SaRonix-eCera

LR Series Voltage Controlled Crystal Oscillator (VCXO)

7.0 x 5.0mm

3.3V LVDS High Frequency VCXO





7.0 x 5.0mm Ceramic SMD

Product Features

- Frequencies available up to 800 MHz
- <3ps RMS jitter
- Designed for standard reflow and washing techniques
- Pb-free & RoHS/Green compliant

Product Description

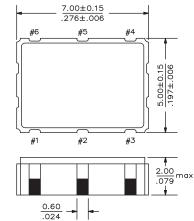
The LR Series 3.3V voltage controlled crystal oscillator achieves superb temperature stability over a broad range of operating conditions and frequencies. The device is constructed with a hermetically sealed quartz crystal resonator exhibiting a high-Q for exceptional performance. The device, available on tape and reel, is contained in a 7.0 x 5.0mm surface mount ceramic package.

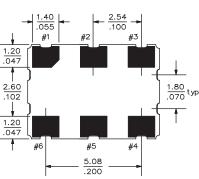
Applications

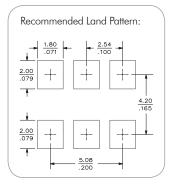
The LR Series VCXO is an ideal component in phase locked loop circuits that perform clock smoothing, clock/data recovery, or frequency translation and card synchronization functions, such as:

- •SONET/SDH/DWDM/E4 timing control & line cards
- •1 & 10 Gigabit Ethernet and FibreChannel
- Satellite, microwave and cellular base stations
- •Server & Storage platforms

Package:



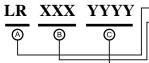




Pin Functions:

| Pin | Function |
|-----|-----------------|
| 1 | Voltage Control |
| 2 | OE or NC |
| 3 | Ground |
| 4 | Q Output |
| 5 | Q Output |
| 6 | V _{CC} |

Part Ordering Information:



– A: Product Family – B: XXX = Frequency Code C: YYYY = Specification Code

Following the above format, Saronix-eCera part numbers will be assigned upon confirmation of exact customer requirements.

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LR Series Voltage Controlled Crystal Oscillator (VCXO) 7.0 x 5.0mm

Electrical Performance

| Parameter | Min. | Тур. | Max. | Units | Notes |
|------------------------------------|--------------------------------------|------|------------|--------------|-------------------------------|
| Output Frequency (F _N) | 19.44 | | 800 | MHz | As specified |
| Supply Voltage | 3.14 | 3.3 | 3.46 | V | |
| Supply Current | | | 80 | mA | |
| Frequency Stability | | | ±20 to ±50 | ppm | See Note 1 below |
| Operating Temperature Range | -40 | | +85 | °C | As specified |
| Output Logic 0, V _{OL} | 0.9 | 1.1 | | V | |
| Output Logic 1, V _{OH} | | 1.4 | 1.6 | V | |
| Output Amplitude Differential | 500 | | 900 | mV | |
| Output Load | 100Ω +5pF across both outputs | | | | output requires termination |
| Duty Cycle | 45 | | 55 | % | measured +1.25 VDC |
| Rise and Fall Time | | 0.7 | 1.0 | ns | measured 20/80% of waveform |
| Jitter, Phase | | 2.5 | 4 | ps RMS (1-o) | 12kHz to 20MHz frequency band |
| Jitter, Accumulated | | 5 | 10 | ps RMS (1-o) | 10,000 adjacent periods |

Notes:

1. As specified. Stability includes all combinations of operating temperature, load changes, rated input (supply) voltage changes, shock and vibration. Stability is inclusive of 5 years aging at 40°C average effective ambient temperature for ordering options A, B, D, E.

2. For specifications other than those listed, please contact sales.

Frequency Modulation Function

| Parameter | Min. | Тур. | Max. | Units | Notes |
|---------------------------|------|------|------|-----------------|--------------------------|
| Absolute Pull Range (APR) | ±50 | | | ppm | See #1 below |
| Control Voltage Range | 0.3 | | 3.0 | V _{DC} | As rated |
| Center Control Voltage | 1.32 | 1.65 | 1.98 | V | For RMT center frequency |
| Monotonic Linearity | | | 10 | % | Positive transfer slope |
| Input Impedance | 50 | | | kΩ | Control voltage pin |
| Modulation Bandwidth | 10 | | | kHz | -3dB |

Notes:

1. APR is relative to the nominal output frequency FN; APR is inclusive (net) of frequency deviation due to stability.

Output Enable / Disable Function

| Parameter | Min. | Тур. | Max. | Units | Notes |
|--------------------------------------|-----------------|------|------|-------|---|
| Input Voltage, Output Enable (pin 2) | | | VOL | V | or Open |
| Input Voltage, Output Disable (pin2) | V _{OH} | | | V | Q and Q outputs disable to High Impedance |

Absolute Maximum Ratings

| Parameter | Min. | Тур. | Max. | Units | Notes |
|---------------------|------|------|------|-------|-------|
| Storage Temperature | -55 | | +125 | °C | |

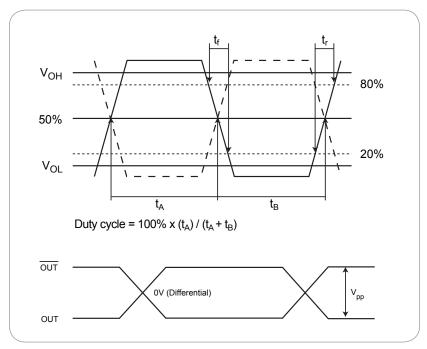
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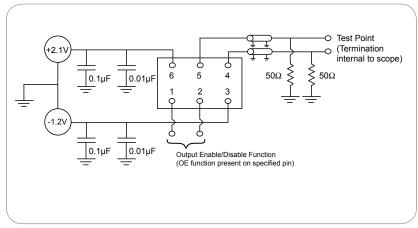
3.3V LVDS High Frequency VCXO LR

LR Series Voltage Controlled Crystal Oscillator (VCXO) 7.0 x 5.0mm

Output Waveform



Test Circuit



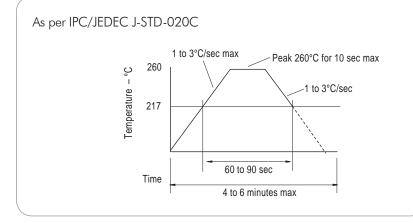
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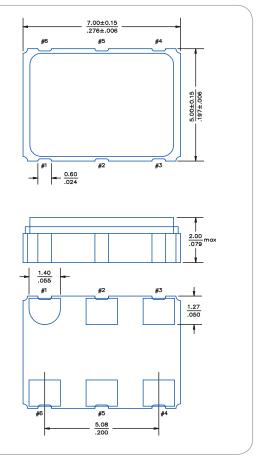


3.3V LVDS High Frequency VCXO LR

LR Series Voltage Controlled Crystal Oscillator (VCXO) 7.0 x 5.0mm

Reflow Soldering Profile





Reliability Test Ratings

This product is rated to meet the following test conditions:

| Туре | Parameter | Test Condition |
|---------------|------------------------------|--|
| Mechanical | Shock | MIL-STD-883, Method 2002, Condition B |
| Mechanical | Solderability | JESD22-B102-D Method 2 (Preconditioning E) |
| Mechanical | Terminal strength | MIL-STD-883, Method 2004, Condition D |
| Mechanical | Gross leak | MIL-STD-883, Method 1014, Condition C |
| Mechanical | Fine leak | MIL-STD-883, Method 1014, Condition A2 ($R_1 = 2x10^{-8}$ atm cc/s) |
| Mechanical | Solvent resistance | MIL-STD-202, Method 215 |
| Environmental | Thermal shock | MIL-STD-883, Method 1011, Condition A |
| Environmental | Moisture resistance | MIL-STD-883, Method 1004 |
| Environmental | Vibration | MIL-STD-883, Method 2007, Condition A |
| Environmental | Resistance to soldering heat | J-STD-020C Table 5-2 Pb-free devices (2 cycles max) |

