

VFT8S Series

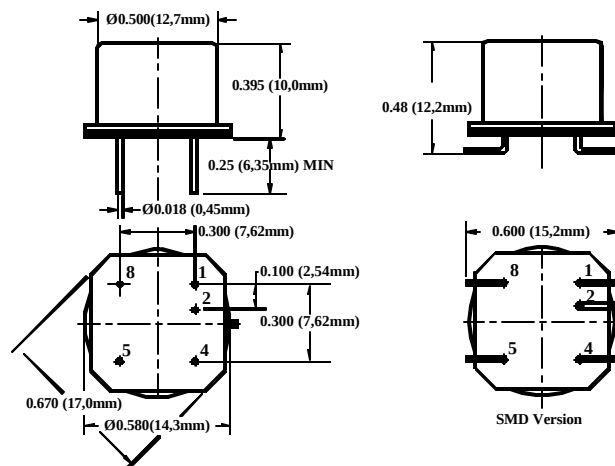
Micro-miniature, Evacuated

Product Data Sheet



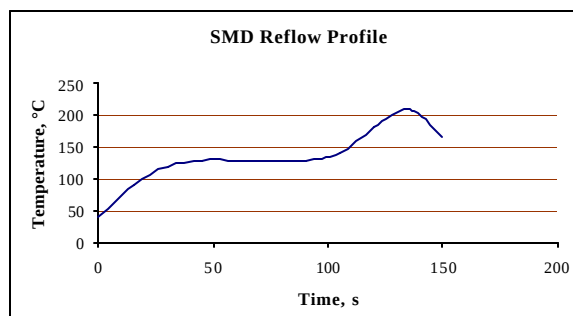
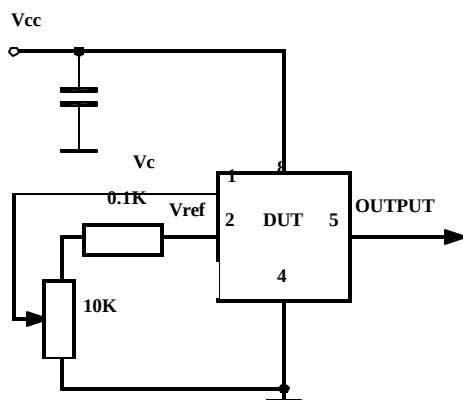
Features

- Smallest OCXO available ($< 1 \text{ cm}^3$, 2g weight)
- SC-cut crystal
- High Vacuum Sealed Enclosure
- Extremely Low Power Consumption ($< 100 \text{ mW}$)
- Very Fast Warm-up Time (30s)
- Low Cost
- Low Aging (5×10^{-10} /day, 5×10^{-8} /year)
- Very Low Phase Noise (-160 dBc/Hz TYP)
- HCMOS/TTL output
- “Gull-Wing” SMD Version Available
- 4.8 MHz to 50 MHz Frequencies Available
- “Half-size”, DIL-8 compatible pinout



Applications

- Telecommunications
- Data Communications
- Battery Powered Systems and Equipment
- GPS
- Instrumentation
- SARSAT Beacons



VFT8S Series

Micro-miniature, Evacuated



Specifications:

Parameter	Symb	Condition	Min	Typ	Max	Unit	Note
-----------	------	-----------	-----	-----	-----	------	------

Absolute Maximum Ratings

Input Break Down Voltage	V _{cc}		-0.5		13.0	V	
Storage temper.	T _s		-40		85	°C	
Control Voltage	V _c		-1		9	V	

Electrical

Frequency	F		4.8	10.000	50	MHz	
Frequency stability	ΔF/F	vs. Temp.		±100		ppb	See chart below
		vs. Supply		1	5	ppb/V	
		Calibration		±0.5		ppm	No VCXO
Aging		per day per year		1E-9 1E-7			after 30 days
Allan Variance		.1s to 10s		1E-11			
SSB Phase Noise		10 Hz		-120		dBc/Hz	Deteriorates by 20LogN at higher Frequencies
		100 Hz		-145			
		10 KHz		-160			
Retrace		After 30 minutes			±20	ppb	
G-sensitivity		worst direction			±1.0	ppb/G	
Input Voltage	V _{cc}		4.75	5.0	5.25	V	3.3V±5% optional
Input Current	I _{cc}	steady state, 25°C steady state, -30°C start-up current		25/35 70/120 130/150	35/40	mA	5V/3.3V supply
Load		10KOhm//15pF					
Warm-up time	τ	to 0.1ppm accuracy		35		s	
Output Waveform		HCMOS/TTL compatible					
* Control voltage	V _c		0		4.0 2.8	V	For 3.3V supply
* Pull range		from nominal F	±0.3	±0.5		ppm	
* Deviation slope		Monotonic, posit		0.15		ppm/V	
* Setability	V _{c0}	@25°C, F _{nom}	1.0 .8	2.0 1.4	3.0 2.0	V	

All parameters for 10 MHz

Environmental and Mechanical

Operating temp. range	-30°C to 70°C Standard, Other options – see chart below
Mechanical Shock	Per MIL-STD-202, 30G, 11ms
Vibration	Per MIL-STD-202, 5G to 2000 Hz
Soldering Conditions	Leads Temperature 260°C, for 10s, Max, 230°C for 30s Max SMD profile
Hermetic Seal	Leak rate less than 1x10 ⁻⁸ atm.ccm/s of helium

Electrical Connections

Pin Out	Pin 1- V _c ; Pin 2- V _{ref} ; Pin 3- N/C; Pin 4- Case, GND; Pin5 – Output; Pin 8- V _{cc}
---------	---

Creating a Part Number

VFT8S

“V” for VCXO

FREQUENCY, MHz

S for SMD

Temperature Range

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

Temperature Stability

Code	Specification
57	5x10 ⁻⁷
27	2.8x10 ⁻⁷
17	1x10 ⁻⁷
58	5x10 ⁻⁸
28	2x10 ⁻⁸
YZ	Yx10 ^{-Z}

Aging

Code	Specification
L	1x10 ⁻⁹ /Day
S	5x10 ⁻¹⁰ /Day

Not all combinations are available.
Consult Factory.
* - optional

Supply Voltage

Code	Specification
5	5V ± 5%
3	3.3V ± 5%

Rev 11/05

