

The diagram shows a 4-channel differential amplifier circuit. It features four input channels, each with a resistor network (Rp1, Rp2, Rp3, Rp4) and a differential input pair (D1-D4). The inputs are connected to the op-amp's differential inputs (1, 2, 3, 4). The op-amp is configured with a common-mode feedback network (10K1, 102) and a differential output network (1K1, 102). The output is connected to the op-amp's output (5). The op-amp is powered by a +5V supply and ground.

[illegible]

The diagram illustrates the connection between a Raspberry Pi 4B and the SHIELD module. The Raspberry Pi 40-pin header (J1) is connected to the SHIELD module's 40-pin header (J2). The SHIELD module is labeled 'U2: BH-W4-TH'. Key components and connections include:

- Power Regulation:** A 5V regulator (U1) is connected to the 5V pin of the Raspberry Pi header. The regulator's output is connected to the +5V pin of the SHIELD header. A 100nF capacitor (C1) is connected between the +5V and GND pins of the SHIELD header.
- USB-to-UART Bridge:** A USB-to-UART bridge (U2) is connected to the SHIELD header. The bridge's VCC pin is connected to the +5V pin, and its GND pin is connected to the GND pin. The bridge's TXD pin is connected to the TXD pin of the SHIELD header, and its RXD pin is connected to the RXD pin.
- Crystal Oscillator:** A crystal oscillator (X2) is connected to the SHIELD header. The oscillator's output is connected to the TXD pin, and its input is connected to the RXD pin. A 22pF capacitor (C17) is connected between the TXD and RXD pins.
- Resistors and Capacitors:** Various resistors (R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18, R19, R20, R21, R22, R23, R24, R25, R26, R27, R28, R29, R30, R31, R32, R33, R34, R35, R36, R37, R38, R39, R40) and capacitors (C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C35, C36, C37, C38, C39, C40) are used for signal conditioning and timing.
- Grounding:** The GND pin of the SHIELD header is connected to the GND pin of the Raspberry Pi header.

