# USB-C100 / C101 Turn-Key Module for USB-C Connected Headphones & Headsets

Applications

The USB-C100 / C101 Modules are the absolute simplest conversion path for ANY Tier 1, Tier 2, or Tier 3 ODM or OEM to convert their current 3.5mm Headphones or Headsets designs that are "Android™-compatible" with 1 or 3-button resistor-ladder network solutions into a fully functional all-digital USB-C connected solution with support for the following functions REGARDLESS of a device's operating system.

## Near Universal Operating System Support

- Android 7.0 and later
- macOS X 10.0.0 and later
- Microsoft ® Windows® CE, XP, Vista, 7, 8, 8.1, 10 and later
- Any modern Linux® distribution (Kernel 2.73) and later
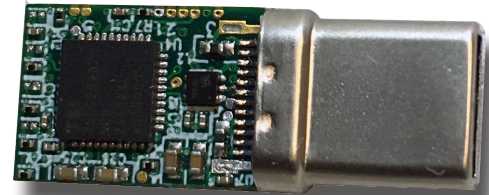
Features

- Functions for 1-button or 3-button* Android-compliant Headsets as indicated below via:

    - Volume Up (volume up button)*
    - Volume Down (volume down button) *
    - Pause / Play / Answer / Hangup (single short press of Pause / Play button)
    - Voice Assistant "OK Google", "Hey Bixby", "Hi Cortana" (long press of Pause / Play button)
    - Skip from Current Track to Next Track (quick double press of Pause / Play button)
    - Scan Current Track Forward (quick press of Pause / Play button followed by long press)
    - Skip Current Track to Previous Track (quick triple press of Pause / Play button)
    - Scan Current Track Forward (quick double press of Pause / Play button followed by long press)

- 24-bit stereo digital audio playback and audio capture capability at 48kHz

- Supports high-resolution telephony sessions

- Integrated support for low-cost resistor ladder networks three button interface

- Simplest and fastest time-to-market solution available

- Pre-programmed USB Audio Bridge with no coding required

- Zero development time

- Secure bootloader ensures there is no possible way to load any sort of malware / virus / trojan / spyware / etc. via USB-C port

- TSCS25xx low-power 32-bit Stereo Audio Codec with integrated ground-center referenced HP amplifier

- Lowest measured power for any equivalent performance & feature solution on the market

3.5mm Headphone or Headset Conversion / USB-C Headphone or Headset Design Process
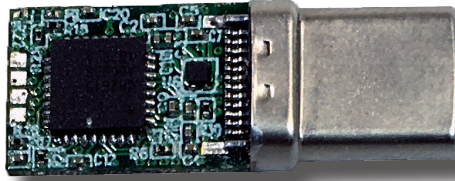
● Cut the 3.5mm jack from current Heaphone or Headset and exposes all four of the wires.

● Solder these 4 wires to the respective soldering pads (Left, Right, Ground, Mic - from top to bottom) on the USB-C100 / USB-C101 module as shown in the picture to the left.

● Cover USB-C100 / USB-C101 module and secure wire with stress relief in plastic, rubber or non-static material.

Technical Details

● Tempo Semiconductor TSCS25xx - Low-Power Audio Codec - 96kHz / 32-bit with integrated 24-bit signal processing engine

● 32-bit, 90dB SNR ADC / 96kHz-capable enables support for external analog mems mic for telephony support

● 32-bit DAC, 96kHz-capable, with a combined capless HP amplifier with 124dB SNR

● Ultra-low-latency ensures optimal A/V sync performance for all applications and mobile or VoIP-based calls

● Complimentary Android App enables customization of a wide variety of DSP audio enhancements with end-user personalization capability inside the app (USB-C101 module only)

Where to Buy

● The USB-C100 and USB-C101 turn-key modules are currently sampling directly from the factory.

Please contact sales@temposemi.com to request product pricing & samples. The modules are available in mass-production quantities with 8-week leadtimes.

*Note: The USB-C100 / USB-C1010 modules have been designed to meet the exacting needs of customers that are looking to replace the same level of functionality their 3.5mm headphones or 3.5mm Android-compatible headsets with either 1, 2, or 3 buttons that meet the following specification: https://source.android.com/devices/accessories/headset/plug-headset-spec.

**Note: The latest firmware in the CP2615 has been confirmed to 100% compliant to the latest available Android USB Headset specification: https://source.android.com/devices/accessories/headset/usb-headset-spec (last updated on July 27th, 2017). The USB-C100 and USB-101 modules include support, via a "long press" of the Play/Pause (Function A) button to bring up the Google Voice Assistant, for Android 7.0 and later.

The USB-C101 turn-key module differs from the USB-C100 module in that it includes such premium differentiating features like access to a DSP-based implementation in the TSCS25xx Audio Codec such as multiband EQ (up to 12 bands of stereo parametric EQ) to enable a flat frequency respone of the headphone and/or enable content EQ settings (e.g. "Rock", "Pop", "Jazz", etc.) or a combination there of (6e.g. stereo bands for Speaker EQ and 6 stereo bands for Content EQ), a 3D stereo enhancement for surround encoded content, a psychoacoustic bass enhancement, a high-frequency content restoration enhancement, wideband DRC, and a multiband compressor / limiter / expander. All of these features can be controlled via a complementary and customizable Android App that enables the consumer to adjust and save these parameters inside the app.

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