

Rev. A

**OE-X8GXXXXX Series  
HF/UHF OCXO Low Power**

**Description:** The OE-X8GXXXXX Series of Oven Controlled Crystal Oscillators (OCXO) provides High and Ultra High Frequency with SC-cut stability performance, extremely low phase noise and power consumption, with variety of different output types in a standard 1.4x1” package – “Europack”.

**Features**

- Very Low Power Consumption
- Very Low Phase Noise
- Excellent SC-cut Frequency Stability
- Ultra High Frequency – up to 1 GHz
- CMOS, Sine-Wave outputs available
- Stratum3E available



**Creating a Part Number**



# CRYSTAL OSCILLATORS

Data Sheet 0635D

## OE-X8GXXXXX Series HF/UHF OCXO Low Power

Rev. A

### Specifications

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

#### Absolute Maximum Ratings

|                          |                 |  |      |  |     |    |  |
|--------------------------|-----------------|--|------|--|-----|----|--|
| Input Break Down Voltage | V <sub>cc</sub> |  | -0.5 |  | 5.5 | V  |  |
| Storage temp.            | T <sub>s</sub>  |  | -40  |  | 85  | °C |  |
| Contr. Voltage           | V <sub>c</sub>  |  | -1   |  | 9   | V  |  |

#### Electrical

|                      |                 |                                                    |                    |                                      |                                             |                                 |                                      |
|----------------------|-----------------|----------------------------------------------------|--------------------|--------------------------------------|---------------------------------------------|---------------------------------|--------------------------------------|
| Frequency Range      | F               | CMOS<br>Sine-wave                                  | 30<br>30           |                                      | 200<br>1,000                                | MHz                             |                                      |
| Input Voltage        | V <sub>cc</sub> |                                                    | 3.135<br>4.75      | 3.30<br>5.0                          | 3.465<br>5.25                               | V                               | 3<br>5                               |
| Input Current        | I <sub>cc</sub> |                                                    |                    |                                      | 90<br>160                                   | mA                              | @ 100 MHz, 3.3V<br>@ 622 MHz, 3.3V   |
| Frequency Stability  | ΔF/F            | vs. Temperature<br>vs. V <sub>cc</sub><br>aging    |                    | ±50<br>±2<br>±0.1<br>±0.5            |                                             | ppb<br>ppb/V<br>ppm/year<br>ppm | See chart<br>First Year<br>15 years  |
| Calibration          | ΔF/F            | As shipped, 25°C                                   |                    | ±0.1                                 |                                             | ppm                             |                                      |
| Load                 |                 | CMOS<br>Sine                                       |                    |                                      | 15pF/10KOhm<br>Internally AC-coupled 50 Ohm |                                 |                                      |
| Duty cycle           |                 | @50%                                               | 45                 | 50                                   | 55                                          | %                               | CMOS                                 |
| Rise/Fall time       | Tr/Tf           | 20 to 80 %                                         |                    | 3                                    |                                             | ns                              | CMOS                                 |
| Logic "1" level      | V <sub>oh</sub> | CMOS                                               | 0.9V <sub>cc</sub> |                                      |                                             | V                               |                                      |
| Logic "0" level      | V <sub>ol</sub> | CMOS                                               |                    |                                      | 0.1V <sub>cc</sub>                          | V                               |                                      |
| Output power         | P               | Sinewave Into 50 Ohm                               | 0<br>4             | 3<br>7                               |                                             | dBm                             | 3.3V<br>5.0V                         |
| Start up time        | T <sub>s</sub>  |                                                    |                    | 2                                    | 10                                          | ms                              |                                      |
| Phase jitter         |                 | 1σ                                                 |                    | 0.4<br>0.2                           | 1<br>0.4                                    | ps                              | 100 Hz to 20 MHz<br>12 KHz to 20 MHz |
| Subharmonics         |                 | Sine<br>CMOS, Sine                                 |                    | -45                                  | -40<br>none                                 | dBc                             | F>250MHz<br>F< 250 MHz               |
| Spurious             |                 |                                                    |                    |                                      | -60                                         | dBc                             |                                      |
| Harmonics            |                 | Sine-wave                                          |                    | -30                                  | -25                                         | dBc                             |                                      |
| SSB Phase Noise      |                 | @10 Hz<br>@100 Hz<br>@1 KHz<br>@10 KHz<br>@100 KHz |                    | -100<br>-125<br>-140<br>-160<br>-165 |                                             | dBc/Hz                          | @100 MHz                             |
| SSB Phase Noise      |                 | @10 Hz<br>@100 Hz<br>@1 KHz<br>@10 KHz<br>@100 KHz |                    | -80<br>-100<br>-120<br>-145<br>-150  |                                             | dBc/Hz                          | @622 MHz;<br>Sine                    |
| Input Impedance      |                 |                                                    |                    | > 10KOhm                             |                                             |                                 |                                      |
| Control voltage      | V <sub>c</sub>  |                                                    | 0                  |                                      | 3.3                                         | V                               |                                      |
| Modulation bandwidth | MB              |                                                    | 100 Hz             |                                      |                                             |                                 | Contact Factory for wider MB         |
| Deviation            |                 | V <sub>c</sub> =0V to 3.3V, 25°C                   | ±0.5               | ±1.0                                 |                                             | ppm                             |                                      |



**FREQUENCY  
CONTROLS, INC.**

357 Beloit Street, P.O. Box 457, Burlington, WI 53105-0457 U.S.A. Phone 262/763-3591 FAX 262/763-2881

Email: [nelsales@nelfc.com](mailto:nelsales@nelfc.com) www.nelfc.com

Rev. A

**OE-X8GXXXXX Series**  
**HF/UHF OCXO Low Power**

*Environmental and Mechanical*

|                              |                                                           |
|------------------------------|-----------------------------------------------------------|
| <b>Operating temp. range</b> | 0°C to 70°C , -40°C to 85°C, see chart, page 1            |
| <b>Mechanical Shock</b>      | Per MIL-STD-202, Method 213, Cond. E                      |
| <b>Thermal Shock</b>         | Per MIL-STD-883, Method 1011, Cond. A                     |
| <b>Vibration</b>             | Per MIL-STD-883, Method 2007, Cond. A                     |
| <b>Soldering Conditions</b>  | 260°C for 10 s leads only                                 |
| <b>Hermetic Seal</b>         | Leak rate less than $5 \times 10^{-8}$ atm.cc/s of helium |

*Electrical Connections*

|                |                                                                                                   |
|----------------|---------------------------------------------------------------------------------------------------|
| <b>Pin Out</b> | Pin #1- Voltage Control ; Pin #2 – Vref ; Pin #3 – Vcc; Pin#4 – Output, CMOS or Sine; Pin#5 - GND |
|----------------|---------------------------------------------------------------------------------------------------|

EEPW 电子产品世界  
.com.cn



**FREQUENCY  
CONTROLS, INC.**

357 Beloit Street, P.O. Box 457, Burlington, WI 53105-0457 U.S.A. Phone 262/763-3591 FAX 262/763-2881

Email: [nelsales@nelfc.com](mailto:nelsales@nelfc.com) www.nelfc.com