## 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 400 MHz GBW operational amplifiers featuring single supply operation over a voltage range of 3 VDC to 5.5 VDC and slew rate of $2500 \mathrm{~V} / \mu \mathrm{s}$ into a $150 \Omega$ 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 +5.5 VDC ). The board is configured for $75 \Omega$ 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 $\mathrm{C}_{1}$ reduces the voltage rate-of-rise to less than


FIGURE 1. POWER SUPPLY
$1 \mathrm{~V} /$ us during power-up. Four additional Capacitors, $\mathrm{C}_{3}, \mathrm{C}_{5}$, $\mathrm{C}_{7}$ and $\mathrm{C}_{9}$ are placed close to the IC and provide additional high frequency filtering. Anti-reverse diode $\mathrm{D}_{1}$ 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 $75 \Omega$ back-termination for driving $75 \Omega$ 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, $4.7 \mu \mathrm{~F}, 50 \mathrm{~V}, 10 \%$. LOW ESR, ROHS | Power Supply Decoupling |
| C3, C5, C7, C9 | CAP, SMD, 0603, . $01 \mu \mathrm{~F}, 25 \mathrm{~V}, 10 \%$, 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 |
| $\begin{aligned} & \text { R11, R14, R37, R40, R43,R46, } \\ & \text { R49, R52 } \end{aligned}$ | 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, $0 \Omega, 1 / 16 \mathrm{~W}, \mathrm{tF}, \mathrm{ROHS}$ | $0 \Omega$ user selectable resistors |
| $\begin{aligned} & \text { R10, R13, R16, R18, R20, R22, } \\ & \text { R24, R26 } \end{aligned}$ | RES, SMD, 0603, 49.9 , 1/10W, 1\%, tF, ROHS | Input resistors |
| R11, R12 | RES, SMD, 0603, $75 \Omega, 1 / 8 \mathrm{~W}, 1 \%$, tF, ROHS | Output series resistors |
| R9, R10 | RES, SMD, 0603, 10k, 1/10W, 1\%, tF, ROHS | Enable pull-up resistors |

ISL55036EVAL1Z Top View


Intersil Corporation reserves the right to make changes in circuit design, software and/or specifications at any time without notice. Accordingly, the reader is cautioned to verify that the Application Note or Technical Brief is current before proceeding.

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ISL55036EVAL1Z Schematic Diagram


