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OCXO Specification OX914xS3 Series

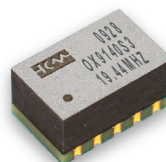
CONNOR WINFIELD



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Description:

Connor-Winfield model series OX914xS3 is a 3.3 Vdc, Oven Compensated Crystal Oscillator (OCXO) in a 9x14 mm SMT package. The OX914xS3 series is a low cost, high performance OCXO that meets STRATUM 3 requirements.



Features:

OCXO
3.3 Vdc Operation
SMT Package
Frequency Stability: +/-140 ppb
Temperature Ranges Available:
0 to 70°C, -20 to 70°C or -40 to 85°C
LVCMOS Output Logic
Tape and Reel Packaging
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 | |

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 | -140 | - | 140 | ppb | 2 |
| Daily Aging | -40 | - | 40 | pbb | 3 |
| Holdover Stability: | -320 | - | 320 | ppb | 4 |
| MTIE | - | - | 1E-6 | - | 5 |
| 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-9/s | - | |
| Total Frequency Tolerance (20 Years) | -4.60 | - | 4.6 | ppm | 6 |
| Operating Temperature Range: (See Ordering Information on page 2.) | | | | | |
| Models OX9140S3 | 0 | - | 70 | °C | |
| Models OX9142S3 | -20 | - | 70 | °C | |
| Models OX9143S3 | -40 | - | 85 | °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 | |

LVCMOS Output Characteristics

| Parameter | Minimum | Nominal | Maximum | Units | Notes |
|---|---------|---------|---------|--------|-------|
| Load | - | 15 | - | pF | 7 |
| Voltage: High (Voh) | 2.7 | - | - | Vdc | |
| Low (Vol) | - | - | 0.3 | - | |
| Duty Cycle at 50% of Vcc | 45 | 50 | 55 | % | |
| Rise / Fall Time: 10% to 90% | - | - | 6.5 | ns | |
| Phase Jitter (BW=12KHz to fo/2) | - | 0.5 | 1 | ps rms | |
| Typical Phase Noise for OX9140S3-010.0M | | | | | |
| SSB Phase Noise at 1Hz offset | - | -65 | - | dBc/Hz | |
| SSB Phase Noise at 10Hz offset | - | -105 | - | dBc/Hz | |
| SSB Phase Noise at 100Hz offset | - | -130 | - | dBc/Hz | |
| SSB Phase Noise at 1KHz offset | - | -148 | - | dBc/Hz | |
| SSB Phase Noise at 10KHz offset | - | -153 | - | dBc/Hz | |
| SSB Phase Noise at 100KHz offset | - | -155 | - | dBc/Hz | |

Package Characteristics

Package: Package consisting of a FR4 substrate and a Rytan-R4 cover.

Notes:

1. Initial calibration @ 25°C.
2. Frequency stability vs. change in temperature. $[\pm(F_{max} - F_{min})/2.F_o]$.
3. After 30 days of operation.
4. Peak to peak frequency stability vs. change in temperature, frequency stability vs. change in voltage, frequency stability vs. change in load and aging over a 24 hour period.
5. 0.16 seconds < Observed time < 64 seconds at a constant temperature with 1 hour warm-up.
6. 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
7. Attention: To achieve optimal frequency stability, and in some cases to meet the specification stated on this data sheet, it is required that the circuit connected to this OCXO output must have the equivalent input capacitance that is specified by the nominal load capacitance. Deviations from the nominal load capacitance will have a graduated effect on the stability of approximately 20 ppb per pF load difference.

Specifications subject to change without notice. All dimensions in inches. © Copyright 2010 The Connor-Winfield Corporation



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Date **25 May 2011**



Ordering Information

| | | | |
|-----------------------------------|---|-----------|--------------------------------------|
| OX914 | 0 | S3 | -019.44M |
| Oscillator Type | Temperature Range | STRATUM 3 | Output Frequency Frequency Format |
| OX914xxx - OCXO 9x14mm Package | 0 = 0 to 70°C 2 = -20 to 70°C 3 = -40 to 85°C | S3 | -xxx.xM Min.* -xxx.xxxxxM Max* |

Example Part Number:
OX9140S3-019.44M = OCXO, 9x14mm package, 0 to 70°C, STRATUM 3, 19.44 MHz

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

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.

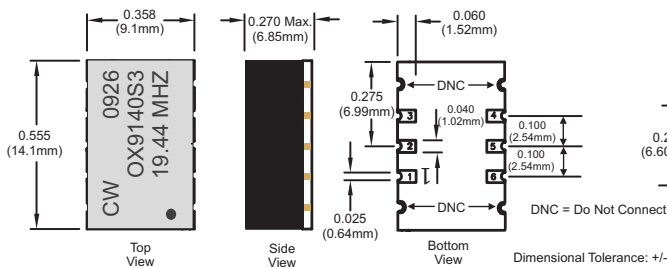
Recommended Cleaning Process

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)

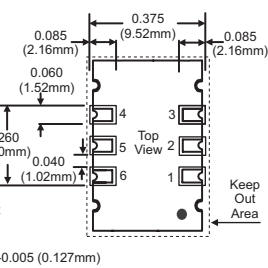
Pad Connections

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

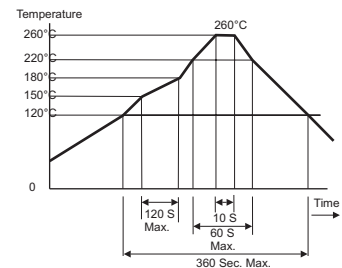
Package Outline



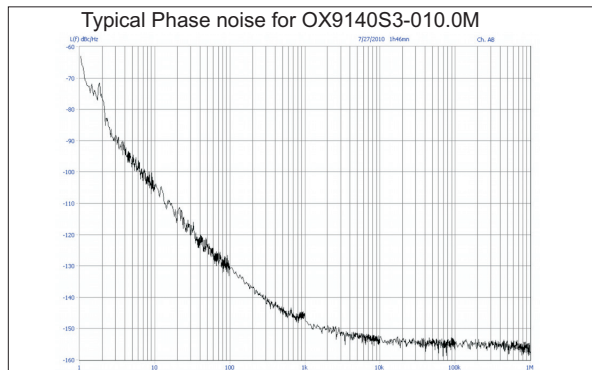
Suggested Pad Layout



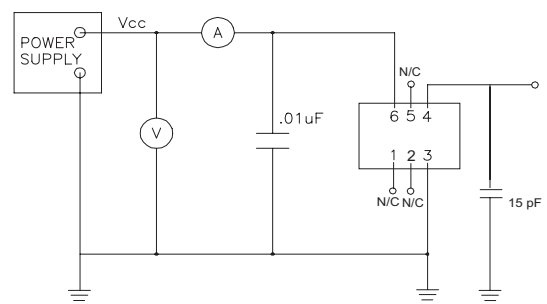
Solder Profile



Phase Noise Plot

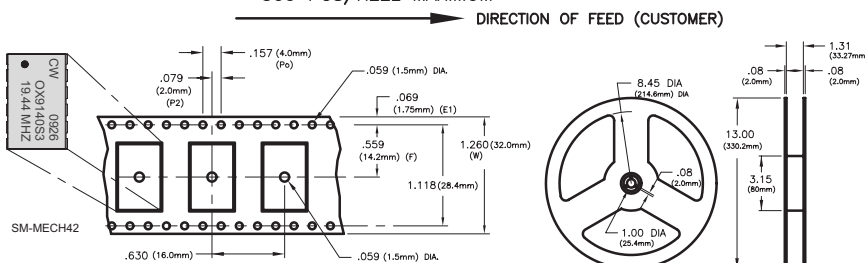


Test Circuit



Tape and Reel Information

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



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|----------|--------------------|
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