AF8002 Boomer Audio Power Amplifier Series

3W Audio Power Amplifier with Shutdown Mode

● Features

PO at 10% THD+N, 1kHz

AF8002: 3Ω , 4Ω loads 3W (typ), 2.5W (typ)

All other AF8002 packages: 8Ω load 1.5W (typ)

Shutdown current 0.6μA (typ)

Supply voltage range 2.0V to 5.5V

THD at 1kHz at 1W continuous average output power into 8Ω 0.5% (max)

Boomer audio power amplifiers are designed specifically to provide high power, high fidelity audio output. They require few external components and operate on low supply voltages from 2.0V to 5.5V. Since the AF8002 does not require output coupling capacitors, bootstrap capacitors, or snubber networks, it is ideally suited for low-power portable systems that require minimum volume and weight.

Additional AF8002 features include thermal shutdown protection, unity-gain stability, and external gain set.

● General Description

The AF8002 is a mono bridged audio power amplifier capable of delivering 3W of continuous average power into a 3W load with less than 10% THD when powered by a 5V power supply (Note 1). To conserve power in portable applications, the AF8002's micropower shutdown mode (IQ = 0.6μA, typ) is activated when VDD is applied to the SHUTDOWNpin.

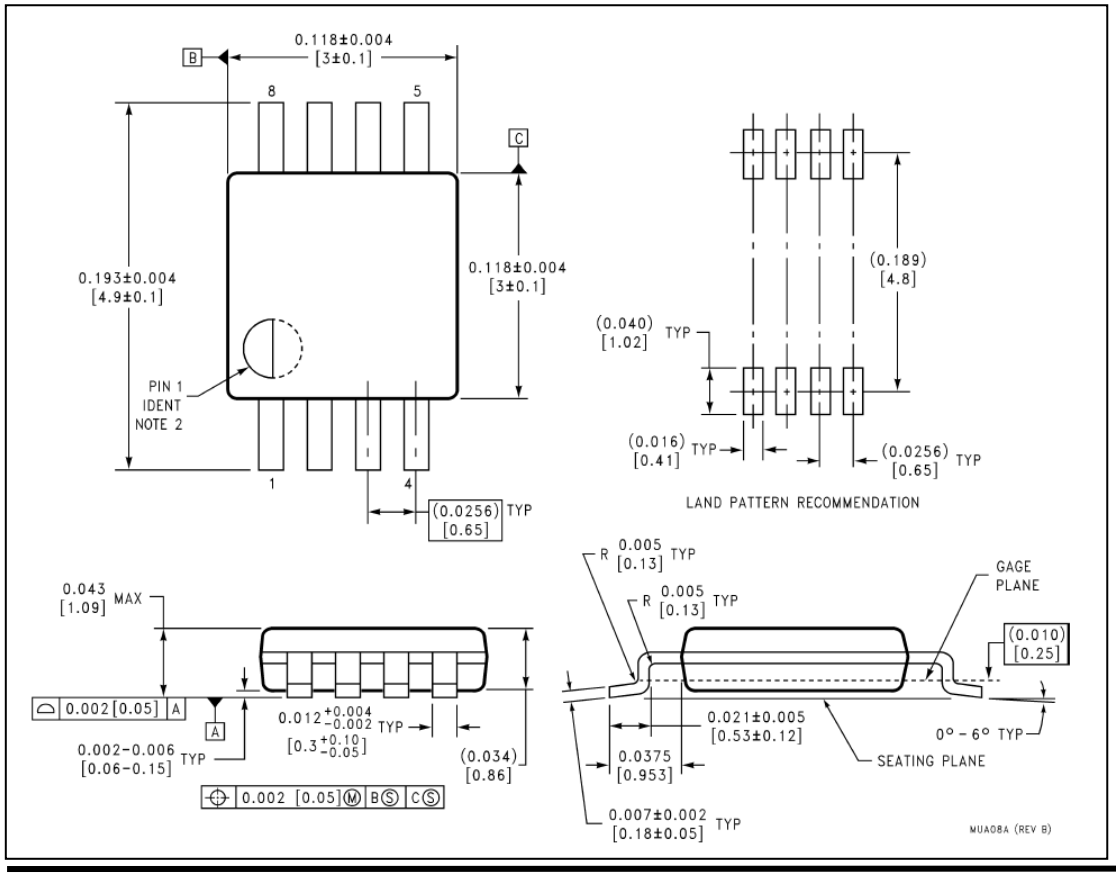
● Applications

Portable Computers

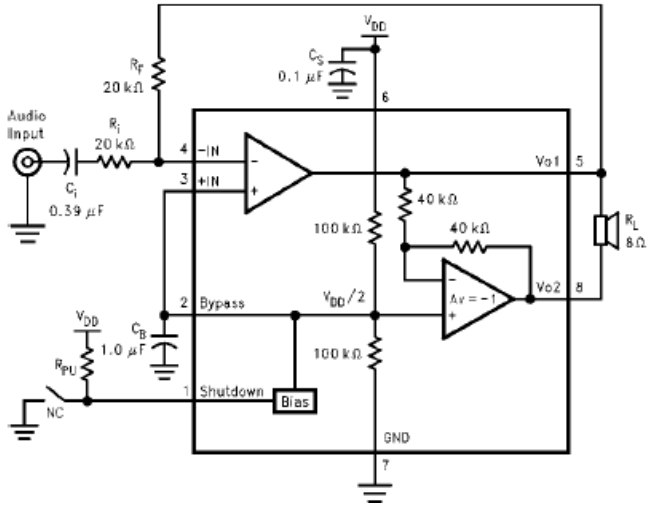
Desktop Computers

Low Voltage Audio Systems

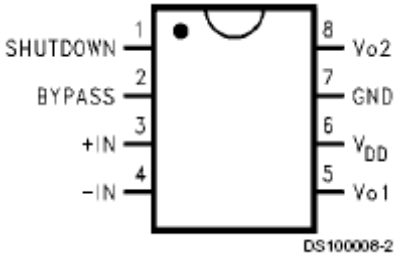
● Package Information



Typical Application



PIN CONFIGURATION



Absolute Maximum Ratings @T_A = 25°C unless otherwise noted

Supply Voltage ---------- ---------6.0V

Storage Temperature ----------−65°C to +150°C

Input Voltage ----------−0.3V to V_{DD} +0.3V

Power Dissipation ---------- Internally Limited

ESD Susceptibility----------5000V

Junction Temperature ----------150°C

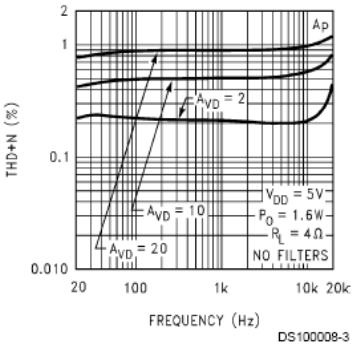
• Electrical Characteristics

The following specifications apply for VDD = 5V unless otherwise specified. Limits apply for TA = 25°C.

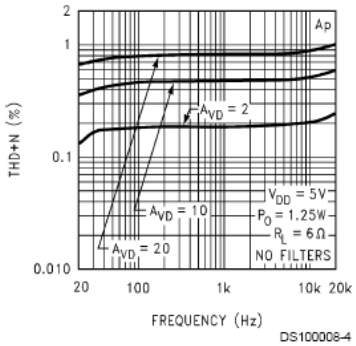
Symbol	Parameter	Conditions	Typical	Limit	Units
VDD	Supply Voltage			2.0-5.5	V
IDD	Quiescent Power Supply Current	VIN = 0V, Io = 0A	6.5	10	mA
ISD	Shutdown Current	VPIN1 = VDD	0.6	2	uA
VOS	Output Offset Voltage	VIN = 0V	5	50	mV
Po	Output Power	THD = 0.5% (max); f = 1 kHz AF8002, R_L = 3Ω AF8002, R_L = 4Ω AF8002, R_L = 8Ω	 2.38 2 1.2		W
		THD+N = 10%; f = 1 kHz AF8002, R_L = 3Ω AF8002, R_L = 4Ω AF8002, R_L = 8Ω	 3 2.5 1.5		W
THD+N	Total Harmonic Distortion+Noise	Po = 1 Wrms; AVD = 2; 20 Hz < f< 20 kHz	0.25		%
PSRR	Power Supply Rejection Ratio	VDD = 4.9V to 5.1V	60		dB

• Typical Performance Characteristics

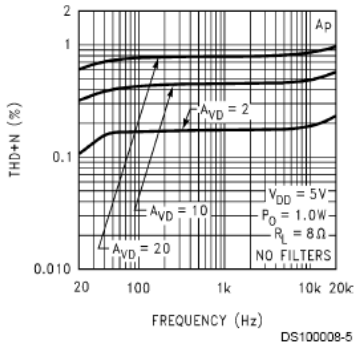
THD+N vs Frequency



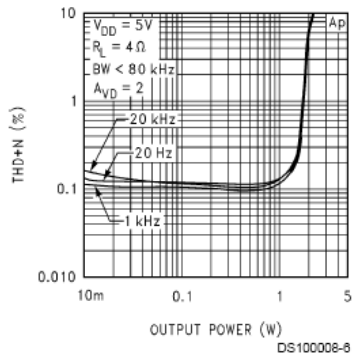
THD+N vs Frequency



THD+N vs Frequency



THD+N vs Output Power



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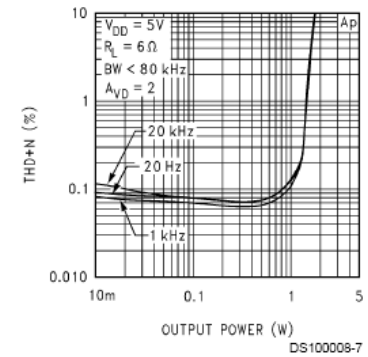
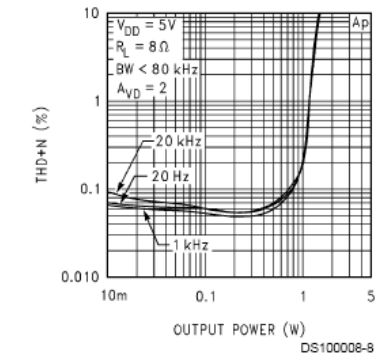
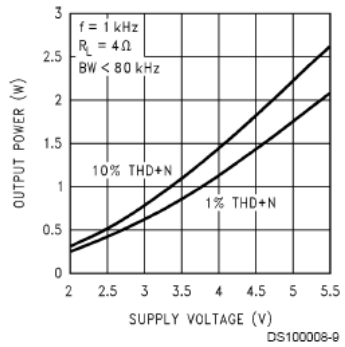


THD+N vs Output Power



Output Power vs Supply Voltage



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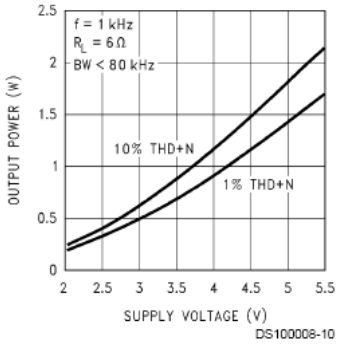
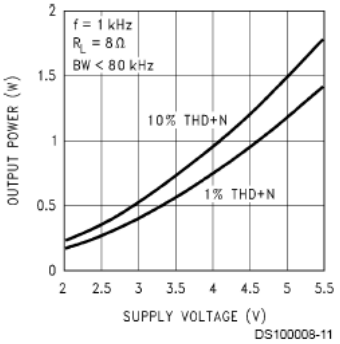
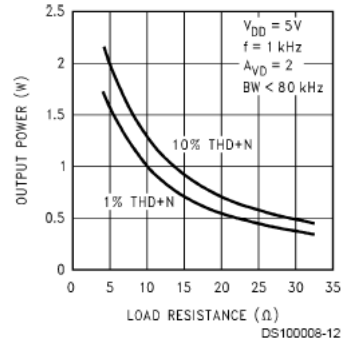


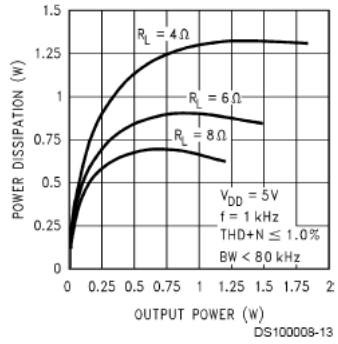
Output Power vs Supply Voltage



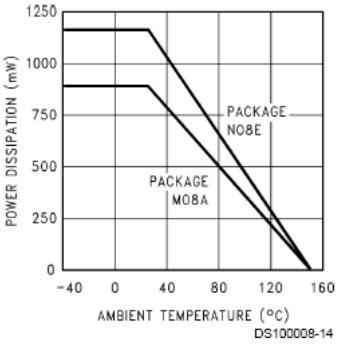
Output Power vs Load Resistance



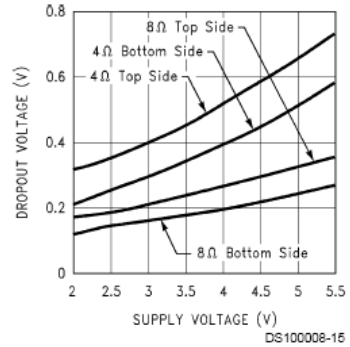
Power Dissipation vs Output Power



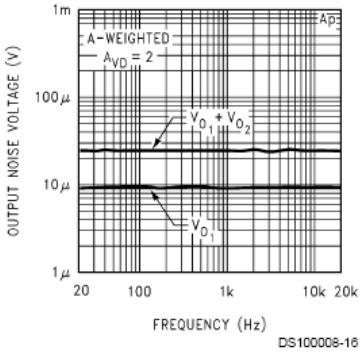
Power Derating Curve



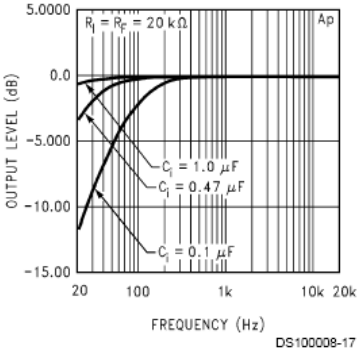
Clipping Voltage vs Supply Voltage



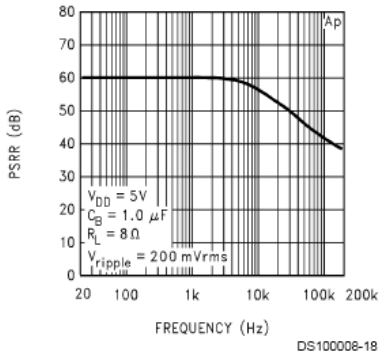
Noise Floor



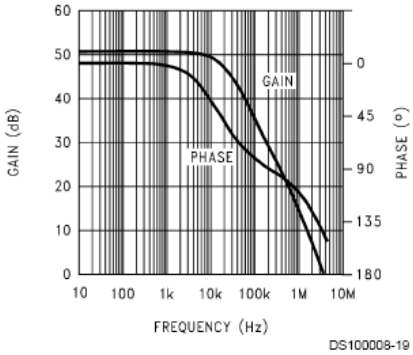
Frequency Response vs Input Capacitor Size



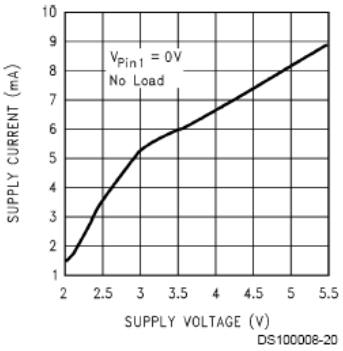
Power Supply Rejection Ratio



Open Loop Frequency Response



Supply Current vs Supply Voltage



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