

Quad, High Voltage Amplifier Array Demo Board

General Description

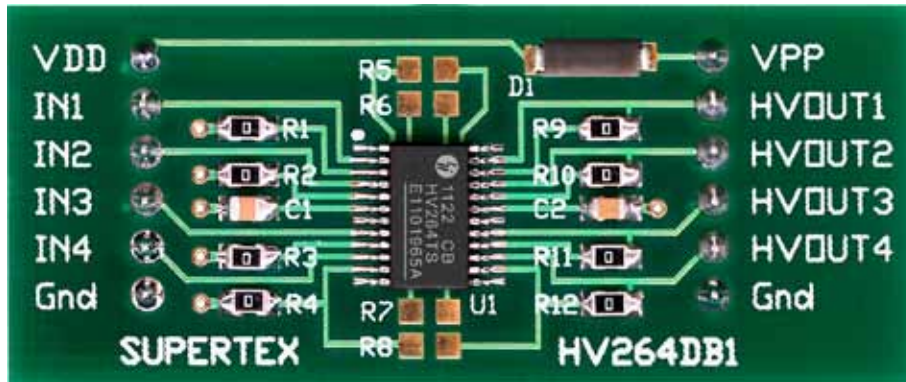
The Supertex HV264TS-G is a quad high voltage amplifier array device in a 24-pin TSSOP package. The HV264DB1 demo board provides a platform to evaluate this device. This demoboard requires only a minimum setup including a V_{DD} low voltage supply, a V_{PP} high voltage supply, and a signal source. The demoboard provides the input/output connections through two 6-pin headers.

For detailed electrical performance, please refer to the HV264 datasheet.

Specifications

| Parameter | Value |
|---------------------------------|------------------------------------------|
| V_{PP} high voltage supply | 200V |
| V_{DD} low voltage supply | 4.5 to 5.5V |
| HV_{OUT} output voltage swing | 1.0V to $V_{PP} - 10V$ |
| V_{IN} Input signal range | 0 to $V_{DD} - 1.5V$ |
| A_V closed loop gain | 66.7V/V with internal feedback resistors |
| Typical SR output slew rate | 9.0V/ μ s |
| I_{PEAK} output peak current | 3.0mA |

Board Layout



| Pin Name | Description |
|------------------|------------------------------|
| VPP | High voltage positive supply |
| VDD | Low voltage positive supply |
| IN1 to IN4 | Amplifier inputs |
| HVOUT1 to HVOUT4 | Amplifier outputs |
| GND | Device ground |

Acceptable Power Up Sequences

- 1) V_{DD} 2) V_{PP} 3) Inputs
- 1) V_{DD} 2) Inputs 3) V_{PP}

Acceptable Power Down Sequences

- 1) Inputs, 2) V_{PP} 3) V_{DD}
- 1) V_{PP} 2) Inputs 3) V_{DD}

Power Up/Down Sequence

The device can be damaged due to an improper power up / down sequence. To prevent damage, please follow the acceptable power up / down sequences. An external diode across V_{PP} and V_{DD} is included on the board, where the anode of the diode is connected to V_{DD} and the cathode is connected to V_{PP} . Any low current high voltage diode will be adequate.

Gain Setting

The HV264 quad amplifier array has the internal built-in gain setting resistors available with a fixed gain of 66.7V/V +/- 5%. External gain setting resistors can be used for applications that require better tolerance or a different closed loop gain. An example is shown in the following schematics. Fig. 1 shows the schematics of the demoboard. The external resistor values and tolerances can be selected to meet different gain setting and precision requirements as shown in Fig. 2.

Schematics

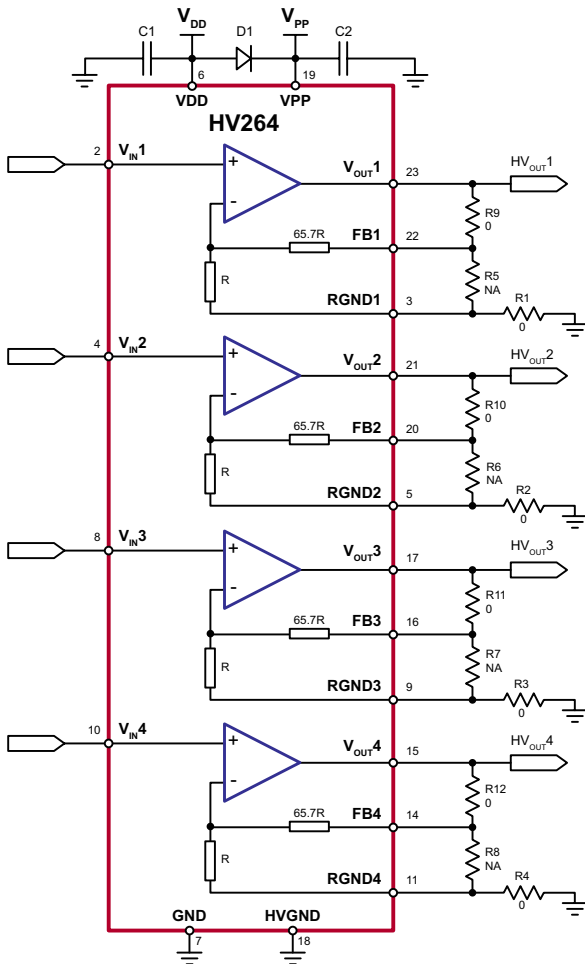


Fig. 1. Demo Board Resistor Settings

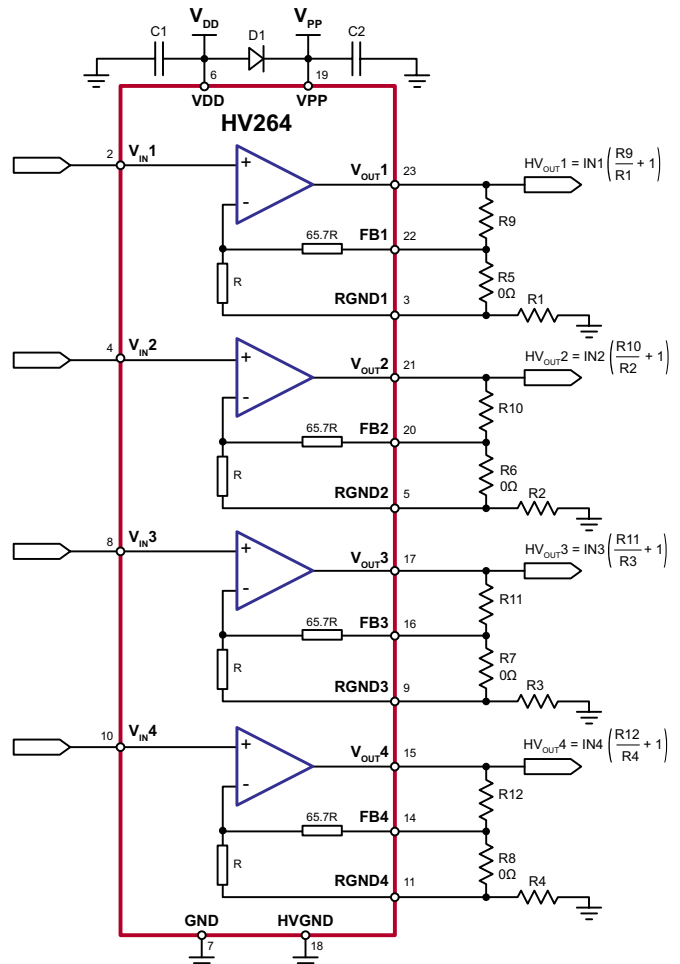


Fig. 2. High Precision Gain Settings Using External Resistors

Bill of Materials

| Item | RefDes | Description | Package | Manufacturer | Part # |
|------|-----------------------------------|---------------------------------------|--------------|--------------|-----------|
| 1 | C1 | 0.1µF +/-10%, 25V X7R chip capacitor | 0805 | Any | --- |
| 2 | C2 | 1.0nF +/-10%, 250V X7R chip capacitor | 0805 | Any | --- |
| 3 | D1 | 400V, 1.0A, general purpose diode | SMA | Any | USIG |
| 4 | R1 ,R2, R3, R4, R9, R10, R11, R12 | 0Ω chip resistors | 0805 | Any | --- |
| 5 | R5, R6, R7, R8 | chip resistors (not installed) | 0805 | Any | --- |
| 6 | U1 | 225V, 3.0mA amplifier array | 24-pin TSSOP | Supertex | HV264TS-G |

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