



Features and Benefits

- Ultra low noise (better than -115 dBc/Hz @ 1 Hz for highest ordering option)
- High stability (up to ±5 ppb over -20°C to +70°C)
- Outstanding long term aging (up to ±0.5 ppb per day)
- Low power consumption (200 mA max)

Typical Applications

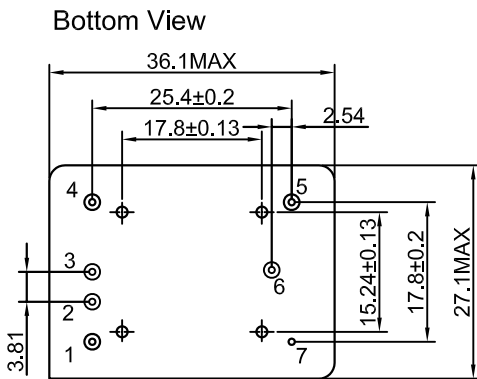
- Stratum 3E Clocking
- Instrumentation clock reference
- Cellular / Mobile Radio Base Station
- SATCOM ground station clock
- Microwave Communications
- Synchronization

Description

OCXO3627L-10MHz-x-y-z offers low noise and high frequency stability with outstanding long term aging performance all in one package.

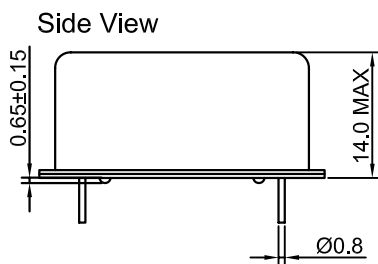
Mechanical Drawing & Pin Connections

Drawing No: MD140062-5



Pin Connections:

Pin#	Symbol	Function
1	Vc	Control Voltage(EFC)
2	OE	Oscillator Enable Input
3	Vref	Reference Voltage
4	Vs	Supply Voltage
5	Out	RF Output
6	OA	Oven Alarm Output
7	GND	Ground



Unit in mm
1mm = 0.0394 inches



Specifications

Oscillator Specification	Sym	Condition	Value			Unit	Note
			Min.	Typ.	Max.		
Nominal Frequency	F _{nom}			10.000		MHz	Refer to Note 2
Warm-up Time @ +25°C		$\Delta f_{\text{final}} / f_{\text{nominal}} < \pm 100$ ppb			5	min	
RF Output							
Output Waveform			Sine Wave				
Load	R _L	±5%	50			Ω	
Output Level			+5		+10	dBm	
Harmonics					-20	dBc	
Spurious		@ 9 ~ 11 MHz			-90	dBc	
Power Supply							
Oven Alarm Output		0...0.4V 2.4...5V	LOW = alarm (not stable) HIGH = ready				
Oscillator Enable Input		0...0.4V 2.4...12.6V	LOW = oscillator OFF HIGH = oscillator ON				Refer to Note 3
Reference Voltage VREF Output				5.0		V	
Supply Voltage	V _s		10.5	12.0	12.6	V	
Current Consumption (steady state)		@ +25°C			200	mA	
Current Consumption (warm-up)					340	mA	
Frequency Adjustment Range							
Electronic Frequency Control (EFC)			±0.5	±1.0	±1.5	ppm	
EFC Voltage	V _c		0	VREF / 2	VREF	V	
EFC Slope			Positive				
EFC non-linearity					10	%	
EFC Input Impedance			100			kΩ	
Modulation Bandwidth		@ -3dB	1			kHz	
Frequency Stability							
Initial Tolerance at +25°C		V _c @ VREF / 2			±100	ppb	
Vs Operating Temperature Range		Steady State	Refer to Options Table			ppm	
Vs Supply Voltage Variation (Pushing)		V _s ± 100mV			±0.5	ppb	
Vs Load Change (Pulling)		R _L ± 5%			±0.5	ppb	
Long Term Aging per day		After 10 days operation			±0.5	ppb	
Long Term Aging 1 st year					±30		
Long Term Aging 15 years					±500		
Short Term Stability (Allan Deviation)		τ = 1 s τ = 10 s τ = 100 s		1 x 10 ⁻¹¹	5 x 10 ⁻¹² 1 x 10 ⁻¹¹ 1 x 10 ⁻¹⁰		
Phase noise			Refer to Options Table				
Environmental Conditions							
Operating temperature range	Refer to ordering options						
Storage temperature range	-55°C to +125°C						
Enclosure (see drawing) L x W x H	36.1 x 27.1 x 14.0 mm Max.						
Weight	30 g max						

Note 1: Terminology and test conditions are according to IEC60679-1 and MIL-PRF-55310, unless otherwise stated

Note 2: Other frequencies available on request

Note 3: HCMOS compatible input

Absolute Maximum Ratings

Parameter	Min.	Max.	Unit	Condition
Supply Voltage V _s	-0.5	V _s + 10%	V	V _s to GND
Control Voltage V _c	-0.5	15	V	V _c to GND
Oscillator Enable Voltage V _{OE}	-0.5	V _s	V	V _{OE} to GND
Resistance to Soldering Heat		10	sec	@ +245°C



Ordering Information

OCXO3627L-10MHz	-	x	y	z
Group		1	2	3

1 Code	Phase Noise					Unit
	Offset					
	1 Hz	10 Hz	100 Hz	1 kHz	≥10 kHz	
1	-110	-142	-155	-160	-165	dBc/Hz
2	-112	-144	-156	-160	-165	
3	-115	-146	-157	-160	-165	

2 Code	Stability [ppb]
1	±5
2	±10
3	±25
4	±50
5	±100
6	±200

3 Code	Temperature Range °C [ppb]
1	0..+50
2	-10..+60
3	-20..+70
4	-30..+70
5	-40..+75
6	-40..+85
7	-55..+85

Frequency Stability vs. Temperature Range Availability

Frequency Stability [ppb]	Temperature Range °C						
	0..+50	-10..+60	-20..+70	-30..+70	-40..+75	-40..85	-55..+85
±5	available	available	available	On request	On request	On request	Not available
±10	Available	available	available	Available	On request	On request	On request
±25	available	available	available	available	available	available	On request
±50	available	available	available	available	available	available	available
±100	available	available	available	available	available	available	available
±200	available	available	available	available	available	available	available

*Disclaimer: Not all option choices available across entire temperature range

For example, OCXO3627L-10MHz-362 denotes the OCXO has the following specifications:

Phase Noise
 -115 dBc / Hz @ 1 Hz
 -146 dBc / Hz @ 10 Hz
 -157 dBc / Hz @ 100 Hz
 -160 dBc / Hz @ 1 kHz
 -165 dBc / Hz @ ≥10 kHz

Stability Over Temperature
 ±200ppb

Temperature Range
 -10°C to +60°C



Handling and Testing

Parameter	Procedure		Condition
Electrostatic Discharge (ESD) THD devices	IEC60749-26	HBM	2000V
SMD devices	IEC60749-27	MM	200V
Washable	Yes		
RoHS compliant	Yes		

Environmental Conditions

Test	IEC 60068 Part...	IEC 60679-1 Clause	MIL-STD-202G Method	MIL-STD-810F Method	MIL-PRF-55310D Clause	Test conditions (IEC)
Sealing tests (if applicable)	2-17	5.6.2	112E		3.6.1.2	Gross leak: Test Qc Fine leak: Test Qk
Solderability Resistance to soldering heat	2-20 2-58	5.6.3	208H 210F		3.6.52 3.6.48	Test Ta method 1 Test Td, method 2 Test Td ₂ method 2
Shock	2-27	5.6.8	213B	516.4	3.6.40	Test Ea, 3 x per axis 100 g 6 ms half-sine pulse
Vibration sinusoidal	2-6	5.6.7.1	201A 204D	516.4-4	3.6.38.1 3.6.38.2	Test Fc, 30 min per axis, 1 oct / min 10 Hz – 55 Hz 0, 75 mm; 55 Hz – 2 kHz10g
Vibration random	2-64	5.6.7.3	214A	514.5	3.6.38.3 3.6.38.4	Test Fdb
Endurance tests - Aging - Extended aging		5.7.1 5.7.2	108A		4.8.35	30 days @ +85°C, OCXO @ +25°C 1000 h, 2000 h, 8000 h @ +85°C