

Introduction

The ISL55036EVAL1Z evaluation board is a design platform containing all the circuitry needed to characterize critical performance parameters of the ISL55036, Six-channel high-speed op amps, using a variety of user defined test circuits.

The ISL55036 amplifiers are 400MHz GBW operational amplifiers featuring single supply operation over a voltage range of 3VDC to 5.5VDC and slew rate of 2500V/μs into a 150Ω load. ISL55036 has an internal gain of 4.

Ordering Information

- ISL55036EVAL1Z

Reference Documents

- ISL55036 Data Sheet, FN6640.

Evaluation Board Key Features

The ISL55036EVAL1Z is designed to enable the IC to operate from a single supply (+3VDC to +5.5VDC). The board is configured for 75Ω load impedance which is suitable for driving video cables.

Power Supplies

External power connections are made through the +V and Ground connections on the evaluation board. De-coupling capacitor C₁ reduces the voltage rate-of-rise to less than

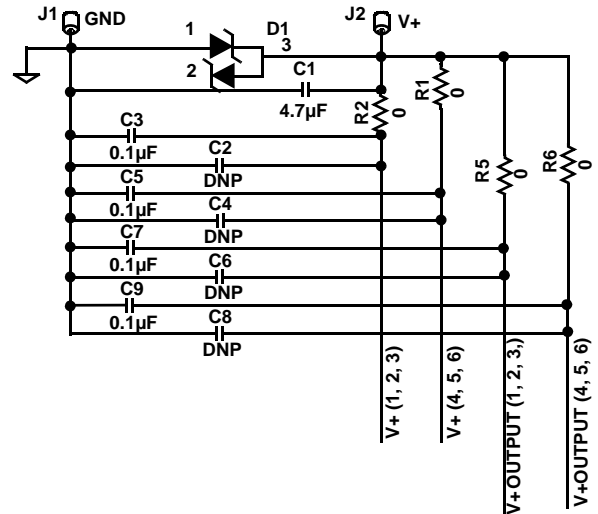


FIGURE 1. POWER SUPPLY

1V/μs during power-up. Four additional Capacitors, C₃, C₅, C₇ and C₉ are placed close to the IC and provide additional high frequency filtering. Anti-reverse diode D₁ protects the circuit in the case of accidental polarity reversal. (See Figure 1).

Amplifier Configuration

ISL55036 contains six high-speed op-amps, which are separated into two groups of three op-amps each. Each group is controlled by its own enable pin. The schematic in Figure 2 shows one of the six op-amps with the components supplied. The circuit implements a series 75Ω back-termination for driving 75Ω cables.

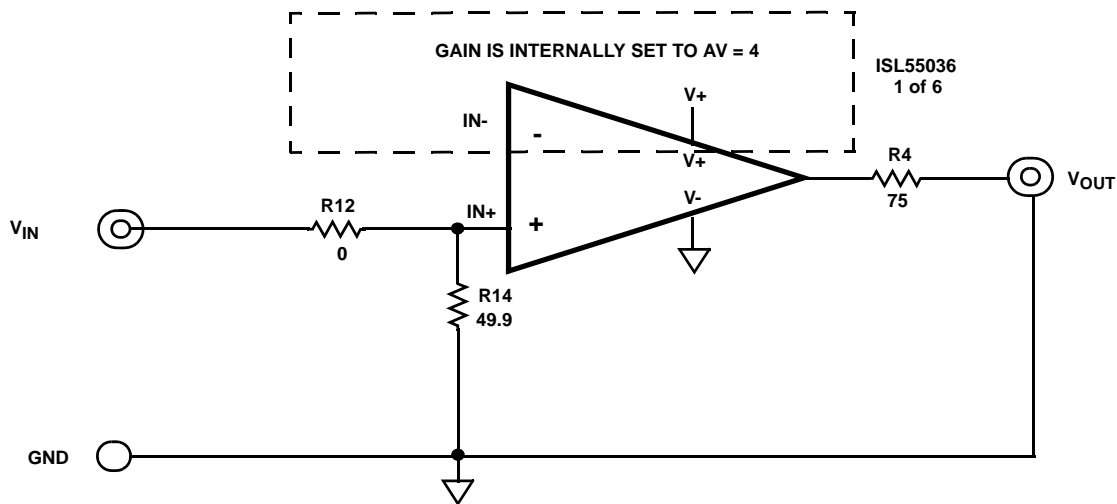


FIGURE 2. BASIC AMPLIFIER CONFIGURATION

User-selectable Options

Component pads are included to enable a variety of user-selectable circuits to be added to the amplifier outputs. The output has additional resistor and capacitance placements for loading as shown in Figure 3:

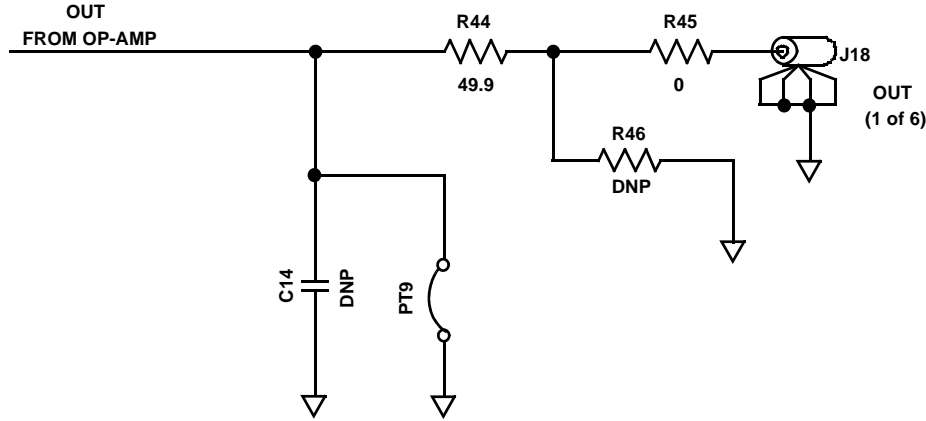
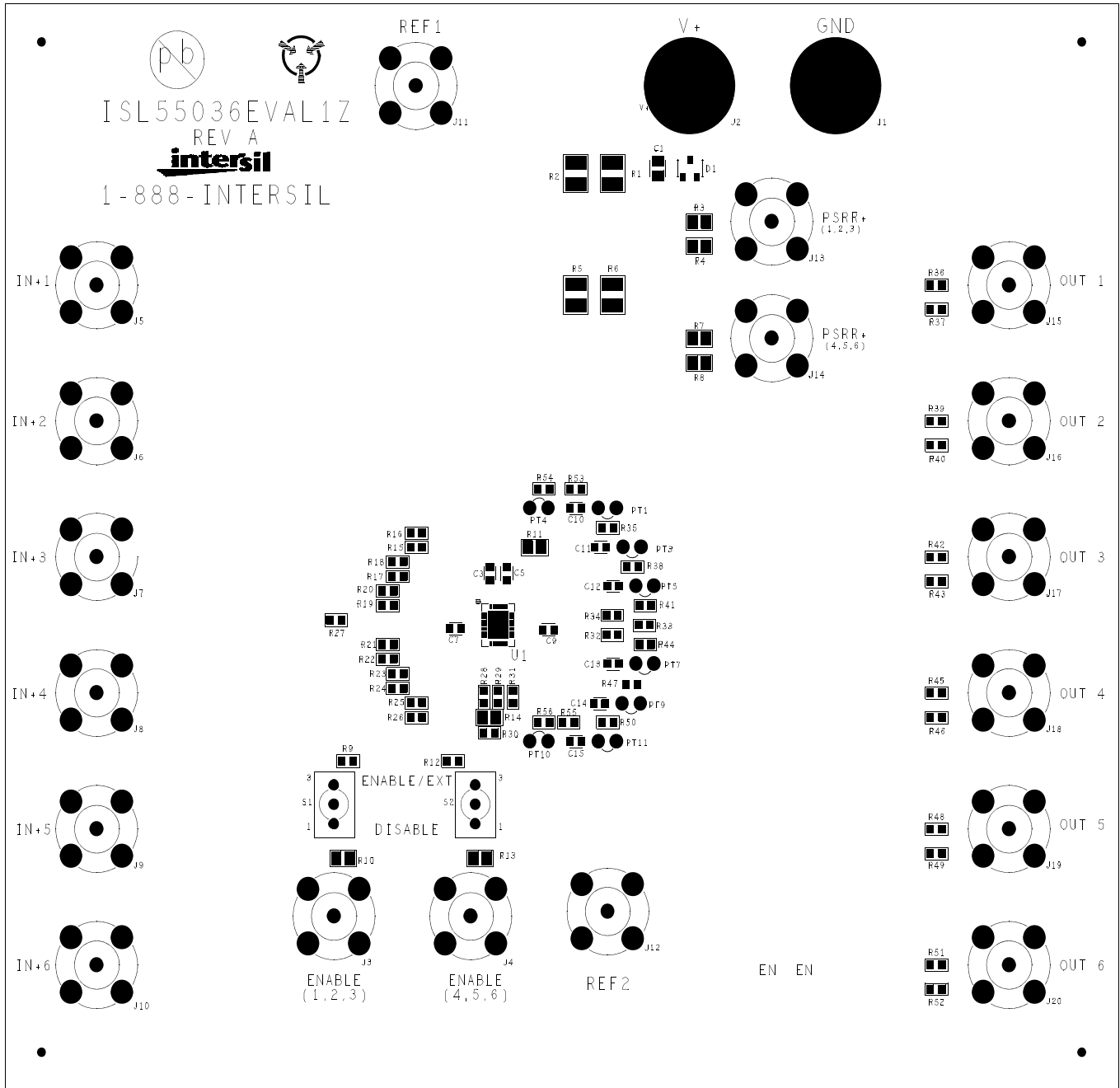


FIGURE 3. OUTPUT STAGE

ISL55036EVAL1Z Components Parts List

| DEVICE NUMBER | DESCRIPTION | COMMENTS |
|--|--|--|
| C1 | CAP-TANTALUM, SMD, D, 4.7μF, 50V, 10%. LOW ESR, ROHS | Power Supply Decoupling |
| C3, C5, C7, C9 | CAP, SMD, 0603, .01μF, 25V,10%, X7R, ROHS | Power Supply Decoupling |
| C2, C4, C6, C8 | CAP, SMD, 0603,1000pF, 25V,10%, X7R, ROHS | Power Supply Decoupling Not populated |
| C10 to C15 | CAP, SMD, 0603, DNP-PLACE HOLDER | User selectable output capacitors Not populated |
| D1 | DIODE-RECTIFIER, SMD, SOD-123, 2P, 40V, 0.5A, ROHS | Reverse Power Protection |
| U1 (ISL55036EVAL1Z) | ISL55036FUZ, IC- OP AMP, 24P, QFN, ROHS | |
| R3, R4, R7, R8, R53-R56 | RESISTOR, SMD, 0603, 0.1%, MF, DNP-PLACE HOLDER | For internal use only Not populated |
| R11, R14, R37, R40, R43,R46, R49, R52 | RESISTOR, SMD, 0603, 0.1%, MF, DNP-PLACE HOLDER | User selectable resistors Not populated |
| R11, R2, R5, R6, R15, R17, R19, R21, R23, R25, R27 to R34, R36, R39, R42, R45, R48, R51, R64 | RES, SMD, 0603, 0Ω, 1/16W, tF, ROHS | 0Ω user selectable resistors |
| R10, R13, R16, R18, R20, R22, R24, R26 | RES, SMD, 0603, 49.9Ω, 1/10W, 1%, tF, ROHS | Input resistors |
| R11, R12 | RES, SMD, 0603, 75Ω, 1/8W, 1%, tF, ROHS | Output series resistors |
| R9, R10 | RES, SMD, 0603, 10k, 1/10W, 1%, tF, ROHS | Enable pull-up resistors |

ISL55036EVAL1Z Top View



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ISL55036EVAL1Z Schematic Diagram

