

10 MHz Free Running Reference Oscillator in
0.9 inch SMT (Surface Mount) Package, Internal Ref.,
Phase Noise -145 dBc/Hz



FMXR1000

Features

- 10 MHz Reference Oscillator
- -145 dBc/Hz @ 10kHz offset
- Pout +7 dBm
- Harmonics -20 dBc
- Designed to meet MIL-STD-202 Environmental Conditions
- connectorized version available see FMXR1003

Applications

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

Description

The FMXR1000 is a 10 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 -145 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 a variety of MIL-STD-202 test conditions including Humidity, Shock, and Vibration.

Electrical Specifications

Description	Minimum	Typical	Maximum	Units
Output Frequency		10		MHz
Output Impedance		50		Ohms
Output Power	+4	+7	+10	dBm
Phase Noise @ 10Hz Offset		-85		dBc/Hz
Phase Noise @ 100Hz Offset		-105		dBc/Hz
Phase Noise @ 1kHz Offset		-135		dBc/Hz
Phase Noise @ 10kHz Offset		-145		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

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	0.0195 lbs [8.85 g]
Mounting Surface Material and Plating	Copper Clad Nickel, Gold

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FMXR1000

Design
Reference Type
Package Style

Commercial
Internal
Surface Mount

Environmental Specifications

Temperature
Operating Range
Shock
Vibration
ESD Sensitivity

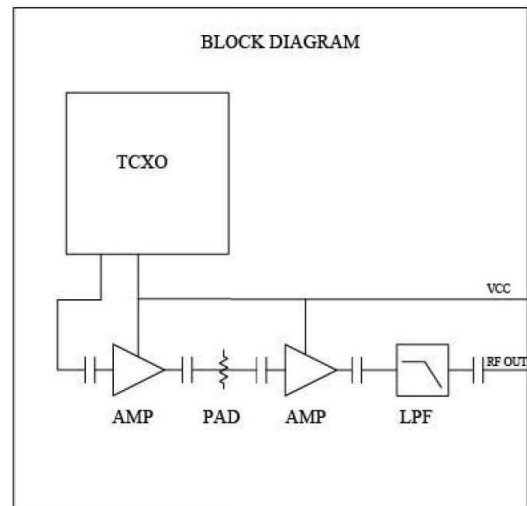
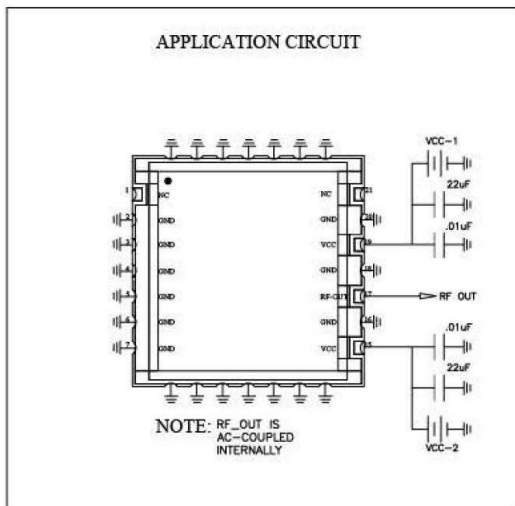
-30 to +70 deg C
IAW MIL-STD-202, Method 213, Condition A
IAW MIL-STD-202, Method 204, Condition A
ESD Sensitive Material, Transport material in Approved ESD bags.
Handle only in ESD Workstation.

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

Plotted and Other Data

Notes:

Functional Block Diagram

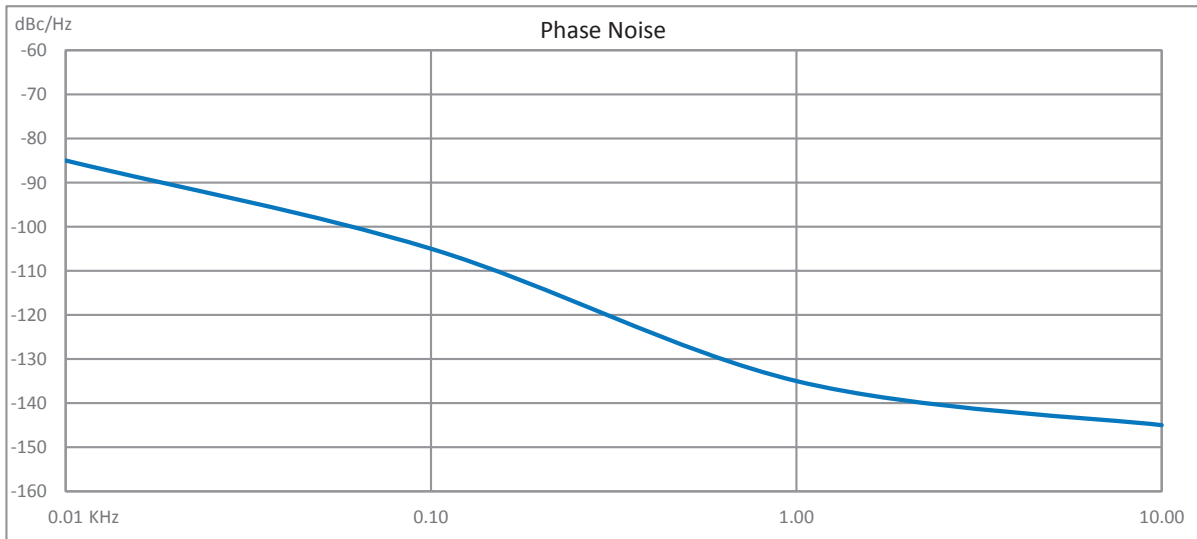


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Typical Performance Data



10 MHz Free Running Reference Oscillator in 0.9 inch SMT (Surface Mount) Package, Internal Ref., Phase Noise -145 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.

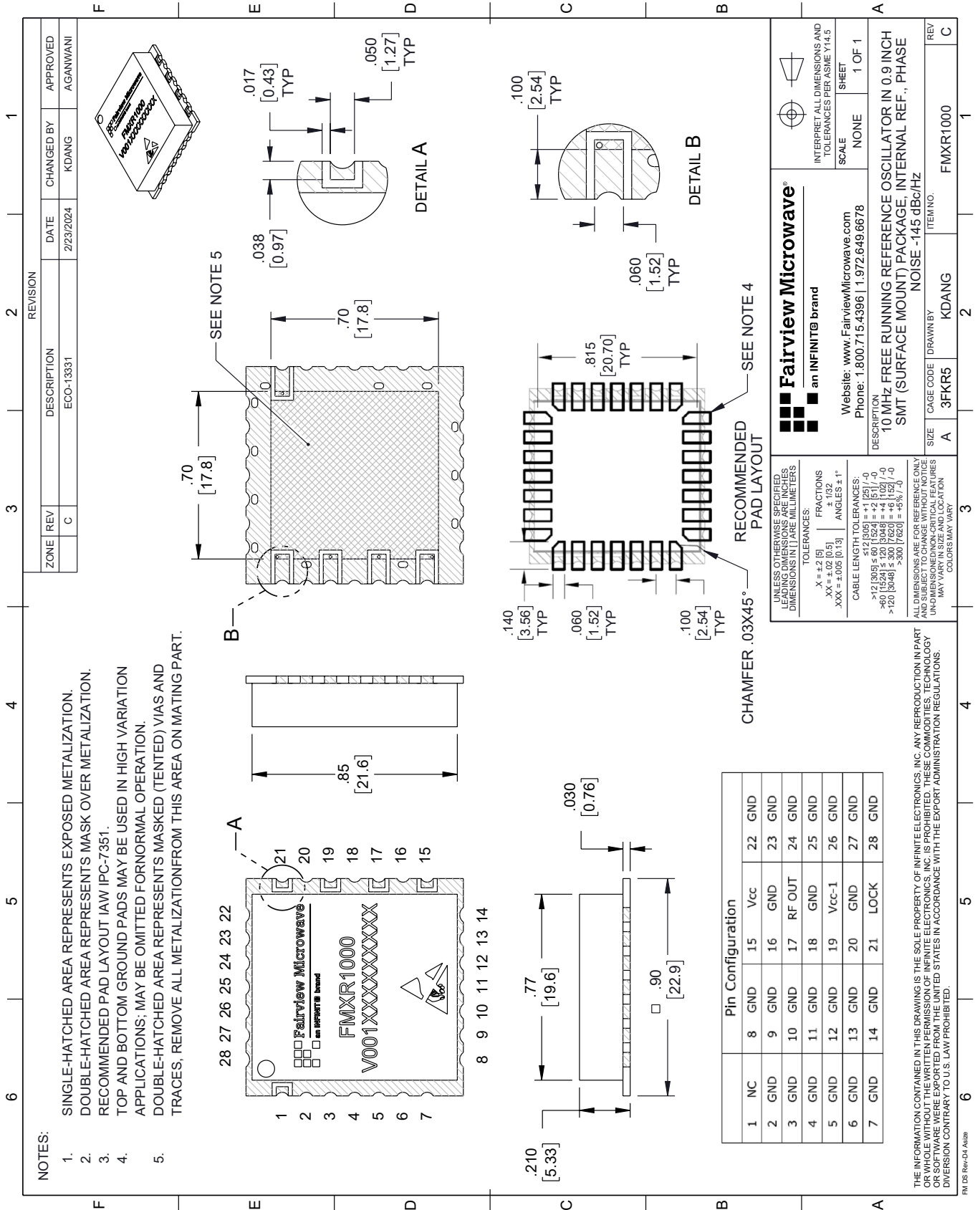
For additional information on this product, please click the following link: [10 MHz Free Running Reference Oscillator in 0.9 inch SMT \(Surface Mount\) Package, Internal Ref., Phase Noise -145 dBc/Hz FMXR1000](https://www.fairviewmicrowave.com/10-mhz-free-running-reference-oscillator-smt-surface-mount-internal-fmxr1000)

URL: <https://www.fairviewmicrowave.com/10-mhz-free-running-reference-oscillator-smt-surface-mount-internal-fmxr1000-p.aspx>

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FMXR1000 CAD Drawing

10 MHz Free Running Reference Oscillator in 0.9 inch SMT (Surface Mount) Package, Internal Ref., Phase Noise -145 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 VARIATION 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.

ZONE	REV	DESCRIPTION	DATE	CHANGED BY	APPROVED
	C	ECO-13331	2/23/2024	KDANG	AGANWANI

Fairview Microwave
an INFINITI® brand

Website: www.FairviewMicrowave.com
Phone: 1.800.715.4396 | 1.972.649.6678

DESCRIPTION: 10 MHz FREE RUNNING REFERENCE OSCILLATOR IN 0.9 INCH SMT (SURFACE MOUNT) PACKAGE, INTERNAL REF., PHASE NOISE -145 dBc/Hz

UNLESS OTHERWISE SPECIFIED, LEADING DIMENSIONS ARE IN INCHES, UNLESS INDICATED OTHERWISE IN DIMENSIONS IN [] ARE MILLIMETERS.

TOLERANCES:
 .X = ±.2 [5]
 .XX = ±.02 [0.5]
 .XXX = ±.005 [0.13]
 FRACTIONS ± 1/32
 ANGLES ± 1°

CABLE LENGTH TOLERANCES:
 >12 [305] ≤ 60 [1524] = ±1 [25] / -0
 >60 [1524] ≤ 120 [3048] = ±4 [102] / -0
 >120 [3048] ≤ 300 [7620] = ±5% / ± 0

ALL DIMENSIONS ARE FOR REFERENCE ONLY. UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. DIMENSIONS IN [] ARE MILLIMETERS. COLORS MAY VARY.

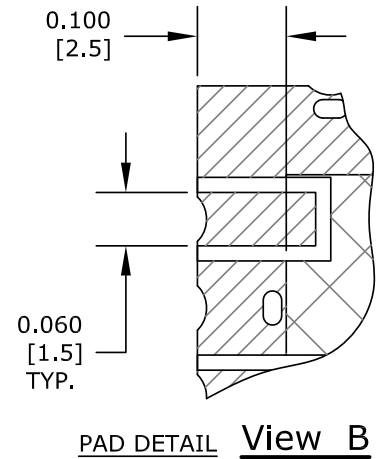
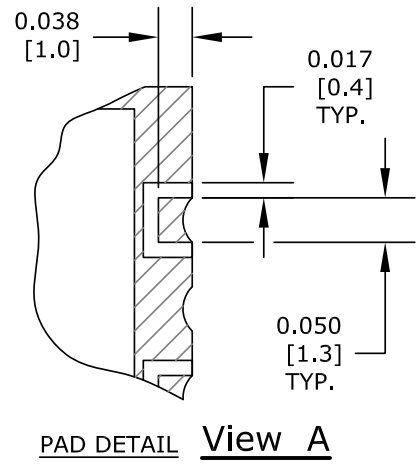
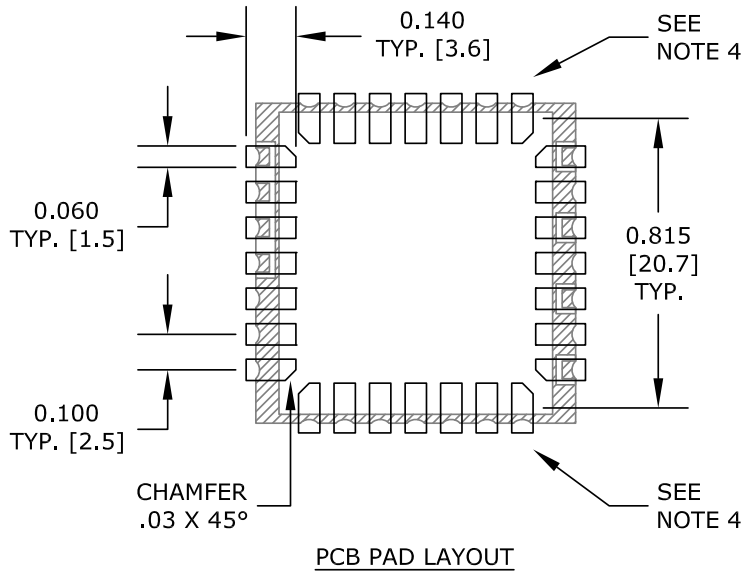
REV	DESCRIPTION	DATE	CHANGED BY	APPROVED
C	FMXR1000		KDANG	

Pin Configuration	
1	NC
2	GND
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	Vcc
16	GND
17	RF OUT
18	GND
19	Vcc-1
20	GND
21	LOCK
22	GND
23	GND
24	GND
25	GND
26	GND
27	GND
28	GND

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FMXR1000 CAD Drawing

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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:

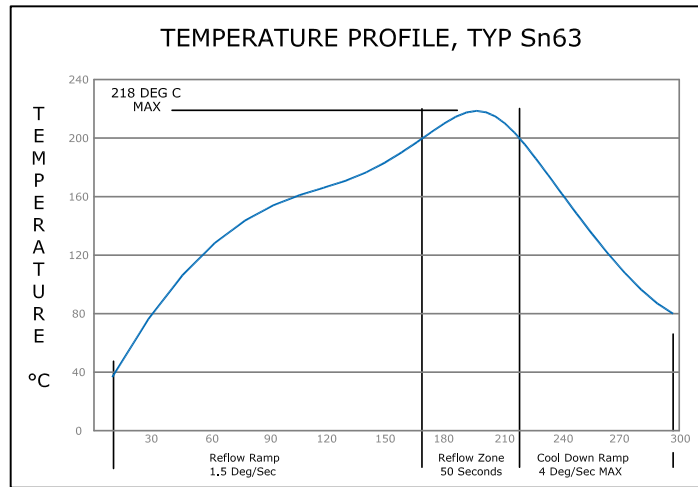
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FAIRVIEW MICROWAVE INC.		NOTES: 1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE NOMINAL. 2. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE AT ANY TIME. 3. DIMENSIONS ARE IN INCHES [mm].			
ALLEN, TX 75013 WWW.FAIRVIEWMICROWAVE.COM		DWG NO FMXR1000		CAGE CODE 3FKR5	
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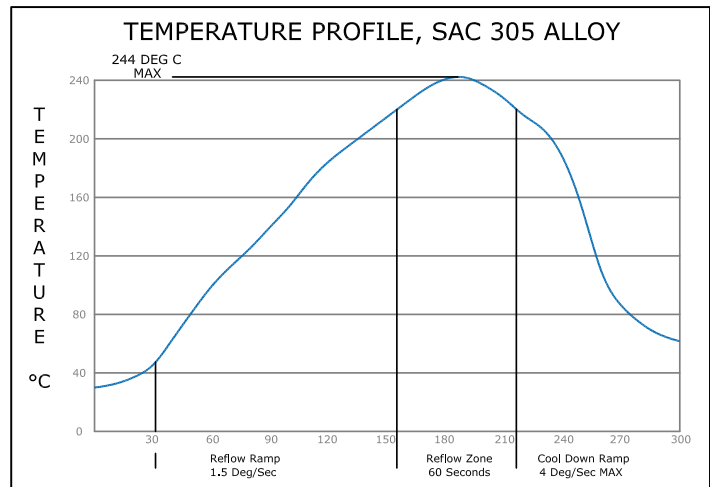
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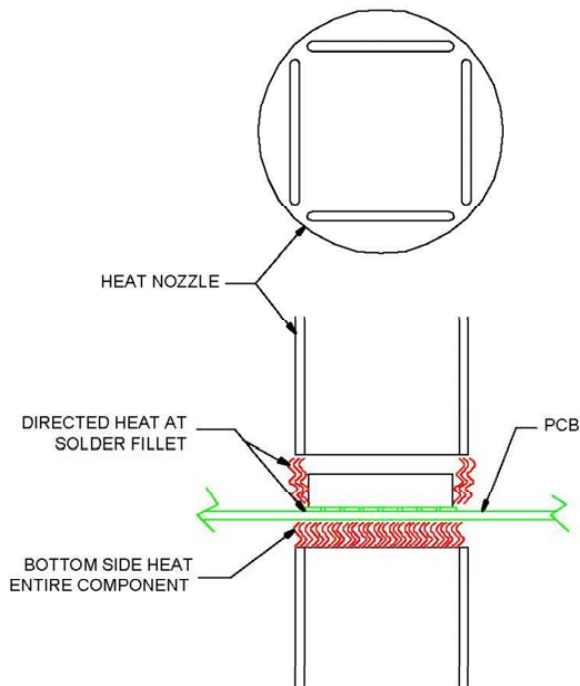
TYPICAL ATTACHMENT REFLOW PROFILES



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 SPATULA 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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