

OCXO Specification OX914xC Series

CONNOR WINFIELD

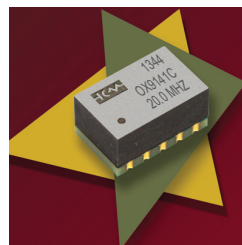


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Description:

Connor-Winfield's models OX914xC series are 3.3V, Oven Compensated Crystal Oscillators (OCXO) in a 9x14 mm surface mount package. The OX914xC series are low cost, high performance OCXO's.



Features:

Models: OX9141C or OX9142C
3.3 Vdc Operation
SMT Package
Frequency Stability: +/-100 ppb
Temperature Ranges Available:
0 to 70°C or -20 to 70°C
LVC MOS Output Logic
RoHS Compliant / Lead Free

Absolute Maximum Ratings

Parameter	Minimum	Nominal	Maximum	Units	Notes
Storage Temperature	-55	-	85	°C	
Supply Voltage (Vcc)	-0.5	-	5.5	Vdc	
Input Voltage (Vc)	-0.5	-	Vcc+0.5	Vdc	

Absolute Ratings: Stresses beyond those listed under "absolute maximum ratings" may cause permanent damage to the device. These are stress ratings only. The functional operation of the device at those or any other conditions beyond those indicated under "recommended operating conditions" is not implied. Exposure to conditions outside the "recommended operating conditions" for any extended period of time may adversely impact device reliability and result in failures not covered by warranty.

Operating Specifications

Parameter	Minimum	Nominal	Maximum	Units	Notes
Frequencies Available: (Fo)	10, 12.8, 13, 19.2, 19.44, 20, 26			MHz	
Freq. Calibration @ 25°C	-1.0	-	1.0	ppm	1
Freq. Stability vs. Temperature	-100	-	100	ppb	2
Daily Aging	-40	-	40	pbb	3
Aging per Year	-300	-	300	ppb	3
Freq. Stability vs. Supply Voltage	-20	-	20	ppb	(+/-5%)
Freq. Stability vs. Load Change	-10	-	10	ppb	(+/-10%)
Short Term Stability	-	-	1.0E-10/s		
Total Frequency Tolerance (20 Years)	-4.60	-	4.60	ppm	4
Operating Temperature Range:					
Models OX9141C	0	-	70	°C	
Models OX9142C	-20	-	70	°C	
Supply Voltage: (+/-5%) (Vcc)	3.135	3.30	3.465	Vdc	
Power Consumption: Turn On	-	-	3.00	W	
Power Consumption: Steady State	-	-	1.30	W	
Warm Up Time (Within Specification @ 25°C)	-	-	60	s	
Warm Up Time (Within Specification @ -40 C)	-	-	90	s	

LVC MOS Output Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Load	-	15	-	pF	
Voltage: High (Voh)	2.2	2.4	-	Vdc	
Low (Vol)	-	0.3	0.4		
Duty Cycle at 50% of Vcc	45	50	55	%	
Rise / Fall Time: 10% to 90%	-	-	6.5	ns	
Period Jitter	-	3	5	ps rms	
Integrated Phase Jitter	-	0.3	1.0	ps rms	
SSB Phase Noise at 10Hz offset	-	-	-80	dBc/Hz	
SSB Phase Noise at 100Hz offset	-	-	-110	dBc/Hz	
SSB Phase Noise at 1KHz offset	-	-	-130	dBc/Hz	
SSB Phase Noise at 10KHz offset	-	-	-145	dBc/Hz	

Notes:

- Initial calibration @ 25°C.
- Frequency stability vs. change in temperature. $[\pm(F_{max} - F_{min}) / (2 * F_0)]$
- After 30 days of operation.
- Inclusive of calibration @ 25°C, frequency vs. change in temperature, change in supply voltage ($\pm 5\%$), load change ($\pm 10\%$), shock and vibration and 20 years aging

Ordering Information

OX914	1	C	-020.0M
Oscillator Type	Temperature Range	Frequency Stability	Output Frequency Frequency Format
OX914 - OCXO	1 = 0 to 70°C	C = ± 100 ppb	-xxx.xM Min.*
9x14 mm Package	2 = -20 to 70°C		-xxx.xxxxxM Max.*

Example Part Number:

OX9141C-020.0M = OCXO, 9x14 mm package, 0 to 70°C, ± 100 ppb, 20 MHz

*Amount of numbers after the decimal point. M = MHz



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Package Characteristics

Package: Non-hermetic package consisting of an FR4 substrate and Ryton R4 cover.

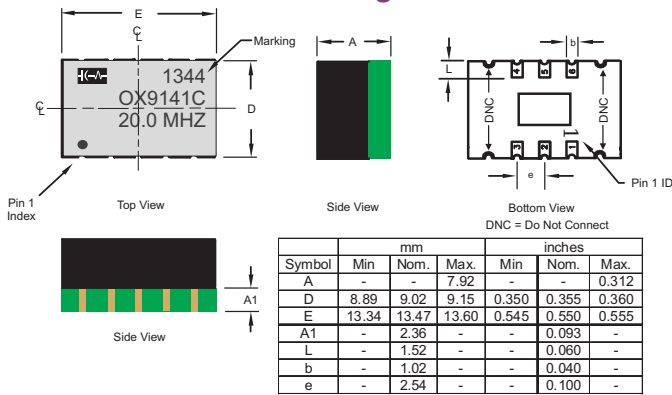
Environmental Characteristics

Vibration: Vibration per Mil Std 883E Method 2007.3 Test Condition A
Shock: Mechanical Shock per Mil Std 883E Method 2002.4 Test Condition B.
Soldering Process: RoHS compliant lead free. See soldering profile on page 2.

Recommended Cleaning Process

Wash only in a in-line high pressure wash station that has an air knife and drying capabilities. (Drying temperature range from 85° to 100°C)

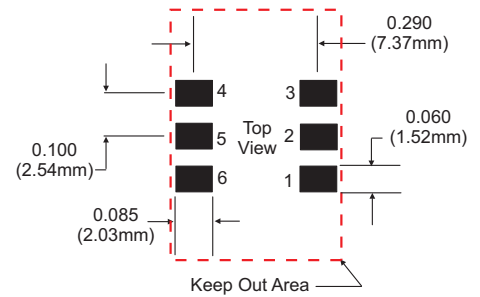
Package Outline



Pad Connections

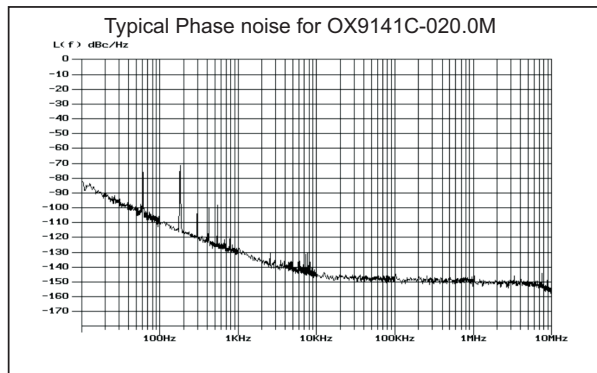
- 1: N/C
- 2: N/C
- 3: Ground:
- 4: Output
- 5: N/C
- 6: Supply Voltage (Vcc)

Suggested Pad Layout

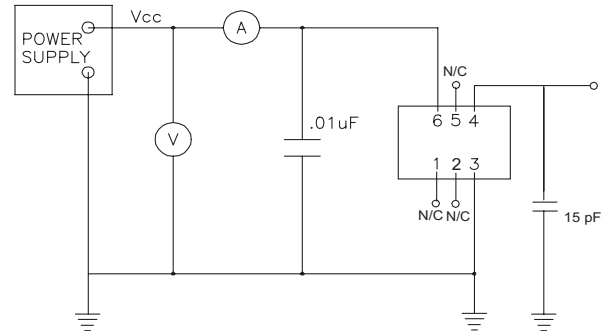


Keep Out Area Note: Do not route any traces under the device in the keep out area.

Phase Noise Plot

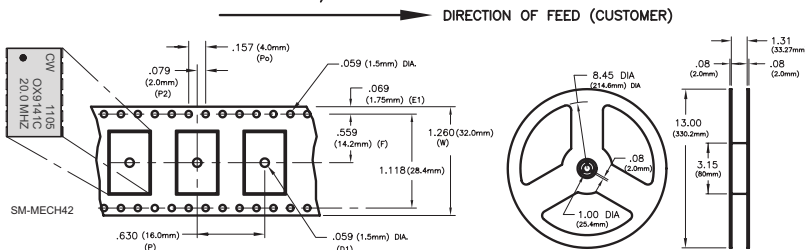


Test Circuit

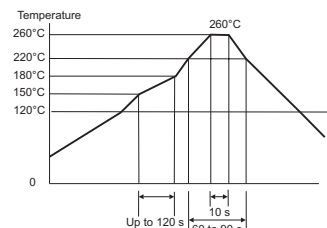


Solder Profile

MEETS EIA-481A & EIAJ-1009B
500 PCS/REEL MAXIMUM



Solder Profile



Meets IPC/JEDEC J-STD-020C

Revision History

Revision 00	Data sheet released. 07/13/09
Revision 01	Updated note 1 10/21/09.
Revision 02	Updated package drawings to the latest version. 02/01/11
Revision 03	Added frequency stability note and Recommended Cleaning Process. 04/22/11
Revision 04	Updated specifications. 05/25/11
Revision 05	Updated package drawing and suggested layout to IPC. 09/24/13.

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