VCO (Voltage Controlled Oscillator) Hi-REL Hermetic Frequency of 4 GHz to 8 GHz, Phase Noise -95 dBC/Hz and SMA

The FMVC34000 Voltage Controlled Oscillator operates across the frequency range of 4 GHz to 8 GHz. The design utilizes leading edge GaAs MMIC technology which incorporates the resonator, negative resistance device, and varactor diode. An internal voltage regulator provides excellent frequency pushing of 0.2 MHz/V. The design also incorporates an output buffer amplifier that provides output power up to +20 dBm. Phase noise performance is stable over temperature at -95 dBC/Hz @ 100 KHz offset, with a tuning voltage range of 0 to +18 Volts. Bias is from a single +12V DC supply. The drop-in package is hermetically sealed with field replaceable SMA connectors and has an operating temperature range of -40°C to +85°C. And for added confidence, this rugged package assembly is designed to meet MIL-STD-883 test conditions for Hermeticity and Temperature Cycle.

**Electrical Specifications**

<table>
<thead>
<tr>
<th>Description</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range</td>
<td>4</td>
<td>8</td>
<td>8</td>
<td>GHz</td>
</tr>
<tr>
<td>Tuning Voltage</td>
<td>0</td>
<td></td>
<td>18</td>
<td>Vdc</td>
</tr>
<tr>
<td>Supply Voltage (DC)</td>
<td></td>
<td>12</td>
<td></td>
<td>Vdc</td>
</tr>
<tr>
<td>Supply Current (DC)</td>
<td>195</td>
<td></td>
<td></td>
<td>mA</td>
</tr>
<tr>
<td>Tune Port Leakage Current</td>
<td></td>
<td></td>
<td>0.01</td>
<td>mA</td>
</tr>
<tr>
<td>Phase Noise @10kHz Offset</td>
<td>-75</td>
<td>dBc</td>
<td></td>
<td>Hz</td>
</tr>
<tr>
<td>Phase Noise @100kHz Offset</td>
<td>-95</td>
<td>dBc</td>
<td></td>
<td>Hz</td>
</tr>
<tr>
<td>Output Return Loss</td>
<td>15</td>
<td>dB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output Power</td>
<td>+17</td>
<td>+20</td>
<td>dBm</td>
<td></td>
</tr>
<tr>
<td>Pushing</td>
<td></td>
<td>0.2</td>
<td>MHZ/V</td>
<td></td>
</tr>
<tr>
<td>2nd Harmonics</td>
<td></td>
<td>-10</td>
<td>dBC</td>
<td></td>
</tr>
</tbody>
</table>

**Mechanical Specifications**

<table>
<thead>
<tr>
<th>Size</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.64 in [16.26 mm]</td>
<td>0.7 in [17.78 mm]</td>
<td>0.29 in [7.37 mm]</td>
</tr>
</tbody>
</table>

**Configuration**

- Design: Hi-REL Hermetic
- Connector Option: Field Replaceable
- Control Connector: SMA Female
- Output Connector: SMA Female

**Environmental Specifications**

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Operating Range</th>
<th>Storage Range</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-40 to +85 deg C</td>
<td>-65 to +150 deg C</td>
</tr>
</tbody>
</table>

**Applications:**

- Electronic Warfare
- Electronic Countermeasures
- Microwave Radio
- Radar
- Industrial
- Medical Equipment
- Test Instrumentation
- Lab Instrumentation

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**Features:**

- VCO Module with Integrated Buffer Amplifier
- GaAs MMIC Technology
- Wide Tuning Bandwidth
- Tuning 0V to +18V
- High Output Power +20 dBm
- SSB Phase Noise -95 dBC/Hz @100Hz offset
- Single Positive Supply +8V to +15V
- Regulated Voltage Supply
- Hermetically Sealed Module
- Mil Spec Compliant
- Field Replaceable SMA Connectors
- -40°C to +85°C Operating Temperature
ESD Sensitivity

ESD Sensitive Material, Transport material in Approved ESD bags. Handle only in ESD Workstation.

Compliance Certifications (see product page for current document)

Plotted and Other Data

Notes:

Functional Block Diagram
Typical Performance Data

SSB Phase Noise vs. Tuning Voltage

Typical SSB Phase Noise
VCO (Voltage Controlled Oscillator) Hi-REL Hermetic Frequency of 4 GHz to 8 GHz, Phase Noise -95 dBC/Hz and SMA from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Allen, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: VCO (Voltage Controlled Oscillator) Hi-REL Hermetic Frequency of 4 GHz to 8 GHz, Phase Noise -95 dBC/Hz and SMA FMVC34000


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FMVC34000 DATA SHEET

VCO (Voltage Controlled Oscillator) Hi-REL Hermetic Frequency of 4 GHz to 8 GHz, Phase Noise -95 dBc/Hz and SMA

NOTE:
HEAT SINK REQUIRED FOR PROPER OPERATION,
UNIT IS COOLED BY CONDUCTING TO HEAT SINK.

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CAD FILE 040616 SHEET SCALE N/A SIZE A 2233

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