Surface Mount (SMT) 50 MHz Phase Locked Crystal Oscillator, 10 MHz External Ref., Phase Noise -155 dBC/Hz, 0.9 inch Package

**Phase Locked Crystal Oscillators Technical Data**

**Features**
- 50 MHz Phase-Locked Crystal Oscillator
- External 10 MHz Reference Oscillator
- -155 dBC/Hz @ 10kHz offset
- Pout = +7 dBm
- Harmonics = -20 dBC
- Designed to meet MIL-STD-202 Environmental Conditions
- Connectorized version available see PE19XP5002

**Applications**
- Phase Locked Loop
- Function Generators
- Frequency Synthesizers
- Receivers
- Electronic Jamming Equipment
- Local Oscillator
- Wireless Communications
- SATCOM
- Optical Communications
- Military Electronic Systems

**Description**
The PE19XP5000 is a 50 MHz Phase-Locked Crystal Oscillator with an external 10 MHz Reference Oscillator. This design features exceptional phase noise performance of -155 dBC/Hz @ 10 kHz offset. Supply Voltage is +5V DC @ 75 mA typ. The package is 0.9 inch SMT package with an industry standard mounting footprint. The bottom surface is copper clad with 2-5 micro inches of immersion gold over 150 - 250 micro inches of electroless nickel which makes it resistant to oxidation for ease of soldering. The reference oscillator has an output power level of +7 dBm +/- 2 dB and 2nd harmonic output of -20 dBC typical. The Reference Oscillator operates over a temperature range of -30°C to +70°C and is designed to meet MIL-STD-202 test conditions for Vibration and Shock.

**Electrical Specifications**

<table>
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<tr>
<th>Description</th>
<th>Minimum</th>
<th>Typical</th>
<th>Maximum</th>
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<tr>
<td>Output Frequency</td>
<td>50</td>
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<tr>
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<tr>
<td>Output Power</td>
<td>+5</td>
<td>+7</td>
<td>+9</td>
<td>dBm</td>
</tr>
<tr>
<td>Phase Noise @ 10Hz Offset</td>
<td>-90</td>
<td>-85</td>
<td></td>
<td>dBC/Hz</td>
</tr>
<tr>
<td>Phase Noise @ 100Hz Offset</td>
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<td>Phase Noise @ 10kHz Offset</td>
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<td>Reference Frequency</td>
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<td></td>
<td>MHz</td>
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</tr>
<tr>
<td>Reference Power</td>
<td>+4</td>
<td>+7</td>
<td>+10</td>
<td>dBm</td>
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<td>Reference Phase Noise @ 10Hz Offset</td>
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<td></td>
<td>dBC/Hz</td>
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<tr>
<td>Reference Phase Noise @ 100Hz Offset</td>
<td>-130</td>
<td></td>
<td></td>
<td>dBC/Hz</td>
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<td>Reference Phase Noise @ 1kHz Offset</td>
<td>-145</td>
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<td>2nd Harmonics</td>
<td>-20</td>
<td>-15</td>
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<td>dBC</td>
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<td>-70</td>
<td>-65</td>
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<td>dBC</td>
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<td>Lock Detect</td>
<td>5 VDC TTL, HIGH=LOCK</td>
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</table>

Click the following link (or enter part number in “SEARCH” on website) to obtain additional part information including price, inventory and certifications: Surface Mount (SMT) 50 MHz Phase Locked Crystal Oscillator, 10 MHz External Ref., Phase Noise -155 dBC/Hz, 0.9 inch Package PE19XP5000
Surface Mount (SMT) 50 MHz Phase Locked Crystal Oscillator, 10 MHz External Ref., Phase Noise -155 dBC/Hz, 0.9 inch Package

**Mechanical Specifications**

**Size**
- **Length**: 0.9 in [22.86 mm]
- **Width**: 0.9 in [22.86 mm]
- **Height**: 0.21 in [5.33 mm]
- **Weight**: 0.29 lbs [131.54 g]

**Mounting Surface Material and Plating**
- Copper Clad Nickel, Gold

**Design**
- Commercial

**Reference Type**
- External

**Package Style**
- Surface Mount

**Environmental Specifications**

**Temperature**
- Operating Range: -30 to +70 deg C

**Shock**
- IAW MIL-STD-202, Method 213, Condition A

**Vibration**
- IAW MIL-STD-202, Method 204, Condition A

**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**

Click the following link (or enter part number in “SEARCH” on website) to obtain additional part information including price, inventory and certifications: Surface Mount (SMT) 50 MHz Phase Locked Crystal Oscillator, 10 MHz External Ref., Phase Noise -155 dBC/Hz, 0.9 inch Package PE19XP5000
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**Phase Locked Crystal Oscillators Technical Data**

**PE19XP5000**

**Functional Block Diagram**

**APPLICATION CIRCUIT**

**BLOCK DIAGRAM**

**Typical Performance Data**

Click the following link (or enter part number in “SEARCH” on website) to obtain additional part information including price, inventory and certifications: Surface Mount (SMT) 50 MHz Phase Locked Crystal Oscillator, 10 MHz External Ref., Phase Noise -155 dBC/Hz, 0.9 inch Package PE19XP5000
Surface Mount (SMT) 50 MHz Phase Locked Crystal Oscillator, 10 MHz External Ref., Phase Noise -155 dBC/Hz, 0.9 inch Package from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter wave products maintain a 99.4% availability and are part of the broadest selection in the industry.

Click the following link (or enter part number in “SEARCH” on website) to obtain additional part information including price, inventory and certifications: Surface Mount (SMT) 50 MHz Phase Locked Crystal Oscillator, 10 MHz External Ref., Phase Noise -155 dBC/Hz, 0.9 inch Package PE19XP5000


The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements. Pasternack reserves the right to make such changes as required. Unless otherwise stated, all specifications are nominal. Pasternack does not make any representation or warranty regarding the suitability of the part described herein for any particular purpose, and Pasternack does not assume any liability arising out of the use of any part or documentation.
Surface Mount (SMT) 50 MHz Phase Locked Crystal Oscillator, 10 MHz External Ref., Phase Noise -155 dBC/Hz, 0.9 inch Package

**Pin Configuration**

1. RF IN
2. Vcc-2
3. GND
4. GND
5. GND
6. GND
7. GND
8. GND
9. GND
10. GND
11. GND
12. GND
13. GND
14. GND
15. GND
16. GND
17. GND
18. GND
19. GND
20. GND
21. LOCK

**CAD Drawing**

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**Notes:**

1. UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE NOMINAL.
2. ALL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE AT ANY TIME.
3. UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS (INCHES).
4. TOP AND BOTTOM GROUND PADS MAY BE USED IN HIGH VIBRATION APPLICATIONS. MAY BE OMITTED FOR NORMAL OPERATION.
5. DOUBLE HATCHED AREA REPRESENTS MASK OVER METALLIZATION.
6. SINGLE HATCHED AREA REPRESENTS EXPOSED METALLIZATION.
7. HOLES FOR MOUNTING ARE 0.050" [1.27mm] MINIMUM.

**Design Title:** PE19XP5000

**CAD File:** 53919

**FSCM NO.:** 53919

**Pasternack Enterprises, Inc.**
P.O. Box 16739, Irvine, CA 92623
Phone: (949) 261-1920 | Fax: (949) 261-7451
Website: www.pasternack.com | E-Mail: sales@pasternack.com

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View A

View B

PAD DETAIL

PAD DETAIL

0.038 [1.0]

0.050 [1.3] TYP.

0.017 [0.4] TYP.

0.100 [2.5]

0.060 [1.5] TYP.

0.140 [3.6] TYP.

0.060 [1.5] TYP.

0.100 [2.5] TYP.

SEE NOTE 4

SEE NOTE 4

PCB PAD LAYOUT

CHAMFER .03 X .45

NOTES:

1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE NOMINAL.

2. DIMENSIONS ARE IN MILLIMETERS OR INCHES AS SHOWN.

3. TOP AND BOTTOM GROUND PADS MAY BE USED IN HIGH VIBRATION APPLICATIONS.

4. DOUBLE HATCHED AREA REPRESENTS MASKED (TENTED) VIAS AND TRACES. REMOVE ALL METALIZATION FROM THIS AREA ON MATING PART.

5. DOUBLE HATCHED AREA REPRESENTS EXPOSED METALIZATION.

6. SINGLE HATCHED AREA REPRESENTS MASK OVER METALIZATION.

7. THESE DIMENSIONS AND TOLERANCES SUPERSEDE NOTE #4 ON TITLE BLOCK.

DIMENSIONS IN MILLIMETERS OR INCHES AS SHOWN.
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**PE19XP5000 CAD Drawing**

**REMOVAL INSTRUCTIONS**

1. ESD PRECAUTIONS MUST BE OBSERVED DURING REWORK.
2. APPLY A LIBERAL AMOUNT OF FLUX TO ALL SOLDER CONNECTIONS.
3. REMOVE EXCESS SOLDER WITH A SOLDERING IRON AND WICK.
4. APPLY HEAT AND LIFT THE COMPONENT STARTING AT ONE CORNER WITH A SMALL SPATUAL OR SIMILAR TOOL. CARE MUST BE TAKEN NOT TO BUMP THE LID WHICH MAY CAUSE INTERNAL SHORTS.
5. REMOVE ANY REMAINING SOLDER ON THE PADS PRIOR TO RE-ATTACHMENT.

**TYPICAL ATTACHMENT REFLOW PROFILES**

**TEMPERATURE PROFILE, TYP Sn63**

**NON-RoHS**

**TEMPERATURE PROFILE, SAC 305 ALLOY**

**RoHS**

<table>
<thead>
<tr>
<th>DWG TITLE</th>
<th>PE19XP5000</th>
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