL	10KOhm / 15pF				Order Code H
	V _H	V _{CC} = 5 or 12V V _{CC} =3.3V	3.9 2.4			V	
	V _L				0.4	V	
Rise / Fall time		At 100MHz			10	ns	
Duty Cycle			45		55	%	
Sine-Wave Output Levels		V _{CC} =5 or 12V V _{CC} =3.3V	+6 +3	+8 +4	+10 +5	dBm	Order Code S
	RL			50		Ω	
Harmonics					-25	dBc	
Sub-Harmonics			none				Fundamental
Control Voltage	V _c	V _{CC} = 5 or 12V V _{CC} =3.3V	0 0		4.3 2.8	V	
Pull Range		from nominal F	±0.5	±1		ppm	At 100MHz
Deviation slope		V _{CC} = 5 or 12V V _{CC} = 3.3V	0.125 0.4			ppm/ V	Monotonic, Positive
Reference output	V _{ref}	V _{CC} = 5 or 12V V _{CC} =3.3V	4.1 2.7	4.3 2.8	4.4 2.9	V	



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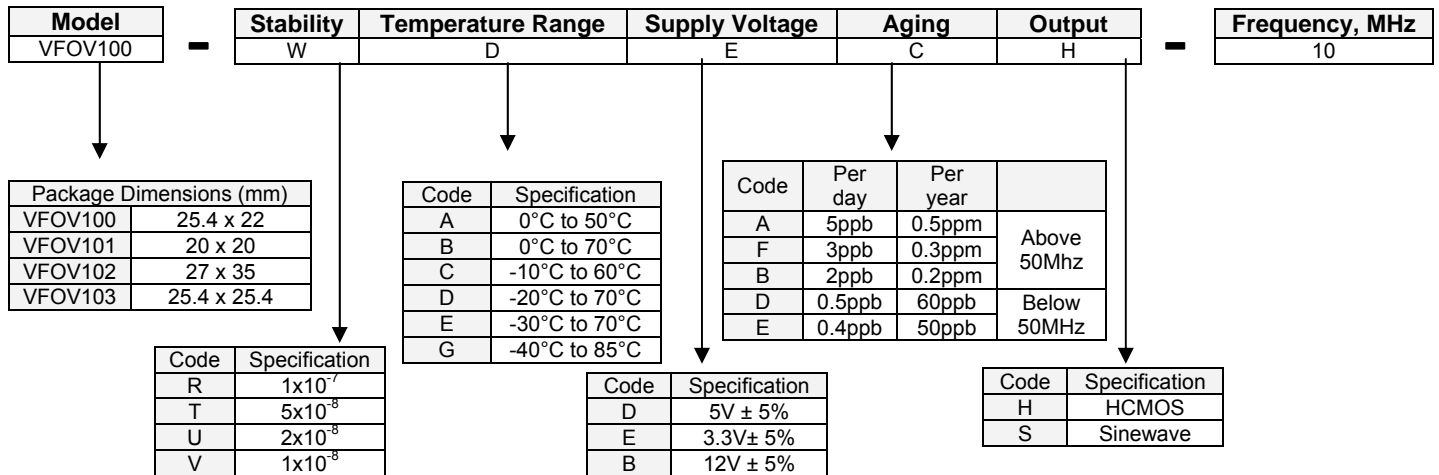
Absolute Ratings

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Supply Break Down Voltage	V _{cc}		-0.5		V _{cc} +20%	V	
Control Voltage	V _c		-1		9	V	

Environmental and Mechanical

Parameter	Specification
Storage Temperature	-60°C to +90°C
Humidity	Hermetically Sealed
Mechanical Shock	Per MIL-STD-202, 30g, half sine, 11ms
Vibration	Per MIL-STD-202, 10g swept Sine to 2000Hz
Soldering Conditions	260°C for 10s

How to Order




Available Frequency Stabilities over Operating Temperature Ranges

Order Code	Temperature Range	Stability			
		1x10 ⁻⁷	5x10 ⁻⁸	2x10 ⁻⁸	1x10 ⁻⁸
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	*	*	*	

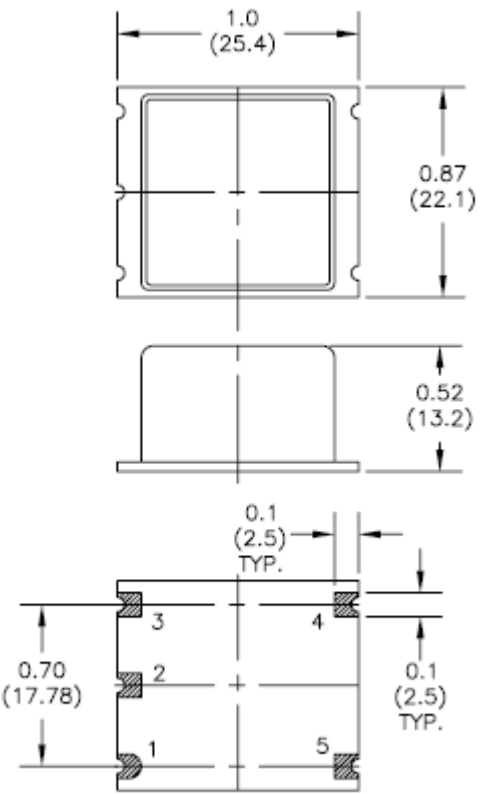
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Package Options



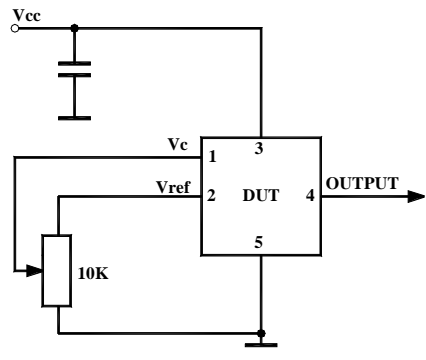
VFOV100



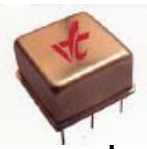
Top view dimensions: 1.0 (25.4) mm width, 0.87 (22.1) mm height.

Side view dimensions: 0.52 (13.2) mm height.

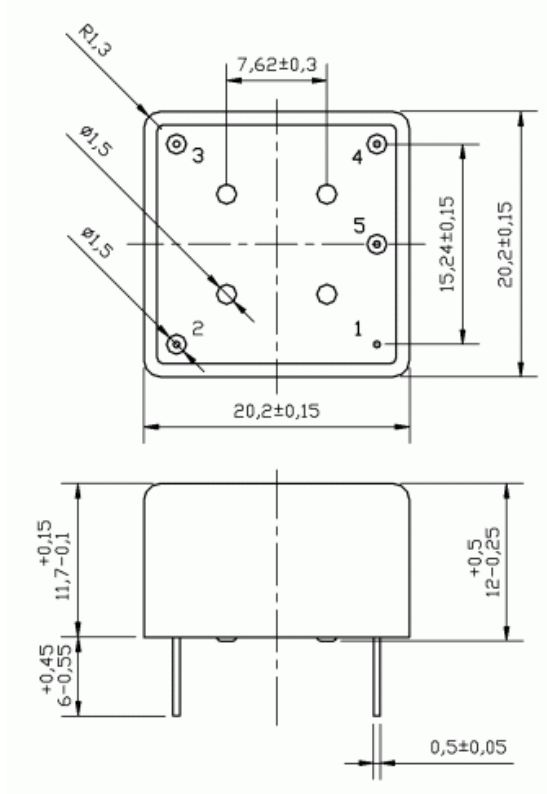
Pin detail dimensions: 0.1 (2.5) mm TYP. for pin width, 0.70 (17.78) mm for pin pitch, 0.1 (2.5) mm TYP. for pin height.



Pin #	Connection
1	Vc
2	Vref
3	Vcc
4	Output
5	GND

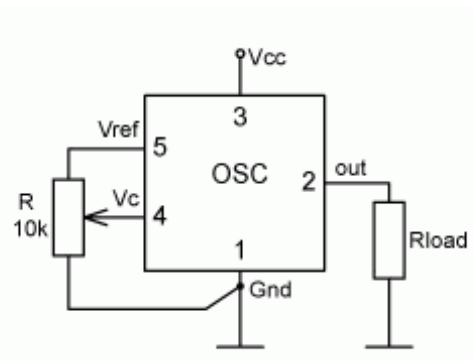


VFOV101



Top view dimensions: 7.62±0.3 mm width, 20.2±0.15 mm height, 20.2±0.15 mm width.

Side view dimensions: 11.7±0.1 mm height, 0.5±0.05 mm pin width, 12±0.25 mm total height.




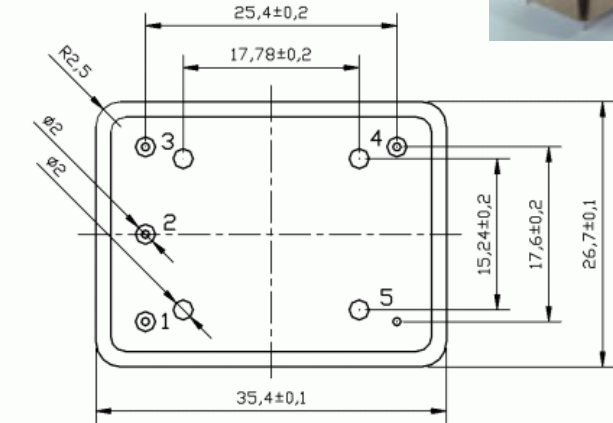
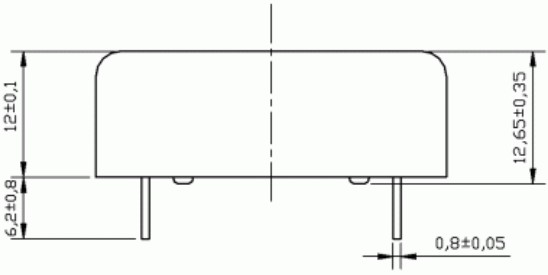
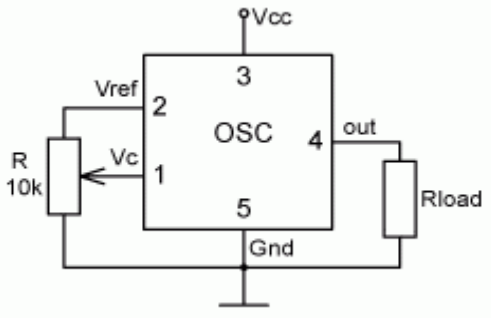
Pin #	Connection
1	Gnd
2	Output
3	Vcc
4	Vc
5	Vref

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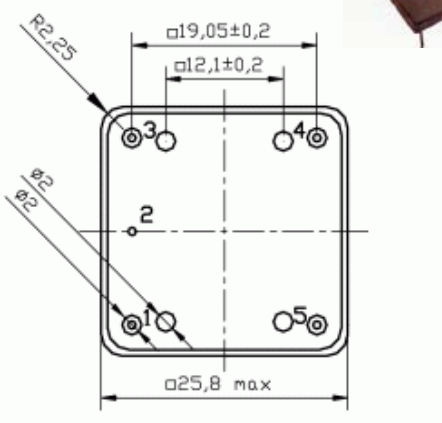
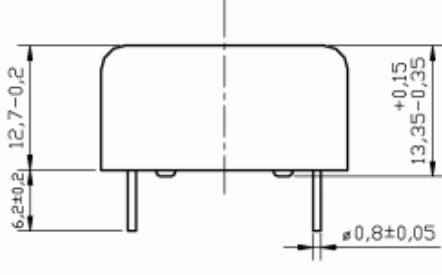
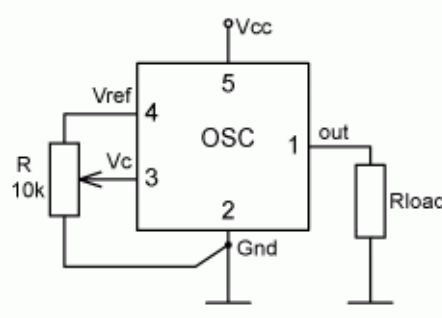
Package Options

VFOV102

Pin #	Connections
1	Vc
2	Vref
3	Vcc
4	Output
5	GND

VFOV103

Pin #	Connection
1	Output
2	GND
3	Vc
4	Vref
5	Vcc