

100 MHz Phase Locked Crystal Oscillator in
0.9 inch SMT (Surface Mount) Package, 10 MHz External
Ref., Phase Noise -150 dBc/Hz



FMXP5001

Features

- 100 MHz Phase-Locked Crystal Oscillator
- External 10 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 FMXP5003

Applications

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

Description

The FMXP5001 is a 100 MHz Phase-Locked Crystal Oscillator with an external 10 MHz Reference Oscillator. This design features exceptional phase noise performance of -150 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 a variety of MIL-STD-202 test conditions including Humidity, Shock, and Vibration.

Electrical Specifications

Description	Min	Typ	Max	Units
Output Frequency		100		MHz
Output Impedance		50		Ohms
Output Power	+5	+7	+9	dBm
Phase Noise @ 10Hz Offset		-85	-80	dBc/Hz
Phase Noise @ 100Hz Offset		-100	-95	dBc/Hz
Phase Noise @ 1kHz Offset		-130	-125	dBc/Hz
Phase Noise @ 10kHz Offset		-150	-145	dBc/Hz
Reference Frequency		10		MHz
Reference Impedance		50		Ohms
Reference Power	+4	+7	+10	dBm
Ref. Phase Noise @ 10Hz Offset		-110		dBc/Hz
Ref. Phase Noise @ 100Hz Offset		-130		dBc/Hz
Ref. Phase Noise @ 1kHz Offset		-145		dBc/Hz
2nd Harmonics		-20	-15	dBc
Spurious		-70	-65	dBc
Lock Detect		5 VDC TTL, HIGH=LOCK		
Supply Voltage (DC) 1		5		Vdc
Supply Current (DC) 1		75	100	mA

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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	0.019 lbs [8.62 g]
Mounting Surface Material and Plating	Copper Clad Nickel, Gold
Body Material and Plating	Copper Clad Nickel, Gold

Configuration

Design	Commercial
Reference Type	External
Package Style	Surface Mount

Environmental Specifications

Temperature

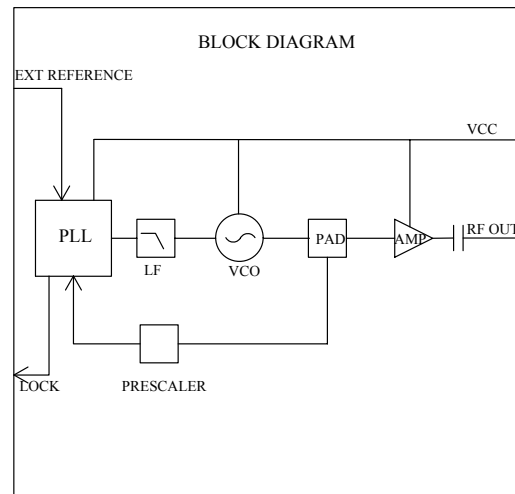
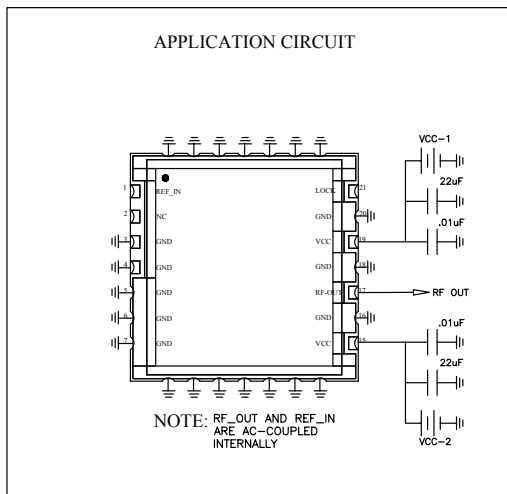
Operating Range	-30 to +70 deg C
Shock	IAW MIL-STD-202, Method 213, Condition A
Vibration	IAW MIL-STD-202, Method 204, Condition A
ESD Sensitivity	ESD Sensitive Material, Transport material in Approved ESD bags. Handle only in ESD Workstation.

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

Plotted and Other Data

Notes:

Functional Block Diagram

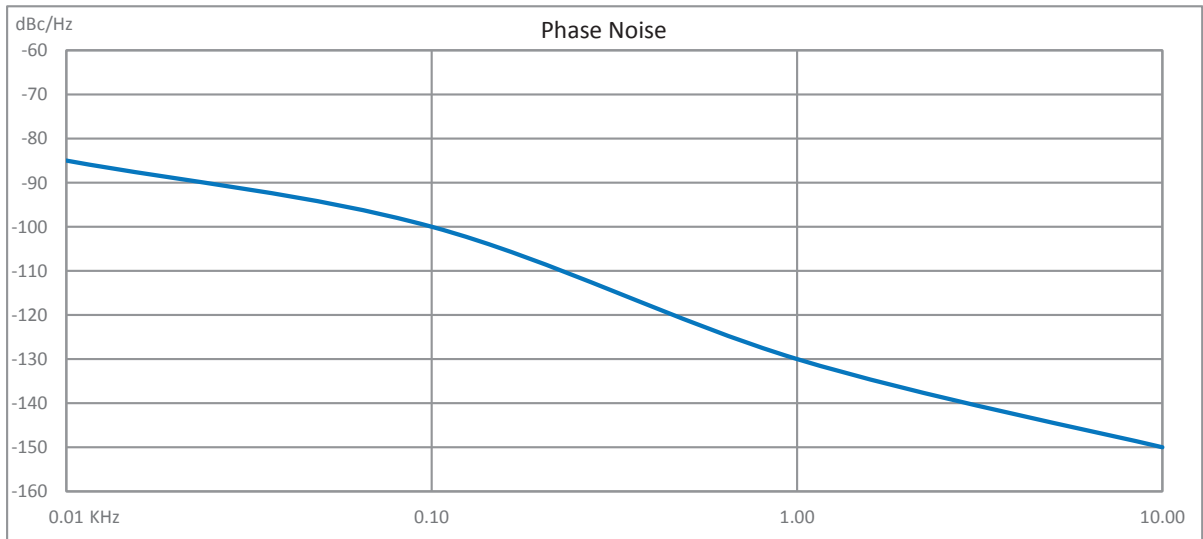


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Typical Performance Data



100 MHz Phase Locked Crystal Oscillator in 0.9 inch SMT (Surface Mount) Package, 10 MHz External Ref., Phase Noise -150 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 Lewisville, Texas. Fairview Microwave is RF on-demand.

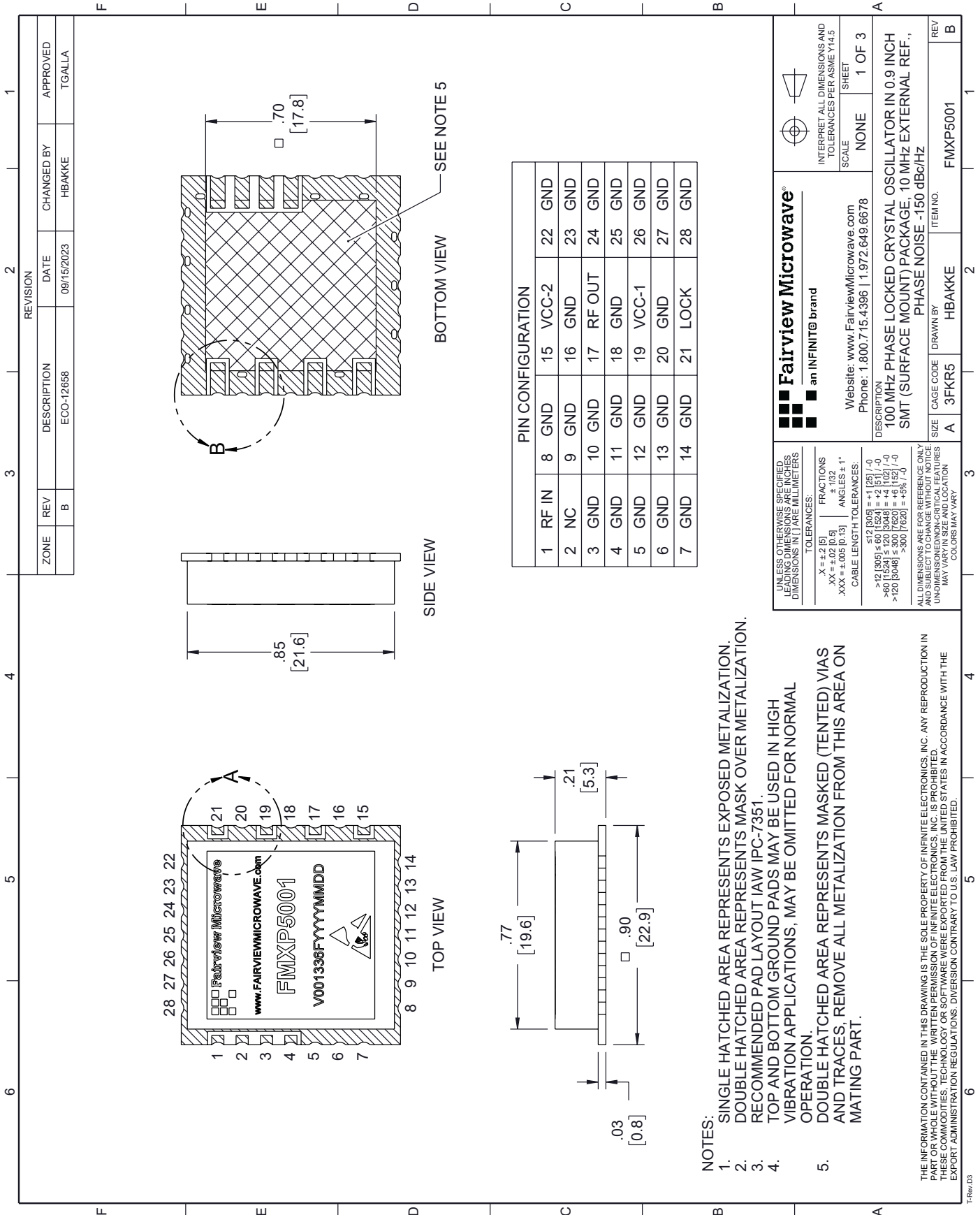
For additional information on this product, please click the following link: [100 MHz Phase Locked Crystal Oscillator in 0.9 inch SMT \(Surface Mount\) Package, 10 MHz External Ref., Phase Noise -150 dBc/Hz FMXP5001](https://www.fairviewmicrowave.com/100-mhz-phase-locked-crystal-oscillator-smt-surface-mount-external-fm5001-p.aspx)

URL: <https://www.fairviewmicrowave.com/100-mhz-phase-locked-crystal-oscillator-smt-surface-mount-external-fm5001-p.aspx>

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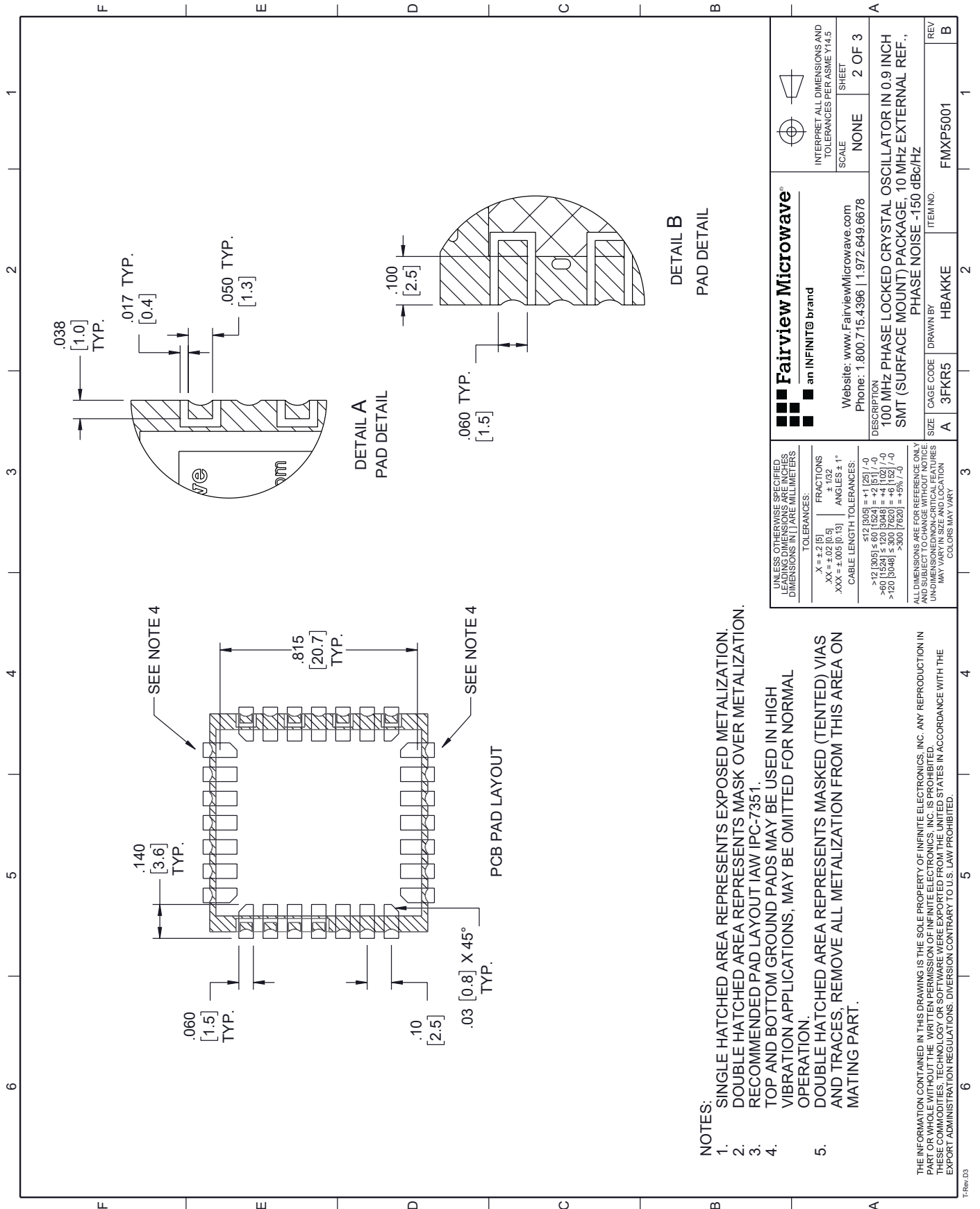
FMXP5001 CAD Drawing

100 MHz Phase Locked Crystal Oscillator in 0.9 inch SMT (Surface Mount) Package, 10 MHz External Ref., Phase Noise -150 dBc/Hz



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100 MHz Phase Locked Crystal Oscillator in 0.9 inch SMT (Surface Mount) Package, 10 MHz External Ref., Phase Noise -150 dBc/Hz



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.

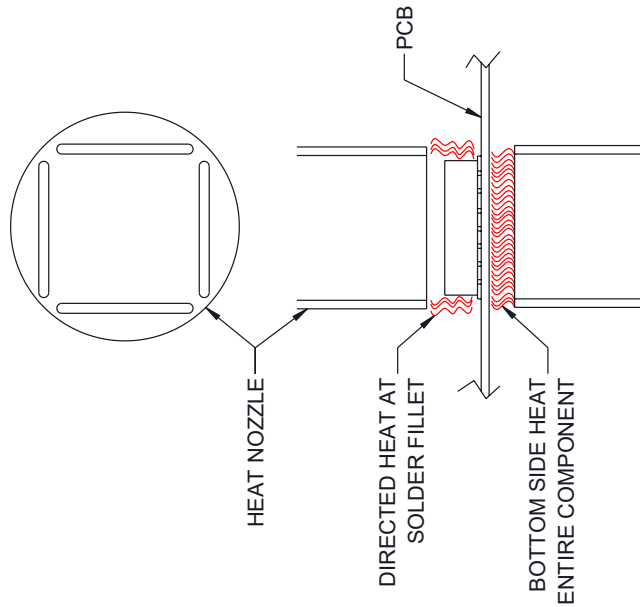
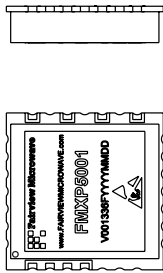
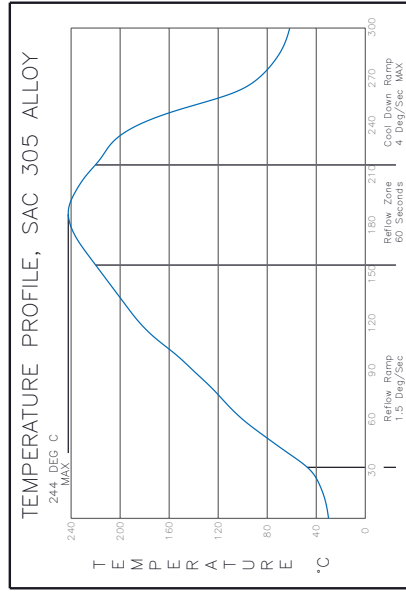
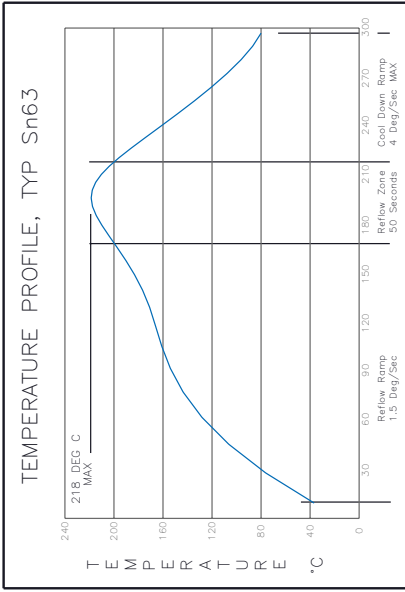
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Fairview Microwave an INFINITe brand	Website: www.FairviewMicrowave.com Phone: 1.800.715.4396 1.972.649.6678	INTERPRET ALL DIMENSIONS AND TOLERANCES PER ASME Y14.5 SCALE: NONE SHEET: 2 OF 3
	DESCRIPTION: 100 MHz PHASE LOCKED CRYSTAL OSCILLATOR IN 0.9 INCH SMT (SURFACE MOUNT) PACKAGE, 10 MHz EXTERNAL REF., PHASE NOISE -150 dBc/Hz	SIZE: A CASE CODE: 3FKR5 DRAWN BY: HBAKKE ITEM NO.: FMXP5001 REV: B
UNLESS OTHERWISE SPECIFIED LEADING DIMENSIONS ARE IN INCHES DIMENSIONS IN [] ARE MILLIMETERS TOLERANCES: X = ±.2 [5] FRACTIONS ±.132 .XX = ±.02 [0.5] ANGLES ± 1° .XXX = ±.005 [0.13] CABLE LENGTH TOLERANCES: <12 [305] ≤ ±.1 [25] /-0 >12 [305] ≤ 60 [1524] = ±.2 [5] /-0 >60 [1524] ≤ 120 [3048] = ±.4 [102] /-0 >120 [3048] ≤ 300 [7620] = ±.6 [152] /-0 >300 [7620] = ±.8% /-0 ALL DIMENSIONS ARE FOR REFERENCE ONLY AND SUBJECT TO CHANGE WITHOUT NOTICE UNLESS OTHERWISE SPECIFIED IN FEEDBACK MAY VARY IN SIZE AND LOCATION COLORS MAY VARY		

FMXP5001 CAD Drawing

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TYPICAL ATTACHMENT REFLOW PROFILES



- 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 SPATULA 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.

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UNLESS OTHERWISE SPECIFIED, LEADING DIMENSIONS ARE INCHES, DIMENSIONS IN [] ARE MILLIMETERS	
TOLERANCES:	FRACTIONS
X = ±.2 (5)	± 1/32
XX = ±.02 (0.5)	ANGLES ± 1°
XXX = ±.005 (0.13)	CABLE LENGTH TOLERANCES:
	<12 (305) ±.11 (28)
	>12 (305) ≤ 60 (1524) ±.12 (31)
	>60 (1524) ≤ 120 (3048) ±.14 (35)
	>120 (3048) ≤ 300 (7620) ±.16 (41)
	>300 (7620) ±.19 (48)
ALL DIMENSIONS ARE FOR REFERENCE ONLY AND SUBJECT TO CHANGE WITHOUT NOTICE UNLESS OTHERWISE SPECIFIED IN DIMENSIONS MAY VARY IN SIZE AND LOCATION. COLORS MAY VARY.	

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DESCRIPTION	100 MHz PHASE LOCKED CRYSTAL OSCILLATOR IN 0.9 INCH SMT (SURFACE MOUNT) PACKAGE, 10 MHz EXTERNAL REF., PHASE NOISE -150 dBc/Hz
SIZE	A
CAGE CODE	3FKR5
DRAWN BY	HBAKKE
ITEM NO.	FMXP5001

INTERPRET ALL DIMENSIONS AND TOLERANCES PER ASME Y14.5	SHEET	3 OF 3
SCALE	NONE	