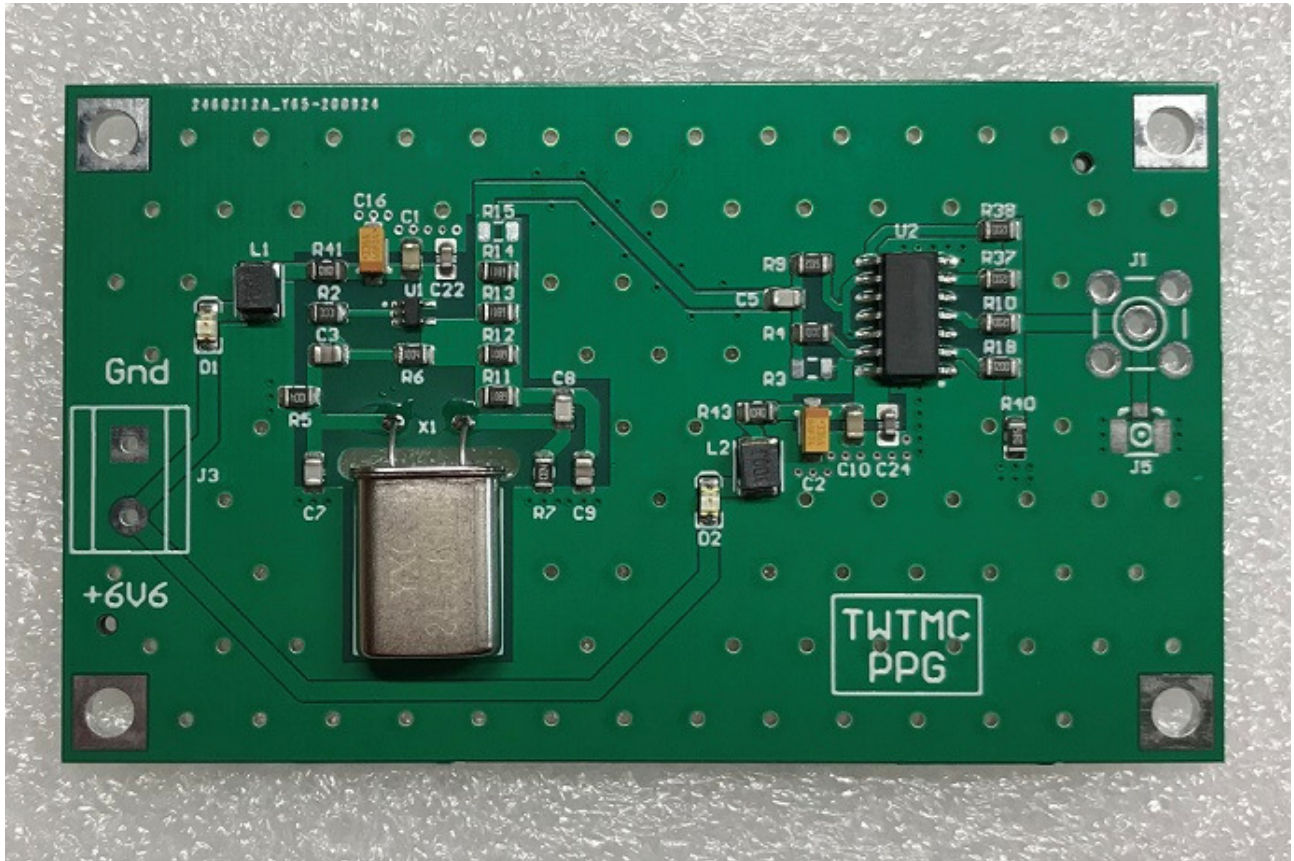


# TWTMC-PPG Pierce pico-gate oscillator



It's a entry level Pierce oscillator using a standard HC-49/U crystal and it's designed to be used as the master clock for digital to analog conversion. The output of this oscillator is square wave therefore it can be directly connected to digital devices such as FIFO or DAC.

Features:

**Oscillator type:** Pierce (CMOS)

**Frequencies:** 22.5792 MHz, 24.576 MHz

**Output:** 50 Ohm square wave (+15 dBm)

**Crystals:** AT-Cut fundamental only (22.5792 MHz and 24.576 MHz)

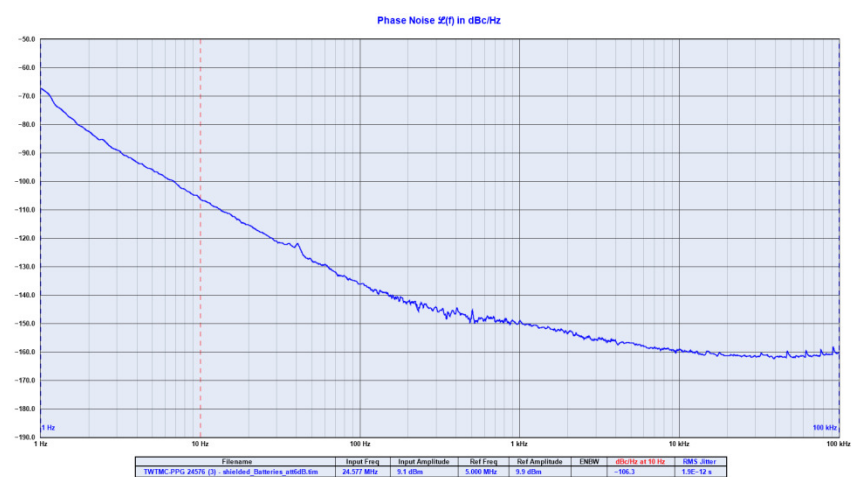
**Board size:** 81mm x 48mm

**Power supply:** 6.6 Vdc 25 mA

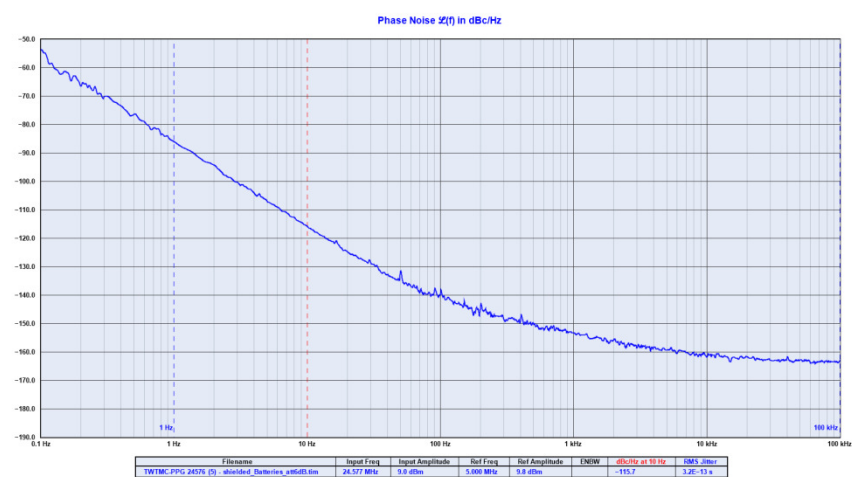
**Board options:** finished only

**Note:** supplied with crystal

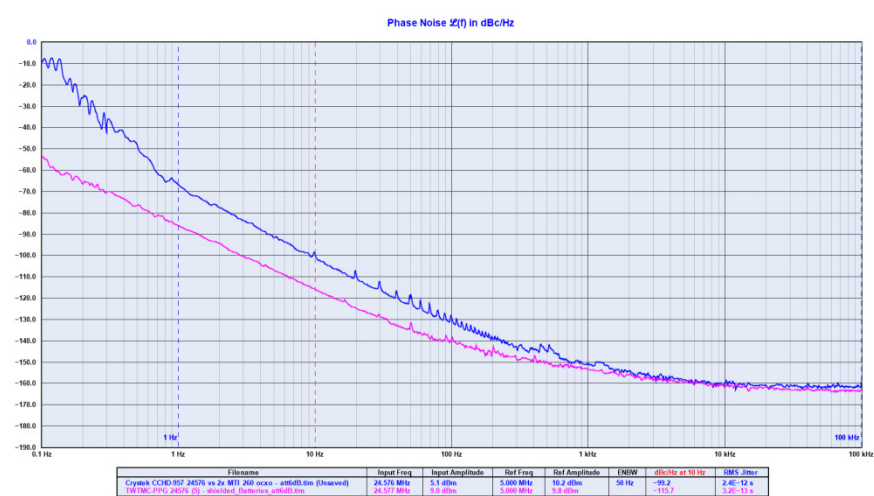
Measured phase noise of the entry level Pierce oscillator at 24.576 MHz (2 different crystals).



TWTMC-PPG 24.576 MHz phase noise (crystal 3)

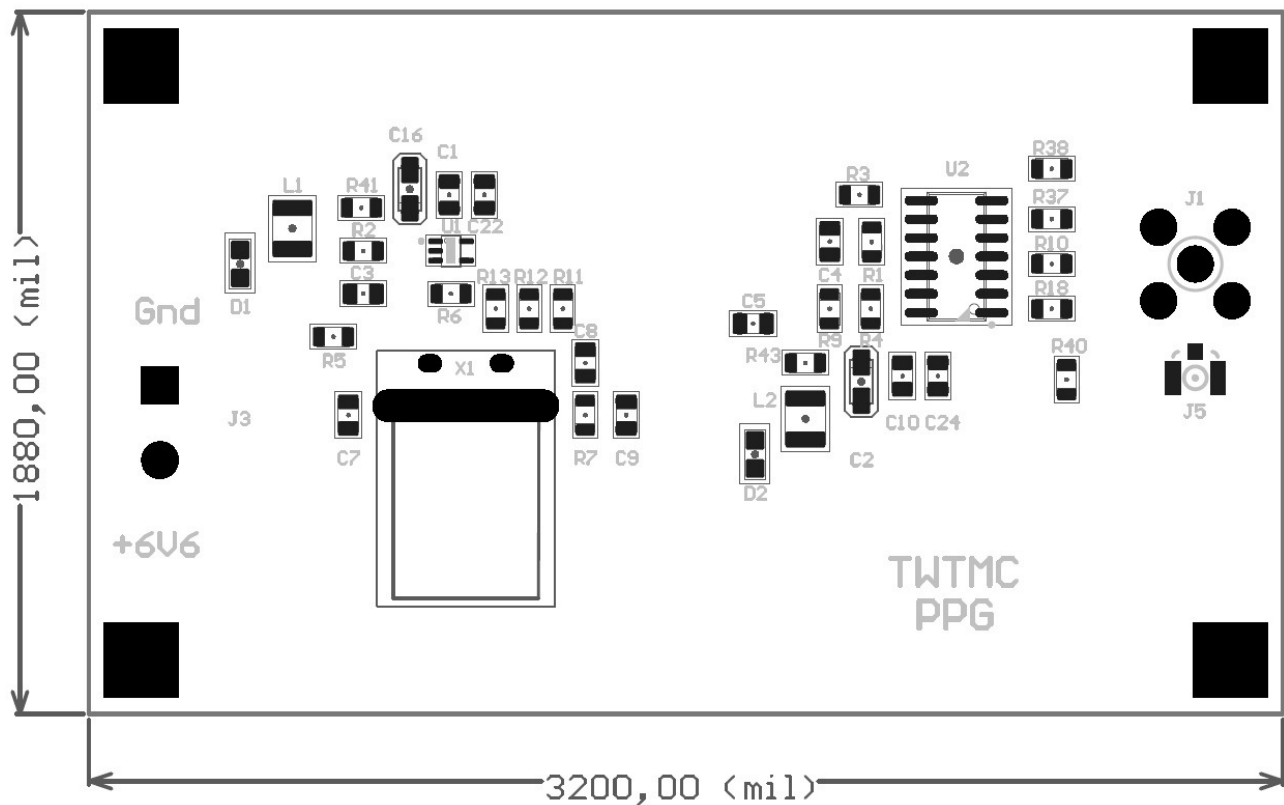


TWTMC-PPG 24.576 MHz phase noise (crystal 3)



TWTMC-PPG 24.576 MHz (crystal 5) vs. Crystek CCHD-957 24.576 MHz phase noise

## PCB layout



## Connectors

**J3:** DC power supply (6.6 Vdc). Suitable screw header Molex 39880-00302 Mouser part 538-39880-00302 (lower pad is +6V6, upper pad is ground). The circuit is protected against power supply polarity inversion.

**J1:** RF output. SMA plug connector and RG400 semi-rigid cable should be used to connect the board to other devices (Molex 73391-0070 Mouser part 538-73391-0070).

**J5:** RF output. U.fl plug connector alternative to SMA connector (Hirose U.FL-R-SMT(10) Mouser part 798-U.FL-R-SMT10).

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**Custom Cable Assemblies**

Design your Cable Assembly from any combination compatible connectors and cables.

+ Instructions

Cable Type:	Connector 1:	Connector 2:
RG400	SMA Straight Plug	SMA Straight Plug

Cable Length:

50 cm or 19.69 inch(es) 1 inch = 2.54 cm

LENGTH

Heat Shrink Tube Connector A Heat Shrink Tube Connector B

The output voltage of the oscillator is around 5V pp. If it has to be connected to a non 5V tolerant device the 100R resistor R40 should be installed (Susumu RR1220P-101-D Mouser part 754-RR1220P-101D).

When planning to use the TWTMC-PPG oscillator with Ian's FIFO buffers the TWTMC-DIL adapter can be used to fit Ian's boards.

