

## Megaclite

### USB-C headset

### User Guide



#### Features

- › Stereo USB-C headset with MEMS full-range speakers
- › High quality audio, 32 bit, 48 kHz
- › No battery in the headset, power is supplied via the USB-C connector
- › The product will comply to the USB-C standard for transporting digital audio
- › USB Full Speed and USB Audio Class 1.0 (supports up to 2.0)
- › Bass boost function, +6 dB below 100Hz
- › The headset offers 110dB SPL, at less than 1% THD
- › Buttons for music/audio play/pause, and volume up/down
- › High performance DSP for audio filter customization
- › Firmware update via USB-C
- › Unique squared design of control clip and ear buds

#### Description

Megaclite is a wired USB-C headset based on the USound piezo MEMS loudspeaker technology. It features a brand new and unique ear bud design and a pleasant-to-use control clip. It presents a distinctive sound quality that differentiates from balanced armature and electrodynamic earphone designs. Bass response is clean and strong. The supported features are also depending on the supported features from the host device.

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## 1 Overview

This document serves as user guide for the Megaclite Reference Design Version 2.0.

### 1.1 Contents

In the package, all the necessary hardware is included:

- 1) **Ear buds**, small form factor contemporary design. Transducers are USound loudspeakers single driver solution. Ganymede MEMS are used for this product.
- 2) **Control clip**, for adjusting volume, and play/pause.
- 3) **Connector**, USB-C to connect to wide range of smartphones, tablets, and laptops.

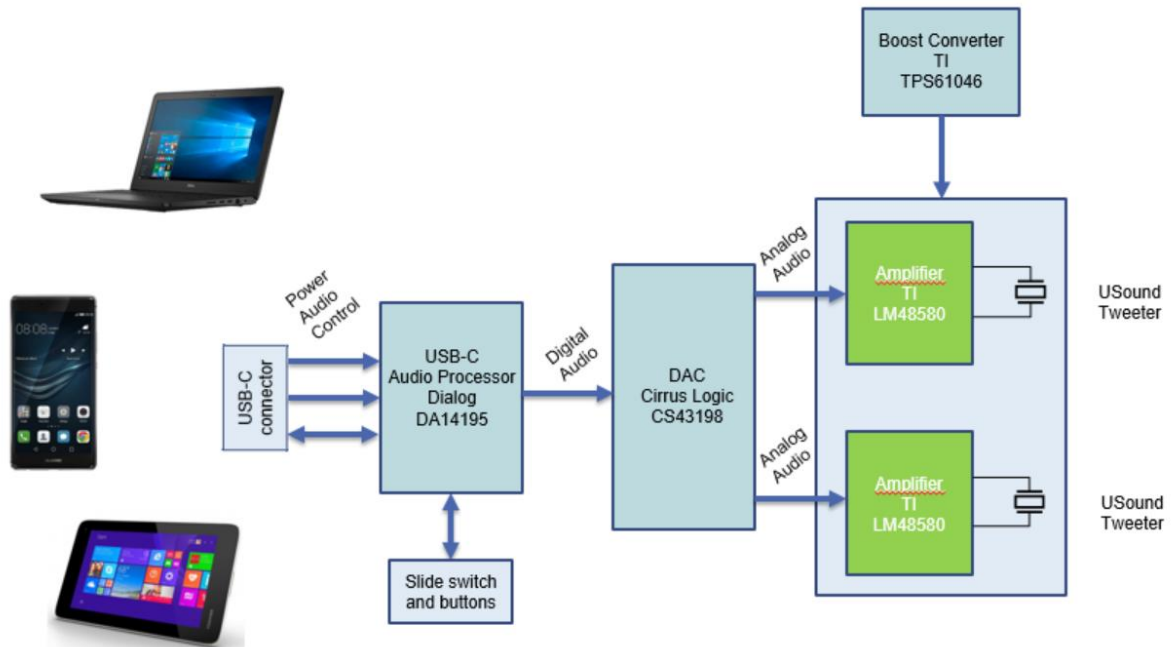


Figure 1: Overview of Megaclite functions.

## 2 Operation

The control clip will offer the following features:

- Volume up and down
- Audio play/pause

Regarding the volume up and down function, this is performed by controlling the smartphone directly (i.e. directly into the music app).

Regarding the audio play/pause function, this is performed by controlling the smartphone directly (i.e. directly into the music app).

### 2.1 Turning on and off

The headset does not have a dedicated turn on button. The electronics is activated when the USB-C connector is plugged into a master device (smartphone, tablet, laptop, etc.). Additional settings must be done on the host side for some smartphones. Figure 2 shows an example where the USB device detection must be initiated to use an USB headset.

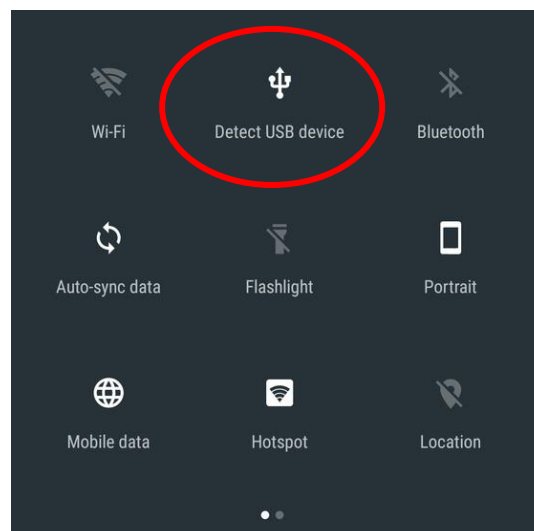


Figure 2: Host Device Setting Example

Similar, the headset does not have a dedicated turn off button. It is just turned off by pulling out the connector of the master.

Circuitry will ensure that no bad audio artefacts occur when plugging in or pulling out the connector.

### 2.2 Music playback

During normal audio listening the audio is transferred from the host device (smartphone, tablet, laptop, etc.) to the headset.

The control clip can be used to adjust volume up and down and to start and stop audio playback.

### 2.3 FW update

The Megaclite headset provides a programming interface for updating FW inside the device.

This programming happens over the USB-C connector which is the only electrical interface in the product.

### 3 Abbreviations and terms

The following table provides definitions for terms relevant to this document.

Term	Definition
DAC	Digital to Analog Converter
DSP	Digital Signal Processor
FW	Firmware
MEMS	Micro Electro Mechanical System
SPL	Sound Pressure Level
THD	Total Harmonic Distortion
USB	Universal Serial Bus

## 4 Schematic and PCB artwork

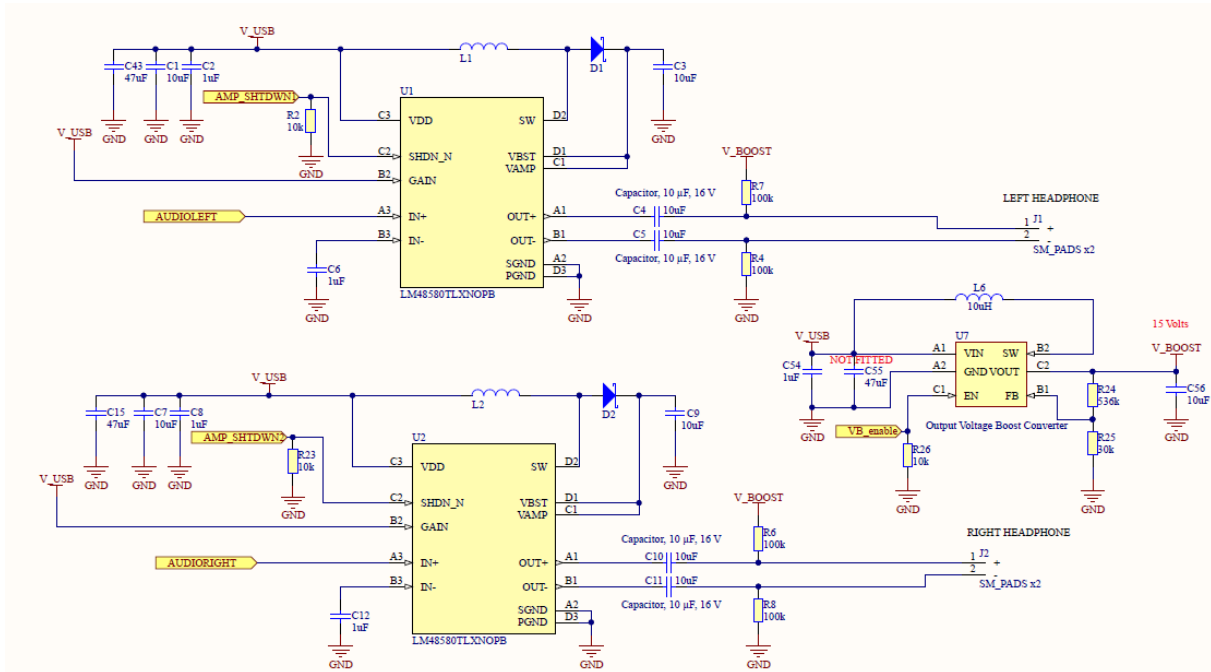


Figure 3: Schematic\_1



