



Surface Mount (SMT) 50 MHz Free Running Reference Oscillator, Internal Ref., Phase Noise -150 dBc/Hz, 0.9 inch Package

Reference Oscillators Technical Data Sheet

PE19XR1001

Features

- 50 MHz Reference Oscillator
- -150 dBc/Hz @ 10kHz offset
- Pout +7 dBm
- Harmonics -20 dBc
- Designed to meet MIL-STD-202 Environmental Conditions
- connectorized version available see PE19XR1004

Applications

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

Description

The PE19XR1001 is a 50 MHz Reference Oscillator. The Oscillator has a stability of +/-5 ppm over a temperature range of -30° C to +70° C and an aging of <1ppm 1st year @ +40° C. This design features exceptional phase noise performance of -150 dBc/Hz @ 10 kHz offset. Supply Voltage is +5V DC @ 50 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 +/- 3 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

| Description | Minimum | Typical | Maximum | Units |
|----------------------------|---------|---------|---------|--------|
| Output Frequency | | 50 | | MHz |
| Output Impedance | | 50 | | Ohms |
| Output Power | +4 | +7 | +10 | dBm |
| Phase Noise @ 10Hz Offset | | -75 | | dBc/Hz |
| Phase Noise @ 100Hz Offset | | -100 | | dBc/Hz |
| Phase Noise @ 1kHz Offset | | -130 | | dBc/Hz |
| Phase Noise @ 10kHz Offset | | -150 | | dBc/Hz |
| 2nd Harmonics | | -20 | -15 | dBc |
| Spurious | | -70 | -65 | dBc |
| Frequency Stability | | | ±5 | ppm |
| Supply Voltage (DC) | | 5 | | Vdc |
| Supply Current (DC) | | 50 | | mA |

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 Free Running Reference Oscillator, Internal Ref., Phase Noise -150 dBc/Hz, 0.9 inch Package PE19XR1001](#)



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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 | Internal |
| 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

Notes:

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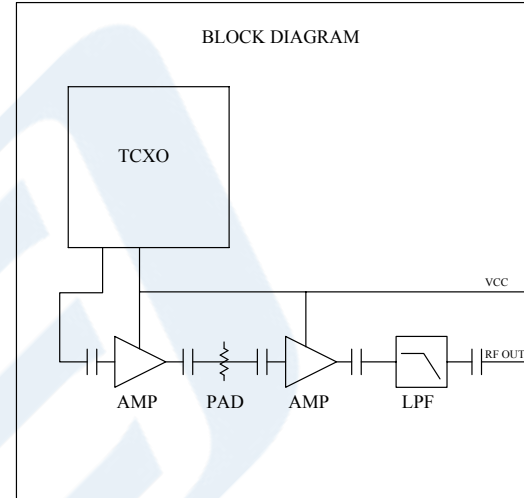
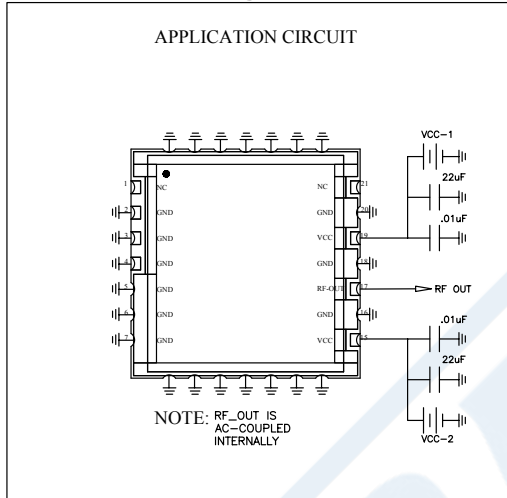


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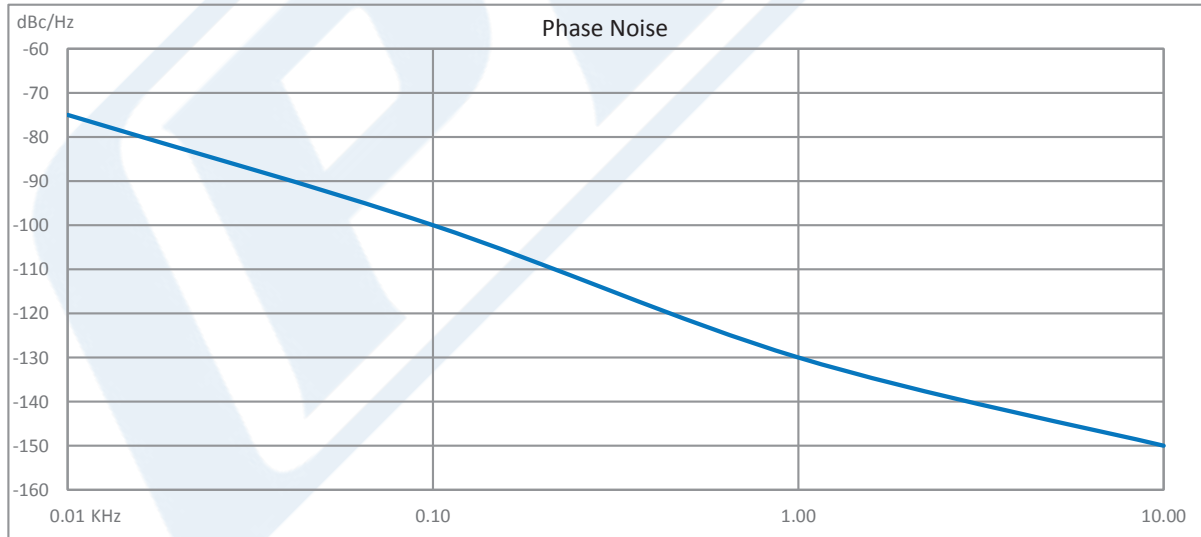
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Functional Block Diagram



Typical Performance Data



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Surface Mount (SMT) 50 MHz Free Running Reference Oscillator, Internal Ref., Phase Noise -150 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.

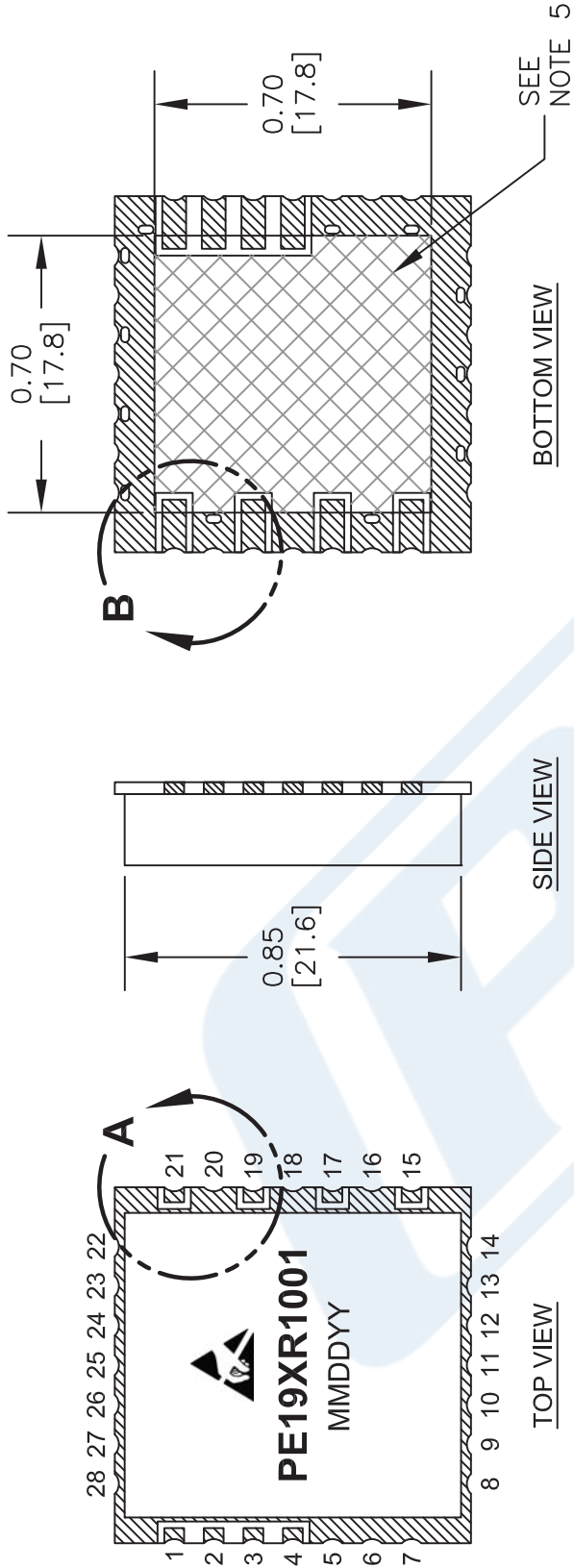
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The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements. 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.

PE19XR1001 CAD Drawing

Surface Mount (SMT) 50 MHz Free Running Reference Oscillator,
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| Pin Configuration | | | | | | | |
|-------------------|-----|----|-----|----|--------|----|-----|
| 1 | NC | 8 | GND | 15 | Vcc | 22 | GND |
| 2 | GND | 9 | GND | 16 | GND | 23 | GND |
| 3 | GND | 10 | GND | 17 | RF OUT | 24 | GND |
| 4 | GND | 11 | GND | 18 | GND | 25 | GND |
| 5 | GND | 12 | GND | 19 | Vcc-1 | 26 | GND |
| 6 | GND | 13 | GND | 20 | GND | 27 | GND |
| 7 | GND | 14 | GND | 21 | LOCK | 28 | GND |

- NOTES:**
1. SINGLE HATCHED AREA REPRESENTS EXPOSED METALIZATION.
 2. DOUBLE HATCHED AREA REPRESENTS MASK OVER METALIZATION.
 3. RECOMMENDED PAD LAYOUT IAW IPC-7351.
 4. TOP AND BOTTOM GROUND PADS MAY BE USED IN HIGH VIBRATION APPLICATIONS, MAY BE OMITTED FOR NORMAL OPERATION.
 5. DOUBLE HATCHED AREA REPRESENTS MASKED (TENTED) VIAS AND TRACES, REMOVE ALL METALIZATION FROM THIS AREA ON MATING PART.

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN: inches [mm]
TOLERANCES ARE:
.XX = ± .03 [.762]
.XXX = ± .005 [.127]

* THESE DIMENSIONS AND TOLERANCES
SUPERSEDE NOTE #1 ON TITLE BLOCK.

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DWG TITLE

PE19XR1001

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FSCM NO. 53919

CAD FILE 120116

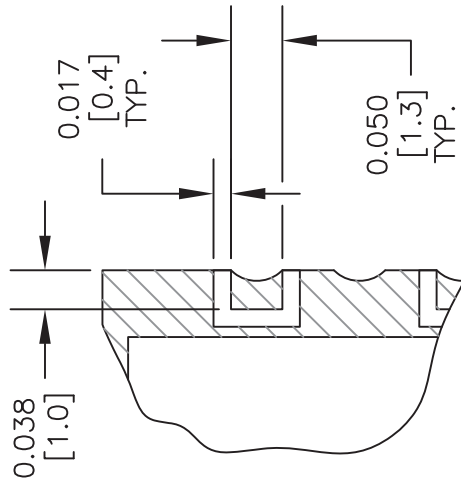
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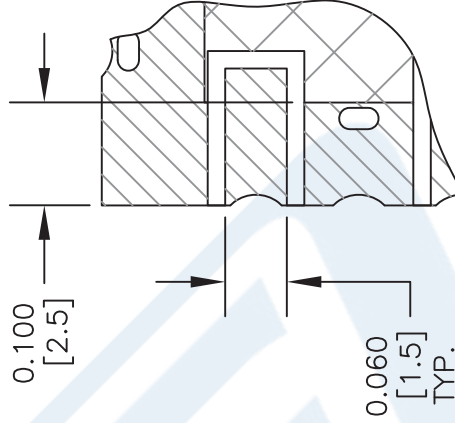
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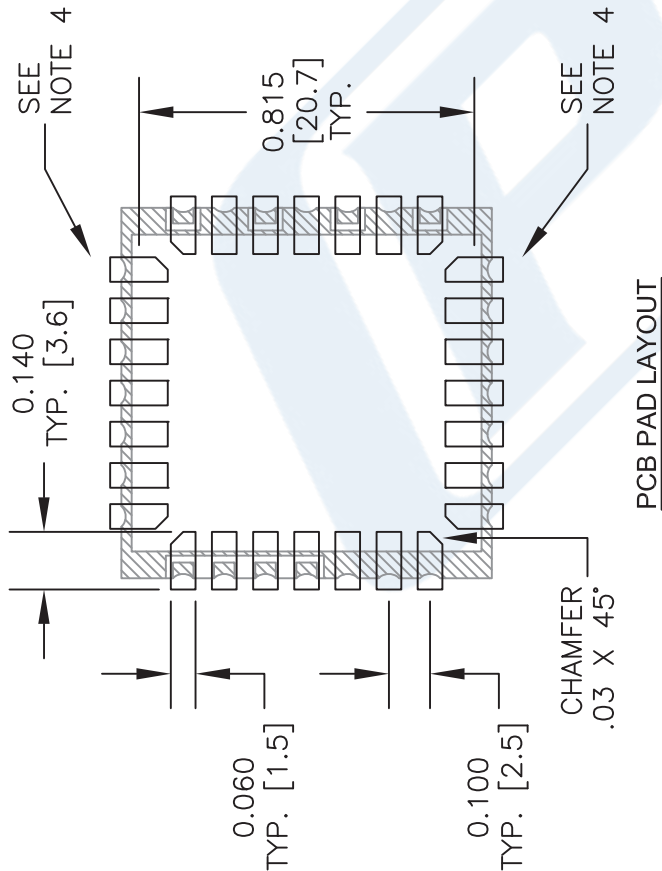
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View A
PAD DETAIL



View B
PAD DETAIL



PCB PAD LAYOUT

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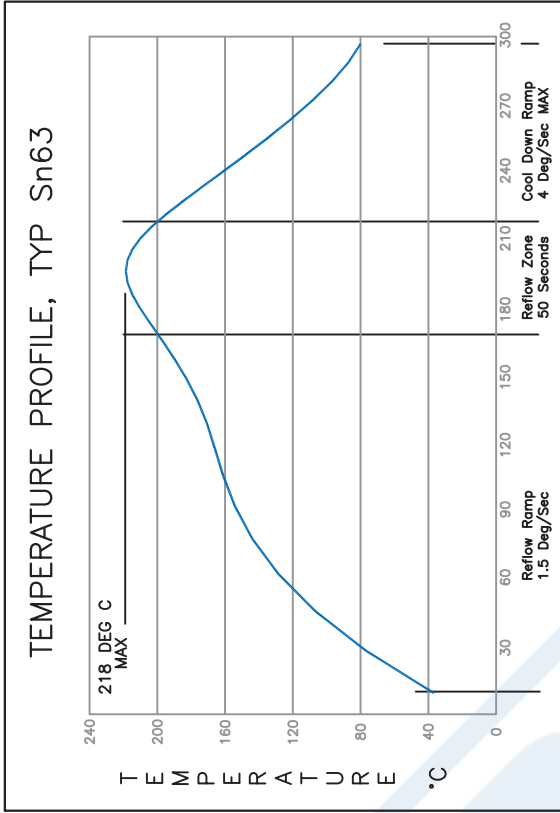
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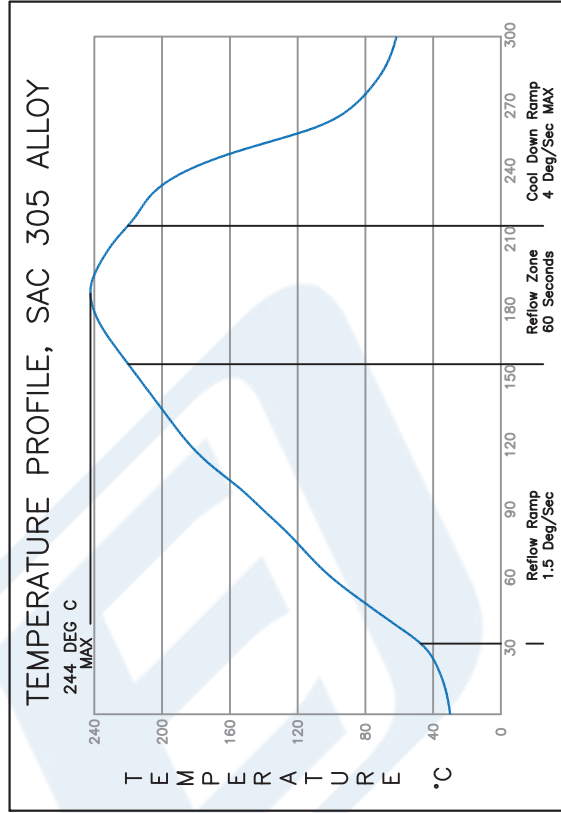
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TYPICAL ATTACHMENT REFLOW PROFILES



NON-RoHS



RoHS

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REMOVAL INSTRUCTIONS

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

