

Megaclite
USB-C headset
Product Brief



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 connector
- › USB-C standard for transporting digital audio
- › 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
- › Novel design of control clip and small 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 very thin wires from the ear buds to the control clip. It presents a distinctive sound quality that differentiates from balanced armature and electrodynamic earphone designs. Bass response is clean and strong.

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1 General description

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Find in Figure 1 a picture of the Megaclite headset.



Figure 1: Megaclite headset.

2 Features

These are the main product features:

- Stereo USB-C headset with USound 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
- Bass boost function, 6 dB below 100Hz
- Buttons for music/audio play/pause and volume up/down
- High performance DSP for audio filter customization
- Firmware update via USB
- Novel mechanical design and small ear buds

3 Applications

Megaclite is a reference design that targets OEMs and the following applications:

- Wired headset without microphone support
- List of USB-C devices supported by the headset:
 Apple MacBook Pro, Lenovo Yoga 900, Dell XPS 13, HP Spectre 13,
 LG V20, LG G5, Huawei Honor 8, Huawei P9, Sony Xperia XZ, Xiaomi Mi5

4 Block diagram

Find in Figure 2 below the block diagram for the Megaclite headset.

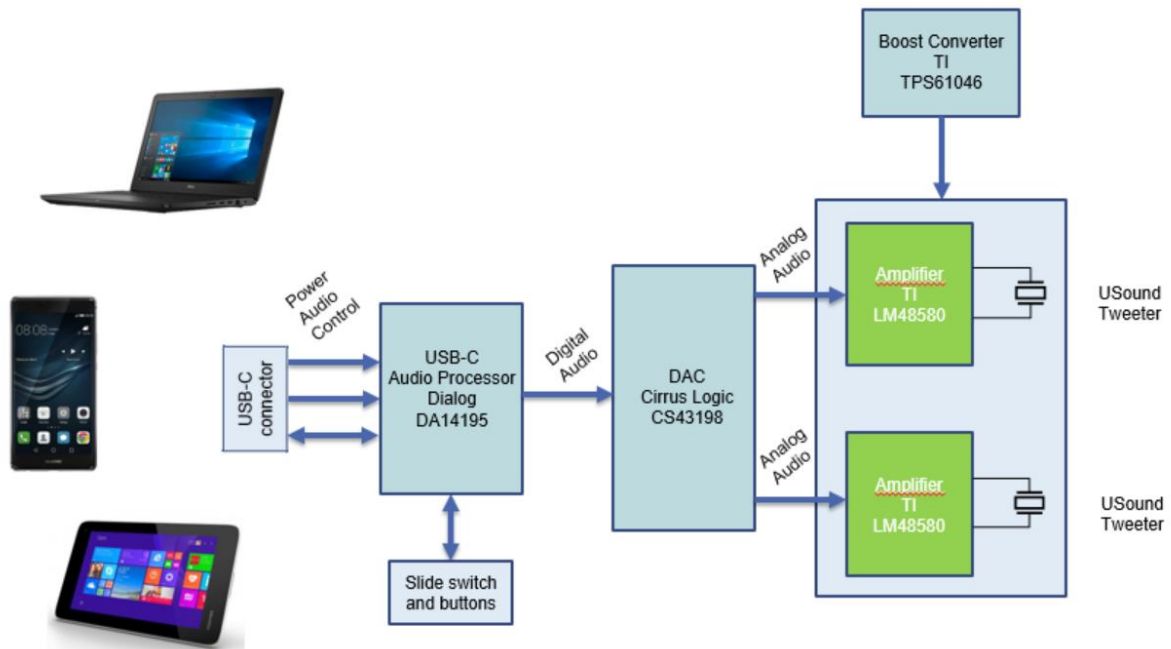


Figure 2: Block diagram

5 Performance Specifications

5.1 Absolute maximum ratings

Parameters	Description	Min.	Typ.	Max.	Unit
V _{DD-MAX}	Supply voltage	-0.3	---	+5.5	V
T _{STL}	Storage Temperature	-40	---	+125	°C

5.2 Operating conditions

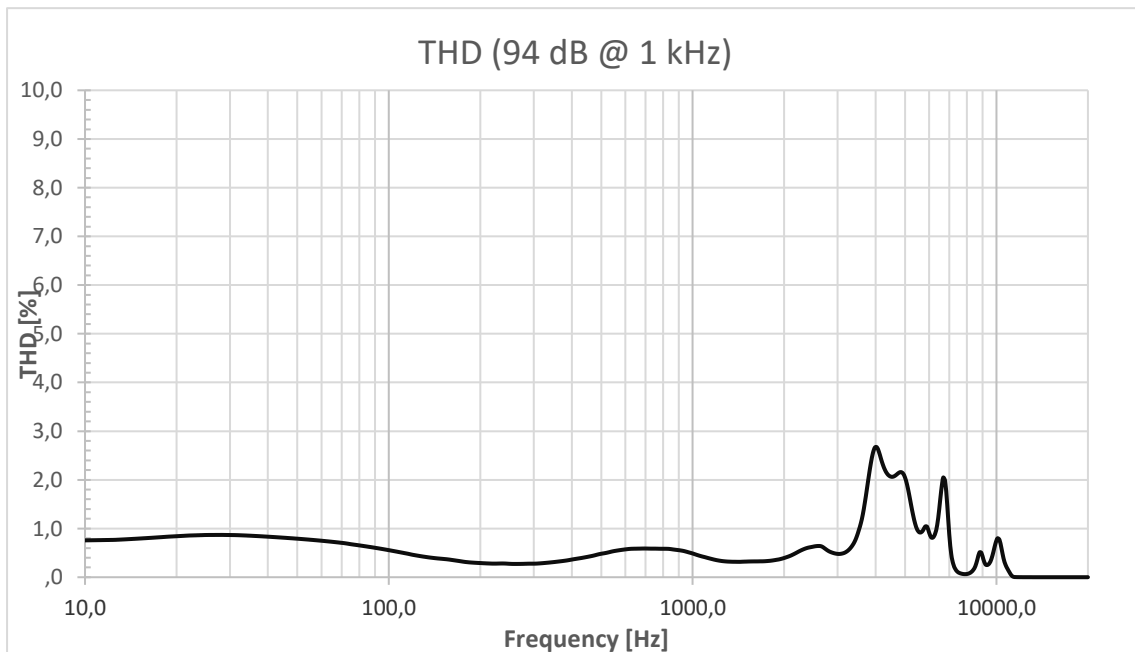
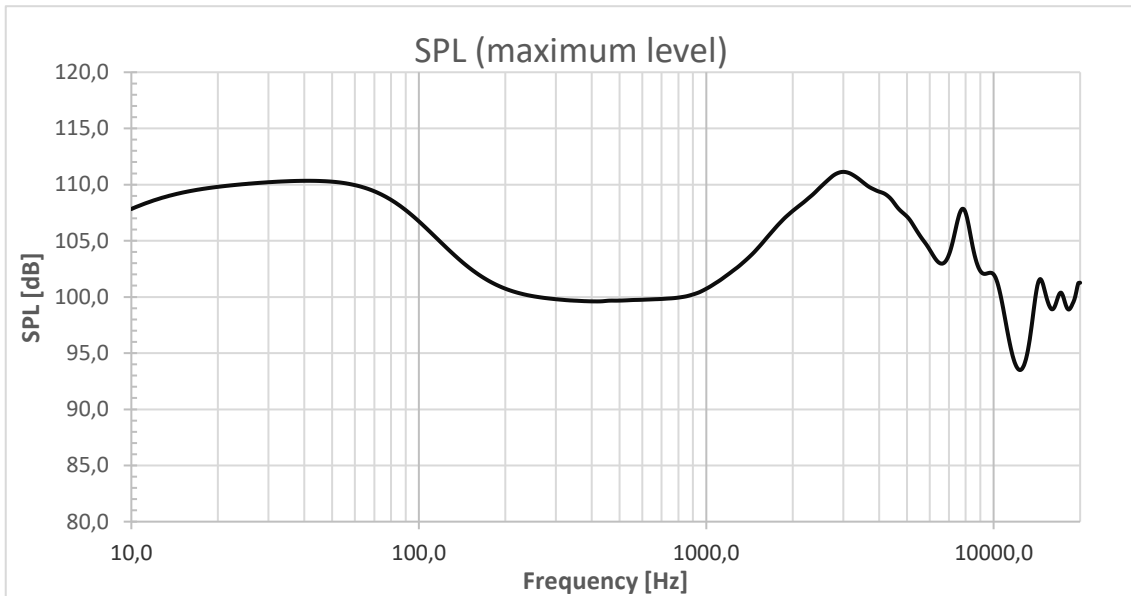
Parameters	Description	Min.	Typ.	Max.	Unit
V _{BUS}	Main supply provided by USB-C connector	4.45	5.0	5.25	V
Temperature	Temperature range (ambient)	-20	25	65	°C

5.3 System

Parameters	Description	Min.	Typ.	Max.	Unit
Latency	Delay from digital audio at USB-C interface to analog audio input to speakers.			10	ms
Current draw average	Average current consumption		50		mA
Current draw maximum	Maximum current consumption (peak)			500	mA

5.4 Acoustic

Parameters	Description	Min.	Typ.	Max.	Unit
Max SPL	Max. SPL at 1 kHz	98	101	104	dB
THD	20Hz till 10kHz at maximum SPL	-	1	10	%
Bass gain with bass boost	Difference between SPL@700Hz and SPL@50Hz	8	10	12	dB



6 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
MEMS	Micro Electro Mechanical System
OEM	Original Equipment Manufacturer
SPL	Sound Pressure Level
THD	Total Harmonic Distortion
USB	Universal Serial Bus

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