

TWTMC-PXO New Pierce oscillator

It's an intermediate level oscillator to be used as the master clock for digital to analog conversion. It performs worse than the previous state of the art oscillators (TWTMC-DRIXO and TWTMC-EXO) although it is also a low phase noise device, especially the 5.6448 MHz and the 6.144 MHz.

The output of this oscillator is sine wave therefore it needs a sine to square converter to be connected to digital devices such as FIFO or DAC (for example the TWTMC-STX).

Oscillator type: Pierce

Frequencies: 5.6448 MHz, 6.144 MHz, 11.2896 MHz, 12.288 MHz, 22.5792 MHz, 24.576 MHz, 45.1584 MHz, 49.152 MHz

Output: 50 Ohm sine wave (+11 dBm to +12 dBm)

Crystals: AT-Cut fundamental and overtone only

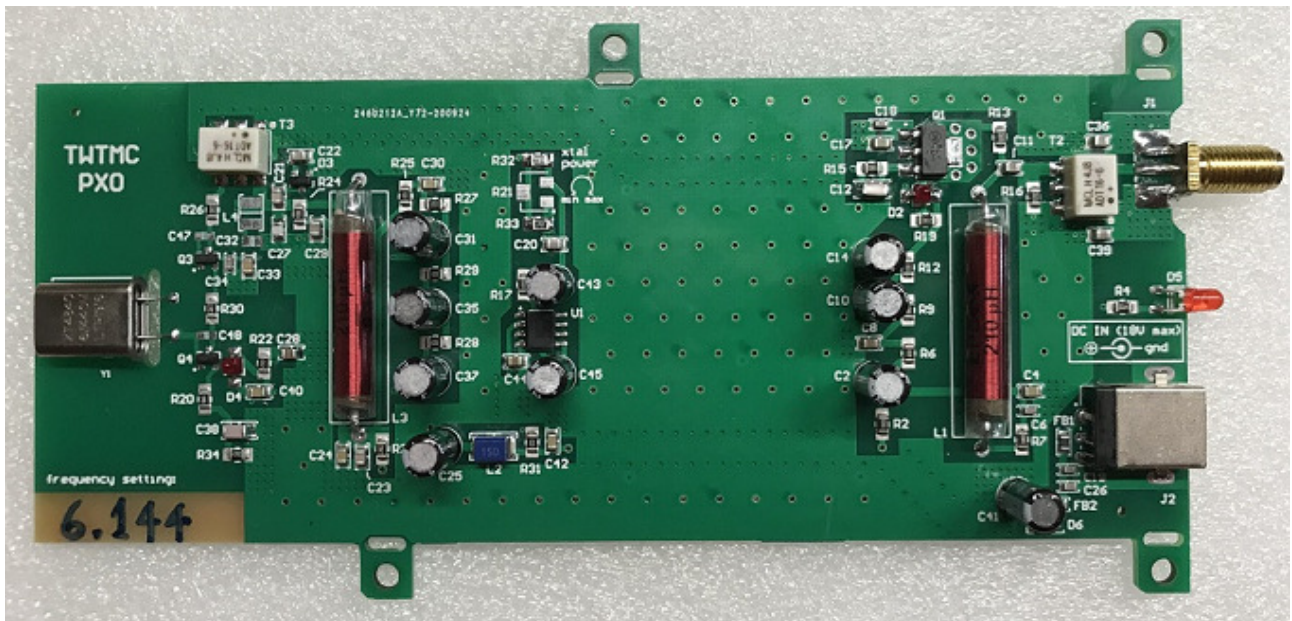
Board size: 151mm x 75mm (excluding SMA connector)

Power supply: 12-18 Vdc 40 mA

Suitable box: Hammond 1455J1601 (Mouser part 546-1455J1601)

Board options: finished and semi-finished

Note: supplied without crystal and box



The following figures show the measured phase noise of the Pierce oscillator at different crystal frequencies: 5.6448 MHz, 6.144 MHz, 11.2896 MHz, 12.288 MHz, 22.5792 MHz, 24.576 MHz.



TWTMC-PXO 5.6448 MHz phase noise



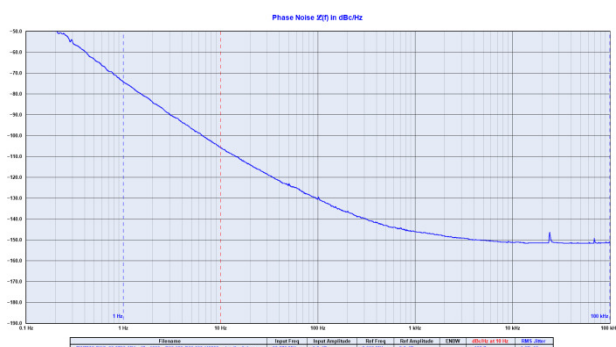
TWTMC-PXO 6.144 MHz phase noise



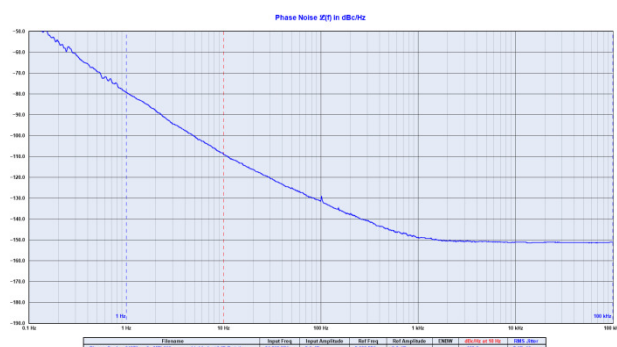
TWTMC-PXO 11.2896 MHz phase noise



TWTMC-PXO 12.288 MHz phase noise



TWTMC-PXO 22.5792 MHz phase noise



TWTMC-PXO 24.576 MHz phase noise

There are 2 available options for this oscillator:

- finished boards (fully assembled and tested)
- semi-finished boards (users have to solder a few parts, mostly TH)

The BOM for semi-finished board is available at post #3010 on the diyaudio.com thread: The Well Tempered Master Clock - Building a low phase noise/jitter crystal oscillator.

TWTMC-PXO-AIO New Pierce combo oscillator & frequency doublers

It's include the same oscillator of the TWTMC-PXO and a pair of frequency doublers on the same board and it's designed to be used as the master clock for digital to analog conversion. It performs very well because the AT-Cut 5.6448 MHz and the 6.144 MHz crystals used in the oscillator section are very good parts, therefore the phase noise of the multiplied outputs is very low, not much far from the state of the art oscillators. The output frequency is configurable to 2X or 4X the base frequency (11.2896/12.288 MHz and 22.5792/24.576 MHz). The output of this oscillator is sine wave therefore it needs a sine to square converter to be connected to digital devices such as FIFO or DAC (for example the TWTMC-STS).

Oscillator type: Pierce

Frequencies: 11.2896 MHz, 12.288 MHz, 22.5792 MHz, 24.576 MHz

Output: 50 Ohm sine wave (+10 dBm to +11 dBm)

Crystals: AT-Cut fundamental only (5.6448 MHz and 6.144 MHz)

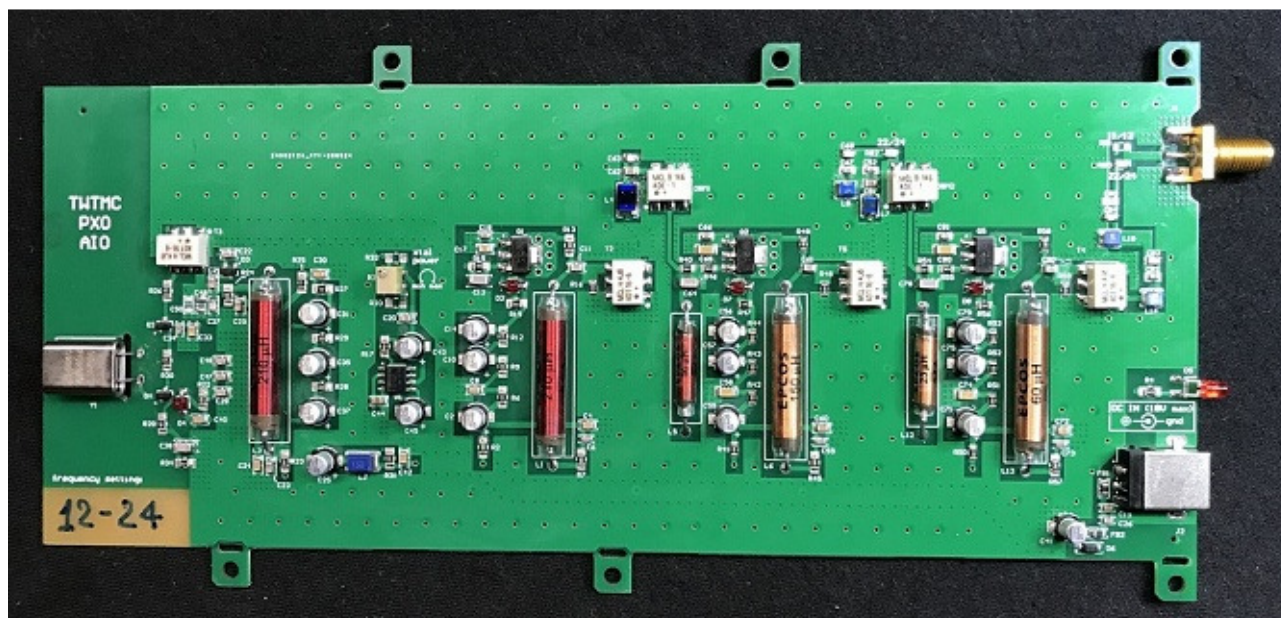
Board size: 211mm x 100mm (excluding SMA connector)

Power supply: 12-18 Vdc 80 mA

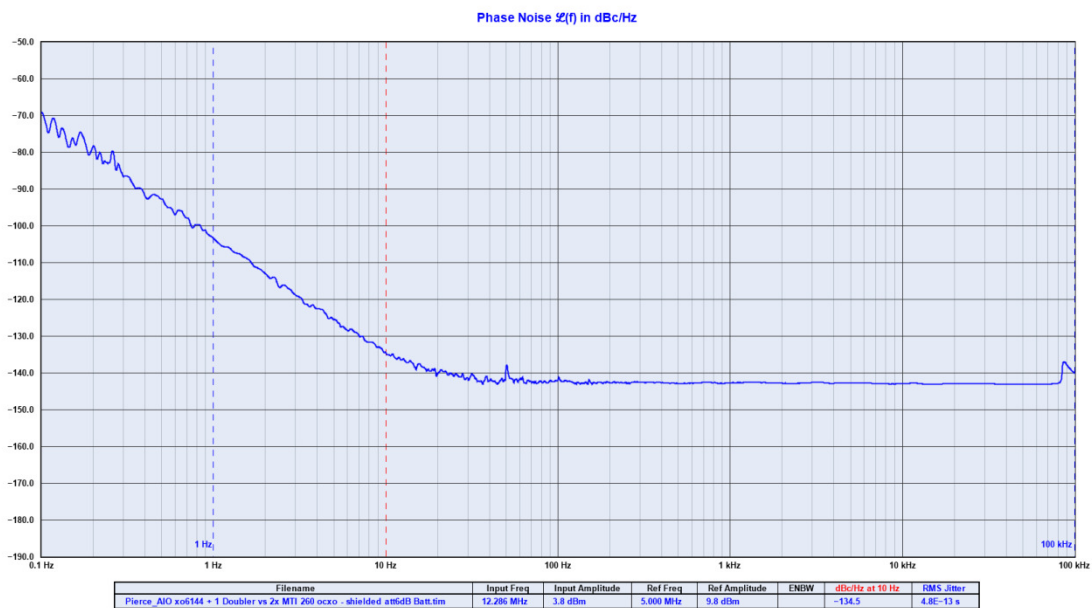
Suitable box: Hammond 1455L2201 (Mouser part 546-1455L2201)

Board options: finished and semi-finished

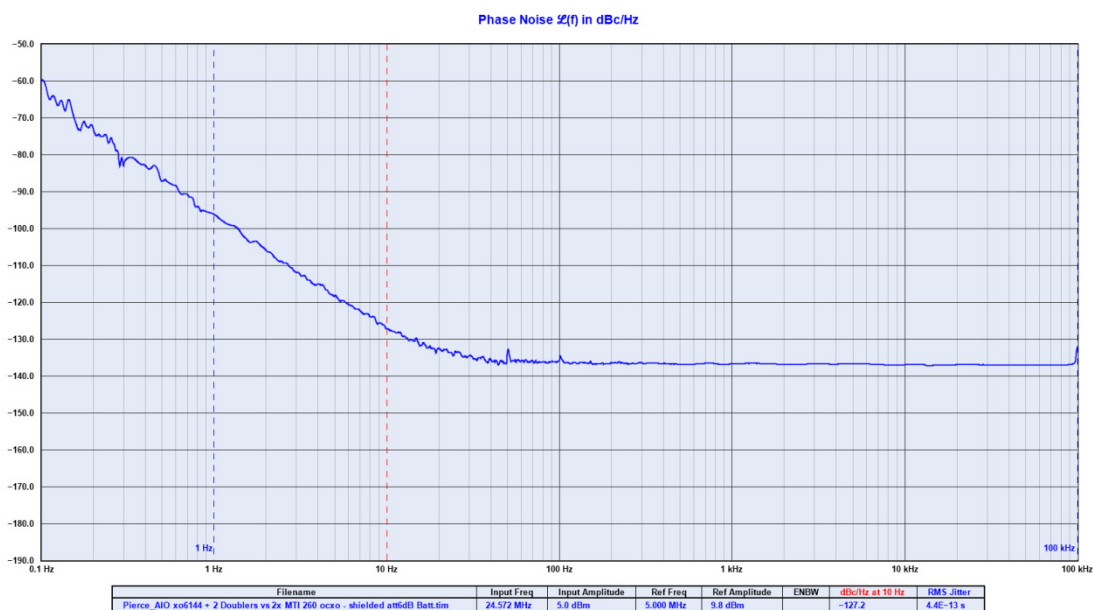
Note: supplied without crystal and box



The following figures show the measured phase noise of the Pierce All in One oscillator at different output frequencies: 12.288 MHz, 24.576 MHz.



TWTMC-PXO-AIO 12.288 MHz phase noise



TWTMC-PXO-AIO 24.576 MHz phase noise

There are 2 available options for this oscillator:

- finished boards (fully assembled and tested)
- semi-finished boards (users have to solder a few parts, mostly TH)

The BOM for semi-finished board is available at post #3011 on the diyaudio.com thread: The Well Tempered Master Clock - Building a low phase noise/jitter crystal oscillator.

TWTMC-DBM New frequency doubler

It's a frequency multiplier that duplicate the input frequency. It's a state of the art device because the phase noise added for each duplication is exactly 6dB (even less very close to the carrier) as expected from the theory. It can be used with base oscillators from 5.6448 MHz up to 24.576 MHz to get the output up to 98.304 MHz. The output of this frequency doubler is sine wave therefore it needs a sine to square converter to be connected to digital devices such as FIFO or DAC (for example the TWTMC-STS).

Base Oscillator type: any

Base Oscillator Frequencies: 5.6448 MHz, 6.144 MHz, 11.2896 MHz, 12.288 MHz, 22.5792 MHz, 24.576 MHz

Output: 50 Ohm sine wave (+10 dBm to +15 dBm)

Output Frequencies: base oscillator frequency x 2 or x 4 (series of 2) up to 98.304 MHz

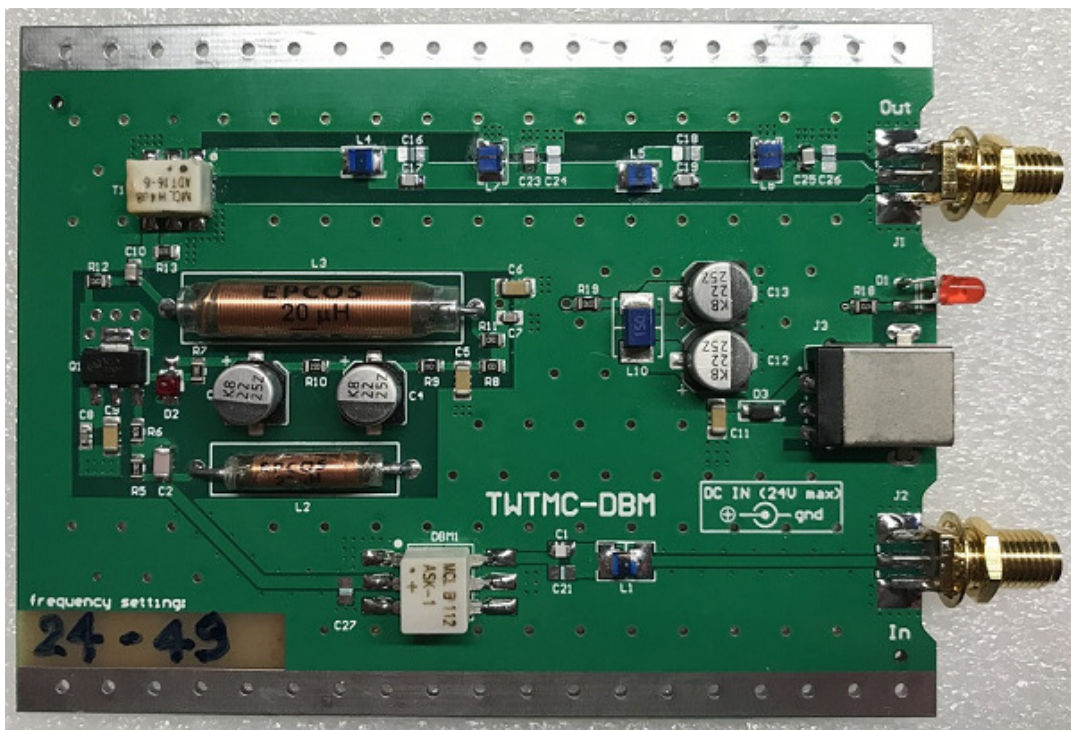
Board size: 99mm x 75mm (excluding SMA connectors)

Power supply: 12-24 Vdc 30 mA

Suitable box: Hammond 1455J1201 (Mouser part 546-1455J1201)

Board options: finished and semi-finished

Note: supplied max 2 doublers in series, supplied without box



The following figures show the measured phase noise of the frequency doubler at different output frequencies: 11.2896 MHz, 22.5792 MHz (base oscillator TWTMC-DRIXO at 5.644 MHz and 11.2896 MHz)

