

DKT2X20AB

2 Channel(s) x 20Watts/Class AB Audio Amplifier DIY Kit - TDA7576B

The DKT2X20AB is a 2x20W DIY kit equipped with the TDA7576B integrated chipset from STMicroelectronics, designed for 12V-24V systems, making it ideal for a wide range of applications. It features a dual bridge power amplifier with MOSFET power stages and leverages Multipower BCD technology for improved performance and efficiency.

Features:

- Class AB output utilizing the TDA7576B integrated chipset.
- Allows for up to 2x20W of power with 24V for 4Ω.
- Flexible audio input connector allow connectivity with ADP panel.

Applications:

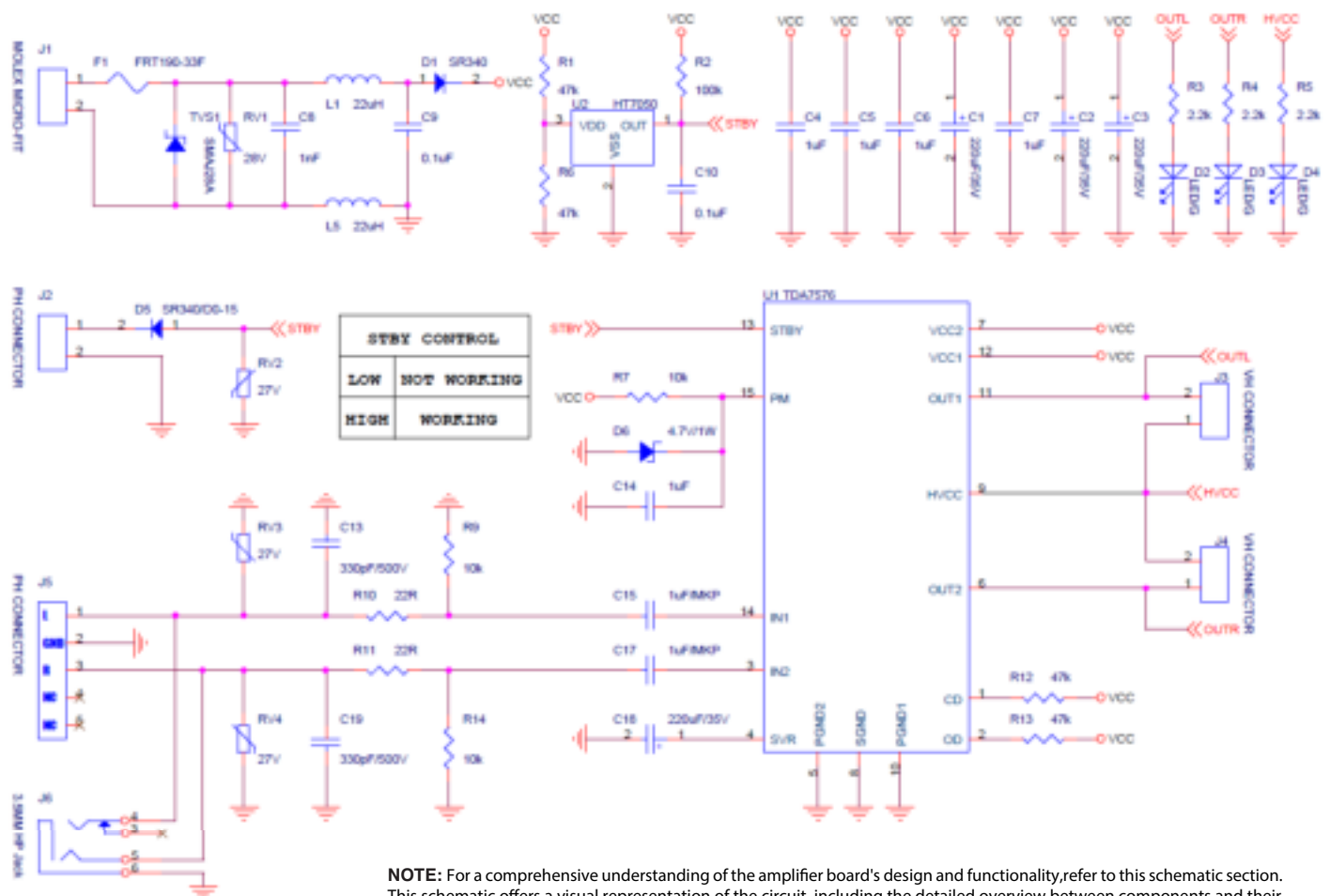
- Education Purpose.
- DIY Project.
- Solder Practice.



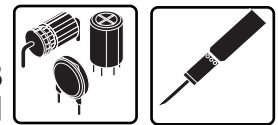
DIY Kit
Personalized
Sound Project



Schematic



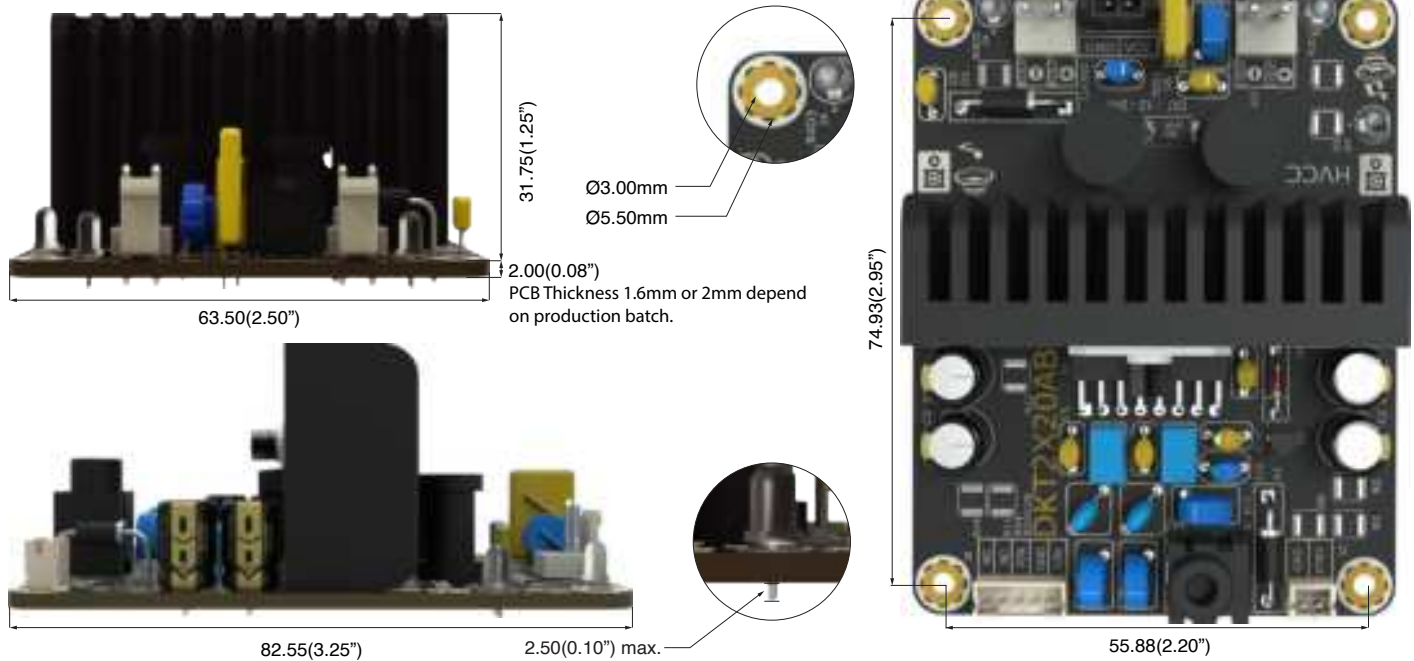
NOTE: For a comprehensive understanding of the amplifier board's design and functionality, refer to this schematic section. This schematic offers a visual representation of the circuit, including the detailed overview between components and their electrical pathways. Familiarizing yourself with the schematic is crucial for successful assembly, customization, and trouble shooting. Take the time to explore this section to enhance your overall experience with this Audio Amplifier DIY Kit.



Parameters:			
Supply Voltage	: 12V to 24V DC	Input Connector	: JST PH 5CKT / 3.5mm Audio Socket
Output Power	: 2 X 20W, 4Ω(24V)	Net Weight	: 113.0g (±10g)/4.00oz (±0.25oz)
Output Connector	: JST VH 3.96mm 2CKT	Product Size	: 82.55 (3.25") x 63.50 (2.50") x 31.75 (1.25") mm(inch)

Mechanical Drawing

(Nominal Dimensions, mm(inch))



NOTE:

- Please ensure that the printing configuration is set to 1:1 ratio to maintain accurate document proportions.
- The PCB layout and component colors shown may differ from the actual product. Variations in design and color may occur.

Installation Summary

① Install SMD Resistor(s)

Place SMD resistors on the top and bottom side of the board according to their respective positions.



② Install Ceramic Capacitor(s) & Fuse

Install the ceramic capacitor and fuse into its designed position. Ensure that the leads are properly inserted and soldered securely.



③ Install Electron Capacitor(s) & Through-Hole Inductor(s)

Install the electrolytic capacitor and through-hole inductor on located designed area. Note the polarity of electrolytic capacitors (+) and (-) leads are correct before soldering into it.



④ Secure the Heatsink and TDA7576B IC

Attach the IC and Heatsink using an M3 screw on the screw hole and secure them tight.



⑤ Install IC and the Heatsink

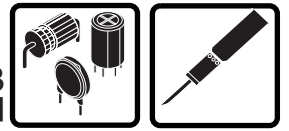
Place the IC and heatsink assembly in the designated position on the board.



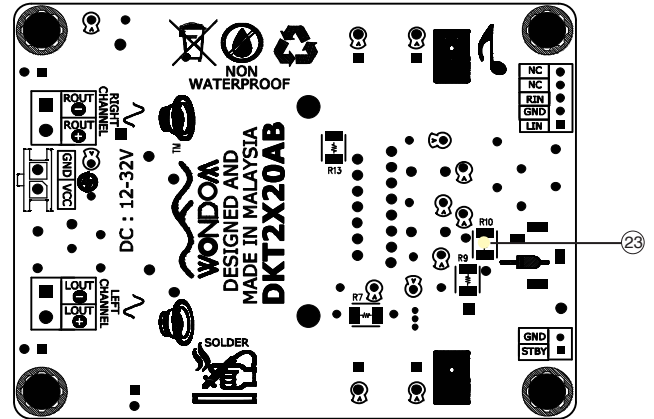
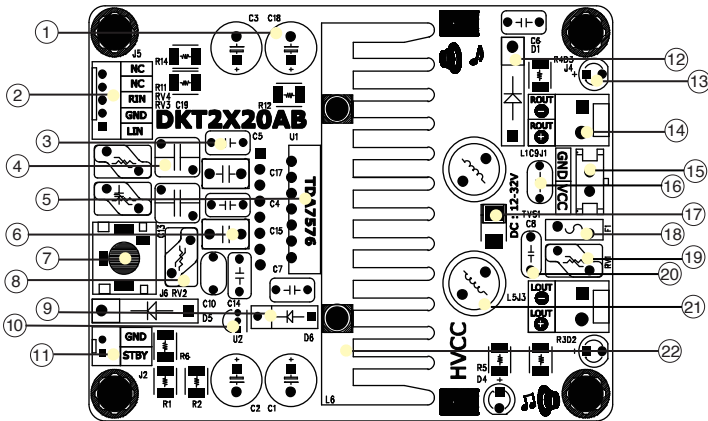
⑥ Install Remaining Component(s)

Proceed to install the remaining components onto the PCB board. Take care to align each component correctly and solder them securely.





Board Layout



① Electrolyte Capacitor 20mm

Use for temporarily stores electrical energy through distributing charged particles.
Value : 220uF



② JST-PH-2mm 5 Circuits Connector

Use for external audio input.



③ Ceramic Capacitor

Use for temporarily stores electrical energy through distributing charged particles.
Value : 1uF



④ Ceramic Capacitor

Use for temporarily stores electrical energy through distributing charged particles.
Value : 330pF



⑤ TDA7576B

Integrated circuit with Class AB specialize in amplifier audio design.



⑥ Film Capacitor

Use for stability performance and low-loss for the device.
Value : 1uF



⑦ 3.5mm Audio Connector

Use for audio input.



⑧ Varistor

Used to protect against sudden voltage increases, to prevent damage.
Value : 24V



⑨ Zener Diode

Used to allow current to flow in one direction while blocking it in the opposite direction.
Value : 4.7V



⑩ Transistor

Use for switching application. Integrated with additional components, which is the resistors.



⑪ JST-PH-2mm 2 Circuits Connector

Use for mute control connector and standby control connector.



⑫ Diode

Used to allow current to flow in one direction while blocking it in the opposite direction.
Value : 40V



⑬ Green LED 3mm

Use as the output indicator for OUT1 and OUT2.



⑭ JST-VH-4mm 2 Circuits Connector

Use for audio output at OUTR and OUTL.



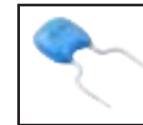
⑮ Molex Micro-Fit 2 Circuits Connector

Used for power supply connector.



⑯ Ceramic Capacitor

Use for temporarily stores electrical energy through distributing charged particles.
Value : 0.1uF



⑰ Electrostatic and Surge Protection

Use for electrostatic and surge protection includes safeguarding electronics from damage.
Value : 28V



⑱ Fuse

Use it for breaking the circuit in case of a power surge or short circuit, thus preventing any further damage to the amplifier.



⑲ Varistor

Used to protect against sudden voltage increases, to prevent damage.
Value : 28V



⑳ Ceramic Capacitor

Use for temporarily stores electrical energy through distributing charged particles.
Value : 1nF



㉑ Inductor

Used to store energy in a magnetic field, regulating current flow in circuits.
Value : 22uH



㉒ Heatsink

Use to dissipates heat from components to prevent overheating and ensure reliability.



㉓ Resistor

Used to regulate the flow of electric current within a circuit by impeding its passage.





Electrical Parameters

Parameter	Conditions	Min.	Typ.	Max.	Units
Power Supply Voltage, VCC	-	12	-	24	V
Standby Current Consumption	$0 < V_{ST_BY} < 1.2V$	-	-	10	μA
Input Impedance, R_{IN}	$R_L = 4\Omega$	50	55	-	$k\Omega$
Total Quiescent Current, I_d	$R_L = \infty$	-	90	130	mA
Offset Voltage, V_{os}	-	-100	-	+100	mV
Dump Treshold, V_{dth}	-	36	37.5	39	V
Dump Current, I_D	$V_s = 60V$	-	18	40	mA
Output Power, P_o	THD = 1%	20	22	-	W
	THD = 10%	25	28	-	
Operating Temperature	-	-10	-	55	$^{\circ}C$
THD	$P_o = 4W$; $f = 1kHz$	-	0.05	0.1	%
Cross Talk, CT	$f = 1kHz$; $P_o = 4W$	50	65	-	dB
	$f = 10kHz$; $P_o = 4W$	45	60	-	
Voltage Gain, G_v	-	25	26	27	dB
Output Noise Voltage, E_{No}	Amplifier in Mute	-	60	100	μV
Standby Attenuation, ASB	-	90	110	-	dB

Warranty Terms and Product Usage Restrictions

WONDOM products come with a one-year warranty starting from the date of purchase. Customers are responsible for the cost of returning the goods to the seller, and by making a purchase, you agree to this condition. Due to the nature of DIY products, visible damage or use on screw holes or tinning of solder pads directly invalidates the warranty. Damage caused by the use of incorrect power sources, such as exceeding the specified voltage range or reverse polarity, is not covered under warranty. All WONDOM products undergo thorough testing before shipment. We do not accept bulk returns after a bulk purchase. If you are unsure of the quantity you need, please purchase the appropriate quantity as needed. All WONDOM products are intended for DIY use only and do not support any industrial applications. The rated operating temperature range is 0-40°C. Please refrain from using WONDOM products in industrial or any special industrial environments. If you require products tested for industrial operating temperature ranges, we recommend seeking products clearly labeled to support operating ranges such as -20-65°C or -40-85°C. By purchasing these products, customers agree to these terms and conditions, which include their responsibility to submit their warranty before soldering.

Designed by:



WONDOM Industrial Audio Vendor

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10250 George Town, Pulau Pinang.

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(Please use phone calls or email instead of WhatsApp or iMessage.)

To view our products and purchase, please check the Taobao or Aliexpress website by searching for the product name (example: DKT2X15D).

Bulk Purchase Rights

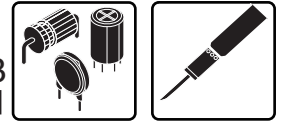
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For purchases of a minimum of 500 units, please send an email to our contact mailbox to place your purchasing order or to request customization. WONDOM provides customization options for such orders, including changing the PCB colour and silk screen for products with enclosures and placing your brand logo on the PCB or enclosure. Please note that WONDOM does not offer other customization services, such as changing PCB dimensions or adding/removing ports. A standard price list for purchases of 500 units or more can also be requested from our contact mailbox.



About The Manual









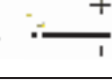



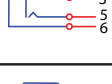

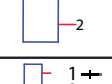

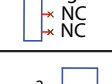

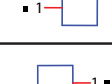

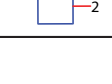





This manual displays general installation guidelines. However, please note that proper installation of components requires qualified experience. If you do not have the knowledge and tools to successfully perform this installation, we strongly recommend consulting an authorized WONDOM dealer about your installation options. Keep all instructions and sales receipt for reference.



Components Checklist

No.	Components	Values/ Package	Description	Image	Position	Before Soldering (/)	After Soldering (/)
1	Ceramic Capacitor	1uF			C4, C5, C6, C7, C14		
2	Ceramic Capacitor	1nF			C8		
3	Ceramic Capacitor	0.1uF			C9, C10		
4	Ceramic Capacitor	330pF			C13, C19		
5	Electrolytic Capacitor	220uF			C1, C2, C3, C18		
6	Film Capacitor	1uF			C15, C17		
7	Resistor	47kΩ			R1, R6, R12, R13		
8	Resistor	100kΩ			R2		
9	Resistor	2.2kΩ			R3, R4, R5		
10	Resistor	22Ω			R10, R11		
11	Resistor	10kΩ			R7, R9, R14		
12	Inductor	22uH			L1, L5		
13	Diode	DO-15			D1, D5		
14	Zener Diode	DO-35			D6		



15	Varistor	28V			RV1		
16	Varistor	24V			RV2, RV3, RV5		
17	Transistor	TO-92			U2		
18	Electrostatic and Surge Protection	28V			TVS1		
19	LED	Green			D2, D3, D4		
20	Fuse	FRT190-33F			F1		
21	3.5mm Audio Connector	3.5MM-PJ360E			J6		
22	JST PH Connector	2CKT			J2 (1 Extra)		
23	JST PH Connector	5CKT			J5 (1 Extra)		
24	VH Connector	2CKT			J3, J4 (1 Extra)		
25	Molex Micro-Fit	2CKT			J1		
26	Heatsink	58.42(2.30") X 17.78(0.7") X 31.75(1.25")	-		L6		
27	IC	TDA7576 B			U1		
28	PCB	82.55(3.25") X 63.50(2.50")	-		1(DKT2X20AB)		