

vLA82 Installation Guide v1.0

The vLA82 is designed for Spectrum motherboard PCB issues 2 through to 6. It is simply plugged into the existing ULA socket except for those Spectrum motherboards which have a socket designed to only accept very narrow pins (these are identified by a small square aperture for each pin). Turned pin sockets, or those with the cheaper stamped pins, are acceptable. The turned pin socket provides slightly more clearance. A suitable 40 pin socket can be added to the order at time of purchase.

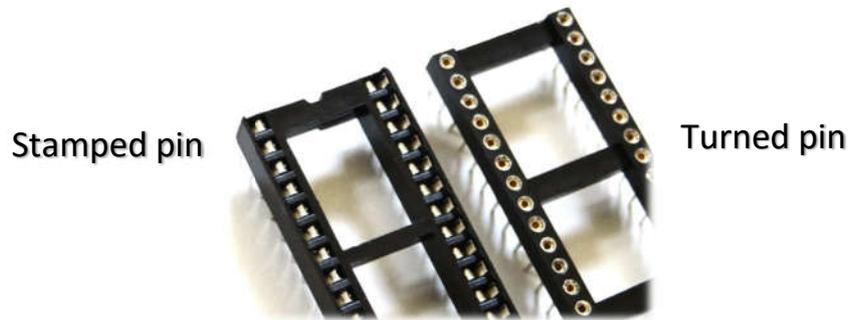


Fig.1 – Acceptable socket types

Note: The pins on the vLA82 are greater in diameter than the usual IC pins and so reasonable downwards pressure is required to seat the chip carrier PCB. The pin strips for the vLA82 (and the vLA1) are chosen for their low profile but unfortunately have a slightly wider diameter pin. For other vLAs, such as the vLA81 and vLA128 the height restriction is not an issue so the narrow pin strips are used.

Caution: The vLA82 has SMD pins on the lower side, in the center region, of the chip carrier PCB. Although the assembly is reinforced, and is designed to withstand the forces required during normal installation, it will not tolerate excessive pressure or any bending. Care also needs to be taken if the vLA82 is removed as there are components and printed tracks under the PCB which can easily be damaged.

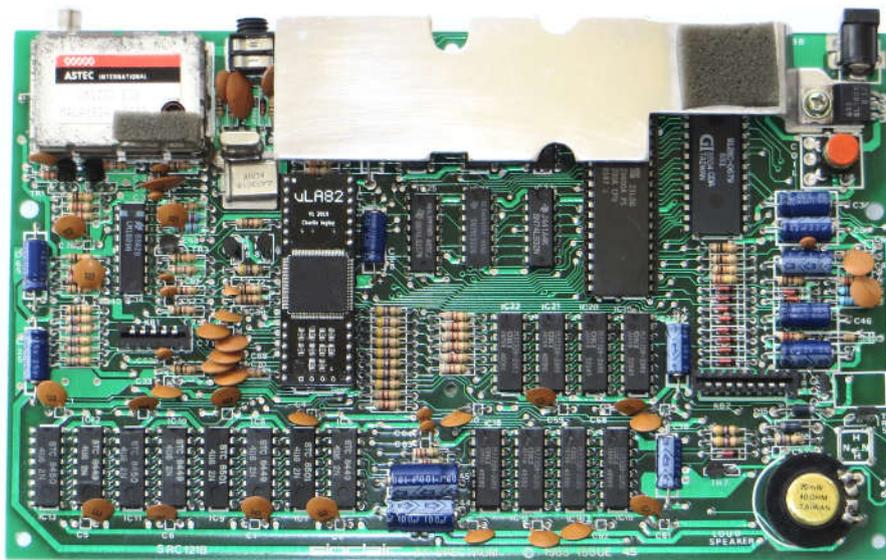


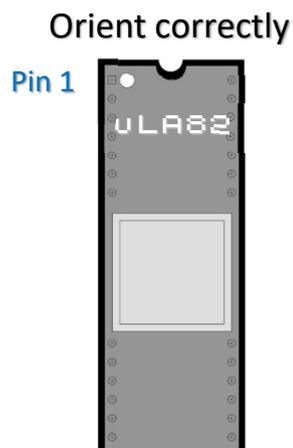
Fig.2 – vLA82 installed

INSTALLATION STEPS:

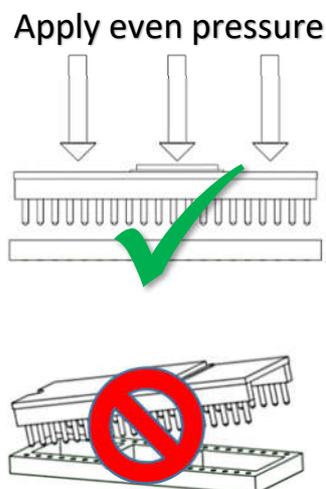
Note: Although the installation procedure is straightforward it is assumed that the installer has a basic knowledge of electronics and understands the terminology and concepts contained within this guide. If soldering/desoldering is required then please do not attempt unless you're confident about your skill level.

Caution: As the vLA82 is sensitive to static discharge please handle with care throughout the installation procedure. Avoid touching the vLA82 pins and the use of a grounding strap is recommended.

1. First repair any prior defects and check that all voltages are within tolerance.
2. Ensure the Spectrum power supply is disconnected.
3. Remove the top case and unplug the keyboard membrane.
4. Remove the existing ULA.
 - a. If soldered, then remove the ULA and install a new socket of the correct type.
 - b. If socketed, then check if the socket is of the correct type (see Fig.1 above). If not then install a new socket of the correct type.
5. Remove the vLA82 from the antistatic shipping plastic bag and orient correctly with pin 1 closest to the modulator at the rear of the Spectrum PCB (refer to Fig.2 above).



6. Apply even pressure across the vLA82 top surface and press into the ULA socket.



Do NOT bend PCB or insert at an angle

REASSEMBLY AND TESTING:

Before reassembly there are a few checks and adjustments to make.

1. Connect the Spectrum to a video monitor and apply power.
2. If successful, you will be greeted with the familiar copyright message.
3. If you have an issue 2 PCB and the screen is not white then proceed as follows:
 - a. Temporarily reconnect the keyboard membrane.
 - b. Locate VR1 and VR2 (just below and to the left of the ULA socket).
 - c. Adjust VR1 and VR2 until the screen colour is white.
 - d. Check with different border colours. If incorrect repeat steps 3c to 3d.
 - e. Disconnect the Spectrum from power and video.
 - f. For more detailed instructions on how to adjust for the correct screen colour see <https://spectrumforeveryone.com/technical/how-to-fix-issue-12-yellow-or-blue-screen-tint/>
4. If not already done, reconnect the keyboard membrane and replace the top cover. Check that the case closes correctly (if not then the vLA82 may not be seated properly).
5. Connect the Spectrum to a video monitor and apply power.
6. Check that the video and keyboard are OK then check that both tape input (load a tape) and sound output (using the BEEP command) are working as expected.
7. If all is in order then, congratulations, the vLA82 is fully operational!

TROUBLESHOOTING:

If the Spectrum does not boot to the copyright screen or any of the tests fail then it is possible that the vLA82 may not be seated correctly, may have been damaged during the installation or is faulty.

Some symptoms pointing to the vLA82 (assuming the Spectrum had no pre-existing faults) include a black border, single vertical lines, or corrupted screen data. Further fault diagnosis is beyond the scope of this guide and it is recommended to use one of the diagnostic boards (e.g. Smartcard) with Brendan Alford's excellent diagnostic rom.

If the vLA82 is suspected faulty or you have problems with the installation procedure then please contact me on vdrivezx@gmail.com.

Have fun!

Charlie Ingley

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