

Oven Temperature Controlled Oscillator

The PCB is so designed to provide component options, the board will accommodate two types of voltage regulator and two types of oscillator units.

a/ CTS 196

There are several variations of CTS modules, the two that I have tested are the CTC 1960017 that incorporates a reference voltage source and the CTS 1960051 that has no internal reference source, requiring an external network to adjust its frequency. Both units are a sine wave output.

b/ CTI OSC5A2B02 The CTI modules have no internal reference requiring external provision to adjust the frequency and are a square wave output

The frequency is adjusted by the application of a voltage at the Vc pin on either of the modules.

Voltage Regulator A

Mini360 DC-DC Adjustable Buck/Step-Down Regulator Converter Module 4.75-23V to 1-17V four pin mounting, one on each corner of the module.

Voltage Regulator B

Similar to A with the pins all at one end of the board, both use the same regulator chip

The advantage of using a buck convertor is the voltage conversion efficiency is greater, about 90% this reduces the energy lost in heat if using series regulators, not to mention the large heatsink to get rid of the heat.

Oven Controlled Oscillator (OCXO)

CTS196 with or without V reference

The PCB has provision via a jumper to either select internal V reference or external V reference

The CTS module housing is the larger of the two, the reference diode for this module will be located at position Z1a, the diode has to be in physical contact with the module housing to obtain the best temperature stability. If using the CTS 1960017 (Internal reference) there is no requirement to use the diode Z1 along with the associated components, so Z1, R1, C2 can be deleted from the board, with the link set to Vref Int.

CTI OSC5A2B02

This module has no internal reference, the network Z1, R1, C2 provide the required reference voltage. The Vref link must be set to External (Ext)

The diode has to be in physical contact with the oven housing, the position Z1b is used to position the diode closer to the housing for this purpose.

VCC, VDD

The filter capacitor C1 can be a normal electrolytic, however a tantalum is preferred as this provides better filtering at high frequencies. (Not critical)

Attenuator

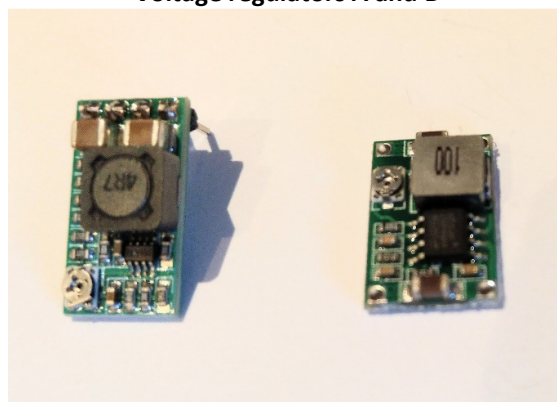
Provision is made to have an on PCB attenuator, values for 10dB and 20dB are given for a 50 Ohm output other attenuation are achieved by altering the resistor values, resistors must be metal film. Either type of attenuation can be used Pi or L.

Board size 70 X 53 mm +/- 0.4 mm

OCXO types



Voltage regulators A and B



Prototypes using CTS with and without Internal V reference

