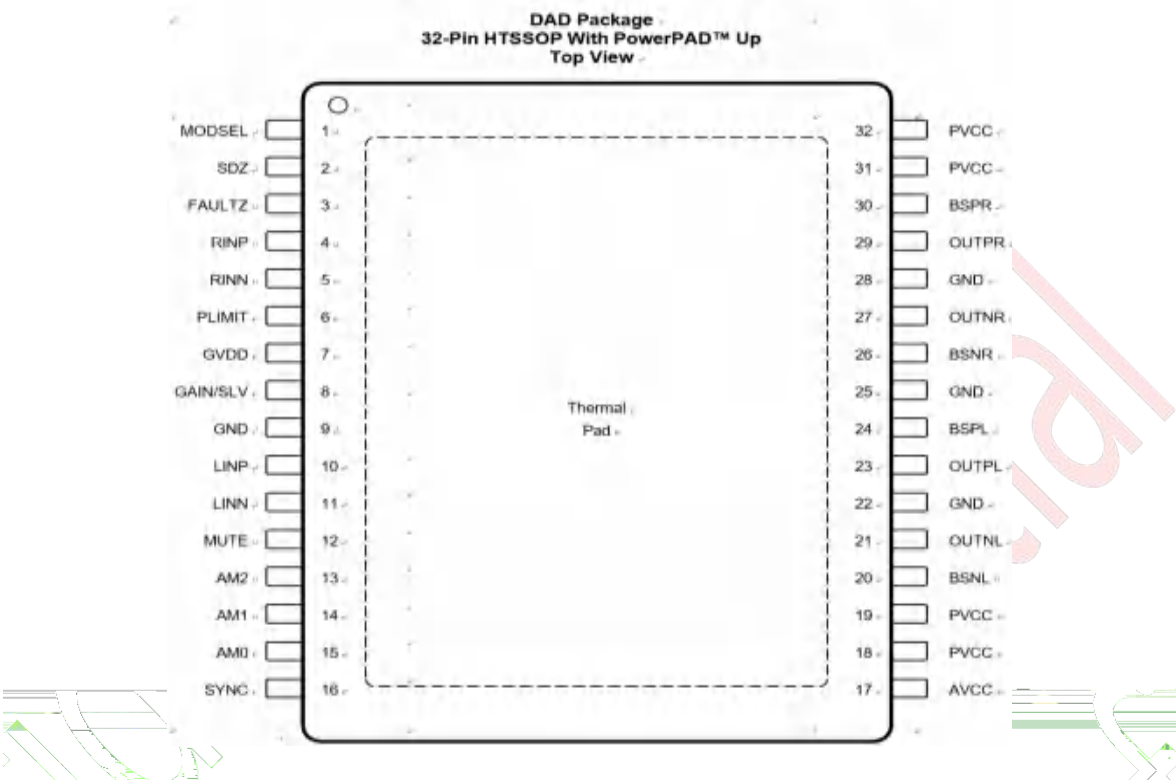


Description

is a 2D polygon in a

Pin Configuration and Functions



PIN		TYPE ⁽¹⁾	DESCRIPTION
NO.	NAME		

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

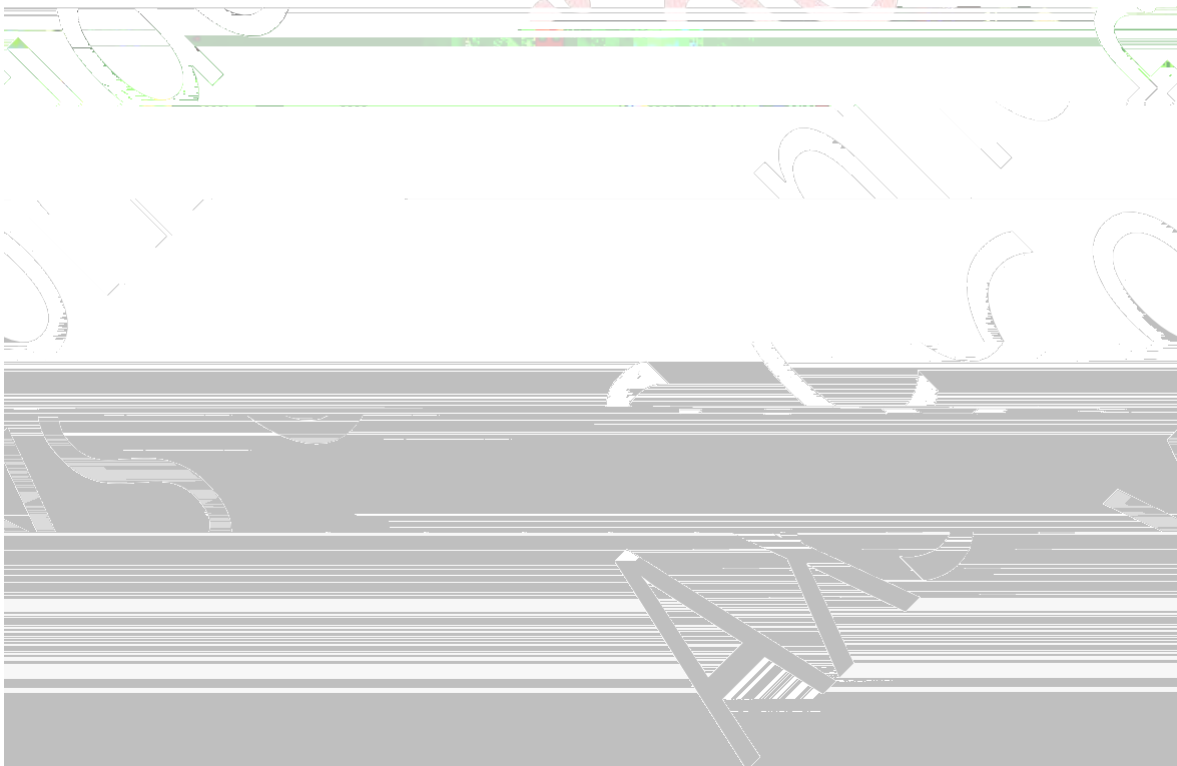
3. Recommended Operating Conditions

over operating free-air temperature range (unless otherwise noted)

										MIN	NOM	MAX	UNIT
V _C	5	12								5		12	V
V _H	12	12	12	12	12	12	12	12	12				

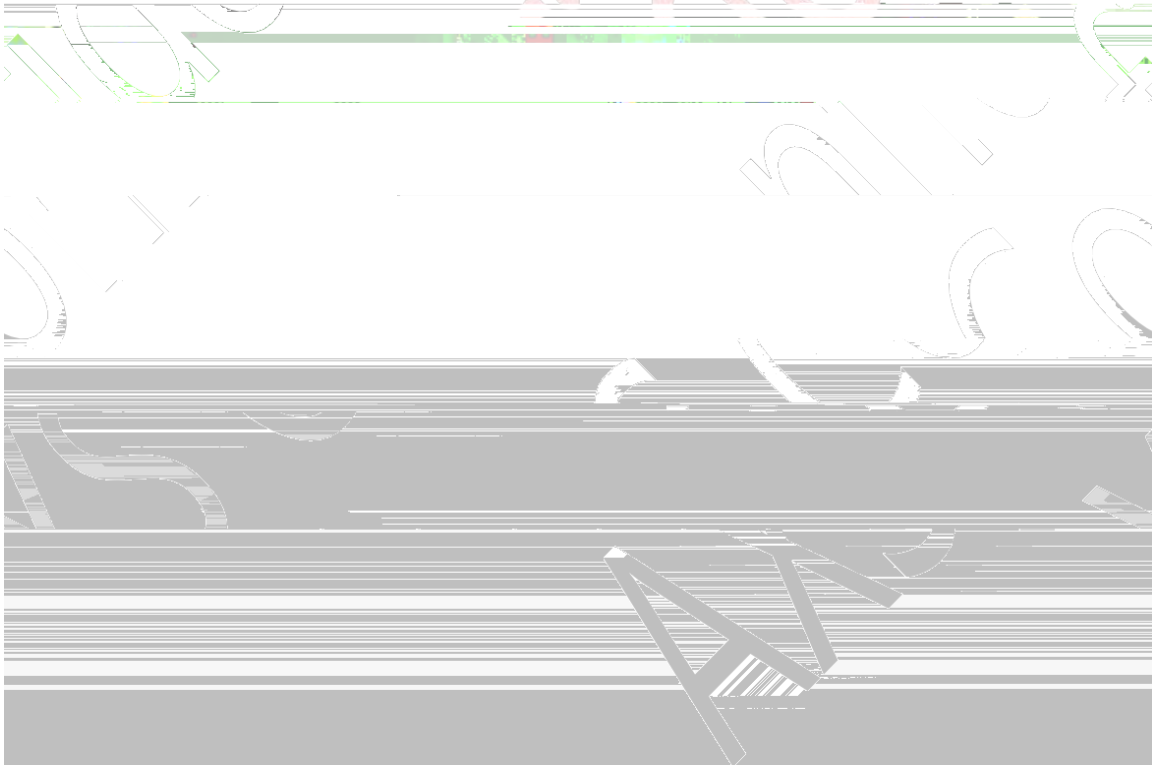
6. AC Electrical Characteristics

$T_A = 25^{\circ}\text{C}$, $V_{CC} = P_{VCC} = 12\text{ V to }24\text{ V}$, $R_L = 4\ \Omega$ (unless otherwise noted)



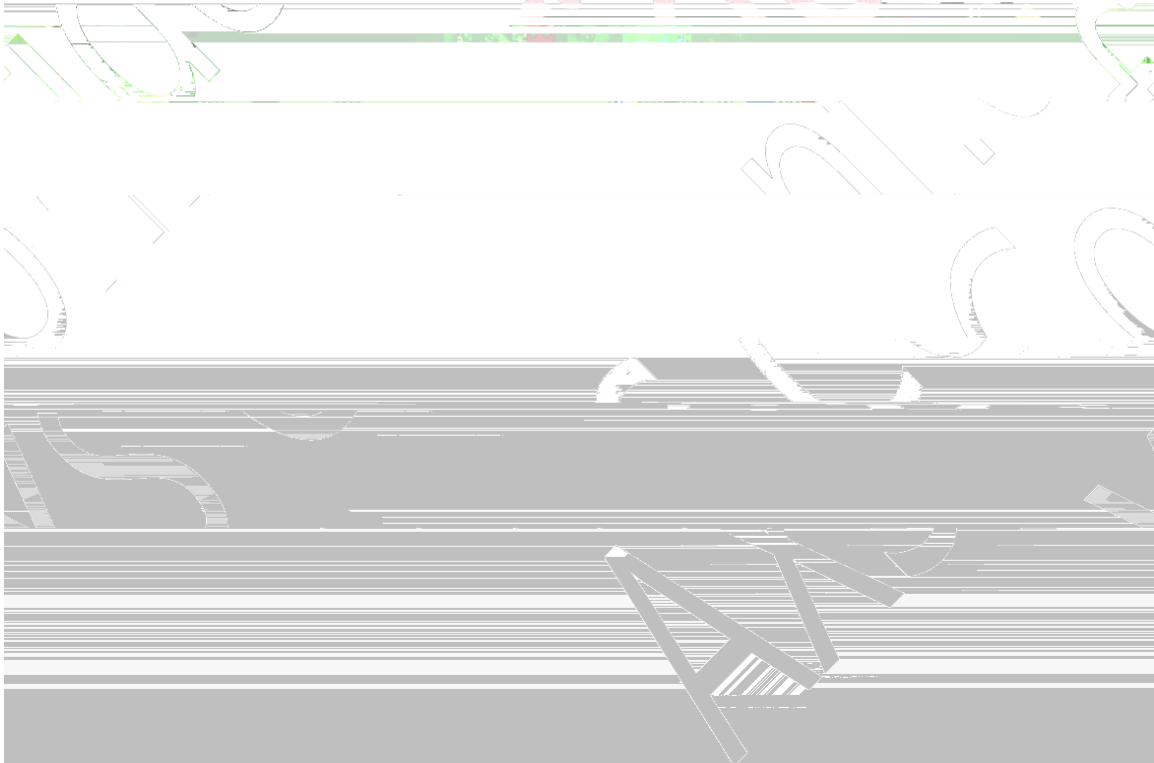
7. Typical Characteristics

$f_s = 400\text{kHz}$ (unless otherwise noted)



Typical Characteristics (continued)

$f_s = 400\text{kHz}$ (unless otherwise noted)



1. Overview

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100.

2. Functional Block Diagram

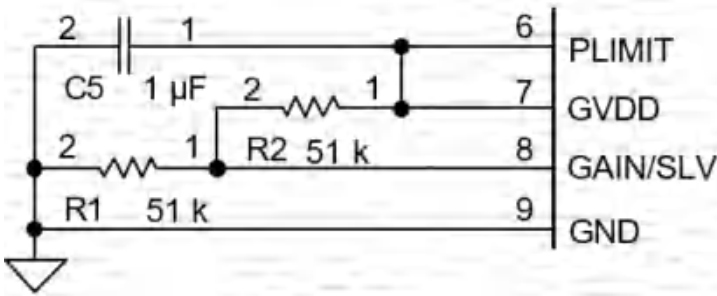
3. Feature Description

3.1 Gain Setting and Master and Slave

The AXS2050 is a 2x50W Class-D Audio Amplifier with AM Avoidance. It is a single-chip, high-power, Class-D audio amplifier with integrated AM avoidance circuitry. The device is designed for use in portable audio systems, such as MP3 players, digital voice recorders, and portable CD players. The device is available in two versions: a single-channel version (AXS2050) and a dual-channel version (AXS2050D). The device is designed to provide high-fidelity audio reproduction with low distortion and low noise. The device is also designed to provide high efficiency and low power consumption. The device is available in a 16-pin QFN package.

Table 1. Gain and Master/Slave

| MASTER / SLAVE
MODE | GAIN | R1 (to GND) ⁽¹⁾ | R2 (to GVDD) ⁽¹⁾ | INPUT IMPEDANCE |
|------------------------|------|----------------------------|-----------------------------|-----------------|
|------------------------|------|----------------------------|-----------------------------|-----------------|



AXS2050

2x50W Class-D Audio Amplifier with AM Avoidance



AXS2050 is a 2x50W Class-D Audio Amplifier with AM Avoidance. It is designed for high-fidelity audio reproduction and is suitable for a wide range of applications.

AXS2050 is a 2x50W Class-D Audio Amplifier with AM Avoidance. It is designed for high-fidelity audio reproduction and is suitable for a wide range of applications.

Table2. Recommended Input AC-Coupling Capacitors

| GAIN | INPUT IMPEDANCE | INPUT CAPACITANCE | HIGH-PASS FILTER |
|------|-----------------|-------------------|------------------|
| 0 dB | 6 k | 5 μ F | 2 Hz |
| 0 dB | 2 k | 3 μ F | 9 Hz |
| 2 dB | 2 k | 6 μ F | 2 Hz |
| 6 dB | 3 k | 10 μ F | 2 Hz |

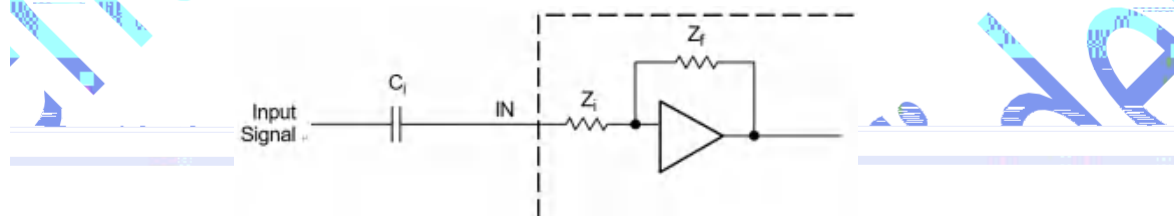


Figure 26. Input Impedance

AXS2050 is a 2x50W Class-D Audio Amplifier with AM Avoidance. It is designed for high-fidelity audio reproduction and is suitable for a wide range of applications.

3.3 Startup and Shutdown Operation

AXS2050 is a 2x50W Class-D Audio Amplifier with AM Avoidance. It is designed for high-fidelity audio reproduction and is suitable for a wide range of applications.

Figure 27. Power Limit Example

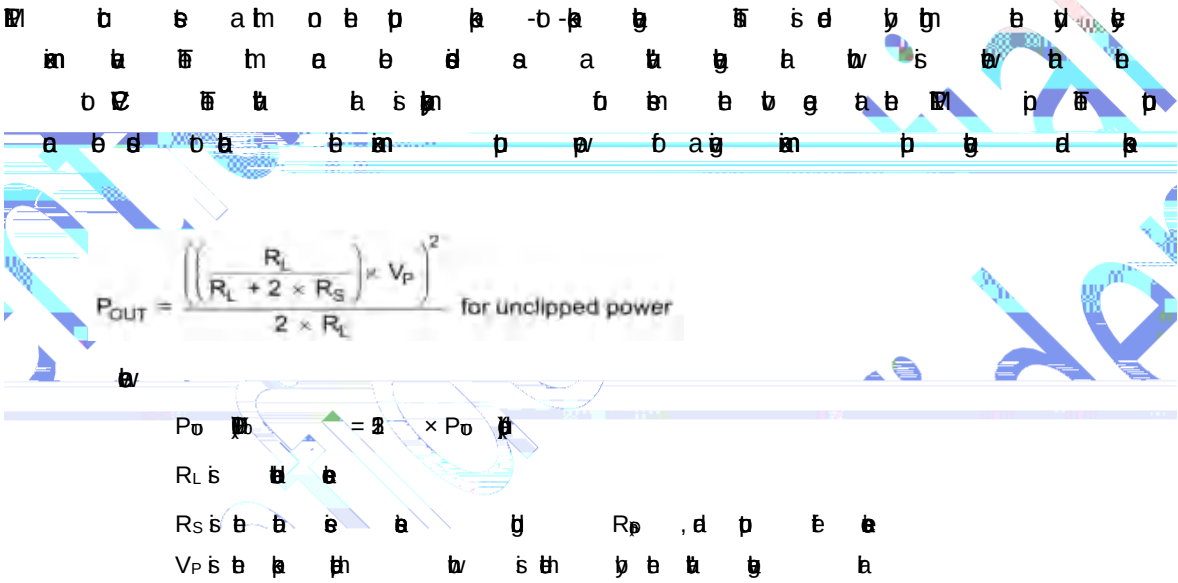


Table 3. Power Limit Example

| PV _{CC} (V) | PLIMIT VOLTAGE (V) ⁽¹⁾ | R to GND | R to GVDD |
|----------------------|-----------------------------------|----------|-----------|
|----------------------|-----------------------------------|----------|-----------|

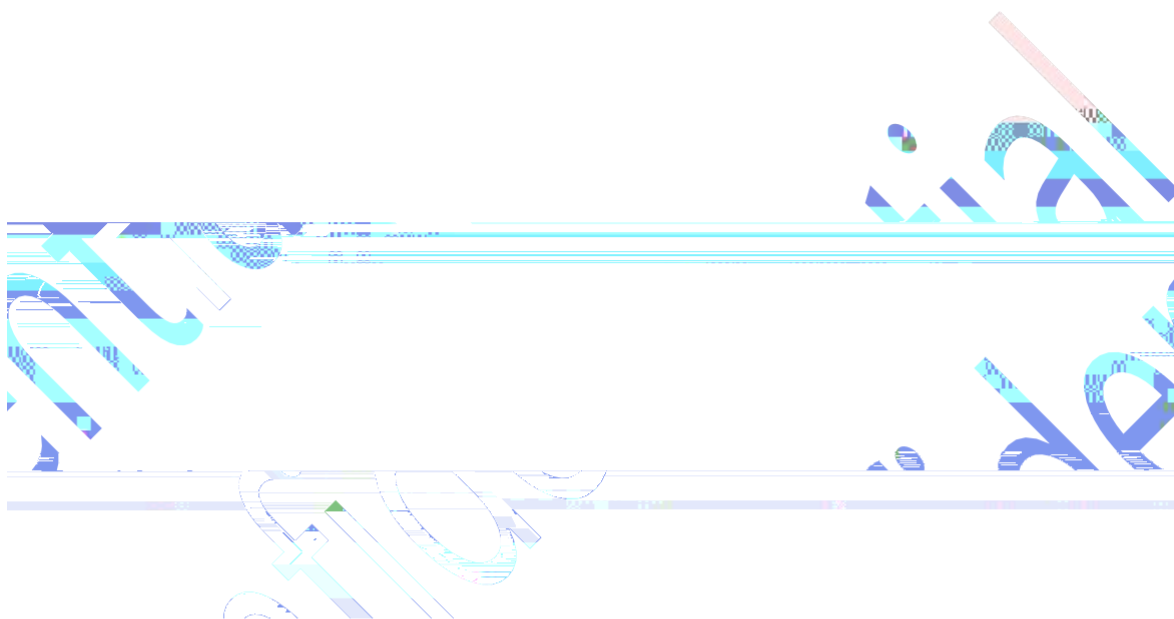
AXS2050

2x50W Class-D Audio Amplifier with AM Avoidance



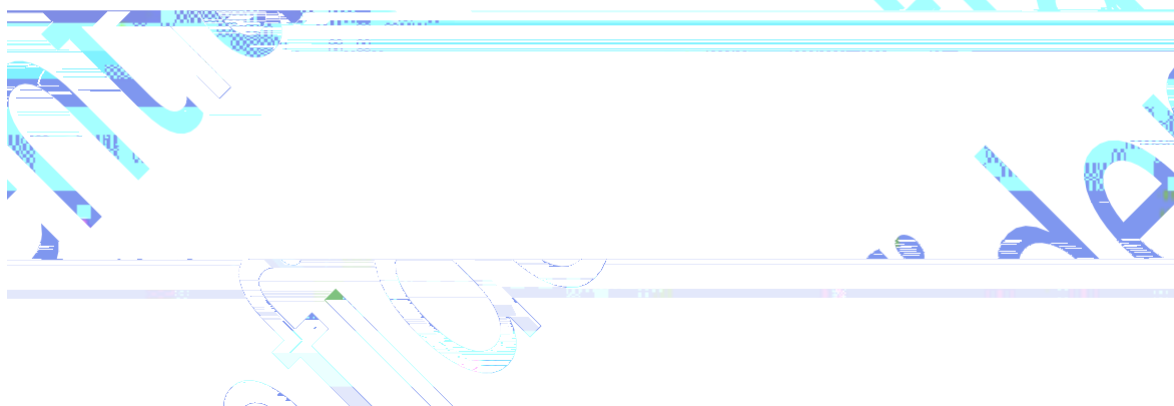
3.9 DC Detect Protection

When the input signal is a DC signal, the output of the amplifier will be in a mute state. When the input signal is an AC signal, the output of the amplifier will be in a normal state.



4. Device Modulation Scheme

The device is a Class-D audio amplifier with AM avoidance. It is designed to provide high-fidelity audio reproduction with low distortion and high efficiency. The device features a wide bandwidth and high power output, making it suitable for a variety of audio applications. The modulation scheme is designed to minimize distortion and maximize efficiency, ensuring that the audio signal is reproduced accurately and with minimal loss.



AXS2050

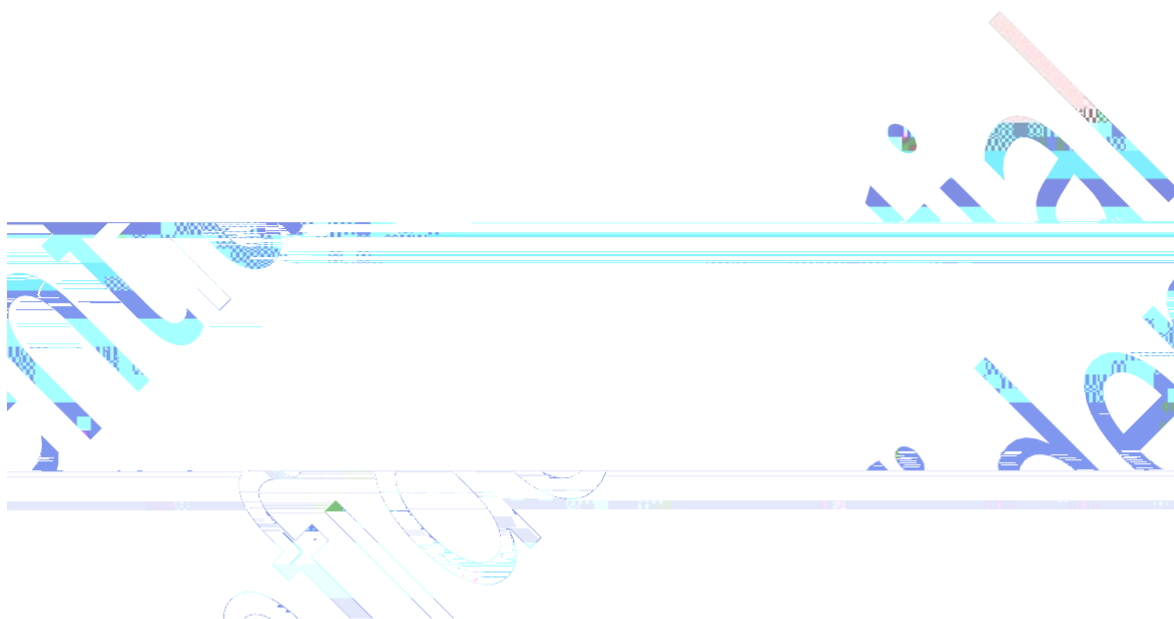


AXS2050

2x50W Class-D Audio Amplifier with AM Avoidance



AXS2050 is a 2x50W Class-D Audio Amplifier with AM Avoidance. It is designed for high-fidelity audio reproduction and is suitable for a wide range of applications. The amplifier features a built-in AM Avoidance function to prevent distortion and ensure clear audio output. It also includes a variety of protection features to ensure reliable operation and long life. The AXS2050 is a versatile and powerful audio amplifier that is easy to use and integrate into your system.



7. When to Use an Output Filter for EMI Suppression

When using the AXS2050, it is recommended to use an output filter to suppress EMI. The filter should be placed between the amplifier output and the load. The filter should be designed to pass the audio signal while attenuating the EMI. The filter should be designed to pass the audio signal while attenuating the EMI.

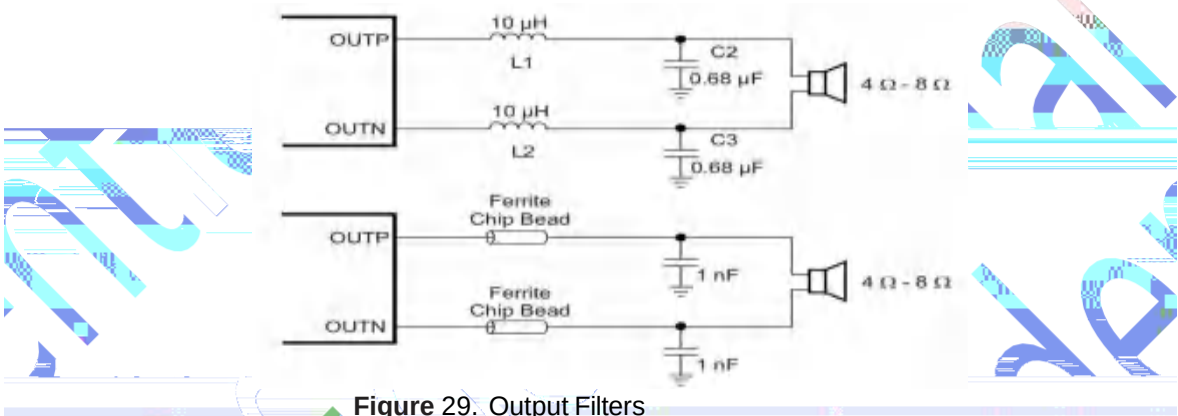


Figure 29. Output Filters

8. AM Avoidance EMI Reduction

Table 6. AM Frequencies

| US | EUROPEAN | SWITCHING FREQUENCY (kHz) | AM2 | AM1 | AM0 |
|--------------------|--------------------|---------------------------|-----|-----|-----|
| AM FREQUENCY (kHz) | AM FREQUENCY (kHz) | | | | |
| 6 - 12 | 6 - 12 | 6 | 0 | 0 | 1 |
| 12 - 18 | 12 - 18 | 6, 9, 12 | 0 | 1 | 0 |
| 18 - 24 | 18 - 24 | 6 | 0 | 0 | 1 |
| 24 - 30 | 24 - 30 | 6, 9, 12 | 0 | 1 | 0 |
| 30 - 40 | 30 - 40 | 6, 9, 12 | 0 | 1 | 0 |

9. Device Functional Modes

The device can be configured for different functional modes. The device can be configured for different functional modes.

h m B ch e e a e p b-W p w g p b m B
ch a a by

6. The National Security Council is named
 after the person who was the first
 to be named as the first
 to be named as the first
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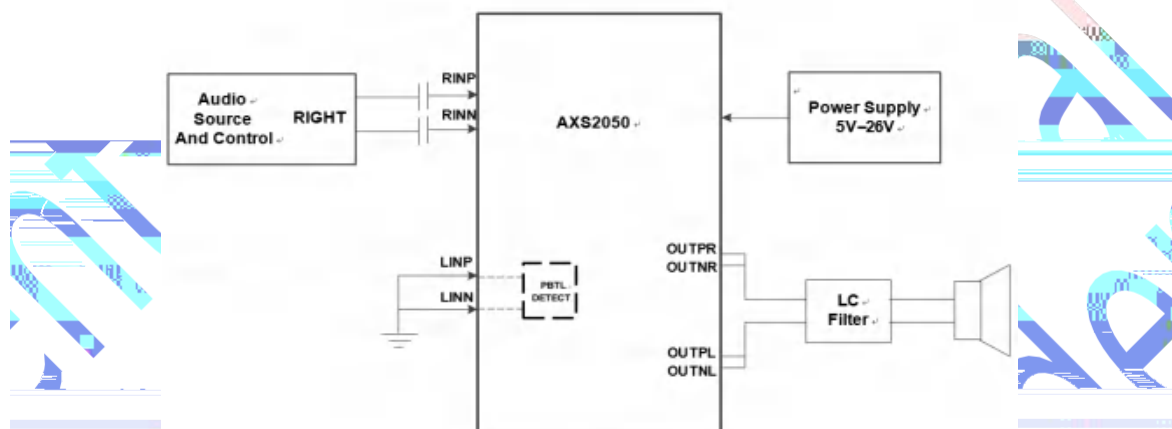


Figure 30. Mono PBTL Mode

Mode (Single Channel Mode)

and a belief in the ability to help or harm others.

Application Information

1. Typical Application

The typical application circuit for the AXS2050 in a 2.1 Mode is shown in Figure 32. The circuit includes a power supply, a volume control potentiometer, and two output channels connected to speakers. The input signal is provided to the IN+ and IN- pins. The output of the first channel is connected to the OUT1 pin, and the output of the second channel is connected to the OUT2 pin. The ground connection is made to the GND pin.

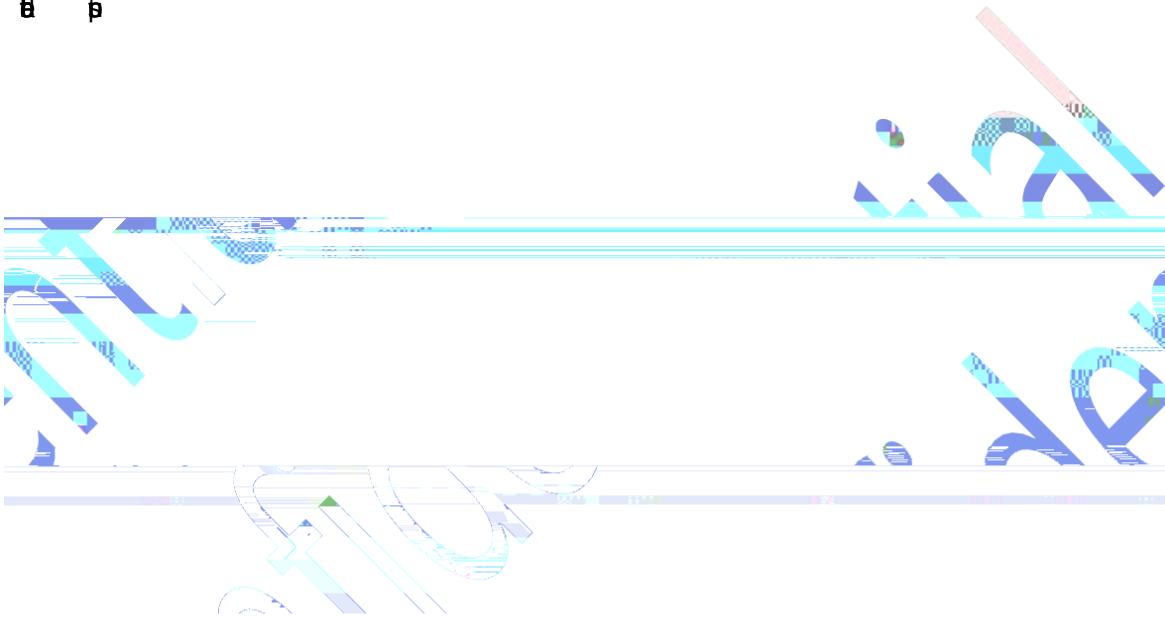


Figure 32. AXS2050 in a 2.1 Mode Application

2. Design Requirements

| DESIGN PARAMETERS | EXAMPLE VALUE |
|-------------------|---------------|
| V _{DD} | 5 V |
| I _{DD} | 0.0 A |

3. Detailed Design Procedure

The detailed design procedure for the AXS2050 is as follows:

1. Select the PWM Frequency
2. Select the Amplifier Gain and Master/Slave Mode
3. Select Input Capacitance
4. Select Decoupling Capacitors
5. Select Bootstrap Capacitors

3.1 Select the PWM Frequency

The PWM frequency is selected based on the load impedance and the desired output power.

3.2 Select the Amplifier Gain and Master/Slave Mode

The amplifier gain and Master/Slave mode are selected based on the load impedance and the desired output power. The gain is selected based on the load impedance and the desired output power. The Master/Slave mode is selected based on the load impedance and the desired output power.

3.3 Select Input Capacitance

The input capacitance is selected based on the load impedance and the desired output power. The input capacitance is selected based on the load impedance and the desired output power.

3.4 Select Decoupling Capacitors

The decoupling capacitors are selected based on the load impedance and the desired output power. The decoupling capacitors are selected based on the load impedance and the desired output power.

3.5 Select Bootstrap Capacitors

The bootstrap capacitors are selected based on the load impedance and the desired output power. The bootstrap capacitors are selected based on the load impedance and the desired output power.

AXS2050

2x50W Class-D Audio Amplifier with AM Avoidance



6. Heat Sink Used on the EVM

AXS2050 2x50W Class-D Audio Amplifier with AM Avoidance

