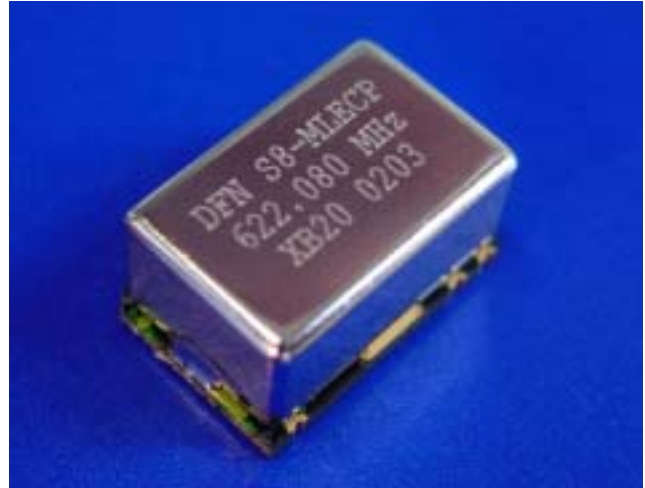
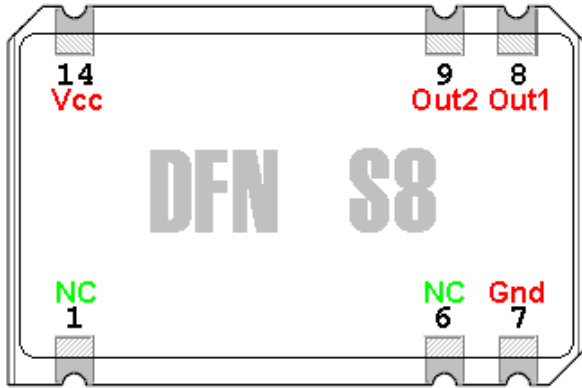


PXO with PECL Outputs : Frequency Range 600 - 800MHz

1. S8 Case (Top View)



2. Output Characteristics

TYPE	DFN S8-MLECP
Frequency Range	622.08 to 800 MHz
Standard Frequencies	622.08, 644.5313, 666.5143, 669.3266, 693.4828 MHz

ELECTRICAL SPECIFICATIONS	
Supply Voltage	3.3 V \pm 5 %
Supply Current (no load)	\leq 60 mA
Output Load	LVPECL 100 K (50 Ω to 1.3 V)
Duty Cycle @ 50% Level	45/55...55/45 %
Rise/Fall Times (20 to 80%)	\leq 0.5 ns
High/Low Levels	\geq 2.22 V / \leq 1.7 V
jitter RMS (12 kHz to 5 MHz)	\leq 0.25 ps
jitter RMS (12 kHz to 20 MHz)	\leq 0.5 ps
jitter RMS (50 kHz to 80 MHz)	\leq 1.0 ps
Complementary Output on Pin 9	180° Phase Shifted
Start-up	\leq 10 ms @ 3.15 V

3. Test Circuit – Scope Measurement Example

Two kinds of circuit measurements for LVPECL output oscillators can be used depending on measurement accuracy and comparison of the results directly with the oscillator in your application with or without a unique power supply.

- **Test Procedure 1**

Test Procedure 1 is more accurate because the oscillator signal is not affected. Procedure 1 is used only on table because two power supplies are needed. All parameters with symmetrical loads can be very precisely measured, for example:

- wave shape, levels, duty cycle, jitter

- **Test Procedure 2**

Test Procedure 2 measures only one part of the parameter with the same precision as Test Procedure 1 (for example, the jitter). Care must be taken so that the shape of the wave is affected by the coupling capacitor.

The advantage of Test Procedure 2 is that it can be used to check the signals into your application since only one power supply is needed.

The best way to identify oscillator parameters is to try both Test Procedure 1 and Test Procedure 2. Then compare the frequencies to accurately measure the parameter, for example:

- wave shape, levels, duty cycle	(affected by the measure)
- jitter	(not affected by the measure)

NOTE :

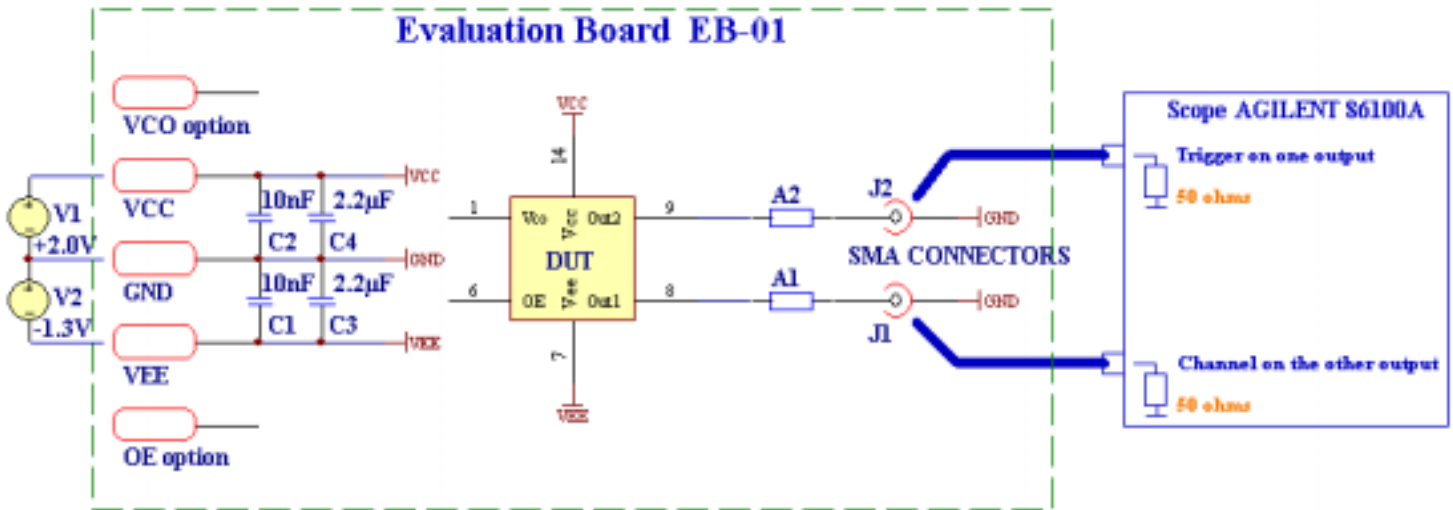
Symmetrical loads must be connected to the outputs to show the best results for all parameters.

Additional recommendations :

- **Use symmetrical value of loads with components.**
- **Use same length wires.**
- **Use short lines.**
- **Use impedance adapted lines (copper wave guides, micro strip lines).**
- **Connect the right loads (dependent of your application).**

It is possible to order an evaluation board (see following information) that allows both Test Procedure 1 and Test Procedure 2 types of measurement.

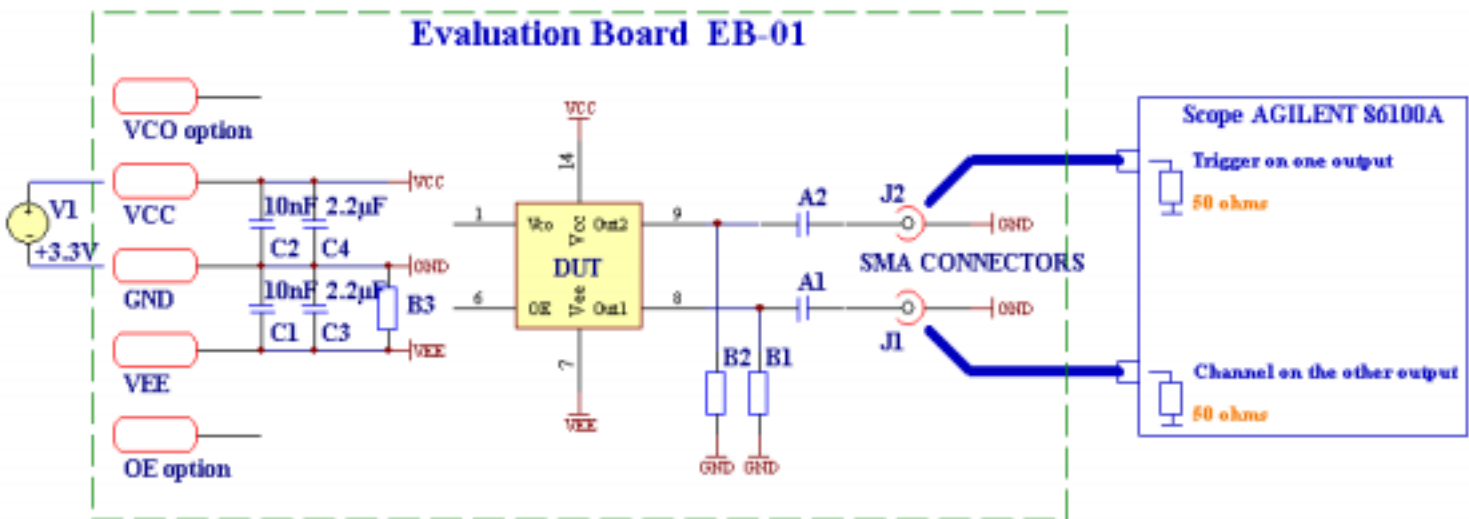
• **Measuring Test Procedure 1**



Components : A1, A2 0 Ω Resistor
 B1 , B2, B3 NC
 C1,C2,C3,C4 Ceramic capacitors

NC = Not Connected

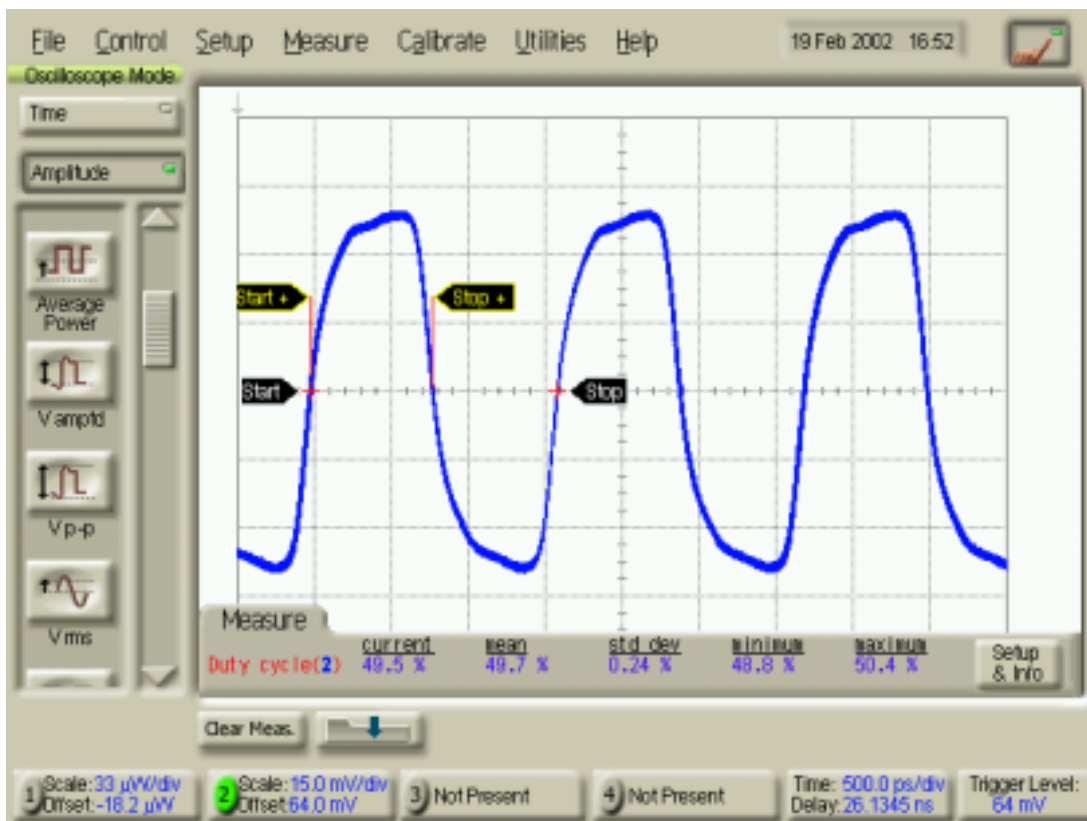
• **Measuring Test Procedure 2**



Components : A1, A2 100pF Ceramic Capacitor
 B1 , B2 180Ω Resistor
 B3 0Ω Resistor
 C1,C2,C3,C4 Ceramic capacitors

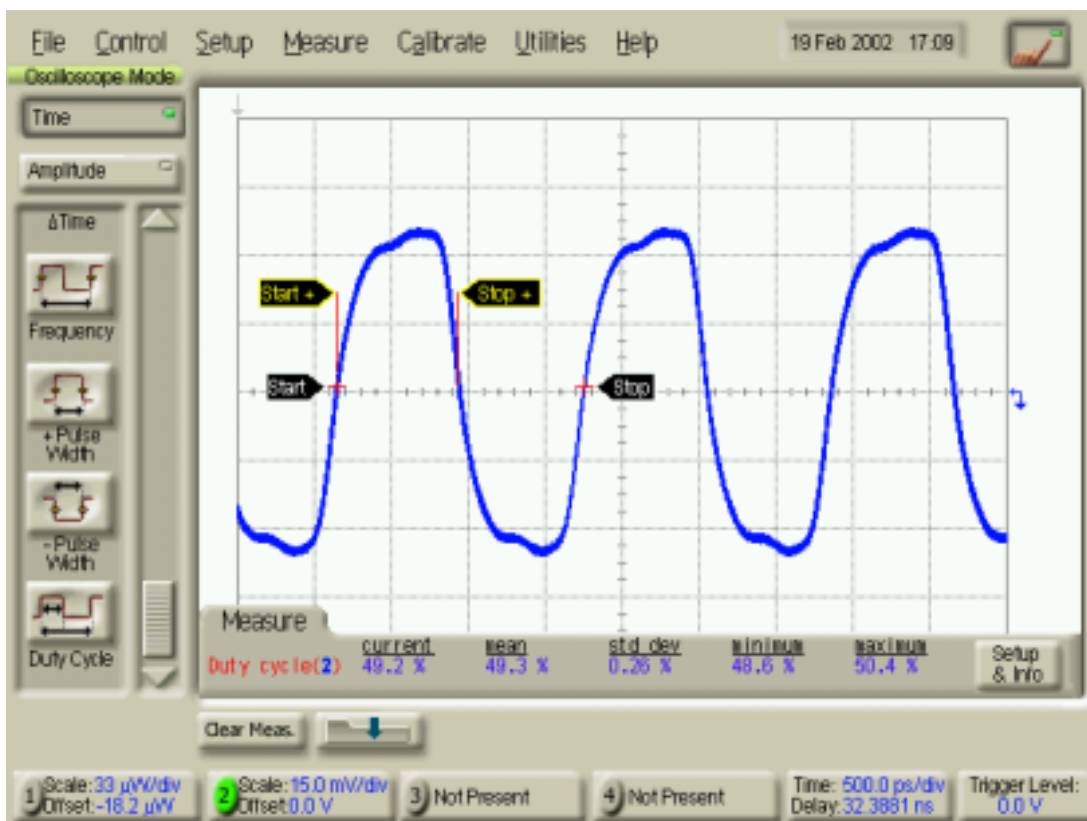
Warning ! : When measuring with a high speed scope it may be necessary to insert an attenuator at the inputs depending of the sensitivity of the instrument. In our case we inserted a **50 Ohms - 20 dB attenuator**.

- Example of Measure at 622.08 MHz – Measured with Test Procedure 1



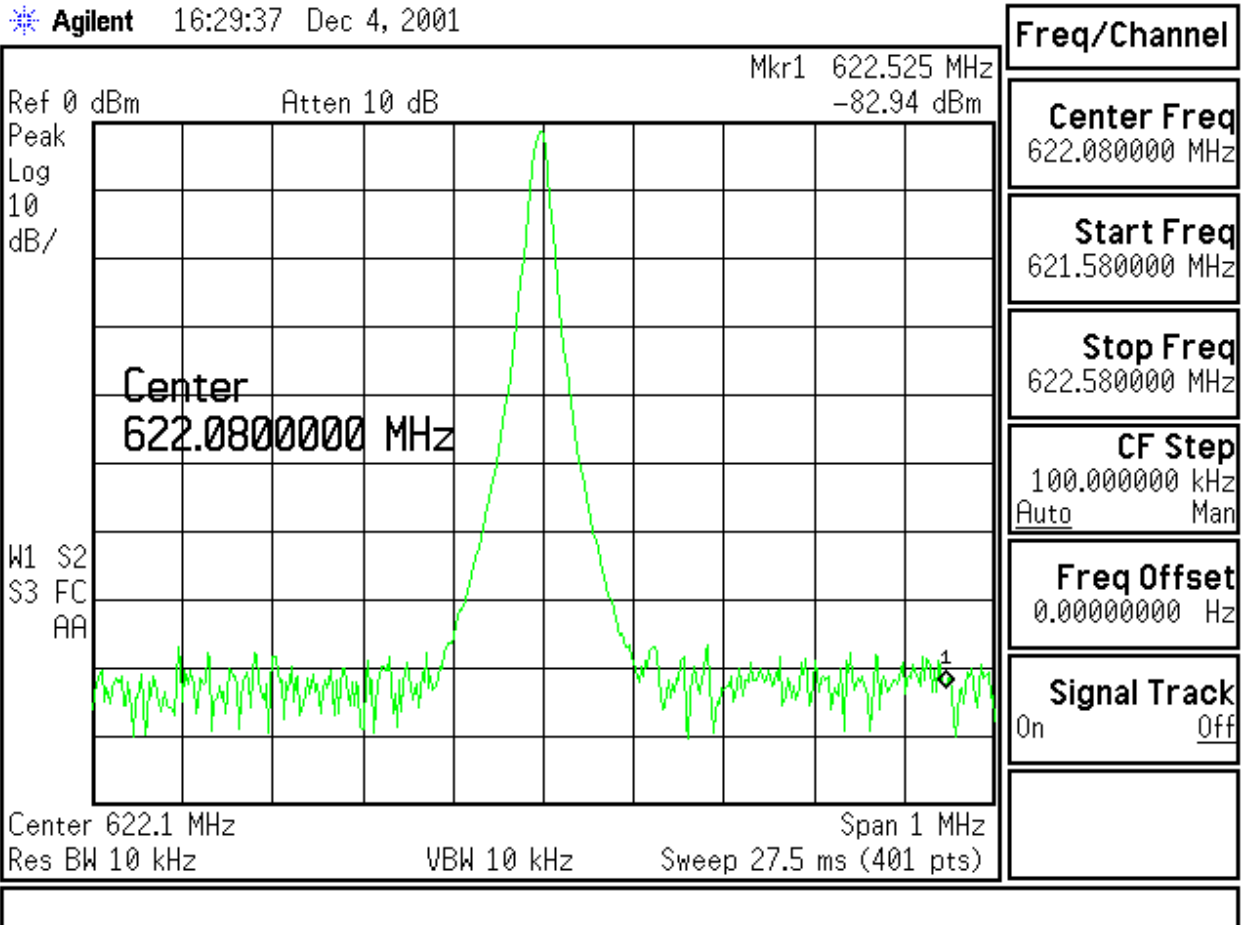
- Example of Measure at 622.08 MHz – Measured with Test Procedure 2

(This example shows the differences in measurement produced with Test Procedure 2.)



4. Spectrum for 622 MHz PXO with Test Equipment Type E4408B from Agilent :

- VBW 10kHz
- Span 1MHz



Warning ! : When measuring with a spectrum analyzer, it may be necessary to eliminate the serial capacitor at the measured output. This depends on the type of instrument; there may already be a serial capacitor at the input of the spectrum analyzer. When measuring with the spectrum analyzer, balance the other output with a 50 ohms resistor.

5. Decoupling Capacitors on PCB

Two ceramic capacitors mounted in parallel on the oscillator for the best results

Values :

- 1x 10 nF ceramic capacitor
- 1x 100nF (or higher) ceramic capacitor

6. Washing Conditions

Internal construction uses a hermetically sealed quartz crystal that ensures thermal and long-term stability requirements. Take care with cleaning solutions/solvents because it is possible for liquid cleaning solutions to penetrate the base to cap seal :

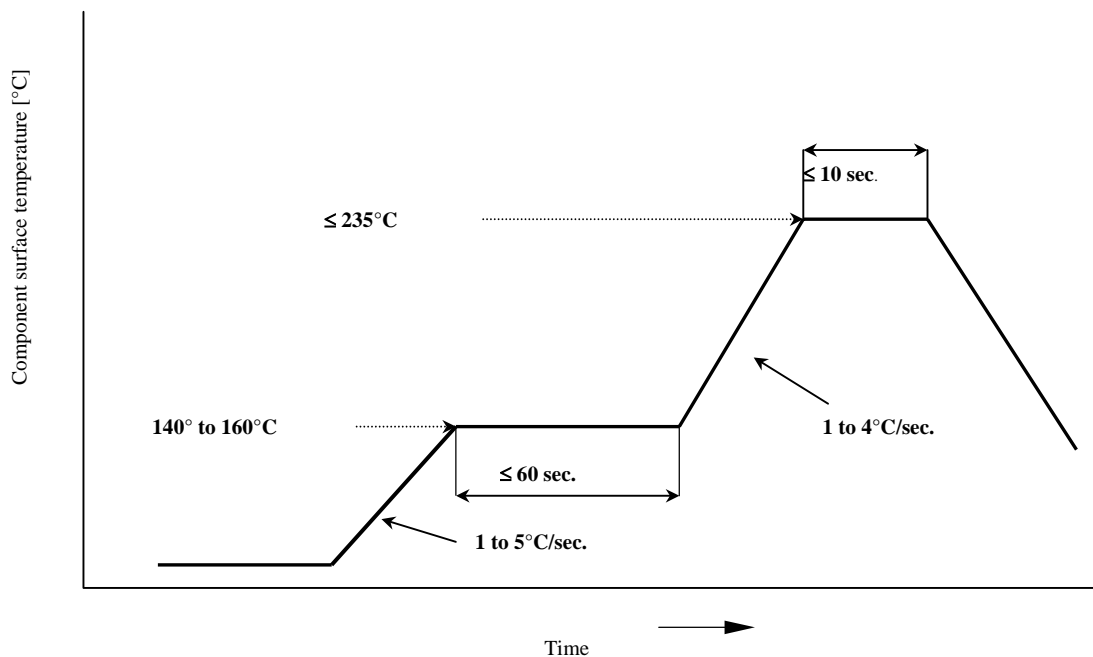
- **Do not clean with solvents or water-based cleaning solutions.**
- **Do not use an ultrasound washing process.**

CFC or HCFC or low-residue cleaning is allowed. No-washing type flux with no washing is highly recommended. Consult the factory for any other cleaning process. (NOTE: CFC and HCFC should be defined.)

7. Soldering Considerations

Surface mount devices are designed primarily for mass production using pick and place technology and reflow soldering. Take the following precautions during the soldering process:

Reflow Soldering (See the Following Example)



Additional recommendations:

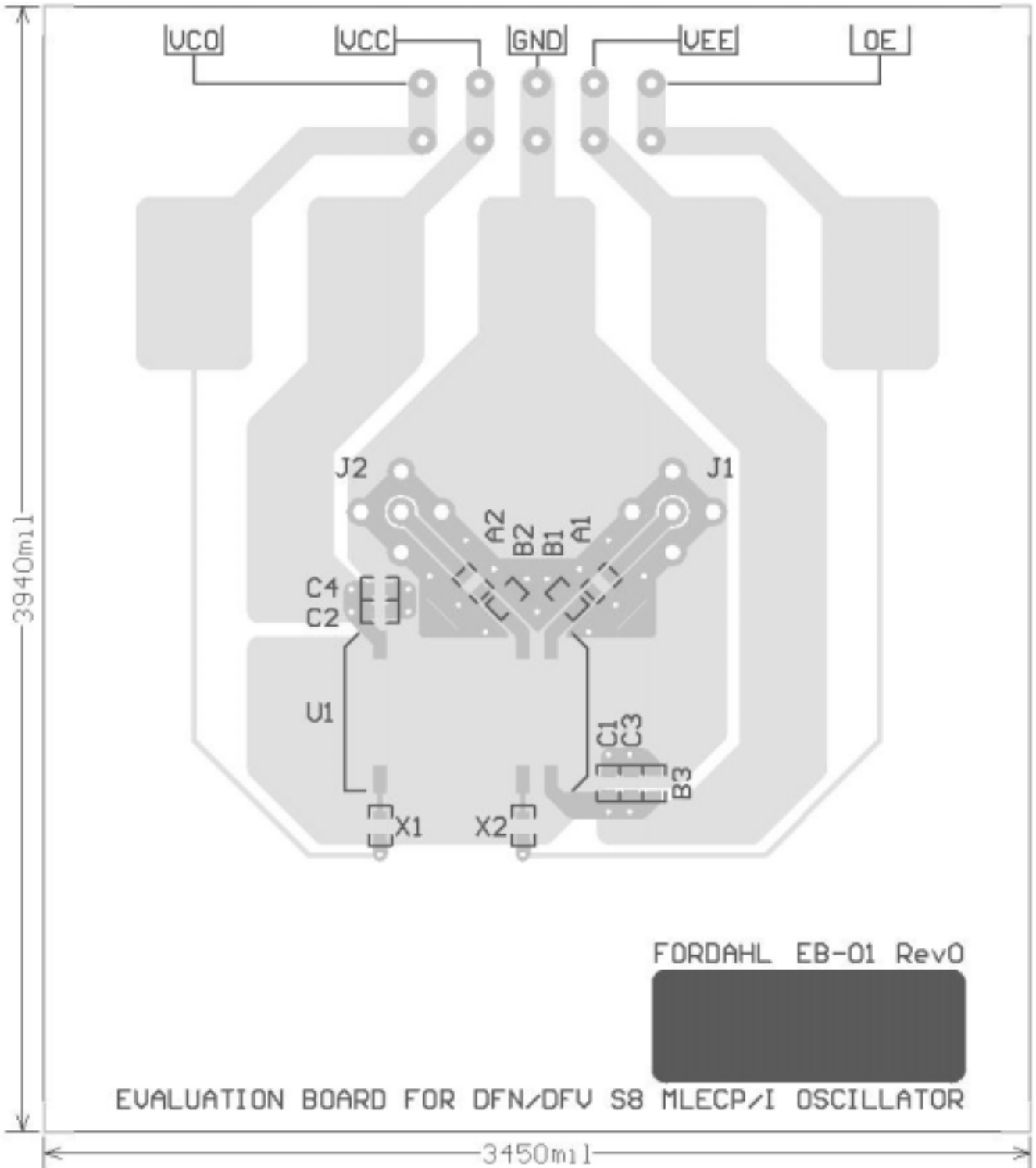
- **Do not vibrate during reflow soldering.**
- **Do not reflow solder on back side.**
- **Solder adhesion may vary depending on motherboard thermal capacity and other factors.**

Consult the factory for details.

8. Hand Soldering

- Maximum temperature 300°C/5 sec.
- Fine tipped soldering iron recommended.

9. Evaluation Board Example



Size of all components : **0805**