VCXO Series (PECL)
PJ-A3670 Series

Description
The PJ-A3670 Series of voltage controlled quartz crystal oscillators provide frequency control by applying a voltage to Pin 1. This unit supplies ECLiPS compatible outputs which are enabled when Pin 2 is set to a logic high or left open.

Features
- Frequency range – 70.0MHz to 200.0MHz
- Wide Absolute Pull Range
- Space-saving alternative to discrete component oscillators
- High shock resistance, to 3000g
- 3.3 volt operation
- Metal lid electrically connected to ground to reduce EMI
- COTS/Dual use
- Low Jitter - Wavecrest jitter characterization available
- High Reliability - NEL HALT/HASS qualified for crystal oscillator start-up conditions
- High Q Crystal actively tuned oscillator circuit
- Power supply decoupling internal
- No internal PLL avoids cascading PLL problems
- High frequencies due to proprietary design
- Gold plated leads - Solder dipped leads available upon request
- RoHS Compliant, Lead Free Construction (unless solder dipped leads are supplied)

Electrical Connection

<table>
<thead>
<tr>
<th>Pin</th>
<th>Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>VCO</td>
</tr>
<tr>
<td>2</td>
<td>Output Enable</td>
</tr>
<tr>
<td>3</td>
<td>VEE</td>
</tr>
<tr>
<td>4</td>
<td>Output</td>
</tr>
<tr>
<td>5</td>
<td>Complement</td>
</tr>
<tr>
<td>6</td>
<td>VCC</td>
</tr>
</tbody>
</table>
PJ-A3670 Series  
VCXO (PECL)  
Continued

Operating Conditions and Output Characteristics

Electrical Characteristics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Conditions</th>
<th>Min</th>
<th>Typical</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>-----</td>
<td>-----</td>
<td>70.0MHz</td>
<td>-----</td>
<td>200.0MHz</td>
</tr>
<tr>
<td>Duty Cycle</td>
<td>-----</td>
<td>@ V_O /2</td>
<td>45/55%</td>
<td>-----</td>
<td>55/45%</td>
</tr>
<tr>
<td>Logic 0</td>
<td>V_OL</td>
<td>-----</td>
<td>Vcc-1.810Vdc</td>
<td>-----</td>
<td>Vcc-1.620Vdc</td>
</tr>
<tr>
<td>Logic 1</td>
<td>V_OH</td>
<td>-----</td>
<td>Vcc-1.200Vdc</td>
<td>-----</td>
<td>Vcc-0.880Vdc</td>
</tr>
<tr>
<td>Rise &amp; Fall Time</td>
<td>tr,tf</td>
<td>20-80%V_O</td>
<td>-----</td>
<td>-----</td>
<td>600 ps</td>
</tr>
<tr>
<td>Jitter, RMS(1)</td>
<td>APR</td>
<td>-----</td>
<td>-----</td>
<td>3 psec</td>
<td>-----</td>
</tr>
<tr>
<td>Absolute Pul Range</td>
<td>APR</td>
<td>Vcc=0.3 to 3.0V</td>
<td>±100ppm</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>Vco input impedance</td>
<td>-----</td>
<td>50na dc current max</td>
<td>100K ohm</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>Vco linearity</td>
<td>-----</td>
<td>Vcc=0.3 to 3.0V</td>
<td>-----</td>
<td>-----</td>
<td>10%</td>
</tr>
<tr>
<td>Transfer Function (2)</td>
<td>-----</td>
<td>Vcc=0.3 to 3.0V</td>
<td>-----</td>
<td>Positive</td>
<td>-----</td>
</tr>
</tbody>
</table>

General Characteristics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Conditions</th>
<th>Min</th>
<th>Typical</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply Voltage</td>
<td>Vcc-Vee</td>
<td>Nominal</td>
<td>3.135V</td>
<td>3.3V</td>
<td>3.465V</td>
</tr>
<tr>
<td>Supply Current</td>
<td>Icc</td>
<td>-----</td>
<td>-----</td>
<td>60 mA</td>
<td>-----</td>
</tr>
<tr>
<td>Output current</td>
<td>IO</td>
<td>-----</td>
<td>0.0mA</td>
<td>-----</td>
<td>±50.0mA</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>Ta</td>
<td>-----</td>
<td>0°C</td>
<td>70°C</td>
<td></td>
</tr>
<tr>
<td>Storage temperature</td>
<td>Ts</td>
<td>-----</td>
<td>-55°C</td>
<td>125°C</td>
<td></td>
</tr>
<tr>
<td>Power Dissipation</td>
<td>PD</td>
<td>-----</td>
<td>-----</td>
<td>208 mW</td>
<td></td>
</tr>
</tbody>
</table>

Load 50 Ohm to Vcc-2V or Thevenin Equivalent, Bias Required

Environmental and Mechanical Characteristics

- Mechanical Shock: Per MIL-STD-202, Method 213, Condition E
- Thermal Shock: Per MIL-STD-883, Method 1011, Condition A
- Vibration: 0.060" double amplitude 10 Hz to 55 Hz, 35g's 55Hz to 2000 Hz
- Hermetic Seal: Leak rate less than 1 x 10^-8 atm.cc/sec of helium

Footnotes:
1) Jitter performance is frequency dependent. Please contact factory for full Wavecrest characterization.
2) RMS jitter bandwidth of 12kHz to 20MHz.
2) Frequency increase with increase in control voltage and is monotonic.

Creating a Part Number

<table>
<thead>
<tr>
<th>PJ - A367X - FREQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Package Code</td>
</tr>
<tr>
<td>PJ 6 J Lead SMD</td>
</tr>
<tr>
<td>APR/Performance</td>
</tr>
<tr>
<td>0 ±100ppm 0-70°C</td>
</tr>
<tr>
<td>9 Customer Specific</td>
</tr>
<tr>
<td>C ±100ppm -40 to +85°C</td>
</tr>
</tbody>
</table>

Input Voltage

<table>
<thead>
<tr>
<th>Code</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>3.3V</td>
</tr>
</tbody>
</table>
Max Reflow Profile