

## pA726 for 208

The pA726 is a CA3046-based analog exponential converter with thermal oven compensation as featured in various analog oscillator circuits with great stability and accurate tracking. Thanks to the connections layout matching the (in)famous  $\mu$ A726 (UA726) pinout, it can be used as a direct drop-in replacement for this rare and expensive part. It was designed for the Buchla 208p or 208r and will work in an original 70s unit as long as it uses  $\mu$ A726 of course. The layout is not supposed to fit the BEMI Music Easel reissue but should work with some adaptation,

It should be soldered to the solder side of boards 6 and 7 with components legs, which is the best way to ensure good and reliable contact. Pin headers might upset access to the motherboard trimpots and cause bad contact resulting in pitch instability.

The pA726 PCB features two emplacements to connect the former  $\mu$ A726 pins : the vertical one for board 6 and the horizontal one for board 7, both are connected in parallel and only one at a time can be used. Square pads show the  $\mu$ A726 pad (pin 10).

On this new revision, pin 2 is directly connected to 0V and the short with pin 7 of the previous one is no longer needed. Just plug and play.

The electrolytic capacitors should be mounted horizontally.

### BOM

CA3046 (or UL1111, CA3146, CA3086...)  
 TL061 (or TL071, TL081)  
 78L10

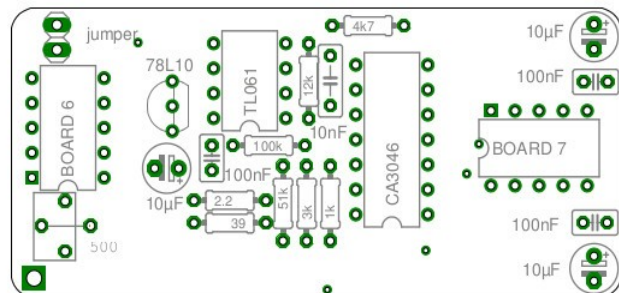
#### Capacitors

1 x 10nF film (ceramic works as well)  
 3 x 100nF ceramic  
 3 x 10 $\mu$ F electrolytic

#### Resistors

2.2R - 39R - 1k - 3k - 4k7 - 12k - 51k - 100k  
 500R trimpot

2 pin 2,54mm angled header + jumper



### Calibration procedure

Ensure the module is turned off and cold, if it was used soon before, let it cool down for at least 20 minutes to avoid remaining heat inside the CA3046 and have it at room temperature.

Remove the jumper.

Turn on the module and measure the voltage at the T° volt pad located near the trimpot. This is the temperature voltage at room temperature (about 22°C).

Turn off the module and plug in the jumper.

Turn on the module and let it warm up during 10 minutes. Measure the voltage at the T° volt pad again and adjust the trimpot until the voltage is 60mV below the voltage measured at room temperature. The voltage should be about 0.63V.

In case the 60mV difference can't be achieved, an alternative procedure is to monitor the oscillator output at on an accurate frequency counter, let the pA726 warm up for about 10 minutes and adjust the trimmer (with the jumper in place of course) in order to have a minimal drift within +/- 0.1Hz at 55Hz over hours. It takes a bit more time but works very well. You can also add a 470k resistor in parallel with the 51k one.