

**LOW VOLTAGE AUDIO POWER AMPLIFIER**

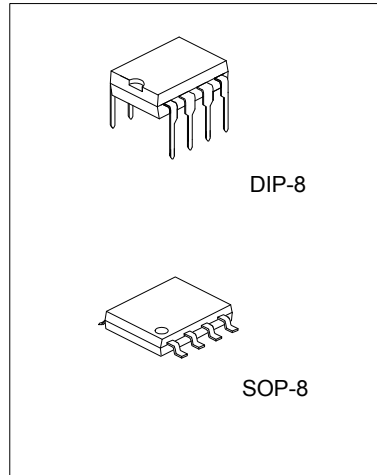
**DESCRIPTION**

The UTC386 is a power amplifier designed for use in low voltage consumer applications. The gain is internally set to 20 to keep external part count low, but the addition of an external resistor and capacitor between pins 1 and 8 will increase the gain to any value up to 200.

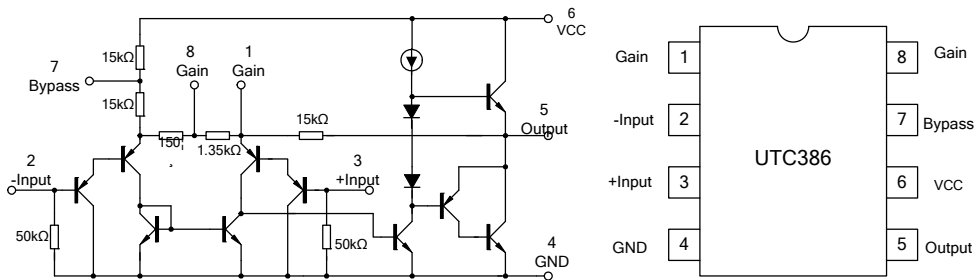
The inputs are ground referenced while the output is automatically biased to one half the supply voltage. The quiescent power drain is only 24 milliwatts when operating from a 6 volt supply, making the UTC386 ideal for battery operation.

**FEATURES**

- \*Battery operation
- \*Minimum external parts
- \*Wide supply voltage range:4V~18V
- \*Low quiescent current drain(4mA)
- \*Voltage gains:20~200
- \*Ground referenced input
- \*Self -centering output quiescent voltage
- \*low distortion



**BLOCK DIAGRAM**



**ABSOLUTE MAXIMUM RATINGS** (Ta=25°C)

Characteristic	Symbol	Value	Unit
Supply Voltage	Vcc	22	V
Input voltage	Vi	-0.4~+0.4	V
Power Dissipation	DIP-8	1250	mW
	SOP-8	600	mW
Storage Temperature	Tstg	-65 to 150	°C
Operating Temperature	Topr	0 to 70	°C
Junction Temperature	Tjun	150	°C

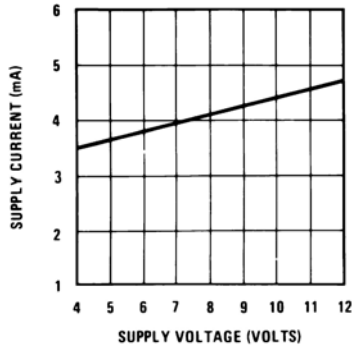
**ELECTRICAL CHARACTERISTICS**

(Vcc=6V, f=1kHz, Ta=25°C, All voltage referenced to GND unless otherwise specified)

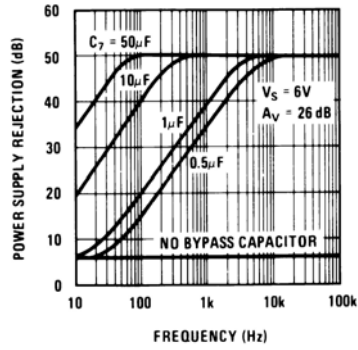
Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Operating Supply Voltage	Vs		4		18	V
Quiescent current	Iq	Vs=6V, Vin=0		4	8	mA
Output Power	Pout	Vs=6V, RL=8Ω, THD=10%	250	325		mW
		Vs=9V, RL=8Ω, THD=10%	500	700		mW
Voltage Gain	Av	Vs=6V, f=1kHz		26		dB
		10μF from pin 1 and pin 8		46		dB
Bandwidth	BW	Vs=6V, Pin1 and 8 open		300		kHz
Total harmonic distortion	THD	Vs=6V, RL=8Ω, Pout=125mW, f=1kHz, pin1 and pin 8 open		0.2		%
Power supply Voltage Rejection Ratio	PSRR	Vs=6V, f=1kHz, Cbypass=10μF, pin1 and pin 8 open, Referred to Output		50		dB
Input Resistance	Rin	Vs=6V, Pin2 and pin 3 open		50		kΩ
Input Bias current	IBIAS	Vs=6V, Pin2 and pin 3open		250		nA

TYPICAL PERFORMANCE CHARACTERISTICS

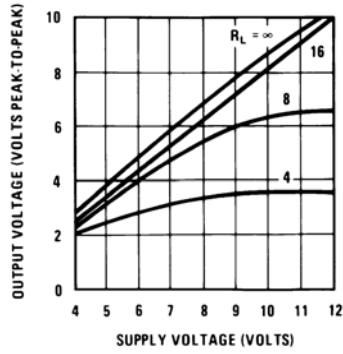
Quiescent Supply Current vs Supply Voltage



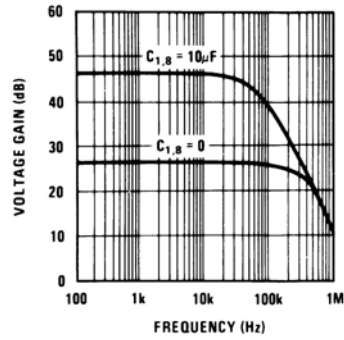
Power Supply Rejection Ratio (Referred to the Output ) vs Frequency



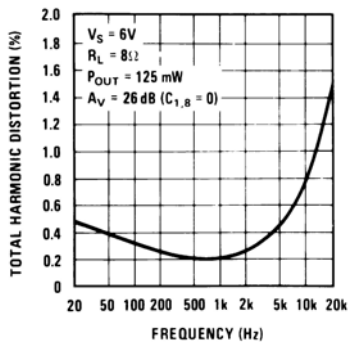
Peak-to-Peak Output Voltage Swing vs Supply Voltage



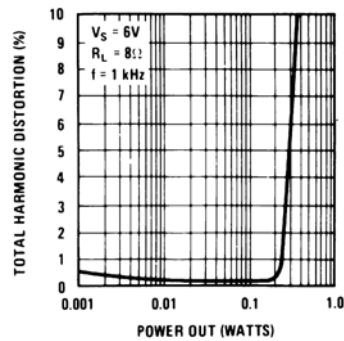
Voltage Gain vs Frequency



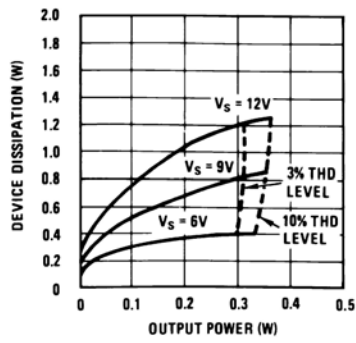
Distortion vs Frequency



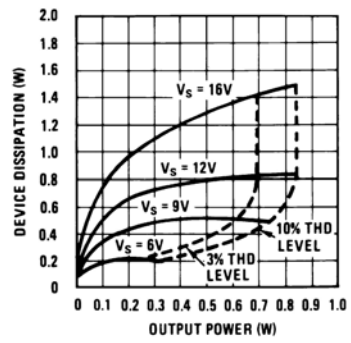
Distortion vs Output Power



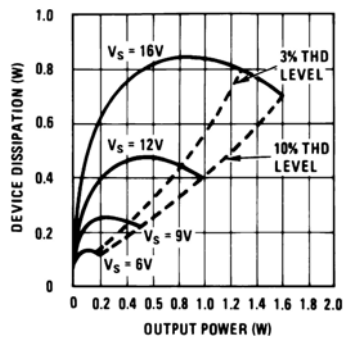
Device Dissipation vs Output Power —4Ω Load



Device Dissipation vs Output Power —8Ω Load

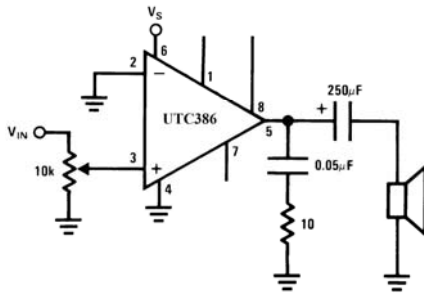


Device Dissipation vs Output Power —16Ω Load

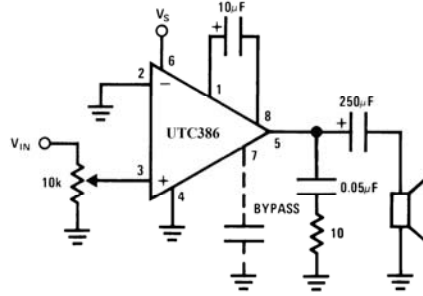


## TYPICAL APPLICATIONS

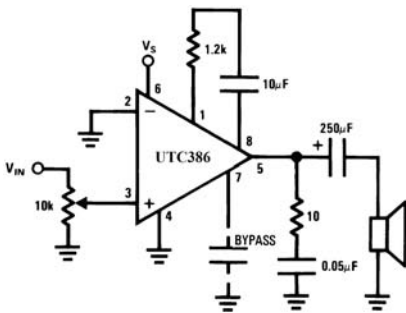
Amplifier with Gain = 20 Minimum Parts



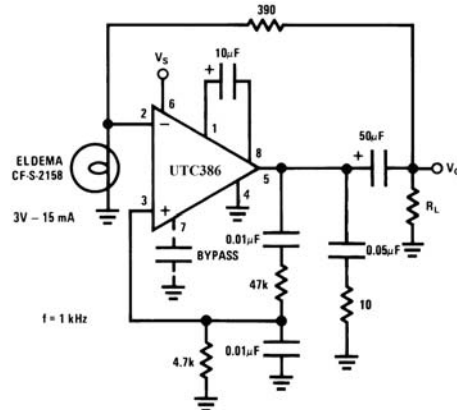
Amplifier with Gain = 200



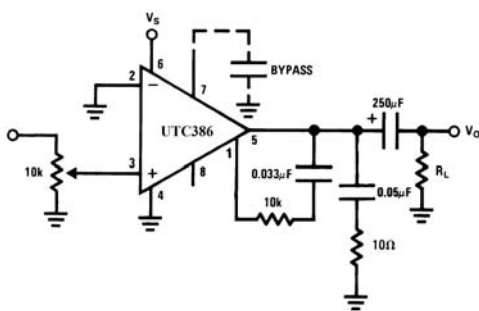
Amplifier with Gain = 50



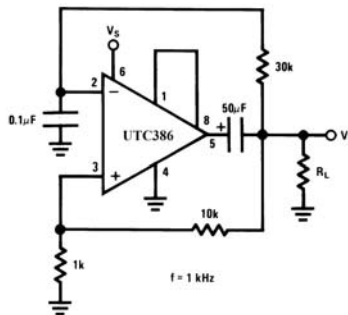
Low Distortion Power Wienbridge Oscillator



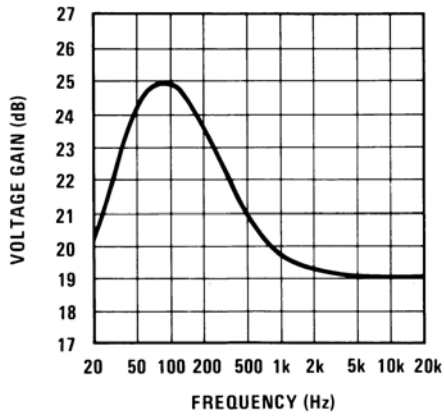
Amplifier with Bass Boost



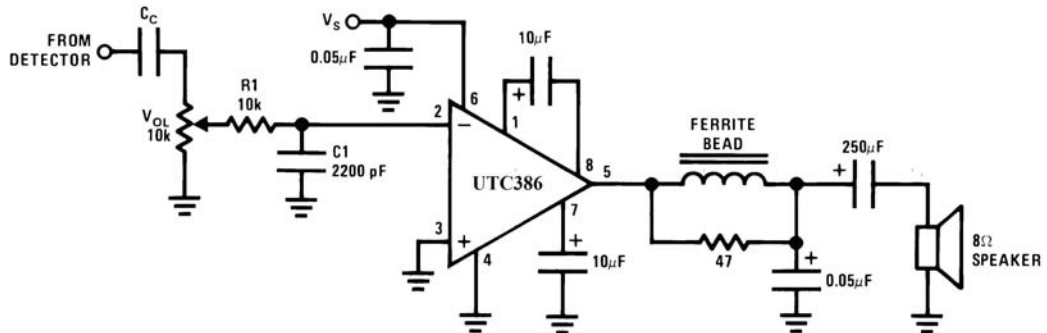
Square Wave Oscillator

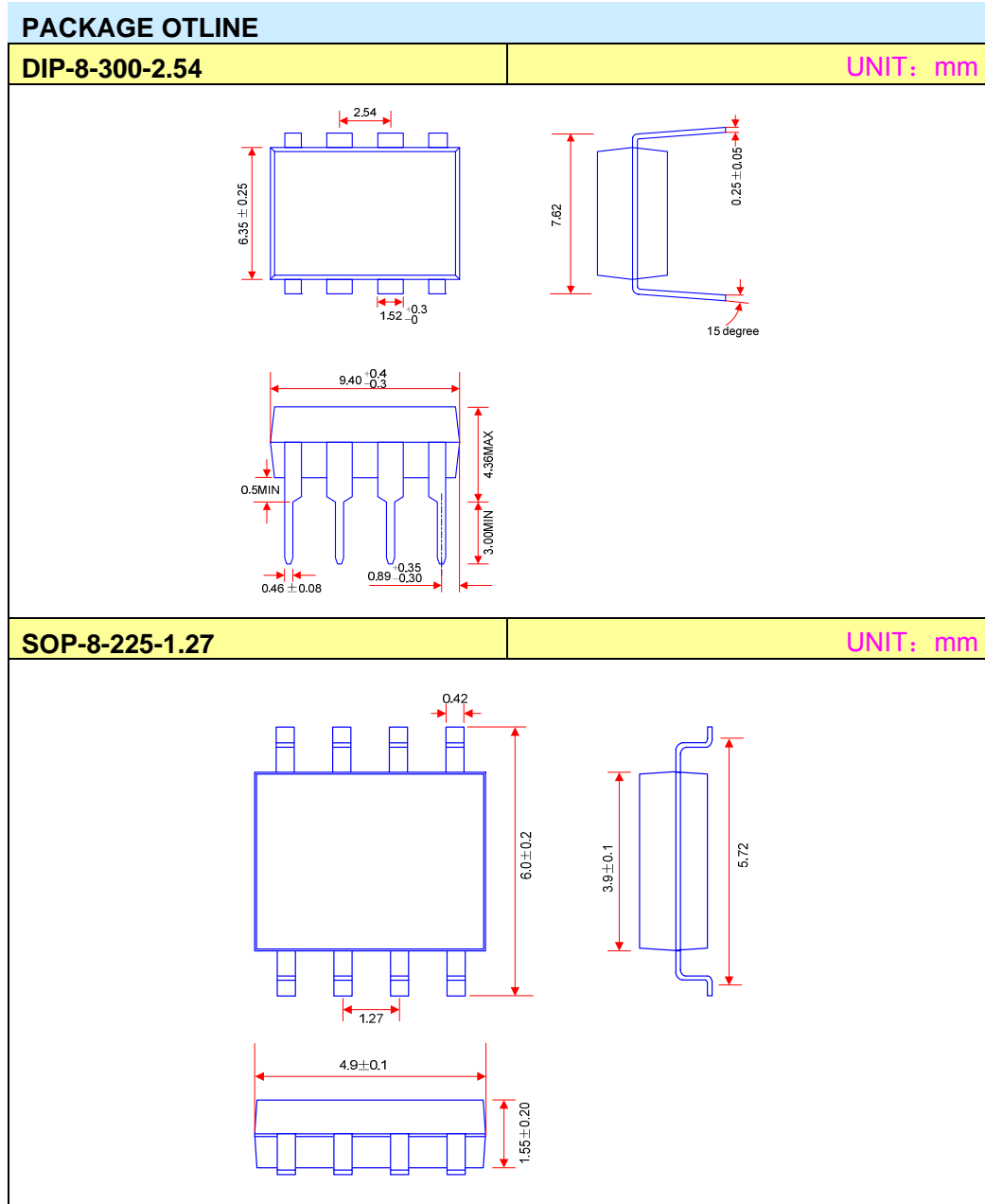


Frequency Response with Bass Boost



AM Radio Power Amplifier





**ELECTROSTATIC DISCHARGE CAUTION**

These devices have limited built-in ESD protection. The leads should be shorted together or the device placed in conductive foam during storage handling to prevent electrostatic damage to the device.

**NOTICE**

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