Noteflora DSO183

Noteflora DSO183 Digital Oscilloscope DIY Kit Instruction Manual

Model: DSO183 | Brand: Noteflora

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1. Introduction

The Noteflora DSO183 Digital Oscilloscope DIY Kit is designed for electronics enthusiasts and students to learn about and test electronic circuits. This kit features a 500kHz bandwidth, 12-bit ADC accuracy, and a built-in signal generator, making it a versatile tool for various experimental environments. This manual provides detailed instructions for assembling, operating, and maintaining your DSO183 oscilloscope.

2. Safety Information

Please read and understand all safety precautions before assembling or operating the DSO183 Digital Oscilloscope DIY Kit. Failure to follow these instructions may result in electric shock, fire, or damage to the device.

- **Power Source:** Use only a DC 5V power supply via the Type-C port. Ensure the power source is stable and within the specified voltage range.
- **Soldering Safety:** When assembling, use appropriate soldering equipment in a well-ventilated area. Wear safety glasses to protect your eyes from solder splatter and fumes.
- **Component Handling:** Handle electronic components with care. Some components are sensitive to static electricity.
- **Maximum Input Voltage:** Do not exceed the maximum input voltage of 50Vpk. Applying higher voltages can damage the oscilloscope.
- **Environmental Conditions:** Operate the device in a dry environment. Avoid exposure to moisture, dust, or extreme temperatures.
- **Children:** This kit contains small parts and requires soldering. Keep out of reach of children.

3. Package Contents

Verify that all components listed below are present in your package. If any parts are missing or damaged, please contact customer support.



Image 3.1: All components of the DSO183 Digital Oscilloscope DIY Kit, including the main PCB, various electronic components, probes, and a USB power cord.

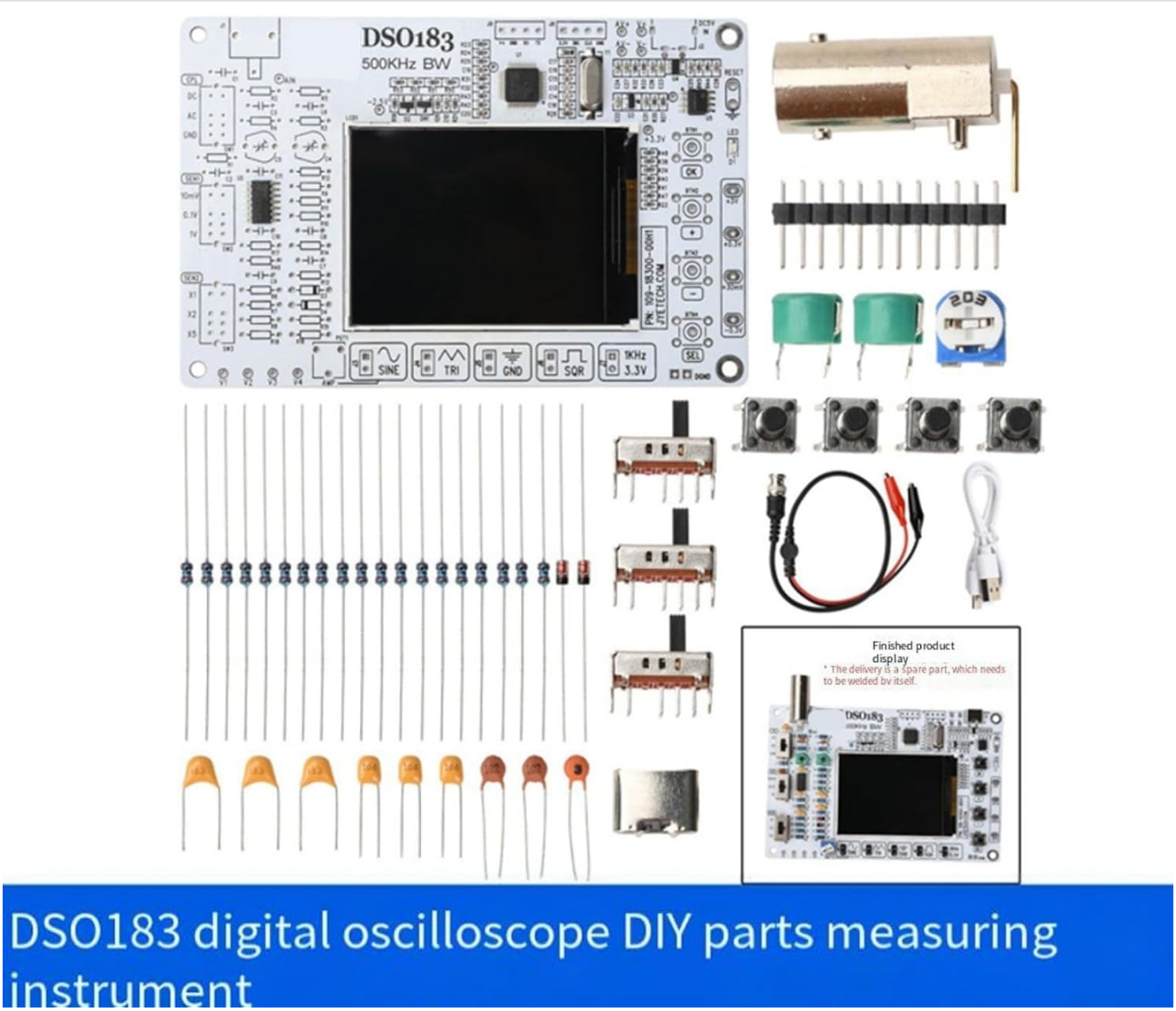


Image 3.2: Detailed view of the DSO183 DIY kit components, showing resistors, capacitors, switches, and the main board. An inset displays the appearance of the finished product.

- DSO183 Digital Oscilloscope PCB (Printed Circuit Board)
- Various Resistors, Capacitors, Diodes
- Switches and Buttons
- BNC Connector
- USB Type-C Port
- Display Screen
- Probes (Alligator clips, BNC probe)
- USB Power Cord
- Partial Housing (if included in your specific kit variant)

4. Assembly Instructions

This section guides you through the assembly process of your DSO183 Digital Oscilloscope DIY Kit. Follow the steps carefully and ensure proper soldering techniques. It is recommended to use a multimeter to confirm component values before soldering.

4.1 General Assembly Overview

The assembly involves soldering various electronic components onto the main PCB. Work in a clean, well-lit area. Refer to the circuit diagram for component placement and orientation.

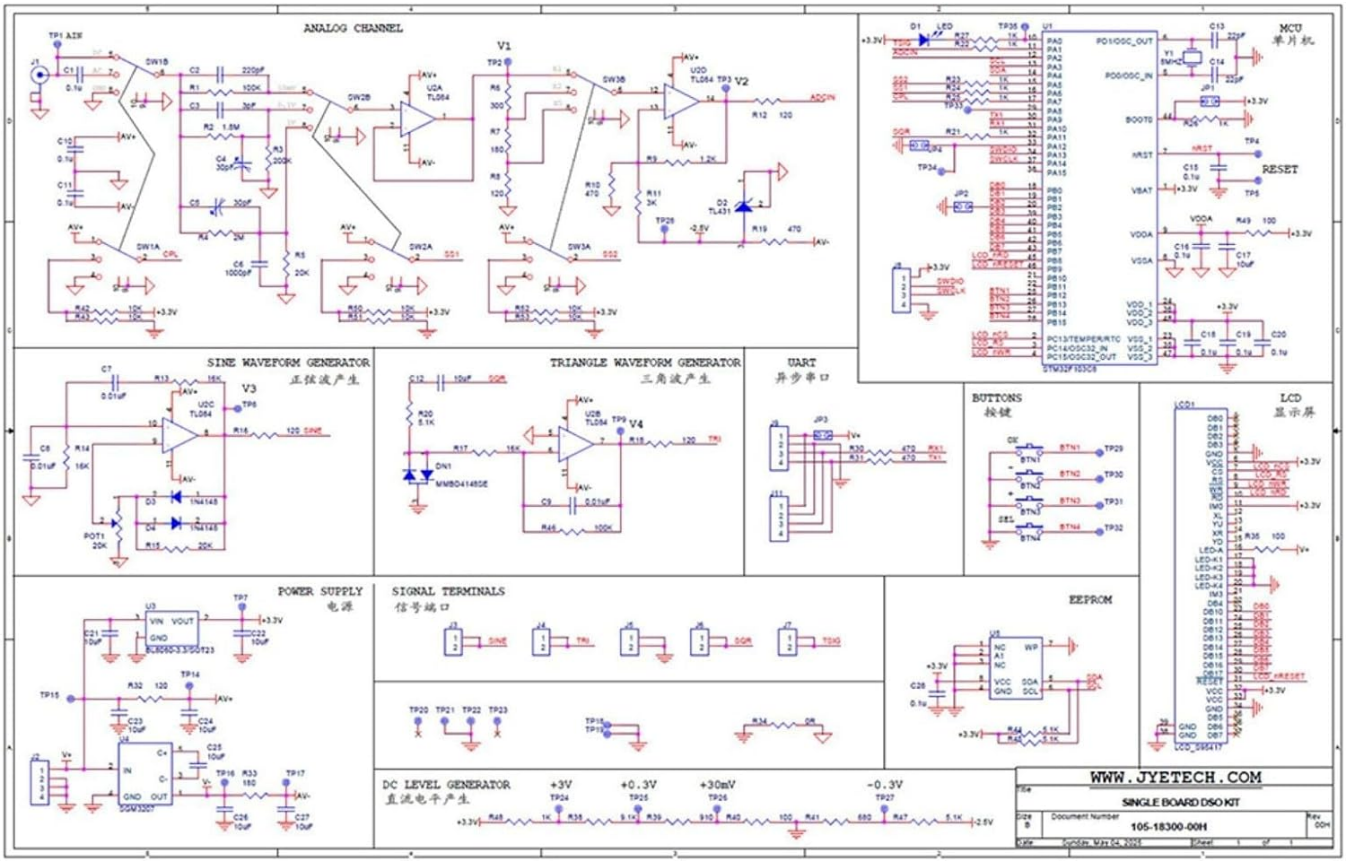


Image 4.1: Circuit diagram for the DSO183 Digital Oscilloscope, showing component connections and values. Use this as a reference during assembly.

4.2 Step-by-Step Component Installation

Install components in the numbered order as indicated on the assembly guide image. Pay close attention to polarity for diodes and electrolytic capacitors.

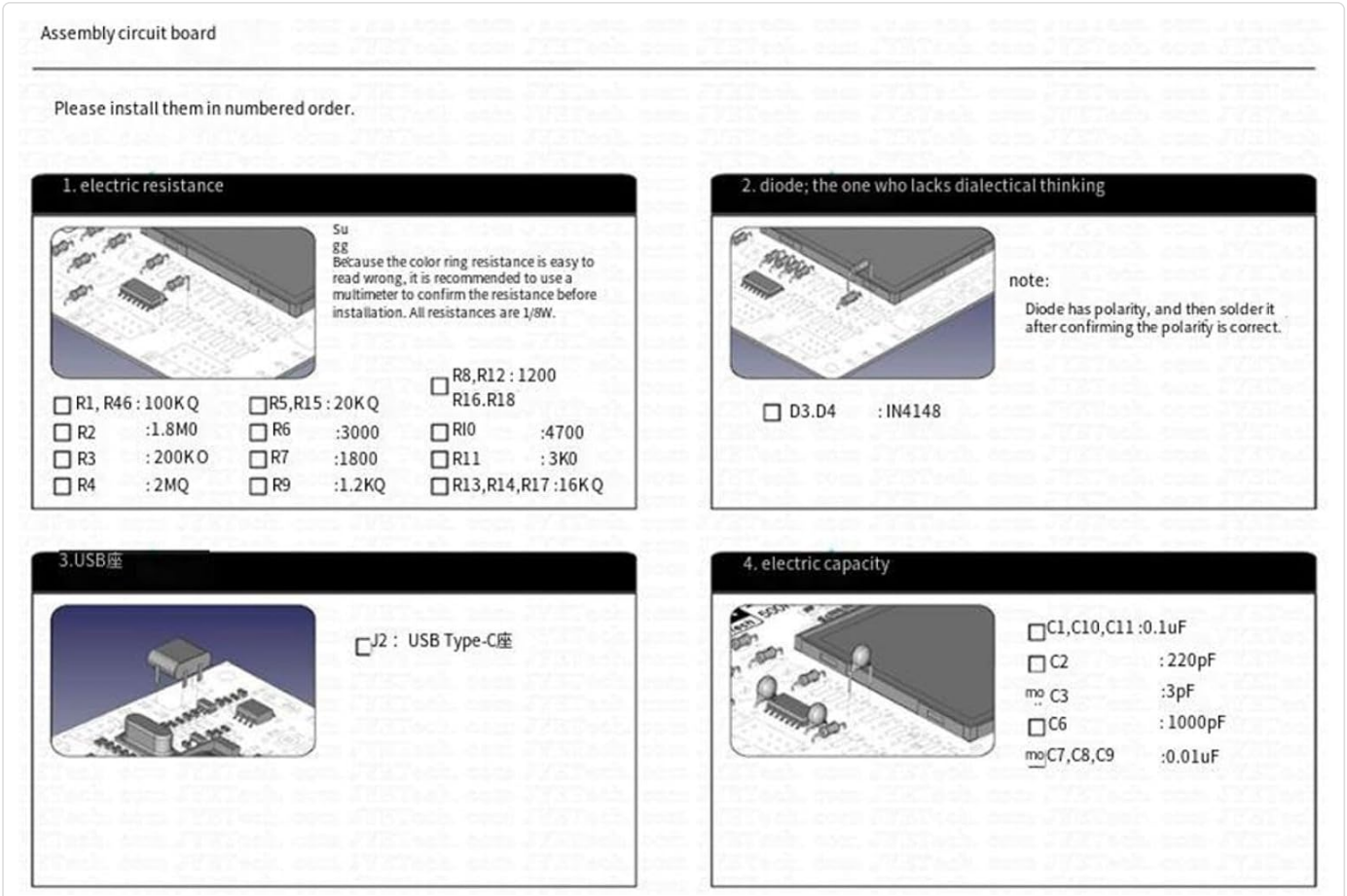


Image 4.2: Visual guide for component installation, showing placement for resistors, diodes, USB Type-C port, and capacitors. Follow the numbered steps for correct assembly.

1. **Install Resistors:**
   Solder all resistors onto the PCB according to their marked positions. Use a multimeter to confirm resistance values before soldering, as color codes can sometimes be difficult to read. All resistors are 1/4W.
   - R1, R46: 100KΩ
   - R2: 1.8MΩ
   - R3: 200KΩ
   - R4: 2MΩ
   - R5, R15: 20KΩ
   - R6: 3000Ω
   - R7: 1800Ω
   - R8, R12: 1200Ω
   - R9: 1.2KΩ
   - R10: 4700Ω
   - R11: 3KΩ
   - R13, R14, R17: 16KΩ
2. **Install Diodes:**
   Solder diodes D3 and D4 (IN4148) onto the PCB. Ensure correct polarity; the band on the diode should match the band on the PCB silkscreen.
3. **Install USB Type-C Port:**
   Solder the USB Type-C port (J2) into its designated position. Ensure it is flush with the board and all pins are properly connected.

4. **Install Capacitors:**
   Solder the capacitors onto the PCB. Pay attention to polarity for electrolytic capacitors (if any are included, though the image shows ceramic/film capacitors which are non-polarized). The image shows:
   - C1, C10, C11: 0.1uF
   - C2: 220pF
   - C3: 3pF
   - C6: 1000pF
   - C7, C8, C9: 0.01uF
5. **Continue with remaining components:**
   Follow the provided visual guide and circuit diagram to install the remaining components such as ICs, switches, potentiometers, BNC connector, and the display screen. Double-check all connections before applying power.

4.3 Assembly Video Guide

For a visual guide on assembling a similar mini oscilloscope kit, refer to the video below. While not identical to the DSO183, it demonstrates general soldering techniques and assembly steps that can be helpful.

Your browser does not support the video tag.

Video 4.1: A video demonstrating the soldering and assembly process for a mini oscilloscope kit. This video provides visual assistance for users assembling their DSO183 kit.

5. Operating Instructions

Once assembled, the DSO183 Digital Oscilloscope is ready for use. This section covers basic operation, including power-up, signal input, and using the built-in signal generator.

5.1 Powering On

1. Connect the USB Type-C power cord to the J2 port on the oscilloscope.
2. Connect the other end of the USB cable to a DC 5V power source (e.g., a USB wall adapter or computer USB port).
3. The device should power on, and the display screen will activate.

5.2 Basic Oscilloscope Function

The DSO183 can display waveforms from external signals. Connect your signal source to the BNC input connector using the provided probe.



Image 5.1: The assembled DSO183 oscilloscope displaying a sine wave on its screen, demonstrating its waveform visualization capability.

- **Vertical Sensitivity:** Adjust the vertical sensitivity (V/div) using the appropriate controls to fit the waveform vertically on the screen. The range is 10mV/div to 5V/div.
- **Horizontal Timebase:** Adjust the horizontal timebase (s/div) to view the waveform horizontally. The range is 1µs/div to 500s/div.
- **Coupling:** Select between DC, AC, or GND coupling modes based on your measurement needs.
    - **DC Coupling:** Displays both AC and DC components of the signal.
    - **AC Coupling:** Blocks the DC component, showing only the AC component.
    - **GND Coupling:** Disconnects the input signal, displaying a ground reference line.
- **Trigger Mode:** Use Auto, Normal, or Single trigger modes to stabilize the waveform display.
    - **Auto:** Triggers automatically, even without a stable signal.
    - **Normal:** Triggers only when the signal meets the trigger conditions.

    - **Single:** Captures a single waveform when triggered and then stops.
- **Waveform Storage:** The device supports waveform storage and recall for analysis. Refer to the on-screen menu for specific instructions on saving and loading waveforms.

5.3 Built-in Signal Generator

The DSO183 includes a built-in signal generator capable of producing sine, triangle, and square waves. Connect the output of the signal generator to your circuit under test.

- Select the desired waveform (Sine, Triangle, Square) using the dedicated buttons or menu options.
- Adjust the frequency and amplitude of the generated signal as required for your testing.
- A 1KHz, 3.3V square wave output is also available for calibration or basic testing.

6. Maintenance

Proper maintenance ensures the longevity and accurate performance of your DSO183 Digital Oscilloscope.

- **Cleaning:** Use a soft, dry cloth to clean the device. Do not use abrasive cleaners or solvents.
- **Storage:** Store the oscilloscope in a cool, dry place away from direct sunlight and extreme temperatures.
- **Inspection:** Periodically inspect the probes and cables for any signs of wear or damage. Replace damaged accessories immediately.
- **Firmware Updates:** Check the manufacturer's website for any available firmware updates to improve performance or add features.

7. Troubleshooting

If you encounter issues with your DSO183 oscilloscope, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
Device does not power on.	Incorrect power supply, loose USB connection, assembly error.	Ensure a stable DC 5V power supply is connected. Check USB Type-C cable connection. Review assembly steps for soldering errors, especially power connections.
No waveform displayed.	No input signal, incorrect probe connection, incorrect settings (V/div, s/div, trigger).	Verify the signal source is active. Check probe connections to the oscilloscope and the circuit. Adjust vertical sensitivity and horizontal timebase. Try different trigger modes (e.g., Auto). Ensure coupling is not set to GND if expecting a signal.
Waveform is unstable or noisy.	Improper triggering, ground loop, external interference.	Adjust trigger level and mode. Ensure proper grounding of the oscilloscope and the circuit under test. Minimize external electromagnetic interference.
Signal generator not working.	Incorrect settings, assembly error.	Verify the signal generator output is enabled and the correct waveform/frequency is selected. Check assembly of signal generator components.

If the problem persists after trying these solutions, please contact customer support for further assistance.

8. Specifications

Below are the technical specifications for the Noteflora DSO183 Digital Oscilloscope DIY Kit:

Feature	Specification
Part Name	DC 5V DSO183 Digital Oscilloscope
Material	ABS (for housing, if included)
Bandwidth	500kHz
ADC Accuracy	12-bit
Real-time Sampling Rate	1.5Msps
Waveform Buffer Length	1024 points
Vertical Sensitivity Range	10mV/div - 5V/div
Input Impedance	1MΩ
Maximum Input Voltage	50Vpk
Coupling	DC, AC, GND
Horizontal Timebase Range	1µs/div - 500s/div
Trigger Mode	Auto, Normal, Single
Power Supply	DC 5V (via Type-C)
Current Consumption	<100mA
Dimensions	118 x 76 x 12mm (4.72 x 3.94 x 1.18 inches)

9. Warranty and Support

Noteflora products are designed for quality and reliability. For specific warranty information, please refer to the product packaging or the retailer's policy where you purchased this kit. As this is a DIY kit, warranty may be limited to defective components upon receipt.
For technical support, assembly assistance, or to report missing/defective parts, please contact Noteflora customer service through the retailer's platform or the official Noteflora website (if available).

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