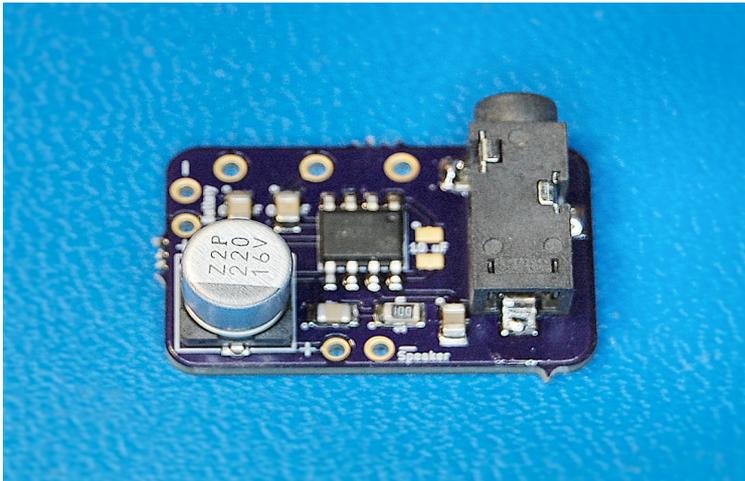




The Toymakers @ tymkrs.com
Questions? Please contact us:
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DATASHEET



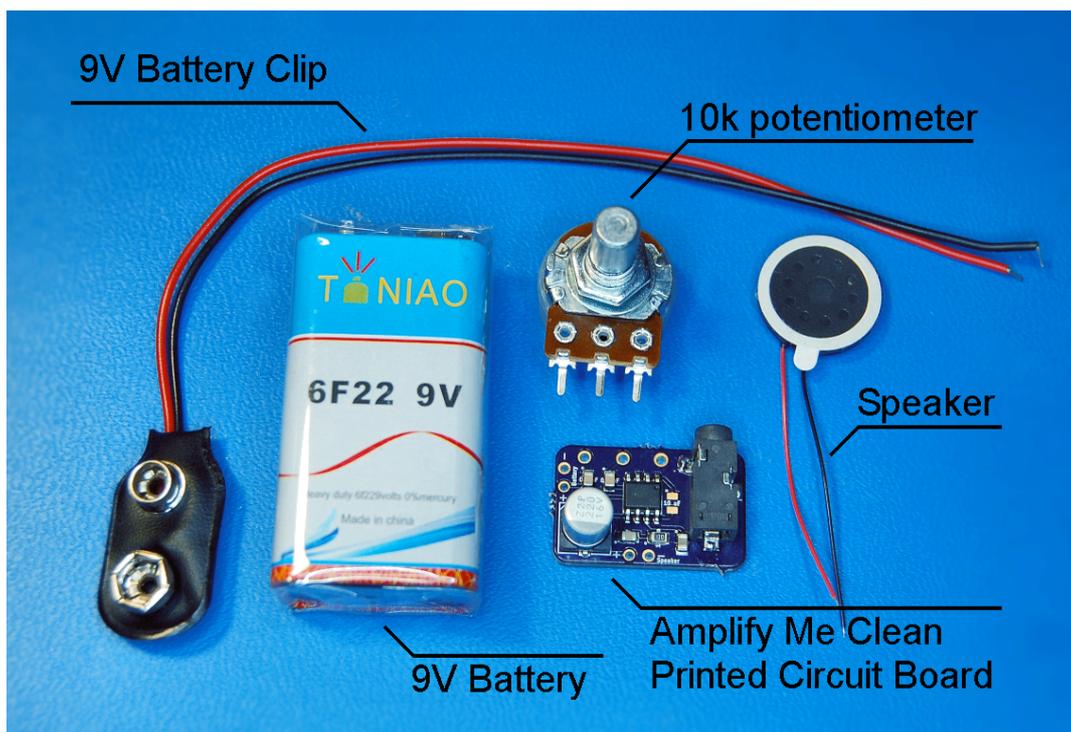
Amplify Me Clean

LM386 Audio Amplifier Kit

The SMT Amplify Me kit is a LM386-based audio amplifier that is great for hobby-level audio projects, instruments, and radios!

- Kit Type: SMT and minimal through-hole soldering
- Assembly instructions: In datasheet
- Function: Low voltage audio amplifier
- Audio gain from 20 to 200 (26dB to 46dB)
- Speaker frequency from 20 to 20kHz

KIT CONTENTS



Contents of the Amplify Me Kit:

- SMT Amplify Me printed circuit board (25.17 x 16.15 x 1.60mm)
- 9V Battery and Battery Clip
- Speaker: <http://www.soberton.com/wp-content/themes/uploads/sp-1704-data-sheet-pdf.pdf>
- Electrical Components

Electrical Components:

Reference	Quantity	Type	Value
R1	1	Potentiometer	10k ohm
---	1	IC Chip, SOIC-8	LM386
C1	1	Capacitor, 16V	10uF
C2, C4-C5	1	Capacitor, 50V	0.1uF
C3	1	Electrolytic Capacitor, 16V	220uF
C6	1	Capacitor, 50V	1 uF
R2	1	Resistor, 1/8W	10 ohm
J1	1	Audio Jack	SMT 1/8"

Absolute Maximum Ratings

Parameter	Ratings	Unit
Supply Voltage	15	V
Input Voltage	-0.4V - +0.4V	V
Power Dissipation (SOP-8)	600	mW
Operating Temperature	0 - +70	°C
Junction Temperature	+125	°C
Storage Temperature	-40 - +150	°C

Note: Absolute maximum ratings are stress ratings only and functional device operation is not implied. The device could be damaged beyond Absolute maximum ratings.

Electrical Characteristics

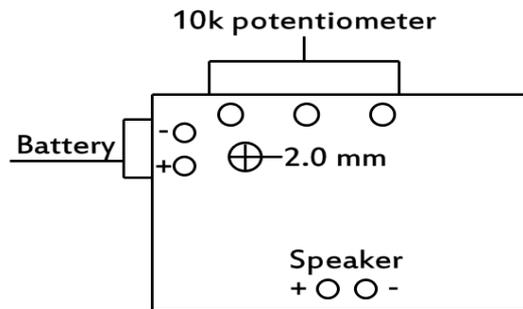
Parameter	Test Conditions	MIN	TYP	MAX	UNIT
Operating Supply Voltage		3		10	V
Quiescent Current	$V_{ss} = 6V, V_{in} = 0$		4	8	mA
Output Power	$V_{ss} = 6V, R_L = 8\Omega, THD = 10\%$ $V_{ss} = 9V, R_L = 8\Omega, THD = 10\%$	250 500	325 700		mW mW
Voltage Gain	$V_{ss} = 6V, f = 1kHz$ 10uF from pin 1 to pin 8		26 46		dB dB
Bandwidth	$V_{ss} = 6V, \text{pin 1 and 8 open}$		300		kHz
Total Harmonic Distortion	$P_{out} = 125mW, V_s = 6V, f = 1kHz, R_L = 8\Omega$ pin 1 and pin 8 open		0.2		%
Rejection Ratio	$V_{ss} = 6V, f = 1kHz, C_{bypass} = 10uF, \text{pin 1 and pin 8 open, Referred to output}$		50		dB

Input Resistance			50		kΩ
Input Bias Current	$V_{ss} = 6V$, Pin 2 and Pin 3 open		250		nA
Speaker impedance		6.5	8	9.5	Ω
Speaker Max Power			0.5	0.8	W
Speaker Sensitivity			90		SPL
Speaker Resonant Freq			1		kHz

Tools and material required for assembly (not included with the kit):

- Soldering iron
- Solder

Mounting/Component Holes:



Additional physical/electrical specifications:

- Printed Circuit Board size: 0.99 x 0.64 x 0.063" (25.17 x 16.15 x 1.60mm)
- PCB thickness: 1.024" (26mm), max height with potentiometer
- PCB thickness: 0.866" (22mm), max height with audio jack but no potentiometer
- Speaker size: 17 x 17 x 4.0 mm

Assembly Instructions

Build Notes:

- 1/8" jack is soldered as a mono jack. Ring and shield are connected. This is where the signal you want amplified goes in.
- The 10k potentiometer is the volume control and can be soldered to wires, and the wires can be soldered to the potentiometer solder points. Or, if you directly solder the potentiometer to the board, remember to solder the potentiometer facing away from the board so that as you turn it clockwise, the volume increases properly. Speaker solder points are provided on the board.
- For the battery clip, the red wire goes to Battery + and the black wire goes to Battery -
- For the speaker, the red wire goes to Speaker + and the black wire goes to Speaker -

Use Instructions

- Audio signals can come from instrumental or line level sources (computers, synthesizers, etc).
- Multiple SMT Amplify Mes can be used for a household amplifier:
<https://www.youtube.com/watch?v=vWWHLcbNO0k>