

FTTC6 Series 5x7mm Surface Mount TCXO/VCTCXO

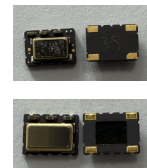
Features

- MIL-PRF-55310D Class B or Class S
- Low Phase noise
- Excellent Frequency Stability
- Low power consumption

Applications

- GPS
- Military/Avionics/Aerospace programs
- Test and measurement

Rev. E



Electrical Performance for the Clipped Sine Wave Output Option					
Parameter	Symbol	Min	Typical	Maximum	Units
Frequency	f_o	5.000		100.000	MHz
Typical Supply Voltage ¹ <i>Ordering option, see last page</i>		3.3 or 5.0			V
Supply Current	I_{DD}			20.0	mA
Output Level ²	Vp/p	0.8			V
Output Load			10K 10pf		
Control Voltage Impedance	Z_{Vc}	1			Mohm
Control Voltage to reach pull <i>All options (5.0, 3.3, 3.0 and 2.8V)</i>		0.5		2.5	V
Pull Range <i>Ordering option, see last page</i>	TPR	± 5, ± 8, ± 10, ± 15			ppm
Temperature Stability <i>Ordering option, see last page.</i>		± 0.5 to ± 5.0			ppm
Initial Accuracy, No Adjust option ³				±2.0	ppm
Power Supply Stability				±0.2	ppm
Load Stability				±0.2	ppm
Aging				±1.0	ppm/year
Operating temperature <i>Ordering option, see last page</i>		0/55, -10/60, -20/70, -30/80, -40/85			°C
Phase Noise, 10.000 MHz					dBc/Hz
10 Hz offset			-94		
100 Hz offset			-118		
1 kHz offset			-135		
10 kHz offset			-147		
100 kHz offset			-152		
Start-up time				2	ms

1. A 0.01uF and a 0.1uF capacitor should be located as close to the supply as possible (to ground) is recommended.

2. Output is AC coupled.

3. Initial Accuracy is +/-2.0ppm after 2 IR reflows.

Environmental Specifications

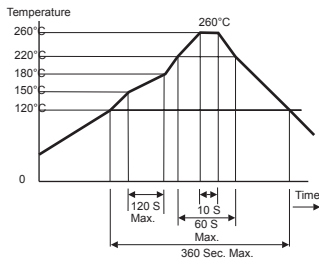
Test	Test Method	Test Condition
Electrical Characteristics	Internal Specification	Per Specification
Frequency vs. Temperature	Internal Specification	Per Specification
Mechanical Shock	MIL-STD-202, Method 213, C	100 g's to 1500g's
Vibration	MIL-STD-202, Method 201-204	10 g's from 10-2000 Hz
Thermal Cycle	MIL-STD-883, Method 1010, B	-55 Deg. C to +125 Deg. C, 15 minute Dwell, 10 cycles
Aging	Internal Specification	168 Hours at 105 Degrees C
Gross Leak	MIL-STD-202, Method 112	30 Second Immersion
Fine Leak	MIL-STD-202, Method 112	Must meet 1×10^{-8}
Solderability	MIL-STD-883, Method 2003	8 Hour Steam Age – Must Exhibit 95% coverage
Resistance to Solvents	MIL-STD-883, Method 2015	Three 1 minute soaks
Terminal Pull	MIL-STD-883, Method 2004, A	2 Pounds
Lead Bend	MIL-STD-883, Method 2004, B1	1 Bending Cycle
Physical Dimensions	MIL-STD-883, Method 2016	Per Specification
Internal Visual	Internal Specification	Per Internal Specification

FTTC6 Series 5x7mm Surface Mount TCXO/VCTCXO

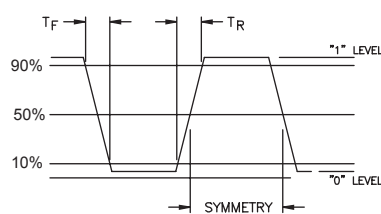
Electrical Performance for the CMOS Output Option					
Parameter	Symbol	Min	Typical	Maximum	Units
Frequency	f_o	5.000		100.000	MHz
Supply Voltage			3.3V±5%		V_{DC}
Maximum Supply Voltage				7	V_{DC}
Supply Current	I_{DD}			20.0	mA
Output Level ²					
Logic High	V_{OH}	0.9* V_{DD}			V
Logic Low	V_{OL}			0.1* V_{DD}	V
Drive High	I_{OH}	-4			mA
Drive Low	I_{OL}			4	mA
Rise and Fall Time ³	t_R/t_F			10	ns
Output Load			15pf		
Duty Cycle, @ 50%				45/55	%
Control Voltage Impedance	Z_{Vc}	100			Kohm
Control Voltage to reach pull		0.5		2.5	V
Pull Range	TPR		± 5, ± 8, ± 10		ppm
<i>Ordering option, see last page</i>					
Temperature Stability			± 0.5 to ± 5.0		ppm
<i>Ordering option, see last page.</i>					
Initial Accuracy, No Adjust option ⁴				±2.0	ppm
Power Supply Stability				±0.3	ppm
Load Stability				±0.2	ppm
Aging				±1.0	ppm/year
Operating temperature		0/55, -10/60, -20/70, -30/80, -40/85			°C
<i>Ordering option, see last page</i>					
Phase Noise, 10.000MHz					dBc/Hz
10 Hz offset			-95		
100 Hz offset			-121		
1 kHz offset			-143		
10 kHz offset			-154		
100 kHz offset			-155		
Start-up time				2	ms

1. A 0.01uF and a 0.1uF capacitor should be located as close to the supply as possible (to ground) is recommended.
2. Output is DC coupled.
3. Rise and Fall time is measured at 20/80% levels
4. Initial Accuracy is +/-2.0ppm after 2 IR reflows.

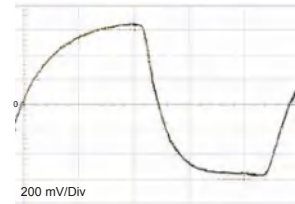
Solder Profile



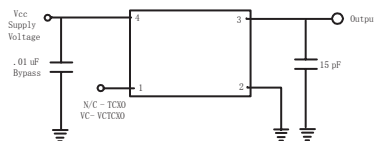
LVCOS Output Waveform



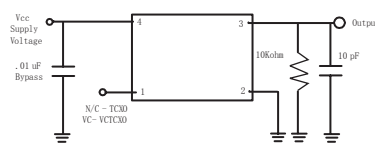
Clipped Sinewave Output Waveform



LVCOS Test Circuit

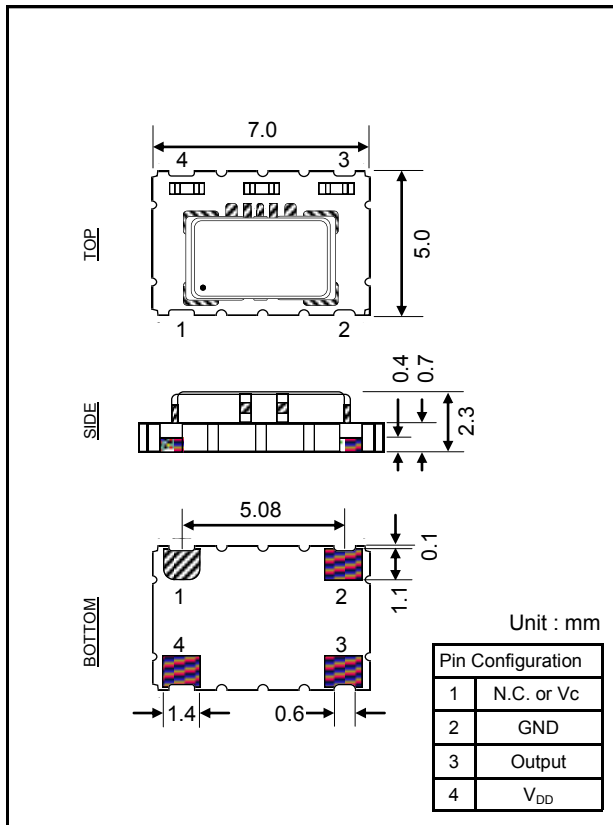


Clipped Sinewave Test Circuit

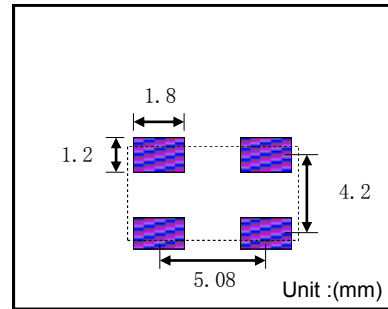


FTTC6 Series 5x7mm Surface Mount TCXO/VCTCXO

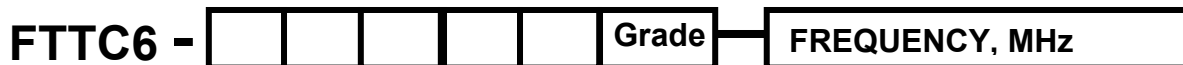
Package & Dimensions :



Soldering Pattern



Creating a Part Number



Stability	
Code	Specification
M	±0.3ppm
L	±0.5ppm
K	±1.0ppm
J	±1.5ppm
H	±2.0ppm
G	±2.5ppm
F	±8.0ppm
S	±0.1ppm
T	±0.2ppm

Temperature Range	
Code	Specification
A	0 °C to +50 °C
C	-10 °C to +60 °C
D	-20 °C to +70 °C
F	-40 °C to +85 °C
G	-45 °C to +90 °C
H	-55 °C to +105 °C

Vcc	
Code	Specification
E	3.3V
D	5.0V

Pullability	
Code	Specification
T	TCXO
A	±5ppm
B	±8ppm
C	±10ppm

Output	
Code	Specification
C	CMOS
N	Clipped Sine

Freq. Vs Temp Availability

Temp (°C)	M: ±0.3ppm	L: ±0.5ppm	K: ±1.0ppm	H: ±2.0ppm	G: ±2.5ppm	F: ±8.0ppm
A: 0 °C to +50 °C	♦	♦	♦	♦	♦	♦
C: -10 °C to +60 °C	♦	♦	♦	♦	♦	♦
D: -20 °C to +70 °C	♦	♦	♦	♦	♦	♦
F: -40 °C to +85 °C	♦	♦	♦	♦	♦	♦
G: -45 °C to +90 °C	♦	♦	♦	♦	♦	♦
H: -55 °C to +105 °C						♦

Grade(Screening Level)

- C=No Screening
- I= Industrial Std
- M=MIL-STD-883
- B=MIL-PRF-55310,level B
- S=MIL-PRF-55310,level S,40krad(Si)
- R=MIL-PRF-55310,level S,100krad(Si)

Note: ♦ available
 For frequency stability ±0.3ppm ,frequency range 6.5MHz to 50MHz,
 other stability,frequency range 6.5MHz to 100MHz

FTTC6 Series 5x7mm Surface Mount TCXO/VCTCXO

The following are examples of possible configurations for FTTC6

