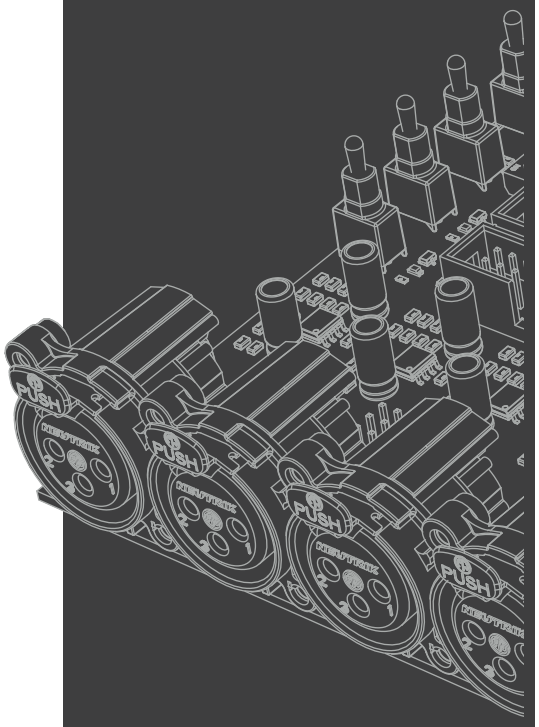
DSA254
Eval Board



- MULTICHANNEL CLASS D AMPLIFIERS
  - DSA254 EVALUATION BOARD
    - DATASHEET

Introduction

The evaluation board for the DSA254 is a tool to simplify the testing and development process for users of the DSA254. This comprehensive evaluation platform allows engineers and developers to quickly assess the performance, features, and capabilities of the DSA254 in real-world applications. With a user-friendly design, the evaluation board provides easy access to key inputs and outputs, enabling seamless integration and fast validation of measurement tasks.

Key Features

- Provides effortless connection to DSA254
- Easy access to all DSA254 functionality
- Supports both SMPS1200 & PS1000
- Supports Hypex HBOX
- Makes use of industry standard connectors

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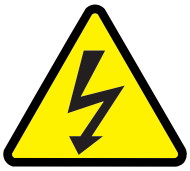
Contents

1 Safety Precautions



This module operates at high voltages and carries hazardous voltages at accessible parts. These parts may never be exposed to inadvertent touch. Observe extreme care during installation and never touch any part of the unit while it is connected to the mains.

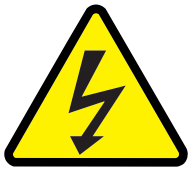
Allow all capacitors to discharge for 10 minutes before handling it.

Attention: Observe precautions for handling electrostatic sensitive devices. This module uses semiconductors that can be damaged by electrostatic discharge (ESD).

Damage due to inappropriate handling is not covered by warranty. This product has no user-serviceable parts.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Only use attachments/accessories specified or approved by the manufacturer.
7. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally or has been dropped.
8. Observe a minimum clearance of 3mm with all possible conducting parts (housing etc.).
9. If you detect any damage, do not use the product.
10. Changes or modifications not expressly approved by Hypex Electronics will void compliance and therefore the user's authority to operate the equipment.
11. Service or modifications by any person or persons other than by Hypex Electronics authorized personnel voids the warranty.

Précautions de sécurité



Ce module est sous tension secteur et certaines de ses pièces accessibles sont sous une tension dangereuse. Ces pièces doivent dans tous les cas être protégées contre contacts accidentels. Lors de l'installation, une prudence extrême s'impose. Ne jamais toucher les pièces du module quand celui-ci est relié au secteur. Isoler l'appareil du secteur et attendre 10 minutes pour laisser à tous les condensateurs le temps de se décharger avant de le manipuler.

Attention : Respecter les consignes de sécurité pour la manipulation d'appareils sensibles aux courants électrostatiques. Ce module est pourvu de semi-conducteurs qui peuvent être endommagés par les décharges électrostatiques (DES).

Les dommages causés par un usage non approprié sont exclus de la garantie.
Ce produit ne contient aucune pièce devant être entretenue par l'utilisateur.

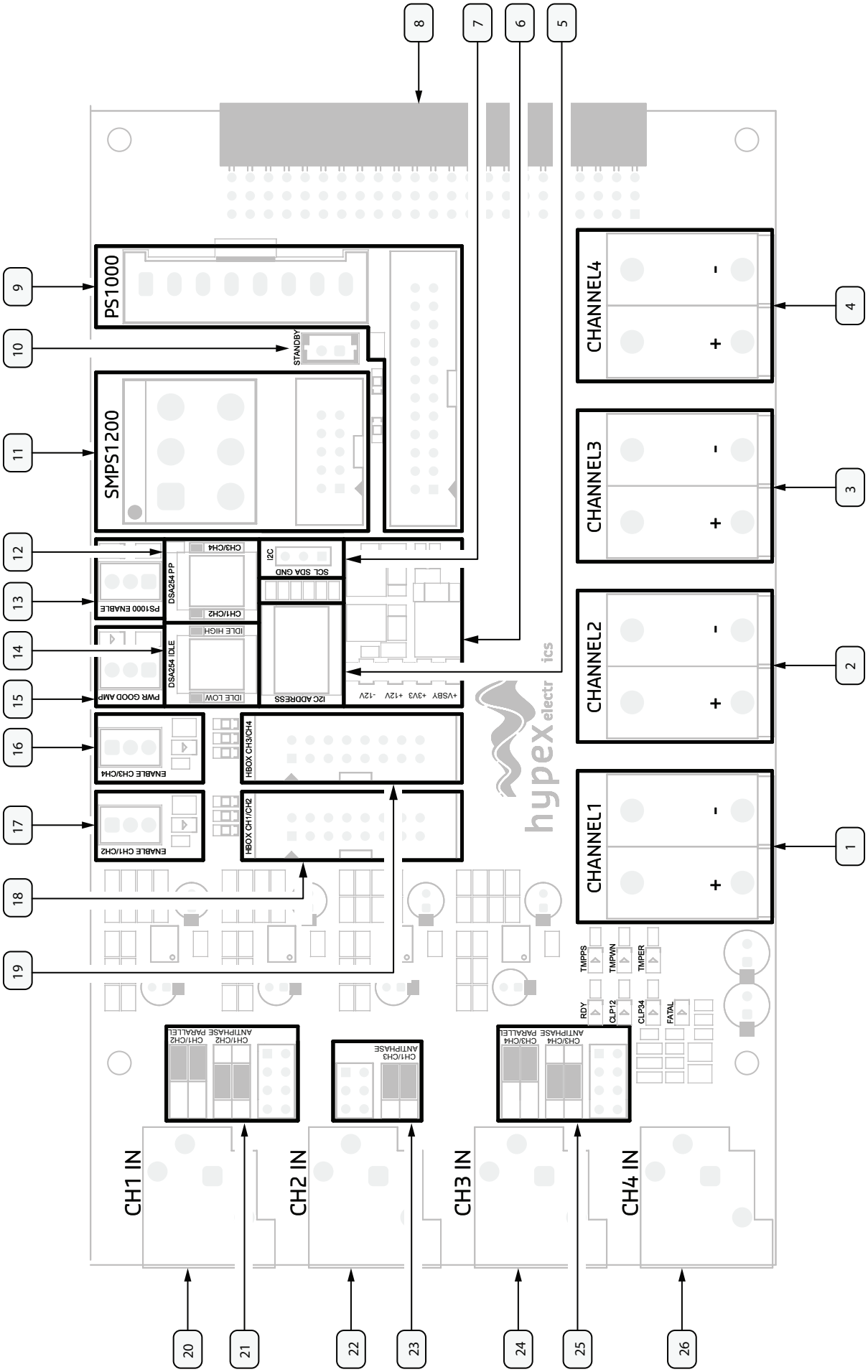
2 Introduction

The DSA254 evaluation board provides a seamless connection to the DSA254. It includes all the necessary connectors to effortlessly test all functions. It is compatible with both the SMPS1200 and the PS1000.

Using the DSA254 evaluation board, you can easily test all the functionality of the DSA254, allowing you to seamlessly integrate the DSA254 into your application.

Note: This document provides a basic description of the DSA254 evaluation board. For all specifications and capabilities of the DSA254, please refer to the DSA254 datasheet.

Item	Function	Remarks
1	CH1 OUT	Loudspeaker Channel1 Terminals
2	CH2 OUT	Loudspeaker Channel2 Terminals
3	CH3 OUT	Loudspeaker Channel3 Terminals
4	CH4 OUT	Loudspeaker Channel4 Terminals
5	I2C ADDR	Set I2C Address
6	Aux Supplies	On-board Power Supply LED Indicators
7	I2C	I2C Interface Connector
8	DSA254 Interface	Connects To DSA254
9	PS1000 Interface	Connects To PS1000
10	SBY Interface	Connection External Standby Supply
11	SMPS1200 Interface	Connects to SMPS1200
12	Parallel Power Sel	Parallel Power Selection: CH1/2 and CH3/4
13	PS1000 Enable	Enable/Disable connected PS1000
14	Idle Selection	Select Idle Current mode
15	PWR Good Indication	PWR Good Indication PS1000
16	CH3/CH4 Enable	Enable Channel3 and Channel4
17	CH1/CH2 Enable	Enable Channel1 and Channel2
18	HBOX CH1/CH2	HBOX Interface Channel1 and Channel2
19	HBOX CH3/CH4	HBOX Interface Channel3 and Channel4
20	CH1 IN	Channel 1 Balanced Input
21	Phase/Parallel CH1/CH2	Antiphase/Parallel Setting Channel1 and Channel2
22	CH2 IN	Channel 2 Balanced Input
23	Antiphase CH1/CH3	Setting for Power-BTL use
24	CH3 IN	Channel 3 Balanced Input
25	Phase/Parallel CH3/CH4	Antiphase/Parallel Setting Channel3 and Channel4
26	CH4 IN	Channel 4 Balanced Input


PS1000
SMPS1200
STANDBY
CHANNEL4
CHANNEL3
CHANNEL2
CHANNEL1
DSA254 PP
DSA254 IDLE
I2C
SCL SDA GND
I2C ADDRESS
PS1000 ENABLE
PWR GOOD AMP
ENABLE CH3/CH4
ENABLE CH1/CH2
HBOX CH3/CH4
HBOX CH1/CH2
TMPPS
TMPWN
TMPER
RDY
CLP12
CLP34
FATAL
CH1 IN
CH2 IN
CH3 IN
CH4 IN
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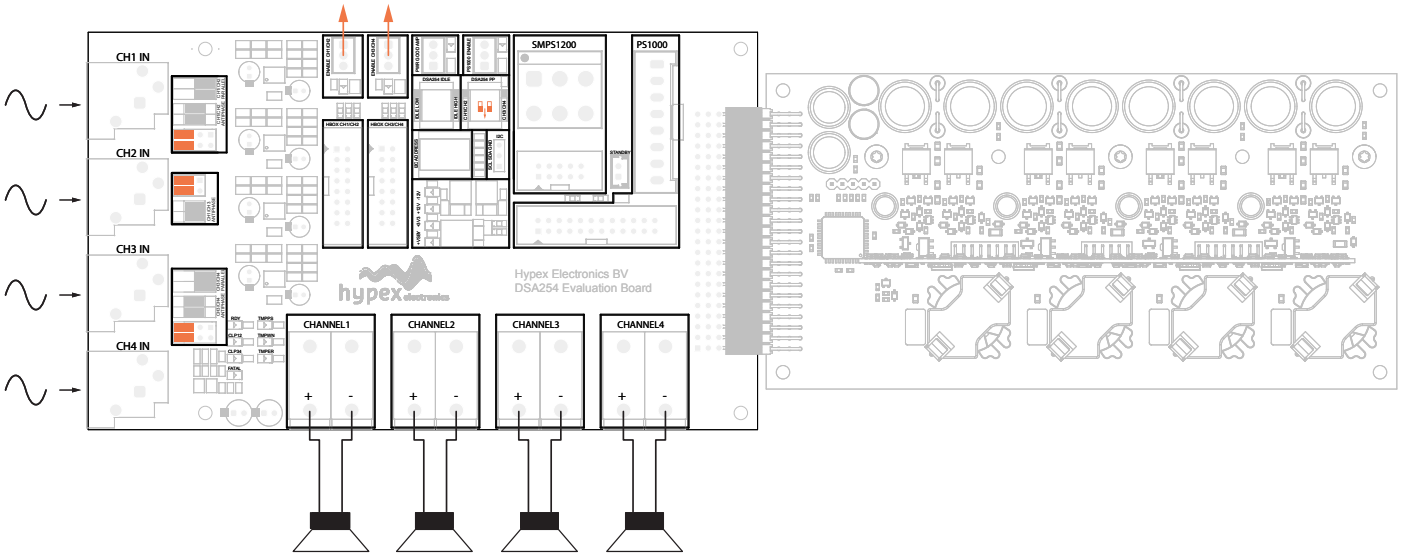
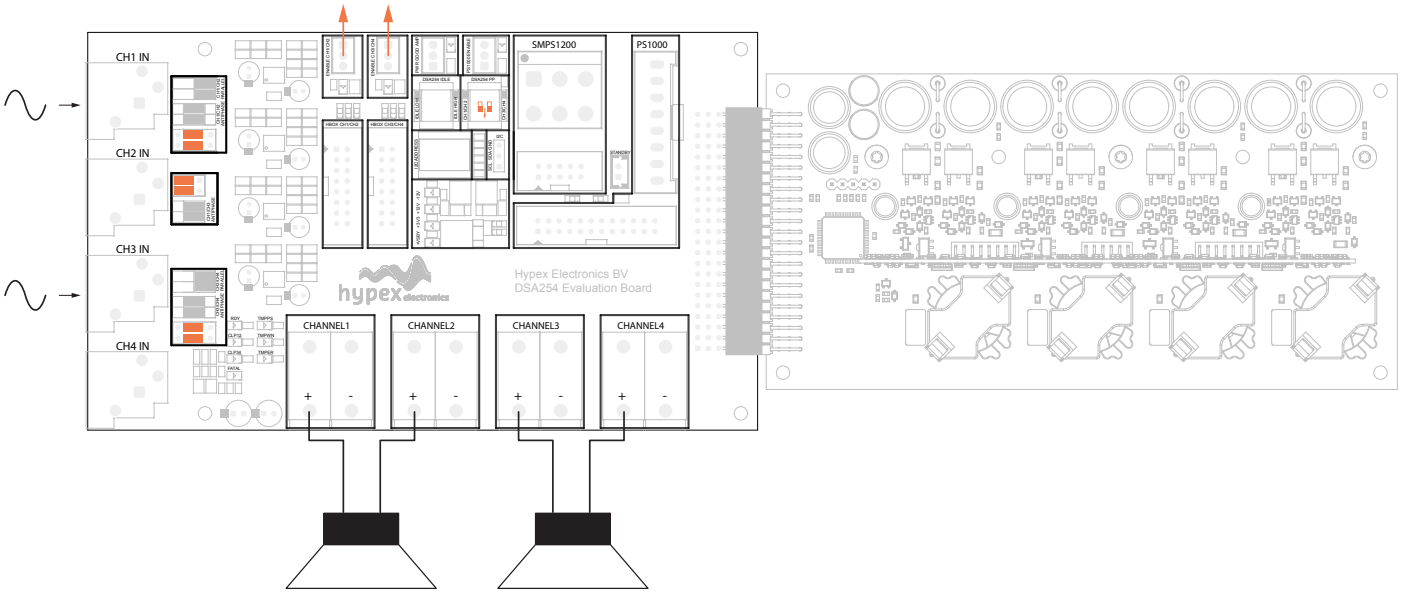
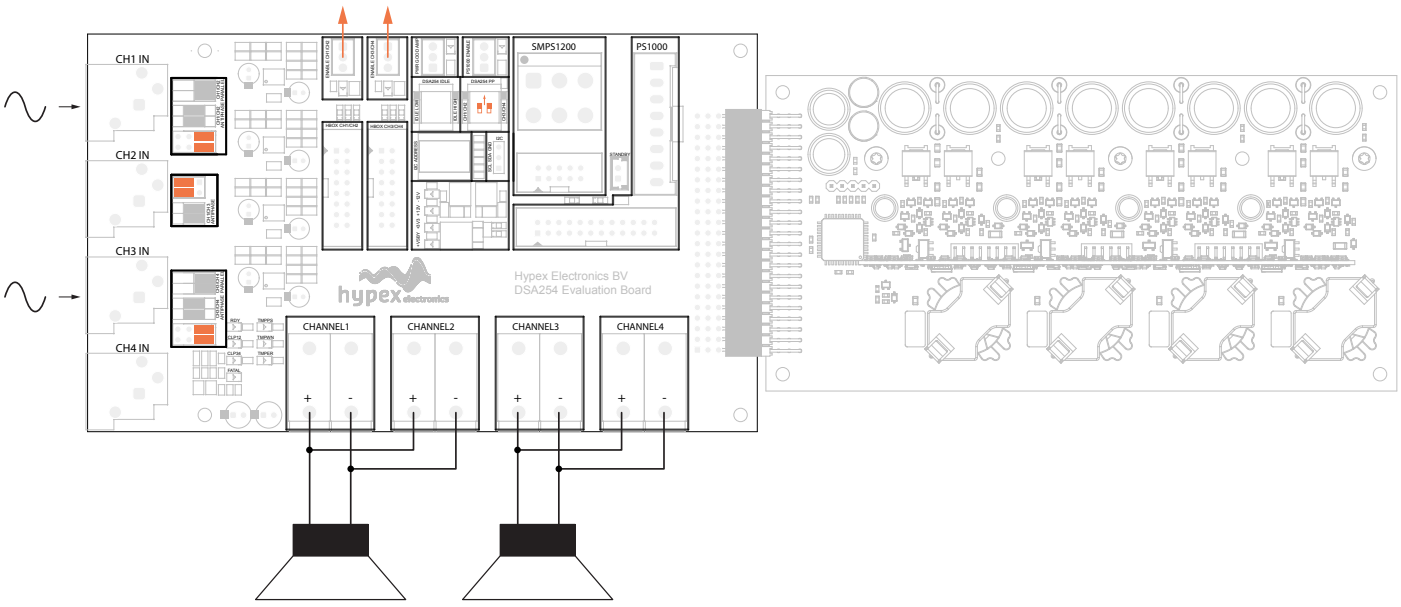
3 Jumper settings



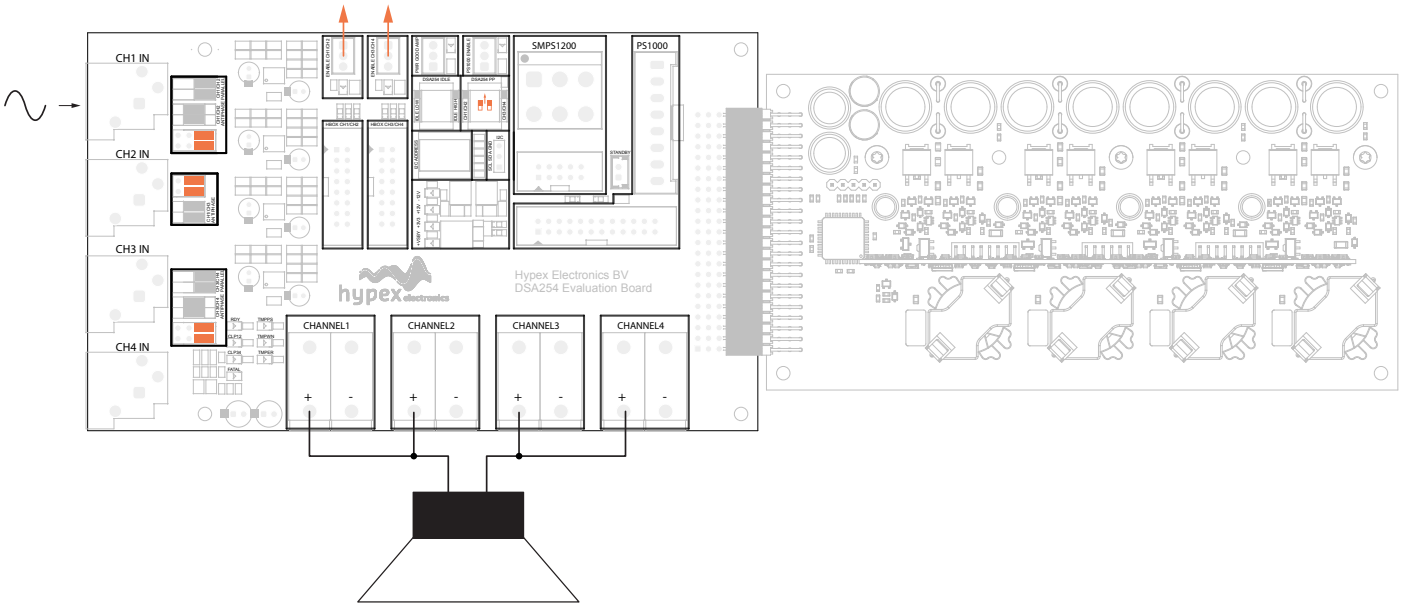
4 Channel - Single Ended Mode



2 Channel - BTL Mode



2 Channel - Parallel Power Mode



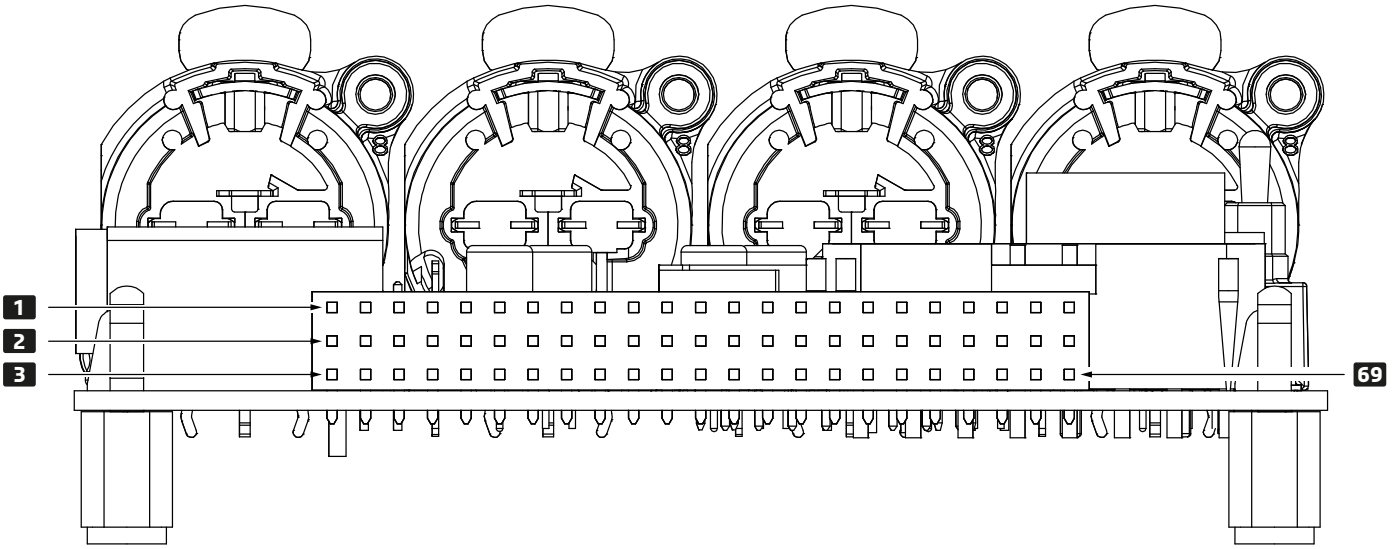
1 Channel - Parallel Power BTL Mode

4 Connector Pinout

J20 - Interface Connector

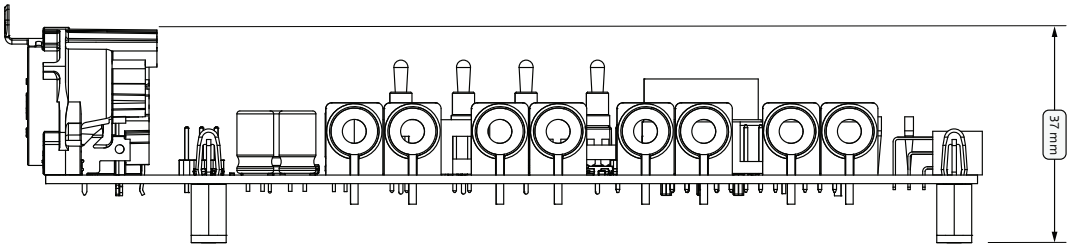
Pin	Direction	Function	Remarks
1, 2, 3	Input	CH4 IN -	CH4 Cold Loudspeaker Input
4, 5, 6	Input	CH4 IN +	CH4 Hot Loudspeaker Input
7, 8, 9	Input	CH3 IN -	CH3 Cold Loudspeaker Input
10, 11, 12	Input	CH3 IN +	CH3 Hot Loudspeaker Input
13, 14, 15	Input	CH2 IN -	CH2 Cold Loudspeaker Input
16, 17, 18	Input	CH2 IN +	CH2 Hot Loudspeaker Input
19, 20, 21	Input	CH1 IN -	CH1 Cold Loudspeaker Input
22, 23, 24	Input	CH1 IN +	CH1 Hot Loudspeaker Input
25	Output	GND	Ground
26	Output	VSBY	Standby Power Supply Output
27	Output	VAUX-	Negative Auxiliary Power Supply Output
28	Output	VAUX+	Positive Auxiliary Power Supply Output
29	Output	CH4 OUT -	CH4 Cold Audio Output
30	Output	CH4 OUT +	CH4 Hot Audio Output
31	Output	CH3 OUT -	CH3 Cold Audio Output
32	Output	CH3 OUT +	CH3 Hot Audio Output
33	Output	CH2 OUT -	CH2 Cold Audio Output
34	Output	CH2 OUT +	CH2 Hot Audio Output
35	Output	CH1 OUT -	CH1 Cold Audio Output
36	Output	CH1 OUT +	CH1 Hot Audio Output
37	Output	I2C ADDRESS	I2C Address
38		I2C SCL	I2C Clock
39		I2C SDA	I2C Data
40	Input	nFATAL	Catastrophic Fault Indication
41	Input	nPOWER GOOD	Power Good Amp
42	Input	nAMP RDY	Amp Ready
43	Output	MUTE CH3CH4	CH3 & CH4 Enable
44	Output	MUTE CH1CH2	CH1 & CH2 Enable
45	Input	nTMP WRN 2	Very High Temperature Indication (Either Channel)
46	Intput	nTMP WRN 1	High Temperature Indication (Either Channel)
47	Output	nHPP CH3CH4	CH3 & CH4 Parallel Mode
48	Output	nHPP CH1CH2	CH1 & CH2 Parallel Mode
49	Input	nCLP CH1CH2	CH1 And/Or CH2 Clip Indicator
50	Input	nCLP CH3CH4	CH3 And/Or CH4 Clip Indicator

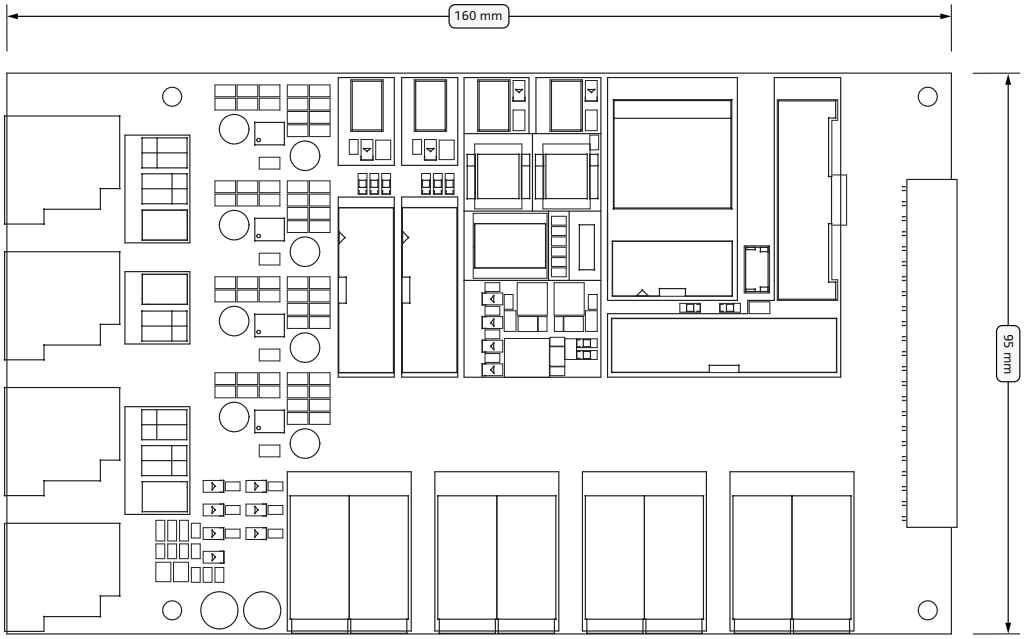
Pin	Direction	Function	Remarks
51	Output	Idle Adj	Idle Adjust Override
52	Output	VDR+	External driver supply connection, referenced to HV-
53	-	GND	Ground
54	-	NC	Not Connected
55, 56, 57, 59, 60	Output	HV-	Negative Main Power Supply
58, 61, 62, 63, 64	-	GND	Power Ground
65, 66, 67, 68, 69	Output	HV+	Positive Main Power Supply

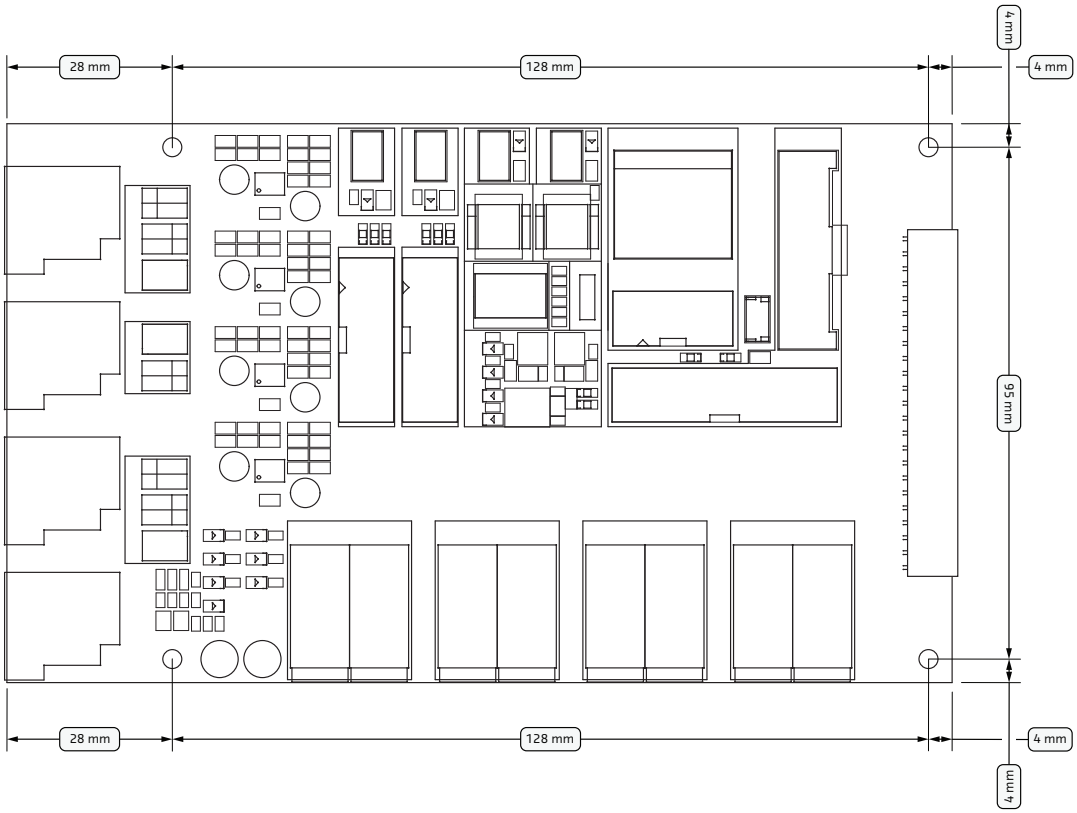


1 CH4 IN -	4 CH4 IN +	7 CH3 IN -	10 CH3 IN +	13 CH2 IN -	16 CH2 IN +	19 CH1 IN -	22 CH1 IN +	25 GND	28 VAUX +	31 CH3 OUT-	34 CH2 OUT+	37 I2C ADD	40 nFTL	43 MUTE CH3 CH4	46 nTMP WRN 1	49 nCLP CH1 CH2	52 VDR+	55 HV-	58 GND	61 GND	64 GND	67 HV+
2 CH4 IN -	5 CH4 IN +	8 CH3 IN -	11 CH3 IN +	14 CH2 IN -	17 CH2 IN +	20 CH1 IN -	23 CH1 IN +	26 VSBY	29 CH4 OUT-	32 CH3 OUT+	35 CH1 OUT-	38 I2C SCL	41 nPWR GD	44 MUTE CH1 CH2	47 nHPP CH3 CH4	50 nCLP CH3 CH4	53 GND	56 HV-	59 HV-	62 GND	65 HV+	68 HV+
3 CH4 IN -	6 CH4 IN +	9 CH3 IN -	12 CH3 IN +	15 CH2 IN -	18 CH2 IN +	21 CH1 IN -	24 CH1 IN +	27 VAUX -	30 CH4 OUT+	33 CH2 OUT-	36 CH1 OUT+	39 I2C SDA	42 nAMP RDY	45 nTMP WRN 2	48 nHPP CH1 CH2	51 Idle Adj Ovr	54 NC	57 HV-	60 HV-	63 GND	66 HV+	69 HV+

5 Dimensions & Drill Pattern

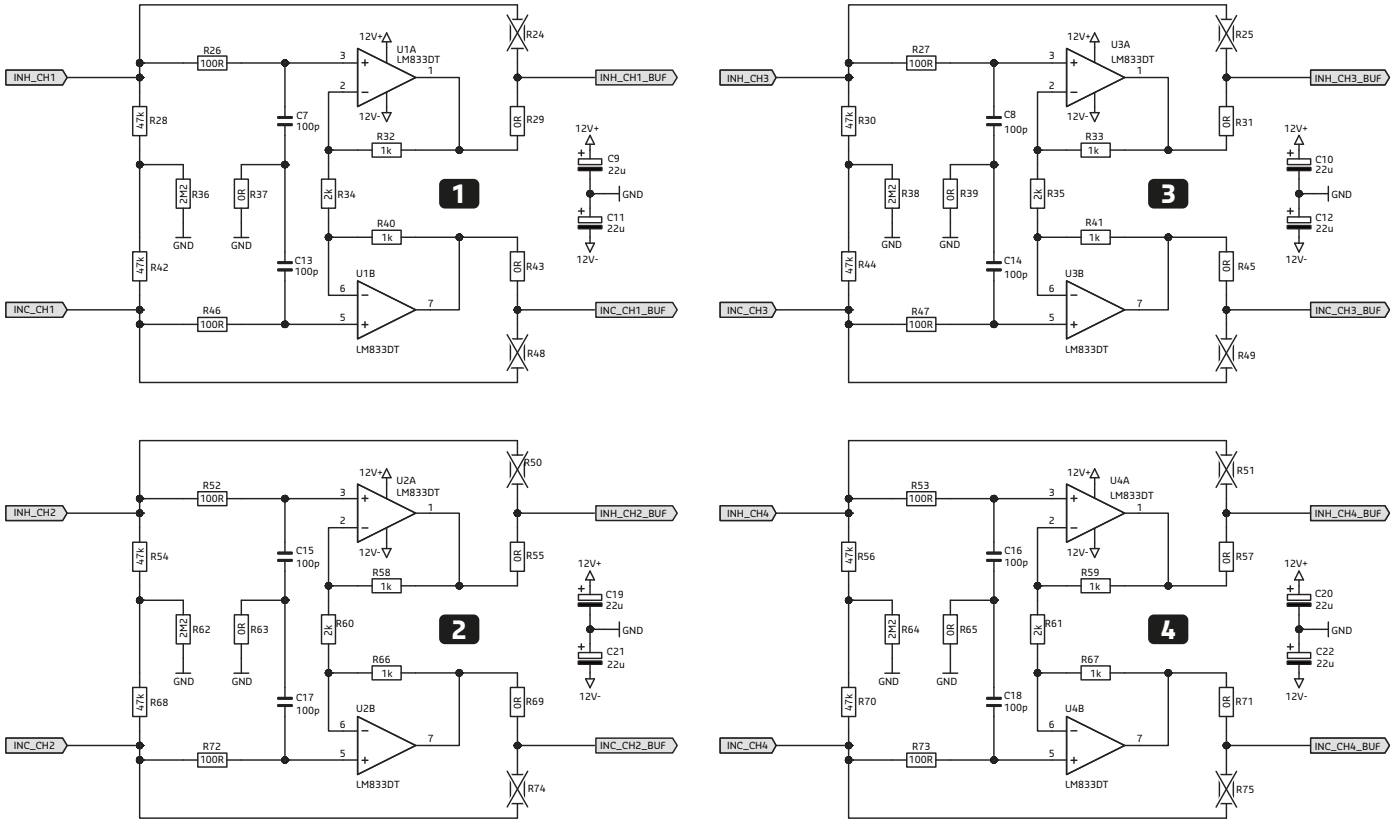






6 Appendix

The DSA254 evaluation board provides a fully differential signal buffer for each input. The image below shows what a typical implementation should look like.



Revisions

Document Revision	Module Revision	Change Log	Date
R0	Proto	Preliminary	23.01.2025
R1	01xx	Final version	15.09.2025

7 Disclaimer

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