

OH-X8FXXXXX Series
HF/UHF OCXO Low Power SMD

Rev. A

Description: OH-X8FXXXXX 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 miniature SMD package

Features

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



Creating a Part Number

OH - X 8F X X XX X

Package Code
 OH 7 pad 25x22mm SMD

Supply Voltage

| Code | Specification |
|------|---------------|
| 0 | 5V ±5% |
| A | 3.3V ±5% |

OCXO/OCVCXO Option

| Code | Specification |
|------|---------------|
| X | No V. Control |
| V | W/ V. Control |

Output Type

| Code | Specification |
|------|---------------|
| C | CMOS |
| S | Sine-wave |
| L | LVDS |
| P | PECL |

Temperature Range

| Code | Specification |
|------|---------------|
| A | 0°C to 50°C |
| B | -10°C to 60°C |
| C | 0°C to 70°C |
| D | -20°C to 70°C |
| E | -30°C to 70°C |
| F | -40°C to 80°C |

Temperature Stability

| Code | Specification |
|------|--------------------|
| 17 | 1x10 ⁻⁷ |
| 58 | 5x10 ⁻⁸ |
| 28 | 2x10 ⁻⁸ |
| 18 | 1x10 ⁻⁸ |
| YZ | Yx10 ^{-Z} |

CRYSTAL OSCILLATORS

Data Sheet 0635C

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Specifications

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

Absolute Maximum Ratings

| | | | | | | | |
|--------------------------|-----------------|--|------|--|-----|----|--|
| Input Break Down Voltage | V _{cc} | | -0.5 | | 5.5 | V | |
| Storage temp. | T _s | | -40 | | 85 | °C | |
| Contr. Voltage | V _c | | -1 | | 9 | V | |

Electrical

| | | | | | | | |
|----------------------|-----------------|---|-----------------------|---------------------------|---|---------------------------------|---|
| Frequency Range | F | CMOS Sine-wave PECL, LVDS | 30 30 30 | | 200 1,000 1,000 | MHz | |
| Input Voltage | V _{cc} | | 3.135 4.75 | 3.30 5.0 | 3.465 5.25 | V | 3 5 |
| Input Current | I _{cc} | At room, steady state | | | 90 160 | mA | @ 100 MHz, 3.3V @ 622 MHz, 3.3V |
| Frequency Stability | ΔF/F | vs. Temperature vs. V _{cc} aging | | ±50 ±2 ±0.1 ±0.5 | | ppb ppb/V ppm/year ppm | See chart First Year 15 years |
| Calibration | ΔF/F | As shipped, 25°C | | ±0.1 | | ppm | |
| Load | | CMOS Sine PECL LVDS | | | 15pF/10KOhm Internally AC-coupled 50 Ohm 50 Ohm to V _{cc} -2V or Thevenin equivalent 100 Ohm between the outputs, receiving end | | |
| Duty cycle | | @50% | 45 | 50 | 55 | % | CMOS, PECL, LVDS |
| Rise/Fall time | Tr/Tf | 20 to 80 % | | 3 0.35 | | ns | CMOS PECL, LVDS |
| Logic "1" level | V _{oh} | CMOS | 0.9V _{cc} | | | V | |
| Logic "0" level | V _{ol} | CMOS | | | 0.1V _{cc} | V | |
| Logic "1" level | V _{oh} | PECL | V _{cc} -0.96 | | V _{cc} -0.81 | V | 100K available |
| Logic "0" level | V _{ol} | PECL | V _{cc} -1.85 | | V _{cc} -1.65 | V | 100K available |
| Output Levels, LVDS | V _{od} | Differential amplitude | 247 | 330 | 454 | mV | |
| | | Amplitude error | | | 50 | mV | |
| | V _{of} | Offset voltage | 1.125 | 1.25 | 1.375 | V | |
| | | Offset error | | | 50 | mV | |
| Output power | P | Sinewave Into 50 Ohm | 0 4 | 3 7 | | dBm | 3.3V 5.0V |
| Start up time | T _s | | | 2 | 10 | ms | |
| Phase jitter | | 1σ | | 0.4 0.2 | 1 0.4 | ps | 100 Hz to 20 MHz 12 KHz to 20 MHz |
| Subharmonics | | Sine, PECL, LVDS CMOS, Sine | | -45 | -40 none | dBc | F>250MHz F< 250 MHz |
| Spurious | | | | | -60 | dBc | |
| Harmonics | | Sine-wave | | -30 | -25 | dBc | |
| SSB Phase Noise | | @ 10 Hz | | -100 | | dBc/Hz | @ 100 MHz, CMOS, Sine |
| | | @ 100 Hz | | -125 | | | |
| | | @ 1 KHz | | -140 | | | |
| | | @ 10 KHz | | -160 | | | |
| | | @ 100 KHz | | -165 | | | |
| SSB Phase Noise | | @ 10 Hz | | -80 | | dBc/Hz | @ 622 MHz; Sine/PECL, LVDS |
| | | @ 100 Hz | | -100 | | | |
| | | @ 1 KHz | | -120 | | | |
| | | @ 10 KHz | | -145/-140 | | | |
| | | @ 100 KHz | | -150/-145 | | | |
| Input Impedance | | | | > 10KOhm | | | |
| Control voltage | V _c | | 0 | | 3.3 | V | |
| Modulation bandwidth | MB | | 100 Hz | | | | Contact Factory for wider MB |
| Deviation | | V _c =0V to 3.3V, 25°C | ±0.5 | ±1.0 | | ppm | |



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Environmental and Mechanical

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

Electrical Connections

| | |
|----------------|--|
| Pin Out | Pin #1- Voltage Control ; Pin #2 – N/C ; Pin #3 – Vcc; Pin#4 – Output, CMOS or Sine; Pin#5 – PECL/LVDS Output; Pin#6 – PECL/LVDS Complementary Out; Pin #7 – GND |
|----------------|--|

Maximum solder reflow profile

