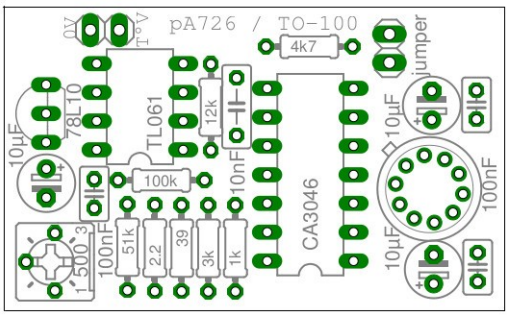
PORTABELLABZ

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 µA726 (UA726) pinout, it can be used as a direct drop-in replacement for this rare and expensive part.
The pA726 - TO-100 PCB features a TO-100 emplacement matching the former µA726 pins,
The pA726 works with +/-12V or +/-15V (see the BOM below) and can replace the µA726 in any other circuit, for a new build or for repair, and can be mounted to component leads.
The mounting holes can be used to mount it to standoffs, chassis etc...

The pA726 needs a ground connection. The N/C pin 7 of the µA726 emplacement can be used, there's a connection to this pin on the pA726 PCB but an extra connection between the former µA726 pin 7's pad and ground must be added on the board which will receive the pA726, otherwise the circuit won't work.
It's good to ensure nothing is connected to this pin 7 on the original board nevertheless. If for any reason this pin 7 can't be used as a ground connection, don't solder it and rather connect the pA726's 0V pad to ground.
In most circuits pin 2 is connected to ground and a bridge can be done between pins 2 and 7 to achieve the ground connection (pin 2 is not permanently wired to 0V in case the pA726 in used in a circuit with different layout).
The square tab on the silkscreen shows pin 10.
Due to the CA3046 design, the pA726 can work in circuits where the original 726 has pins 3 and 10 connected and won't work in the EML 101 or Moog Sonic Six for instance.

BOM



CA3046 (or UL1111, CA3146, CA3086...)
TL061 (or TL071, TL081)
78L10
2 pin 2,54mm header + jumper
Capacitors
1 x 10nF film (ceramic works as well)
3 x 100nF ceramic
3 x 10µF electrolytic
Resistors
for +/-15v : 2.2R – 39R – 1k – 3k - 4k7 – 12k – 51k – 100k
for +/-12v : **0R (bridge) - 33R** -1K -3k - 4k7 - **10k** - 51k -100k
500R trimpot

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 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.