élantec
HIGH PERFORMANCE ANALOG INTEGRATED CIRCUITS

EL4344C/EL4348C - Preliminary

600MHz Multiplexing Amplifiers

Features

- 4:1 Mux
- Triple channels
- ±5V operation
- Gain of 1 (EL4344C)
- Gain of 2 (EL4348C)
- 600MHz bandwidth
- Supply current of 11mA/channel

Applications

- HDTV/DTV Analog Inputs
- Video Projectors
- Computer Monitors
- Set Top Boxes
- Security Video
- Broadcast Video Equipment

Ordering Information

Part No.	Package	Tape & Reel	Outline #
EL4344CU	28-Pin QSOP		MDP0040
EL4348CU	28-Pin QSOP		MDP0040

General Description

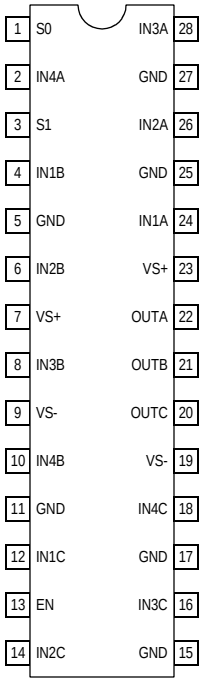
The EL4344C and EL4348C are 600MHz bandwidth multiplexing amplifiers designed primarily for input video switching. The EL4344C and EL4348C contain 4:1 multiplexing amplifiers.

The EN pin can be used to tri-state the MUX output, enabling parts to be paralleled for a greater number of inputs. All logic inputs are referenced to the GND pin.

The EL4344C has a gain of 1 and the EL4348C has a gain of 2.

The EL4344C and the EL4348C are available in a 28-pin QSOP package and are specified for operation over the full -40°C to +85°C temperature range.

Connection Diagram



EL4344C & EL4348C
(28-Pin QSOP)

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Absolute Maximum Ratings (T_A = 25°C)

Values beyond absolute maximum ratings can cause the device to be prematurely damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

Supply Voltage (V_{S+} to V_{S-})	11V
Input Voltage	V_{S-} - 0.3V, V_{S+} +0.3V
Storage Temperature Range	-65°C to +150°C
Ambient Operating Temperature	-40°C to +85°C
Operating Junction Temperature	125°C
Power Dissipation	See Curves

Important Note:

All parameters having Min/Max specifications are guaranteed. Typ values are for information purposes only. Unless otherwise noted, all tests are at the specified temperature and are pulsed tests, therefore: $T_J = T_C = T_A$.

Specifications

V_S = +5V, V_{S-} = -5V, GND = 0V, T_A = 25°C, Input Video = $1V_{P-P}$ & R_L = 150Ω to GND, unless otherwise specified.

Parameter	Description	Conditions	Min	Typ	Max	Unit
General						
I_S	Supply Current (per channel)	No load, V_{IN} = 0V		16	18	mA
BW	-3dB Bandwidth	A_V = 1 (EL4344C)		600		MHz
		A_V = 2 (EL4348C)		500		MHz
FBW	0.1dB Bandwidth	A_V = 1 (EL4344C)		100		MHz
		A_V = 2 (EL4348C)		80		MHz
SR	Slew Rate	25% to 75%, R_L = 150Ω, A_V = 2 (EL4344C)		1200		V/µs
		25% to 75%, R_L = 150Ω, A_V = 2 (EL4348C)		1400		V/µs
t_{SW}	Switching Time	10% to 90%		2		ns
V_{OP}	Positive Output Swing		3.3	3.5		V
V_{ON}	Negative Output Swing		-3.2	-3.5		V
I_{OUT}	Output Current	R_L = 10Ω to GND	80	100		mA
dG	Differential Gain Error	Standard NTSC test, A_V = 2, R_L = 150Ω		0.07		%
dP	Differential Phase Error	Standard NTSC test, A_V = 2, R_L = 150Ω		0.01		°
V_{IN}	Input Voltage (video inputs)		-2.8		2.3	V
V_{OS}	Offset Voltage		-10		10	mV
e_n	Voltage Noise			17		nV/√Hz
THD	Total Harmonic Distortion	V_{OUT} = $2V_{P-P}$, R_L = 150Ω, f = 200MHz		-70		dB
t_S	0.1% Settling Time	Step = 2V		6		ns
OS	Overshoot	Step = 2V		0.1	0.6	V
PSRR	Power Supply Rejection Ratio		50			dB
ISO	Channel Isolation	F = 30MHz		90		dB
V_{GLITCH}	Switching Glitch			70	120	mV
I_{SDIS}	Disable Supply Current			20		µA
A_V	Voltage Gain	EL4344C		1		
		EL4348C		2		
Control						
V_H	Logic Input High Voltage		2.0			V
V_L	Logic Input Low Voltage				0.8	V

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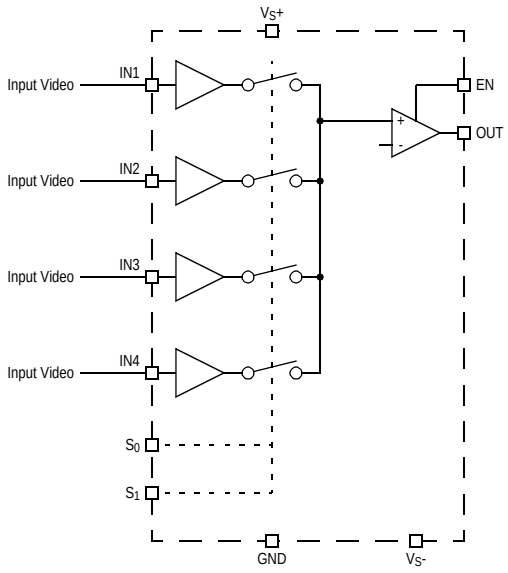
Block Diagram



Three channels - A, B & C

Input Selector Truth Table

Inputs			State
EN	**S1**	**S0**	
1	0	0	IN1 Selected
1	0	1	IN2 Selected
1	1	0	IN3 Selected
1	1	1	IN4 Selected
0	X	X	Standby - Powered Down

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Pin Descriptions

Pin Number	Pin Name	Pin Type	Pin Description
1	S0	Logic Input	LSB for input selection
2	IN4A	High Frequency Signal	Input #4 for channel A
3	S1	Logic Input	MSB for input selection
4	IN1B	High Frequency Signal	Input #1 for channel B
5	GND	Power	Ground
6	IN2B	High Frequency Signal	Input #2 for channel B
7	VS+	Power	Positive power
8	IN3B	High Frequency Signal	Input #3 for channel B
9	VS-	Power	Negative power
10	IN4B	High Frequency Signal	Input #4 for channel B
11	GND	Power	Ground
12	IN1C	High Frequency Signal	Input #1 for channel C
13	EN	Logic Input	Logic high to enable
14	IN2C	High Frequency Signal	Input #2 for channel C
15	GND	Power	Ground
16	IN3C	High Frequency Signal	Input #3 for channel C
17	GND	Power	Ground
18	IN4C	High Frequency Signal	Input #4 for channel C
19	VS-	Power	Negative power
20	OUTC	High Frequency Signal	Output for channel C
21	OUTB	High Frequency Signal	Output for channel B
22	OUTA	High Frequency Signal	Output for channel A
23	VS+	Power	Positive power
24	IN1A	High Frequency Signal	Input #1 for channel A
25	GND	Power	Ground
26	IN2A	High Frequency Signal	Input #2 for channel A
27	GND	Power	Ground
28	IN3A	High Frequency Signal	Input #3 for channel A

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General Disclaimer

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