Stereo 290mW 8Ω Speaker Driver D4800

DESCRIPTION

The D4800 is an integrated class AB stereo headphone amplifier contained in an SOP8 or a DIP8 plastic package . The D4800 is capable of delivering290mW of max . output power to an 8Ω load with less than 10% (THD+N) from a 5V power supply . The device has been primarily developed for portable digital audio applications .

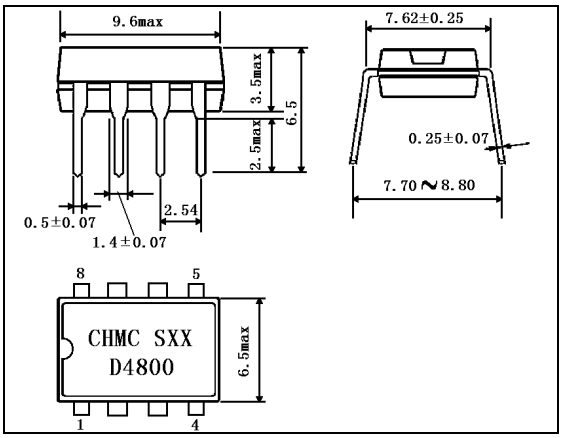
FEATURE

- Operating Voltage:
  - Single Supply 3V to 7V
  - Dual Supply ±1.5V to 3.5V
- High Signal-to-Noise Ratio 100dB
- High Slew Rate 5V/μs
- Low Distortion -65dB
- Output Power at 10% THD+N
  - into 8Ω 290mW
  - into 16Ω 190mW
- Large Output Voltage Swing
- Excellent Power Supply Ripple Rejection
- Low Power Consumption
- Short-circuit Elimination
- Wide Temperature Range
- No Switch ON/OFF Clicks

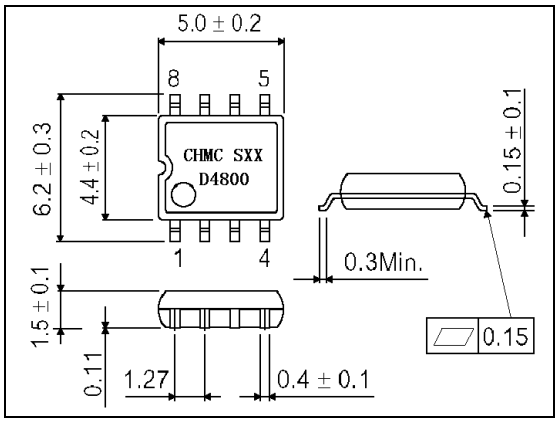
APPLICATION:

- Portable Digital Audio
- Personal Computers
- Microphone Preamplifier

Outline Drawing

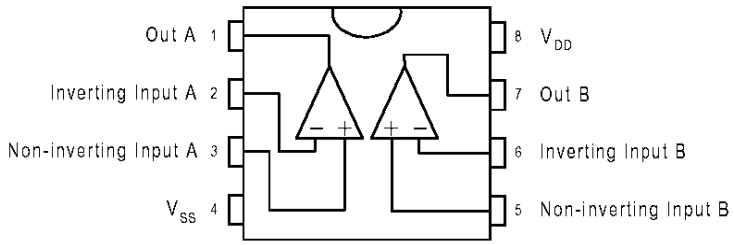


DIP8



SOP8

PIN CONFIGURATION



ABSOLUTE MAXIMUM RATINGS

Characteristics	Symbol	Value	Unit
Supply Voltage	V_{DD}	5	V
Output short-circuit Duration at Ta=25°C,P_{TOT}=1W	Tsc(o)	20	S
Operating Ambient Temperature range	Ta	-40~+85	°C
Maximum Junction Temperature	T_J	150	°C
Storage Temperature Range	Tstg	-65~+150	°C
Soldering Temperature,10 seconds	Ts	260	°C
Electrostatic Discharge	V_{ESD}	-3000~+3000*	V

*Human body model: C=100pF,R=1500Ω,3positive pulses plus 3 negative pulses

THERMAL CHARACTERISTICS

Characteristics		Symbol	Value	Unit
Thermal Resistance from Junction to Ambient in Free Air	DIP8	R_{THJA}	109	K/W
	SOP8		210	

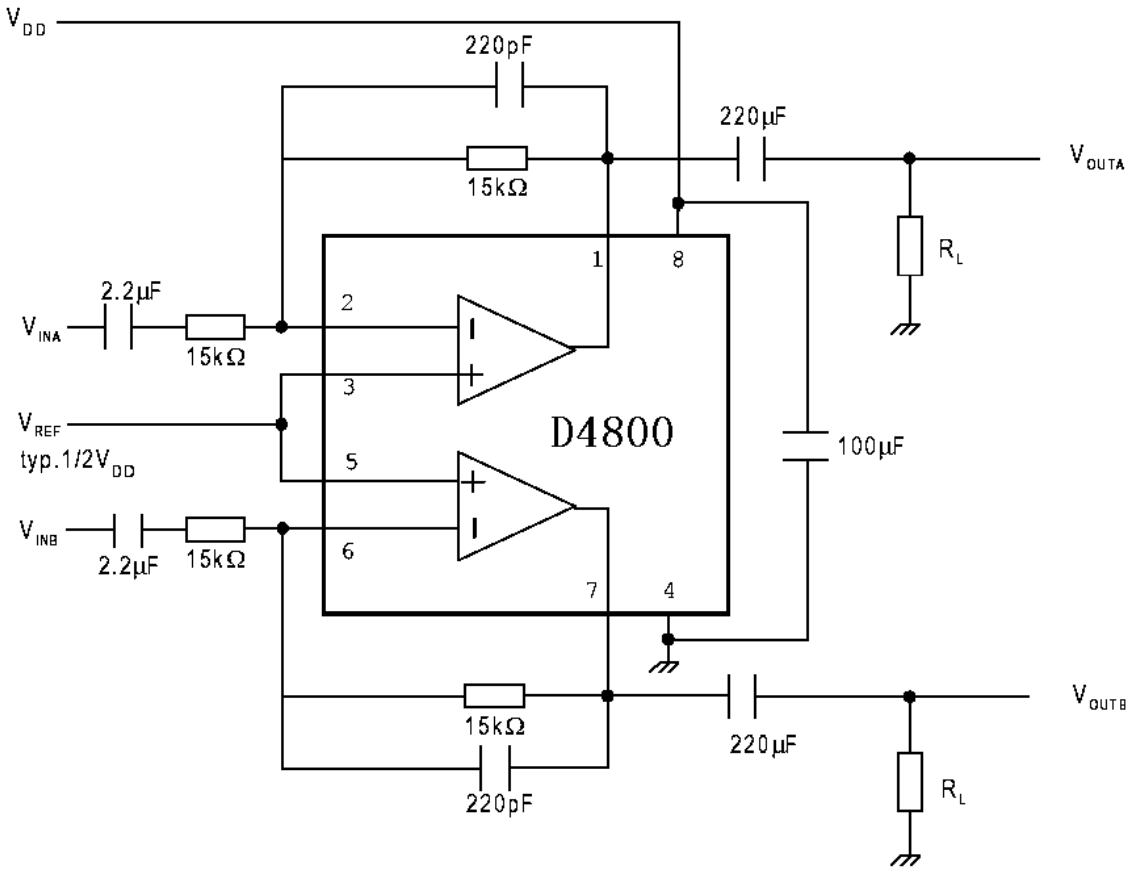
ELECTRICAL CHARACTERISTICS

(Refer to the test circuit, Ta=25°C, f=1KHz, unless otherwise specified)

Characteristics	Symbol	Test Conditions	Min	Typ	Max	Unit
Power Supply Voltage	V_{DD}		2.7		5.5	V
V_{DD}=5V						
Supply Current	I_{DD}	No Load		2.5		mA
Input Offset Voltage				5	50	mV
AC Characteristics						
Total Harmonic Distortion Plus Noise to Signal Ratio	(THD+N) /S	P_O=200mW,R_L=8Ω,f=1kHz P_O=120mW,R_L=16Ω,f=1kHz		0.1 0.05		%
Signal to Noise Ratio	S/N	(THD+N)/S=0.2%,f=1kHz R_L=8Ω R_L=16Ω		210 140		mW

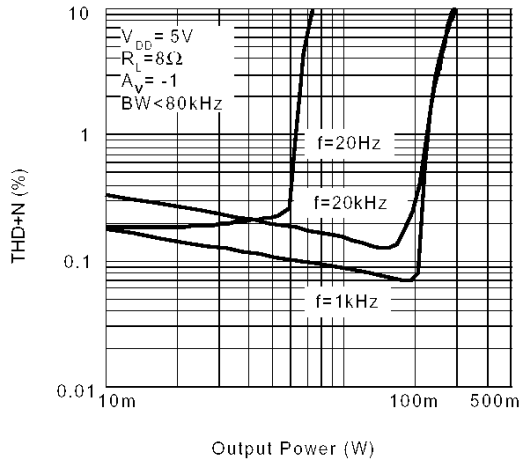
Characteristics	Symbol	Test Conditions	Min	Typ	Max	Unit
AC Characteristics						
Output Power	P_O	(THD+N)/S=10%,f=1kHz R_L=8Ω R_L=16Ω		290 190		mW
Power Supply Rejection	PSRR	C_B=2.2μF,V_{RIPPLE}=200mVrms F=120Hz		55		dB
Noise Floor	VN	R_L=8Ω		20		rms
V_{DD}=3V						
Supply Current	I_{DD}	No Load		2.2		mA
Input Offset Voltage	$V_{I(OS)}$			5		mV
AC Characteristics						
Total Harmonic Distortion Plus Noise	(THD+N)/S	P_O=50mW,R_L=8Ω,f=1kHz P_O=40mW,R_L=8Ω,f=1kHz		0.15		%
Output Power	P_O	(THD+N)/S=0.2%,f=1kHz R_L=8Ω R_L=16Ω		60 45		mW
Output Power	P_O	(THD+N)/S=10%,f=1kHz R_L=8Ω R_L=16Ω		90 65		mW

TEST AND APPLICATION CIRCUIT

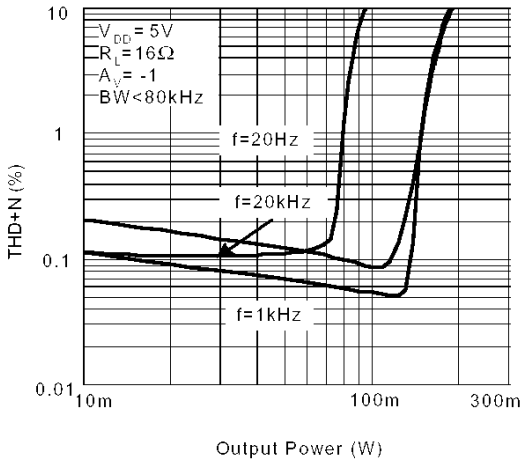


TYPICAL CHARACTERICS

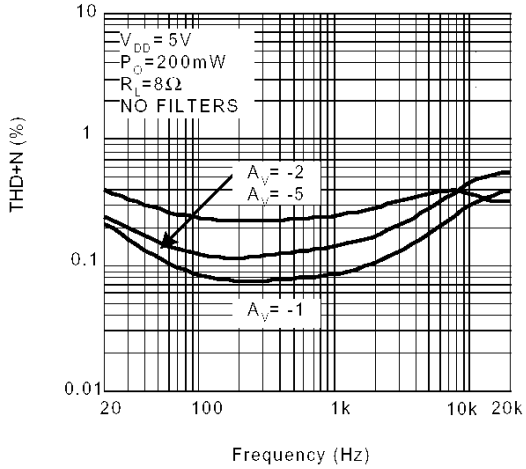
THD+N vs Output Power



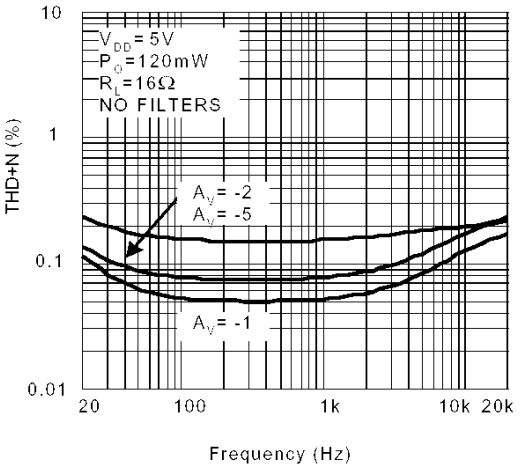
THD+N vs Output Power



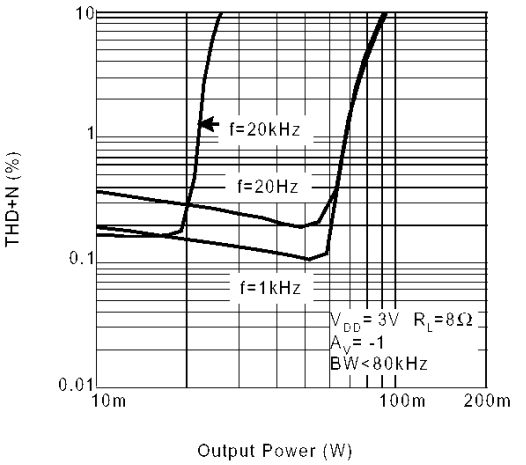
THD+N vs Frequency



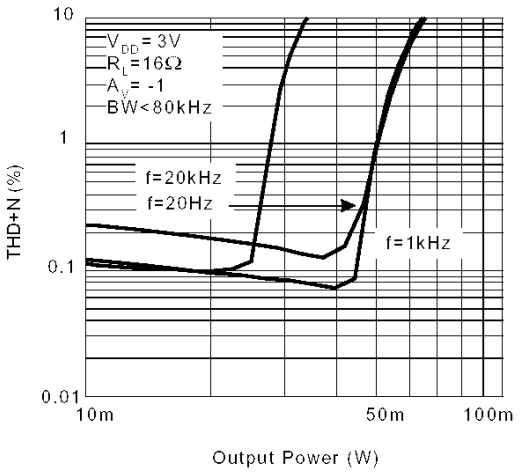
THD+N vs Frequency



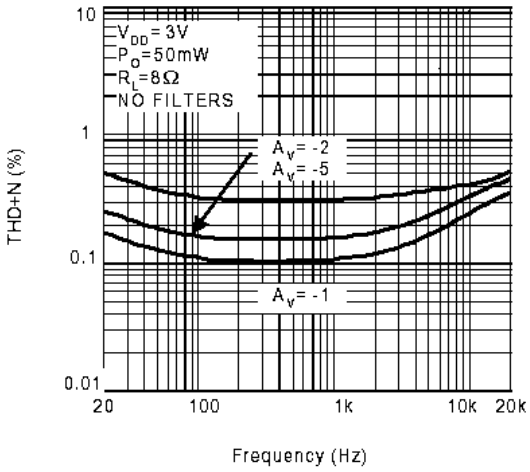
THD+N vs Output Power



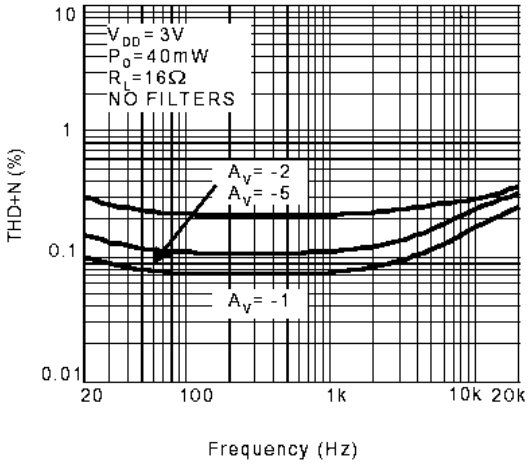
THD+N vs Output Power



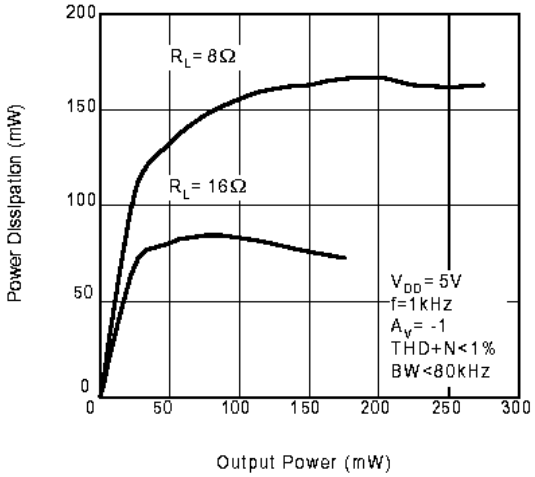
THD+N vs Frequency



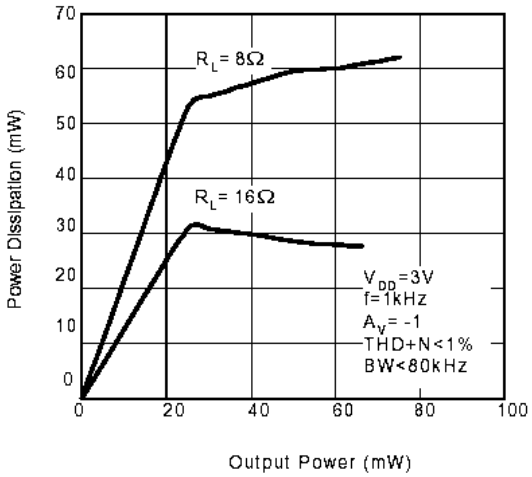
THD+N vs Frequency



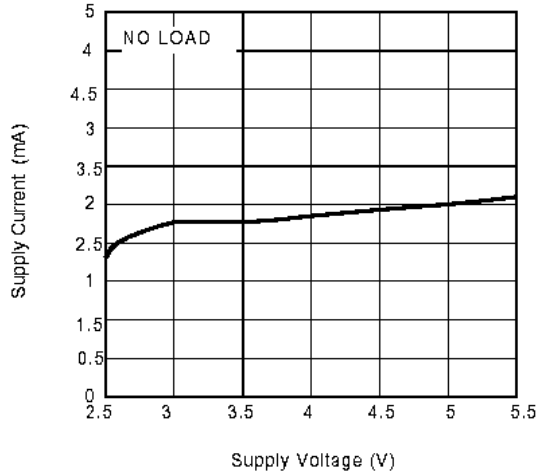
Power Dissipation vs Output Power



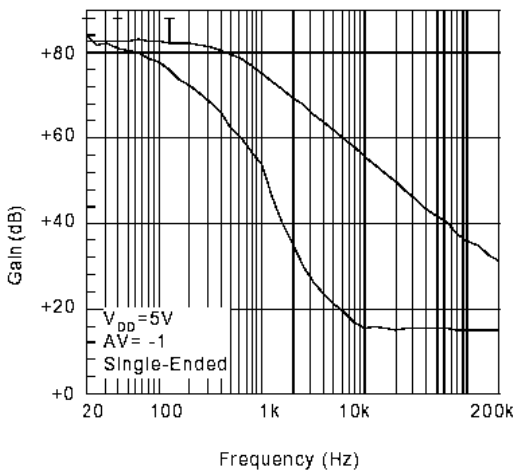
Power Dissipation vs Output Power



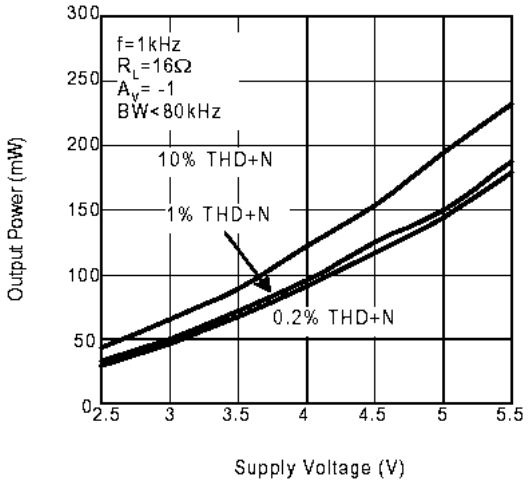
Supply Current vs Supply Voltage



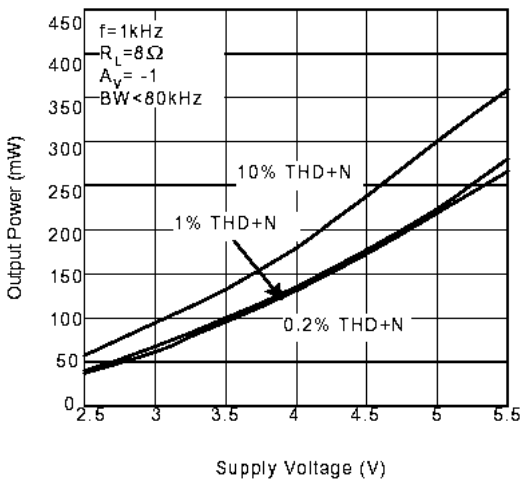
Open Loop Frequency Response



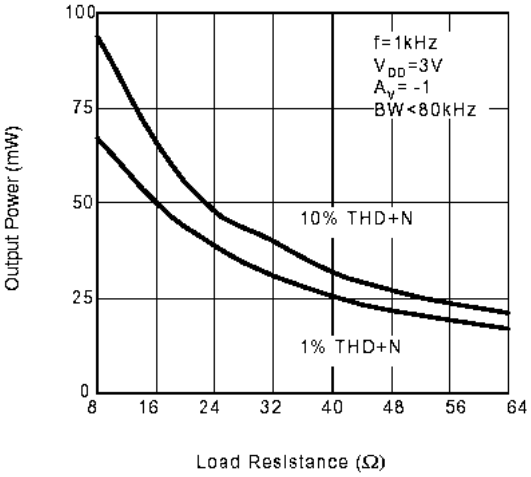
Output Power vs Supply Voltage



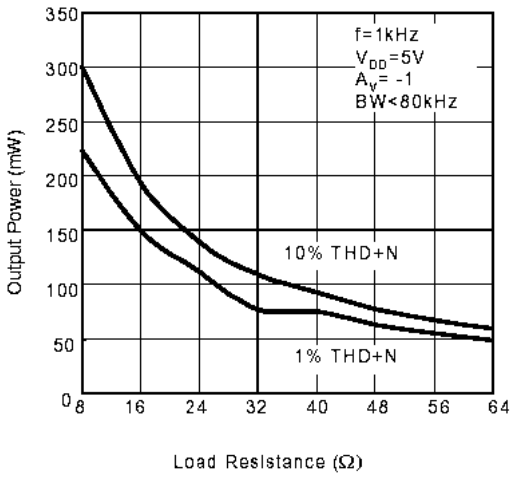
Output Power vs Supply Voltage



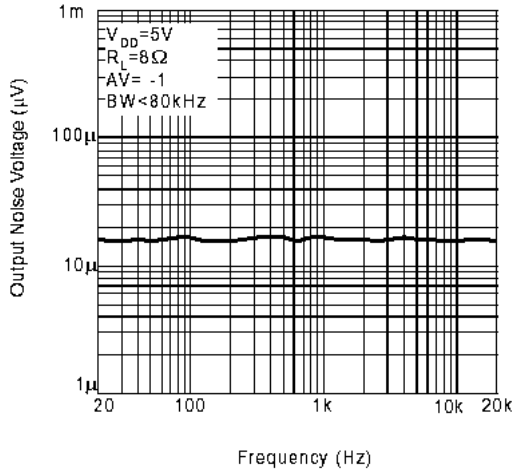
Output Power vs Load Resistance



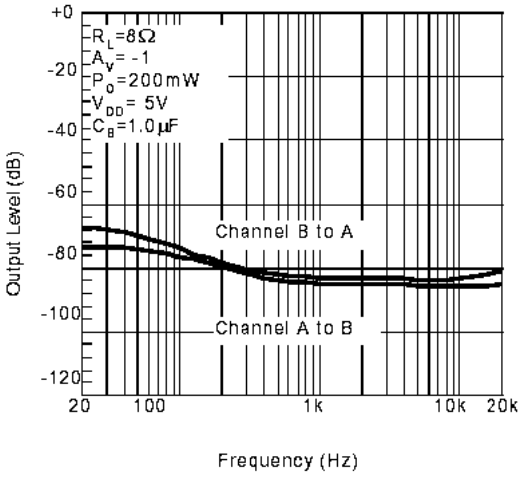
Output Power vs Load Resistance



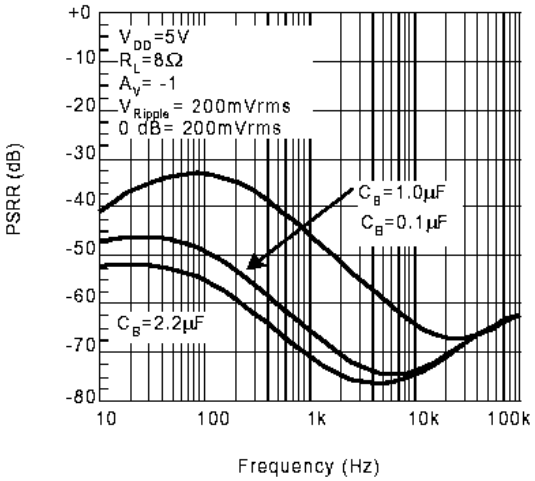
Noise Floor



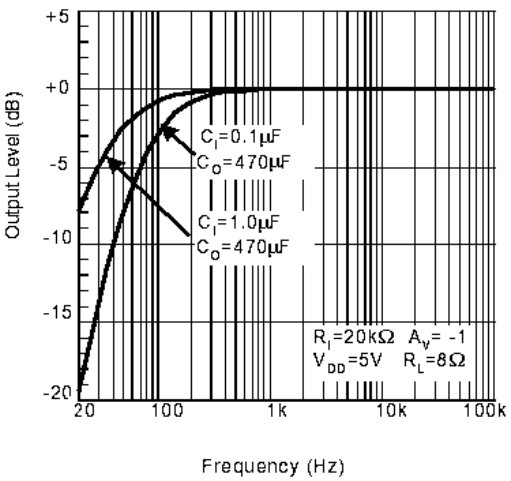
Channel Separation



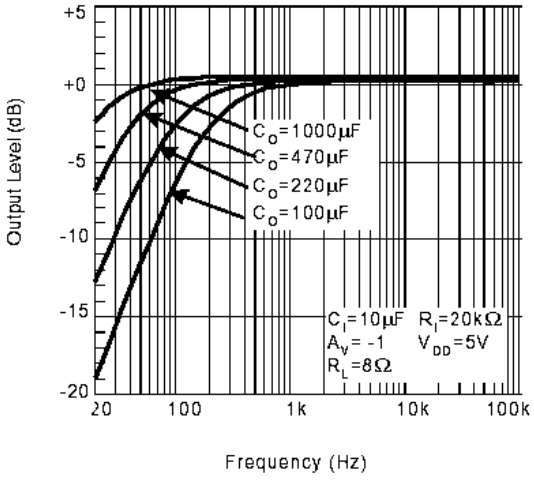
Power Supply Rejection Ratio



Typical Application Frequency Response



Frequency Response vs Output Capacitor Size



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