

DollaTek DY-SV17F

DollaTek DY-SV17F Audio Mini MP3 Player Module User Manual

Model: DY-SV17F

1. INTRODUCTION

The DollaTek DY-SV17F is an intelligent voice module designed for various audio playback applications. It integrates IO trigger, UART serial port control, and ONE_line single-bus serial port control, supporting standard MP3 and WAV decoding formats. This module features a built-in 5W Class D amplifier, allowing direct connection to speakers, and includes 32Mbit (4MB) flash storage for audio files, which can be updated via USB.

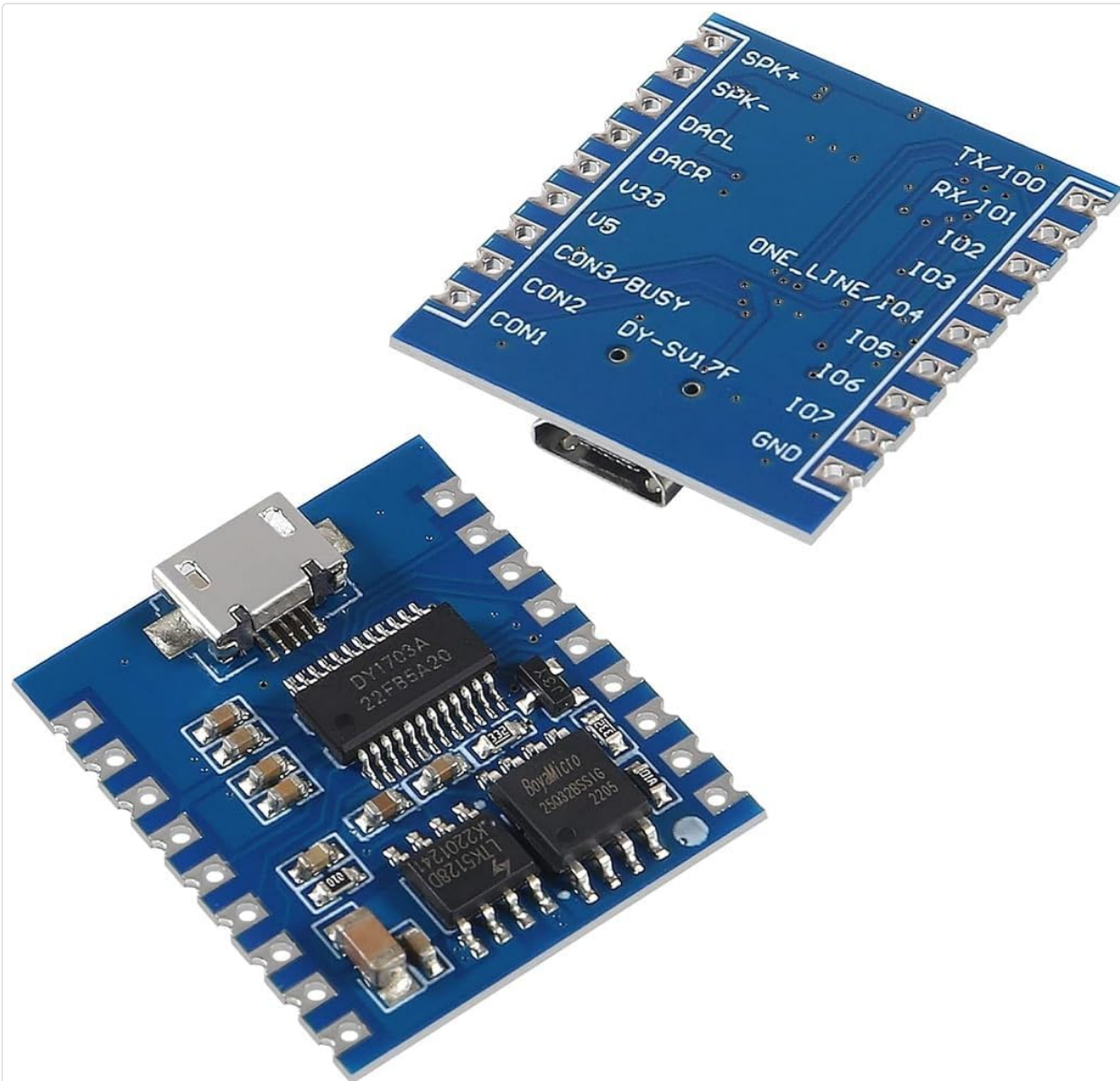


Image 1.1: Overview of the DollaTek DY-SV17F module.

2. KEY FEATURES

- Supports MP3 and WAV audio decoding formats.
- Supports various sampling frequencies: 8 / 11.025 / 12 / 16 / 22.05 / 24 / 32 / 44.1 / 48 KHz.
- Features 24-bit DAC output with a 90 dB dynamic range and 85 dB signal-to-noise ratio.
- Includes 32Mbit (4MB) built-in flash storage for audio files.
- Allows audio file updates by connecting to a computer via a USB data cable.
- Integrated 5W Class D amplifier can directly drive 4Ω, 3-5W speakers.
- UART serial port control for voice broadcast functions (playback, pause, song selection, volume adjustment). Supports up to 65,535 songs with a 9600 bps baud rate.
- Supports IO trigger playback function: 8 IO ports can trigger 8 tracks or up to 255 tracks.
- Supports ONE_line single-bus serial port control for playback, pause, song selection, and volume adjustment.
- Offers 3 configuration inputs/outputs for up to 7 operating mode selections.

3. SETUP AND CONNECTIONS

This section details the physical connections and initial setup for the DY-SV17F module.

3.1 Module Components and Interfaces

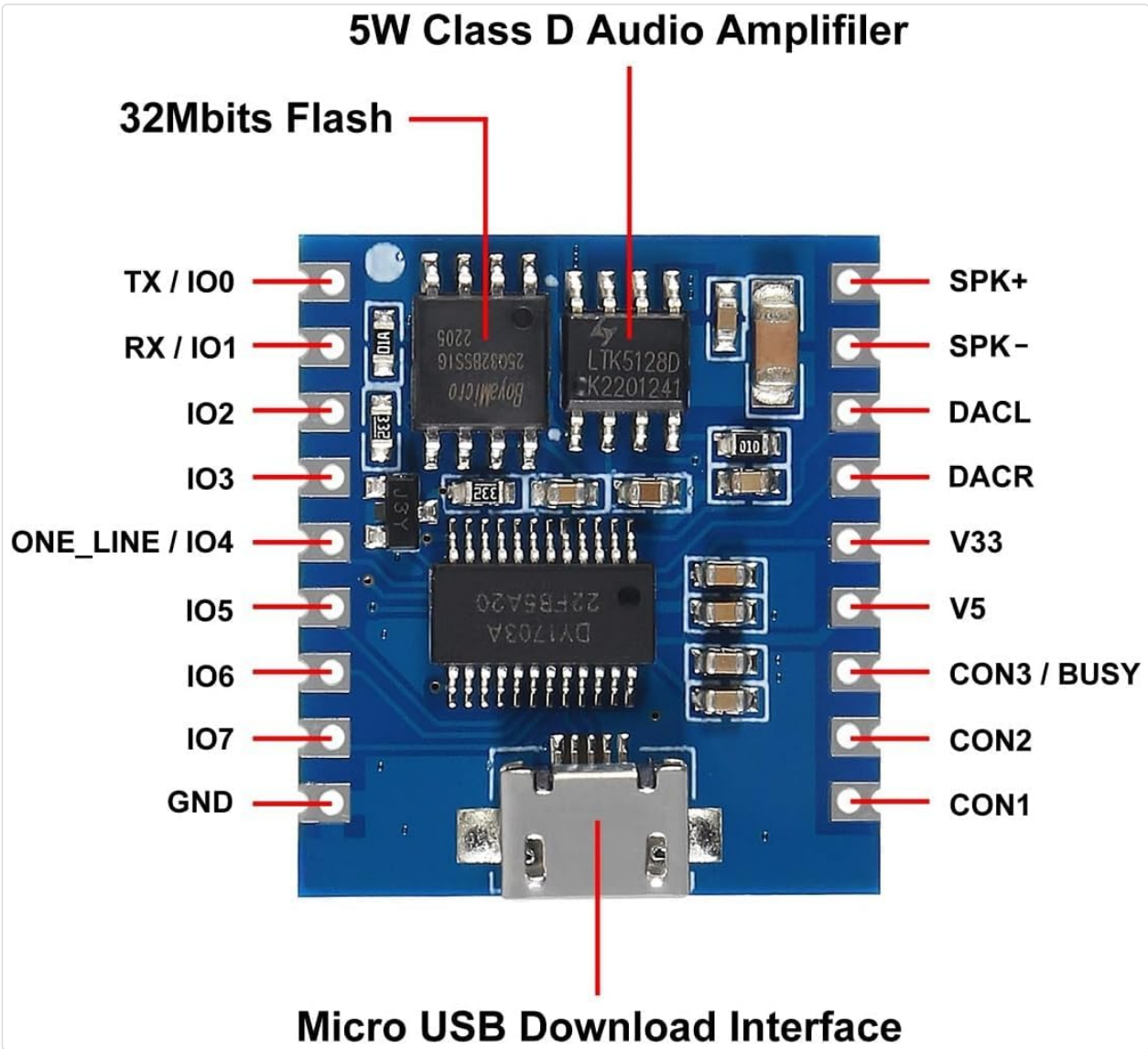


Image 3.1: Labeled components and interfaces of the DY-SV17F module. This image highlights the 5W Class D Audio Amplifier, 32Mbits Flash, and Micro USB Download Interface, along with various pin connections like SPK+, SPK-, TX/IO0, RX/IO1, IO2-IO7, ONE_LINE/IO4, DACL, DACR, V33, V5, CON3/BUSY, CON2, CON1, and GND.

3.2 Pinout Diagram

Refer to the following diagram for detailed pin assignments and their functions.

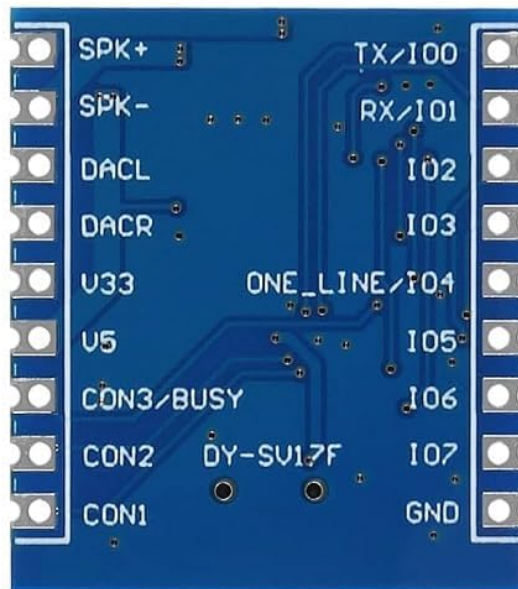
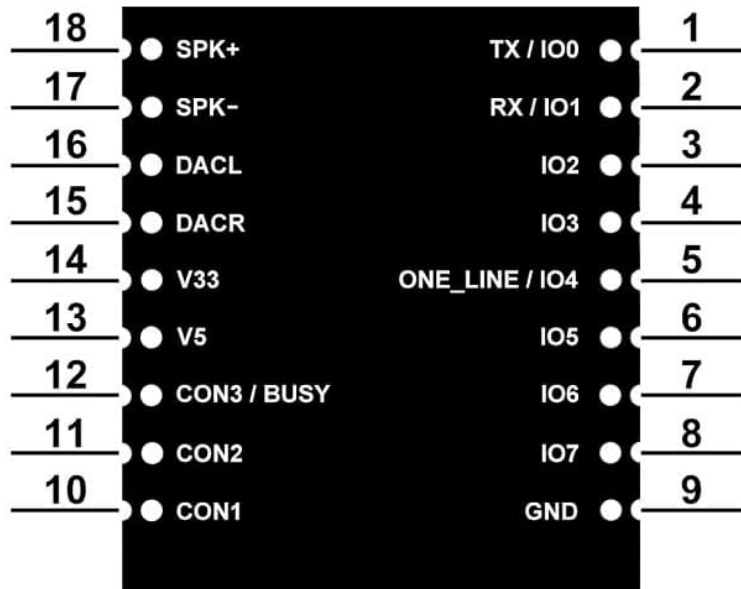


Image 3.2: Detailed pinout diagram for the DY-SV17F module, showing the numbering and function of each pin, including power, audio output, and control pins.

3.3 Audio File Upload

To upload audio files (MP3 or WAV) to the module's 32Mbit (4MB) flash storage:

1. Connect the DY-SV17F module to your computer using a standard Micro USB data cable.
2. The module should appear as a removable storage device on your computer.
3. Copy your desired MP3 or WAV audio files directly to the module's storage. Ensure file names are simple and follow any specific naming conventions required by the module's firmware for IO trigger or serial control.
4. Safely eject the module from your computer before disconnecting the USB cable.

3.4 Speaker Connection

The module includes a 5W Class D amplifier. Connect a 4Ω speaker with a power rating of 3-5W to the SPK+ and SPK- pins. Ensure correct polarity.

3.5 Control Interface Connections

Depending on your application, connect your microcontroller or control system to the appropriate pins:

- **IO Trigger:** Connect external switches or digital outputs to IO0-IO7 for direct track playback.
- **UART Serial Port:** Connect TX/IO0 and RX/IO1 to your microcontroller's UART pins for serial communication.
- **ONE_line Single-Bus:** Connect the ONE_LINE/IO4 pin for single-bus control.

4. OPERATING MODES

The DY-SV17F module supports multiple operating modes, configurable via its I/O pins, to suit various application needs.

4.1 IO Trigger Playback Mode

In this mode, specific audio tracks are played by triggering corresponding IO pins. The module can be configured to play 8 distinct tracks (one per IO pin) or up to 255 tracks using a combination of IO triggers.

- Connect external trigger signals (e.g., buttons, sensors) to the IO0-IO7 pins.
- When an IO pin is triggered (e.g., pulled low or high, depending on configuration), the associated audio file will play.
- Refer to the module's detailed programming guide (often available from the manufacturer's website or community resources) for specific IO trigger configurations and file naming conventions for multi-track triggering.

4.2 UART Serial Port Control Mode

This mode allows for advanced control over playback functions using serial commands from a microcontroller or computer.

- Connect the module's TX/IO0 and RX/IO1 pins to your microcontroller's UART interface.
- Set the baud rate to 9600 bps.
- Commands can be sent to control playback (start, pause, stop), select specific songs (up to 65,535 tracks), and adjust volume.
- Consult the official communication protocol documentation for the specific command set and data formats.

4.3 ONE_line Single-Bus Serial Port Control Mode

This mode offers a simplified serial control using a single data line.

- Connect the ONE_LINE/IO4 pin to your control device.
- This mode typically supports basic functions like playback, pause, song selection, and volume control with a reduced wiring complexity.
- Refer to the specific protocol details for ONE_line communication.

5. MAINTENANCE

To ensure the longevity and reliable operation of your DollaTek DY-SV17F module, follow these maintenance guidelines:

- **Keep Dry:** Protect the module from moisture and liquids, which can cause short circuits and damage components.

- **Avoid Extreme Temperatures:** Operate and store the module within its specified temperature range to prevent performance degradation or damage.
- **Handle with Care:** Avoid dropping or subjecting the module to strong impacts.
- **Prevent Static Discharge:** When handling the module, especially during installation or connection, take precautions against electrostatic discharge (ESD) to protect sensitive electronic components.
- **Clean Gently:** If cleaning is necessary, use a soft, dry cloth. Do not use harsh chemicals or abrasive materials.
- **Power Supply:** Ensure a stable and correct voltage power supply is used as per specifications to prevent damage.

6. TROUBLESHOOTING

If you encounter issues with your DY-SV17F module, consider the following troubleshooting steps:

- **No Sound Output:**
 - Check speaker connections (SPK+, SPK-) for correct polarity and secure contact.
 - Verify the speaker impedance (should be 4Ω) and power rating (3-5W).
 - Ensure the volume is not set to minimum or muted via serial control.
 - Confirm that audio files are correctly loaded onto the flash memory and are in a supported format (MP3, WAV).
- **Audio Files Not Playing:**
 - Check if the module is receiving the correct trigger signals (IO, UART, or ONE_line).
 - Verify the file names and directory structure if specific naming conventions are required for your operating mode.
 - Re-upload audio files to ensure data integrity.
- **Control Issues (IO Trigger, UART, ONE_line):**
 - **IO Trigger:** Ensure trigger signals are within the module's voltage specifications and are stable. Check wiring for shorts or open circuits.
 - **UART:** Verify baud rate (9600 bps) and serial communication parameters (data bits, parity, stop bits). Check TX/RX connections. Ensure your microcontroller is sending correct commands as per the protocol.
 - **ONE_line:** Confirm correct wiring and adherence to the ONE_line protocol.
- **Module Not Recognized by PC via USB:**
 - Try a different Micro USB cable.
 - Connect to a different USB port on your computer.
 - Ensure the module is powered correctly.

7. SPECIFICATIONS

Feature	Specification
Model	DY-SV17F
Supported Audio Formats	MP3, WAV

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Sampling Frequency Support	8 / 11.025 / 12 / 16 / 22.05 / 24 / 32 / 44.1 / 48 KHz
DAC Output	24-bit, 90 dB Dynamic Range, 85 dB SNR
Built-in Flash Storage	32 Mbit (4 MB)
Amplifier	5W Class D (drives 4Ω, 3-5W speakers)
UART Baud Rate	9600 bps
IO Trigger Capability	8 IO ports for 8 tracks or 255 tracks
Control Interfaces	IO Trigger, UART Serial Port, ONE_line Single-Bus
Dimensions	26mm x 23mm (approx.)
PCB Thickness	0.8mm with half holes for SMT
Pin Compatibility	2.54 mm pin headers

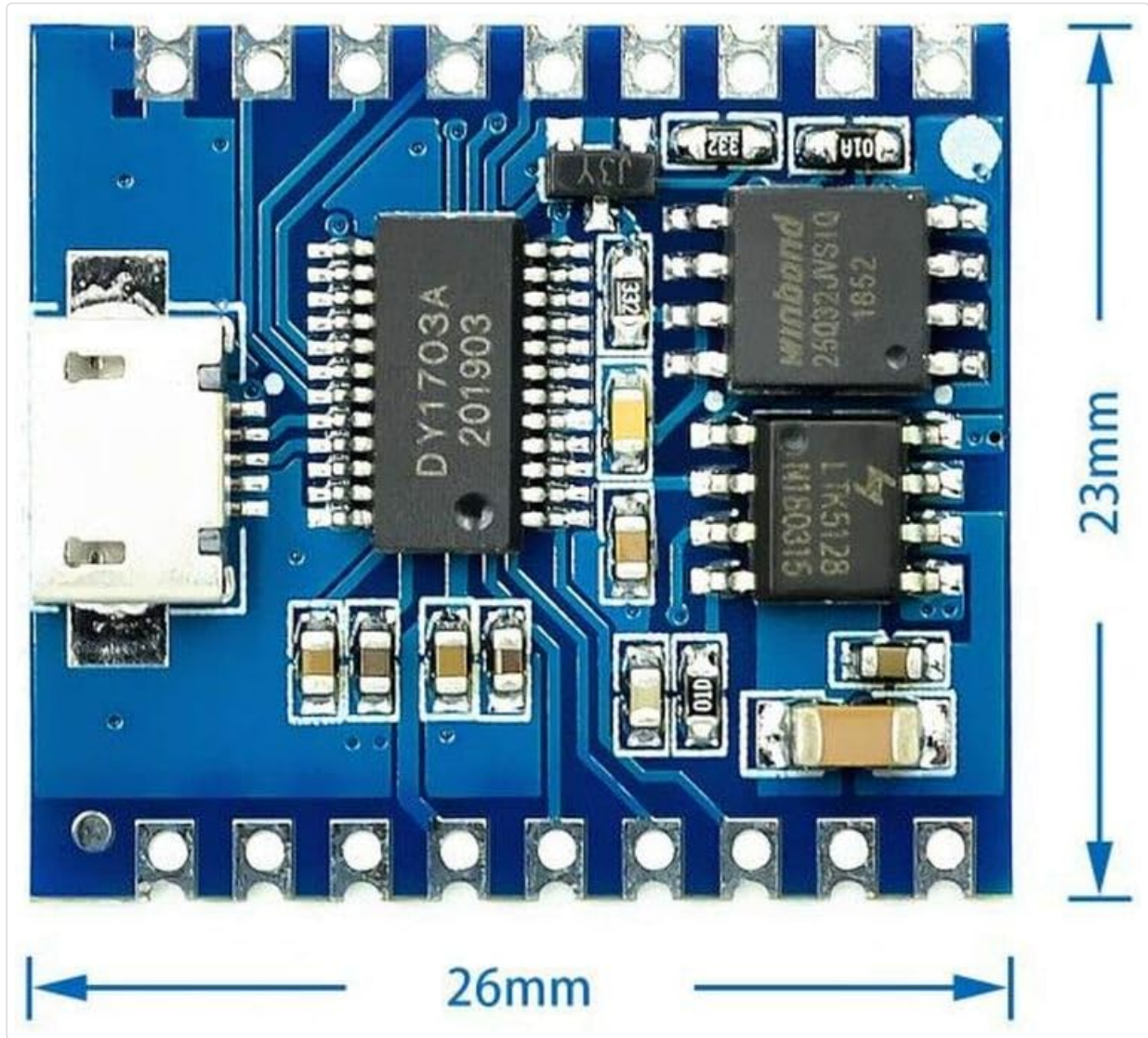


Image 7.1: Approximate dimensions of the DY-SV17F module.

8. WARRANTY AND SUPPORT

The DollaTek DY-SV17F module comes with a manufacturer's warranty of 1 year. For specific terms and conditions, please refer to the purchase documentation or contact your retailer.

Information regarding spare parts availability and guaranteed software updates is currently unavailable. For technical support, detailed programming guides, or further assistance, please visit the official DollaTek website or contact their customer service directly. Community forums and online resources (such as GitHub) may also provide valuable information and examples for advanced usage.