



# Tone2 Pro Specifications

<b>Model</b>	Tone2 Pro	
<b>Overview</b>	Professional Hi-Fi DAC & Headphone Amplifier	
<b>Highlights</b>	Mini desktop DAC with built-in headphone amplifier World's first balanced RCA line-out MQA & DSD playback, bit-perfect audio transmission	
<b>Finish</b>	Black, Red, Blue	
<b>Materials</b>	Enclosure/Volume Knob: Aircraft-Grade Aluminum Bottom Cover: ABS, Polycarbonate Foot Pad: Silicone	
<b>DAC Performance [1]</b>	<b>Balanced RCA:</b>	
	THD+N	0.000126% (-118dB)
	THD+N, A-Weighted	0.000112% (-119dB)
	SINAD	118dB
	Noise	3.5uVrms
	Noise, A-Weighted	2.75uVrms
	SNR	121dB
	DNR	121dB
	DNR, A-Weighted	123.5dB
	Crosstalk, 200KΩ	> 120dB
	Output, 200Ω	4.0 Vrms
	Frequency Response, 20Hz~20KHz	±0.15dB
	<b>RCA (Single End):</b>	
	THD+N	0.000158% (-116dB)
	THD+N, A-Weighted	0.000141% (-117dB)
	SINAD	116dB
	Noise	2.0uVrms
	Noise, A-Weighted	1.6uVrms
	SNR	119dB
	DNR	119dB
	DNR, A-Weighted	122dB
	Crosstalk, 100KΩ	> 118dB
	Output, 100Ω	2.0 Vrms
	Frequency Response, 20Hz~20KHz	±0.15dB
<b>Headphone Amplifier Performance [1]</b>	<b>4.4 Headphone:</b>	
	Output Impedance	< 0.3Ω
	THD+N, 1KHz, 300Ω	0.000158% (-116dB)
	THD+N, 1KHz, 150Ω	0.000158% (-116dB)
	THD+N, 1KHz, 32Ω	0.000282% (-111dB)
	THD+N, 1KHz, 16Ω	0.000398% (-108dB)
	Noise	< 4.2uVrms
	SNR	121dB
	DNR	121dB
	Max Output @300Ω	83mW (5.0Vrms)
	Max Output @150Ω	167mW (5.0Vrms)
	Max Output @32Ω	211mW (2.6Vrms)
	Max Output @16Ω	123mW (1.4Vrms)
	Crosstalk, 32Ω	> 117dB
	Frequency Response, 20Hz~20KHz	±0.15dB

### 3.5 Headphone:

	Output Impedance	< 0.3Ω
	THD+N, 1KHz, 150Ω	0.000200% (-114dB)
	THD+N, 1KHz, 32Ω	0.000282% (-111dB)
	THD+N, 1KHz, 16Ω	0.000398% (-108dB)
	Noise	< 2.4uVrms
	SNR	119dB
	DNR	119dB
	Max Output @150Ω	35.3mW (2.3Vrms)
	Max Output @32Ω	125mW (2.0Vrms)
	Max Output @16Ω	114mW (1.35Vrms)
	Crosstalk, 32Ω	> 69dB
	Frequency Response, 20Hz~20KHz	±0.15dB
<b>Sampling Rate</b>	USB Input: PCM 768KHz 32bit USB Input: DSD 512MHz 1bit (Native) Coaxial Input: 192KHz 24bit	
<b>Audio Formats</b>	MQA, AAC, FLAC, APE, WMA, WAV, OGG, MP3 ...	
<b>Processor</b>	XMOS XU216, 16 Real-time Logical Cores	
<b>Coprocessor</b>	STM8S003, Programmable	
<b>DAC Chipset</b>	ESS ES9038Q2M 32-Bit Stereo Mobile Audio DAC	
<b>Apple MFi</b>	MFi 3.0 [2]	
<b>Amplifier Chipsets</b>	I/V Stage: TI OPA1612 x2 LPF Stage: TI OPA1612 x2 Buffer Stage: RT6863D x3	
<b>Ultralow Noise LDOs</b>	1x ESS ES9311Q, 1.3uVrms (10Hz-100KHz) 5x ADI ADP151, 9uVrms (10Hz-100KHz) 1x ADI ADP7118, 11uVrms (10Hz-100KHz) 1x ADI ADP7182, 18uVrms (10Hz-100KHz)	
<b>Jitter Filter Technology</b>	Built-in Intel Altera MAX V CPLD, Pre-shaping Technology Accusilicon AS318-B Series Professional Audiophile Crystal Oscillator	
<b>High Precision</b>	0.1% Film Resistors 5% Film Capacitors	
<b>PCB Board</b>	Stackup: 6 Layers Glass Transition Temperature (Tg Rating): 170 °C	
<b>Knob</b>	Hybrid Digital Volume Control Rotate/Push Operation	
<b>LEDs</b>	Side: White, Pink Knob: RGB Light Ring	
<b>Connectivity</b>	USB Port: USB-C 2.0 I2S Port: USB-C with I2S Pinout, Linear Power Supply Balanced RCA (Orange): Coaxial Input Balanced RCA (White): Left Channel Line-out Balanced RCA (Red): Right Channel Line-out 4.4 mm Headphone Jack (Balanced) 3.5 mm Headphone Jack (Single End)	
<b>O/S Compatibility</b>	Windows 7, 8, 10 (Khadass USB ASIO driver required) MacOS Linux (with UAC2 compliant kernel) Android (supports OTG function) iPadOS iOS	

<b>Rated Voltage</b>	DC 5V
<b>Power Consumption</b>	Power off: 8mA Standby: 380mA DSD256: 450mA (max) PCM384: 450mA (max) DSD512: 510mA (max) PCM768: 620mA (max)
<b>Compliances</b>	CE, FCC, RoHS
<b>Size</b>	17.0mm(h) x 88.0mm(w) x 61.5mm(l) / 68.0mm(with RCA)
<b>Weight</b>	100 grams
<b>Warranty</b>	1 Year Limited Hardware Warranty
<b>In the Box</b>	Tone2 Pro USB-C Cable (C to C, 1 meter) Quickstart Guide and Warranty Card

[1] Performance testing based on USB input, coaxial input will have slight performance differences.

[2] iPhone support requires the USB-C to Lightning OTG (Apple C78-USBH) cable, normal Lightning charging cables will not work.