

500 MHz Phase Locked Oscillator in 0.9 inch SMT (Surface Mount) Package, 10 MHz External Ref., Phase Noise -105 dBc/Hz

The FMXP5004 is a 500 MHz Phase-Locked Oscillator with an external 10 MHz Reference Oscillator. This design features exceptional phase noise performance of -105 dBc/Hz @ 10 kHz offset. Supply Voltage is +5V DC @ 25 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 -25 dBc typical. The reference oscillator operates over a temperature range of -30°C to +70°C and is designed to meet a variety of MIL-STD-202 test conditions including Humidity, Shock, and Vibration.



Electrical Specifications

Description	Min	Typ	Max	Units
Output Frequency		500		MHz
Output Power	+4	+7	+10	dBm
Phase Noise @ 1kHz Offset		-95	-90	dBc/Hz
Phase Noise @ 10kHz Offset		-105	-100	dBc/Hz
Phase Noise @ 100kHz Offset		-125	-120	dBc/Hz
Phase Noise @ 1MHz Offset		-145	-140	dBc/Hz
Reference Frequency		10		MHz
Reference Impedance		50		Ohms
Ref. Phase Noise @ 10Hz Offset		-105		dBc/Hz
Ref. Phase Noise @ 100Hz Offset		-135		dBc/Hz
Ref. Phase Noise @ 1kHz Offset		-145		dBc/Hz
2nd Harmonics		-25	-20	dBc
Spurious		-70	-65	dBc
Supply Voltage (DC) 1		5		Vdc
Supply Current (DC) 1		25		mA

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	0.0185 lbs [8.39 g]
Mounting Surface Material and Plating Design	Copper Clad Nickel, Gold 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

Features:

- 500 MHz Phase-Locked Oscillator
- External 10 MHz Reference Oscillator
- -105 dBc/Hz @ 10kHz offset
- Pout +7 dBm
- Harmonics -25 dBc
- Designed to meet MIL-STD-202 Environmental Conditions

Applications:

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

Fairview Microwave
1130 Junction Dr. #100
Allen, TX 75013
Tel: 1-800-715-4396 / (972) 649-6678
Fax: (972) 649-6689
www.fairviewmicrowave.com
sales@fairviewmicrowave.com

ESD Sensitivity

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

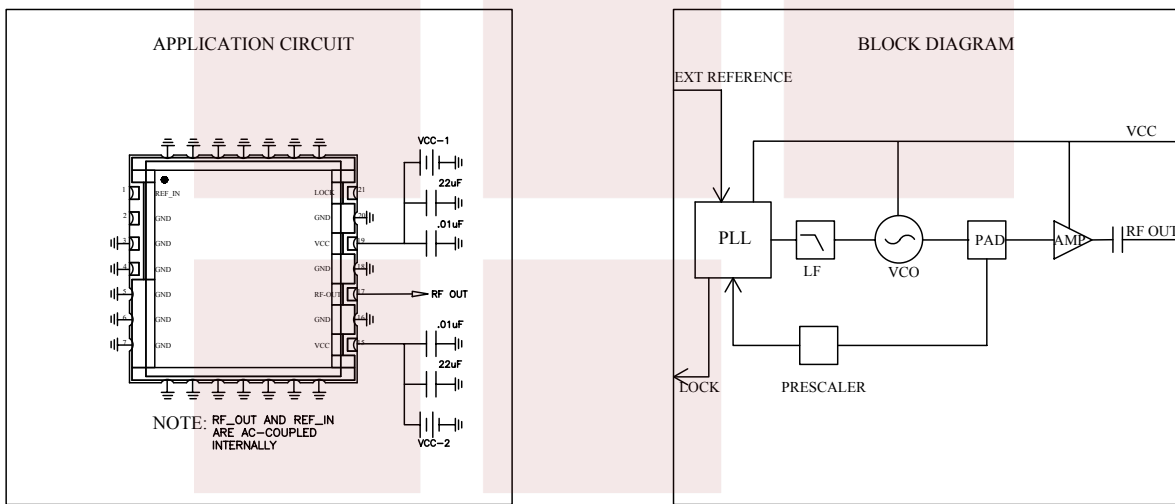


Compliance Certifications (see [product page](#) for current document)

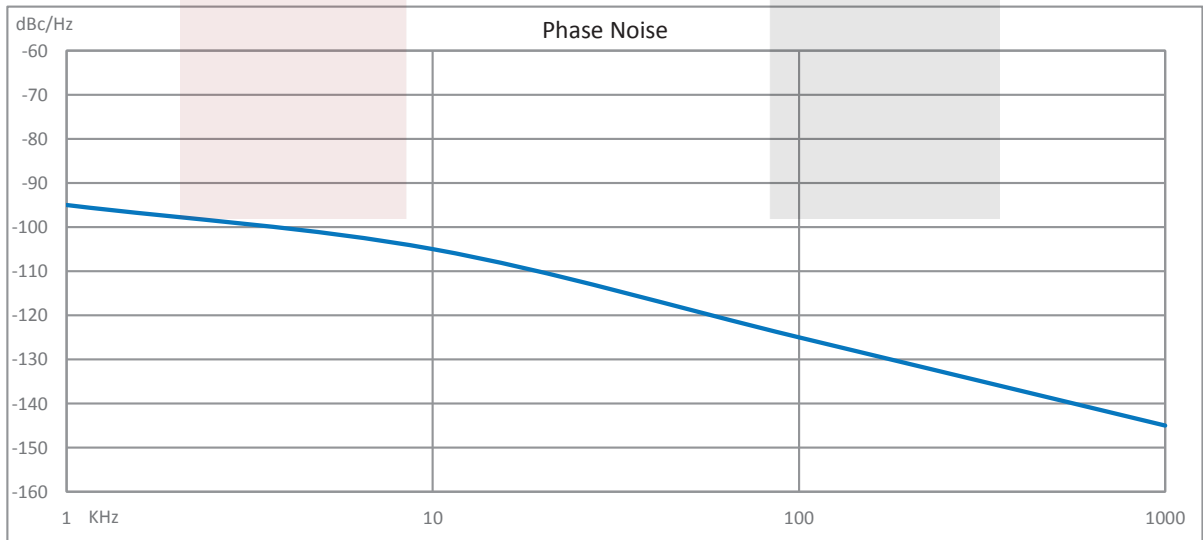
Plotted and Other Data

Notes:

Functional Block Diagram



Typical Performance Data



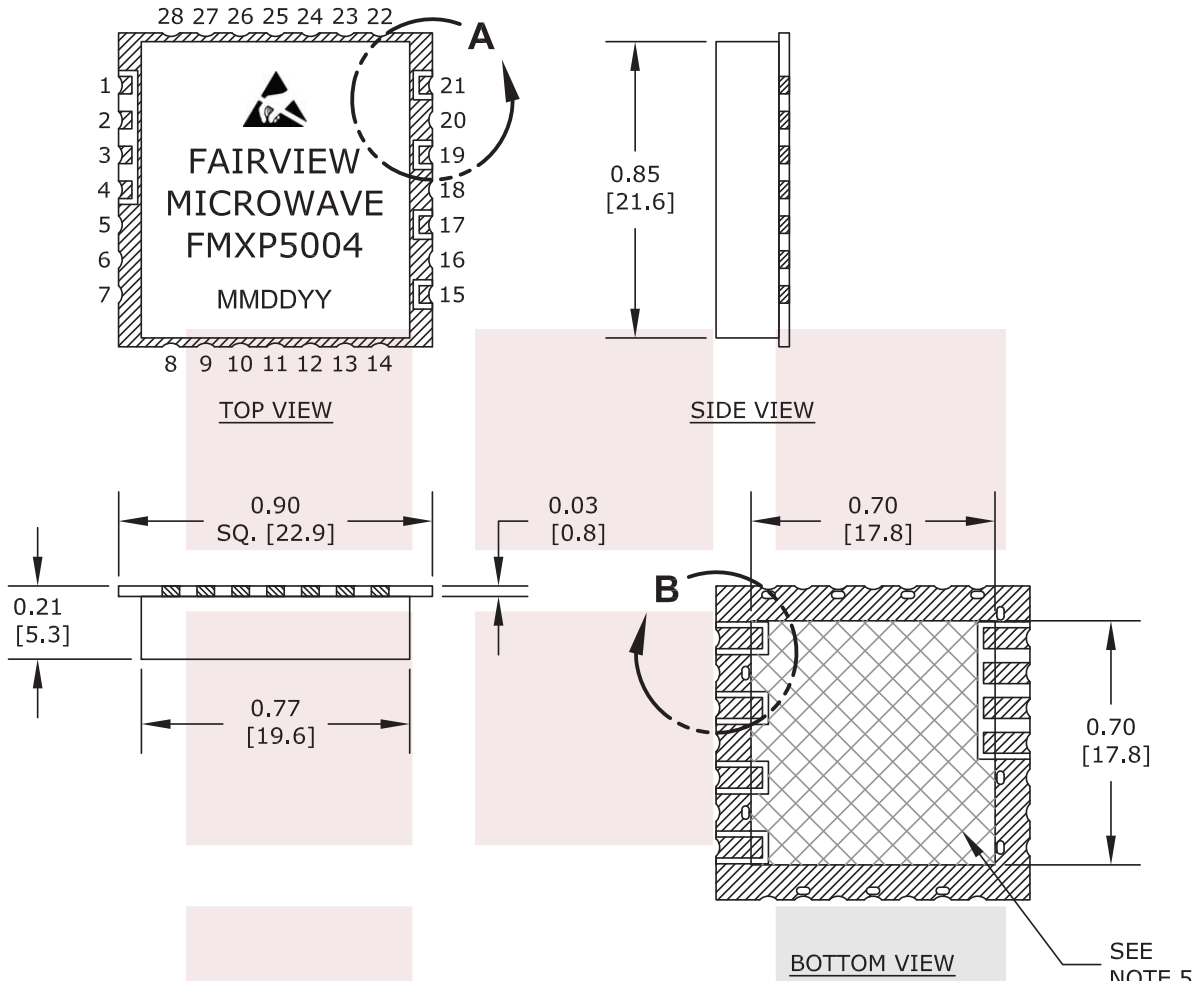
500 MHz Phase Locked Oscillator in 0.9 inch SMT (Surface Mount) Package, 10 MHz External Ref., Phase Noise -105 dBc/Hz from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Allen, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [500 MHz Phase Locked Oscillator in 0.9 inch SMT \(Surface Mount\) Package, 10 MHz External Ref., Phase Noise -105 dBc/Hz FMXP5004](#)

URL: <https://www.fairviewmicrowave.com/500-mhz-phase-locked-oscillator-smt-surface-mount-external-fmxp5004-p.aspx>

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. Fairview Microwave reserves the right to make such changes as required. Unless otherwise stated, all specifications are nominal. Fairview Microwave does not make any representation or warranty regarding the suitability of the part described herein for any particular purpose, and Fairview Microwave does not assume any liability arising out of the use of any part or documentation.





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

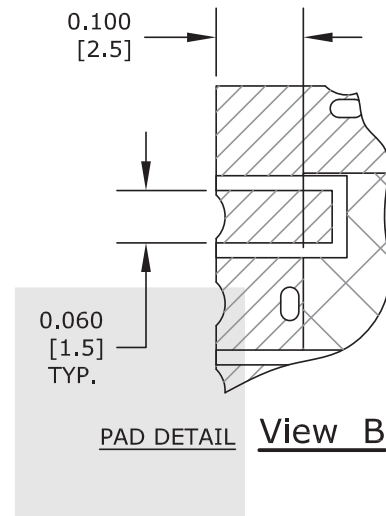
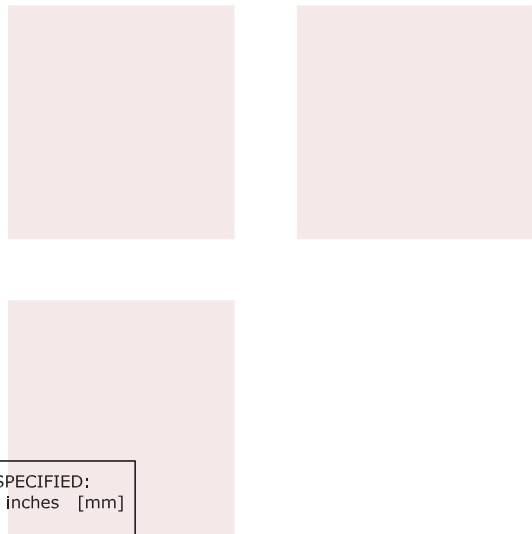
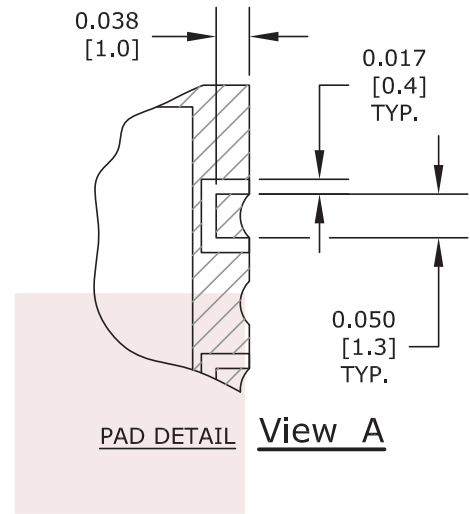
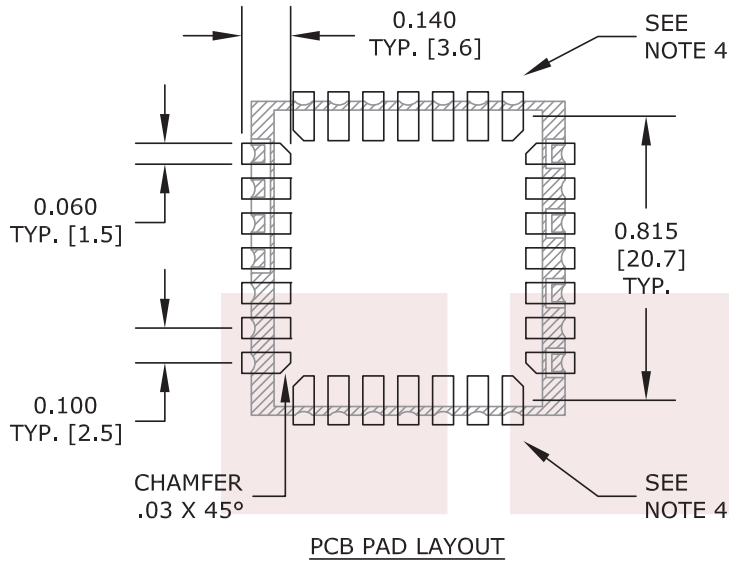
* THESE DIMENSIONS AND TOLERANCES
SUPERSEDE NOTE #1 ON TITLE BLOCK.

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.

Pin Configuration				
1 RF IN	8 GND	15 Vcc-2	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	

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TITLE 500 MHz Phase Locked Oscillator in 0.9 inch SMT (Surface Mount) Package, 10 MHz External Ref., Phase Noise -105 dBc/Hz		DWG NO FMXP5004		CAGE CODE 3FKR5
CAD FILE	120116	SHEET	SCALE N/A	SIZE A 2233



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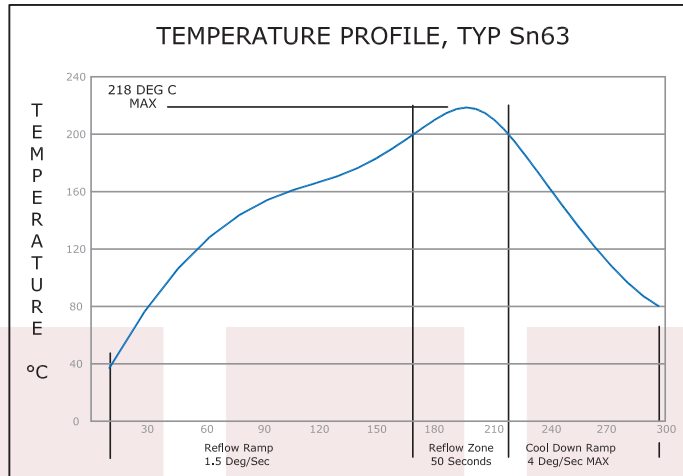
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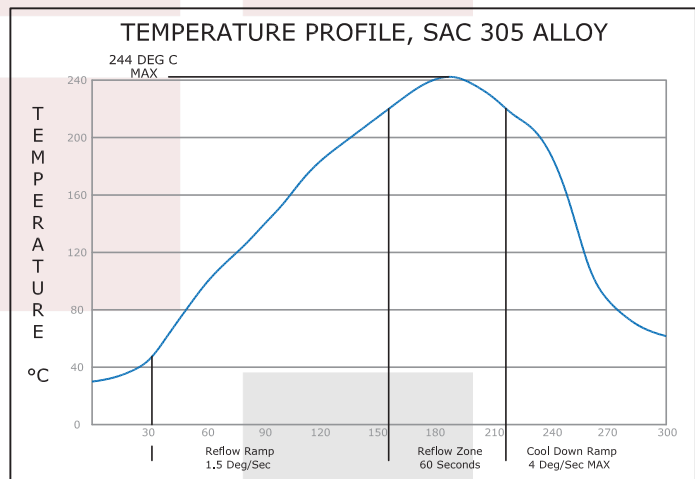
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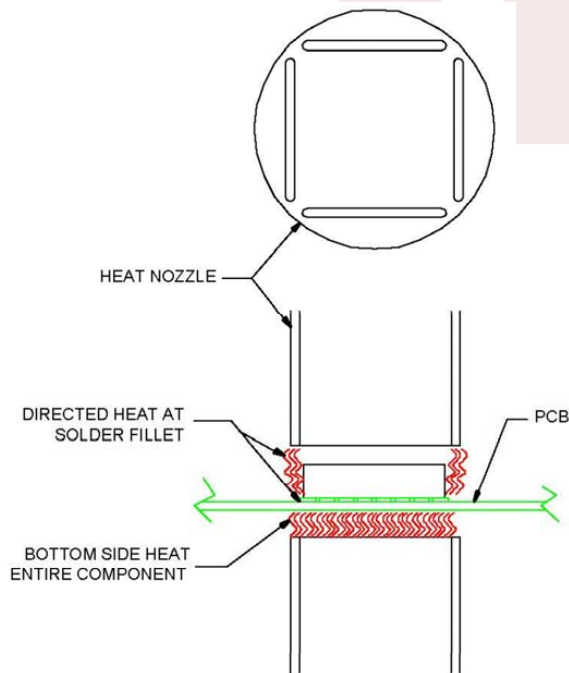
TYPICAL ATTACHMENT REFLOW PROFILES



NON-RoHS



RoHS



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 SPATIAL 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.

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