



# LA2610

## Analog Surround Processing IC

### Overview

The LA2610 is an ambiance reproduction processor for use in audio, TV, and personal computer equipment applications. This IC easily reproduces a live space filled with a sense of presence by processing stereo signals from musical and audio-visual sources.

### Features

- Wide operating supply voltage range allows various applications to be used.
- Aggregate level tuning is possible for surround signals and bass-boost signals.
- Miniature package and fewer external components allow the mounting area to be reduced.
- Bypass mode for low noise and low distortion ratio.

### Functions

- Surround signal processing.
- Simple bass-boost.
- Switching between surround and bypass modes.

### Package

- SIP12S

### Specifications

#### Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V <sub>CC</sub> max		13	V
Allowable power dissipation	P <sub>d</sub> max	Ta ≤ 70°C	100	mW
Operating temperature	T <sub>opr</sub>		-25 to +70	°C
Storage Temperature	T <sub>stg</sub>		-40 to +125	°C

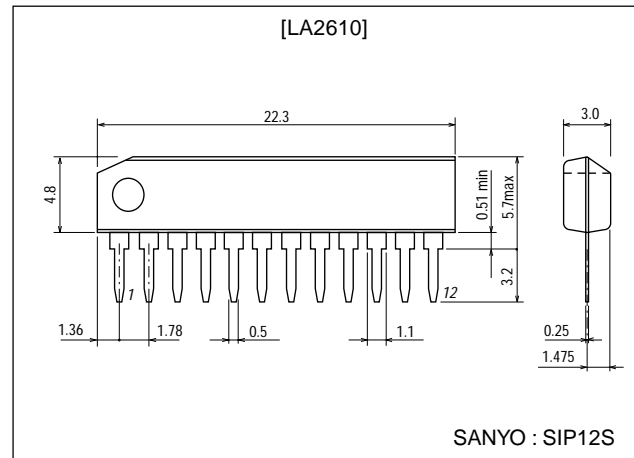
#### Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V <sub>CC</sub>		9.0	V
Operating supply voltage range	V <sub>CC</sub> op		4.5 to 12	V

### Package Dimensions

unit:mm

#### 3116-SIP12S



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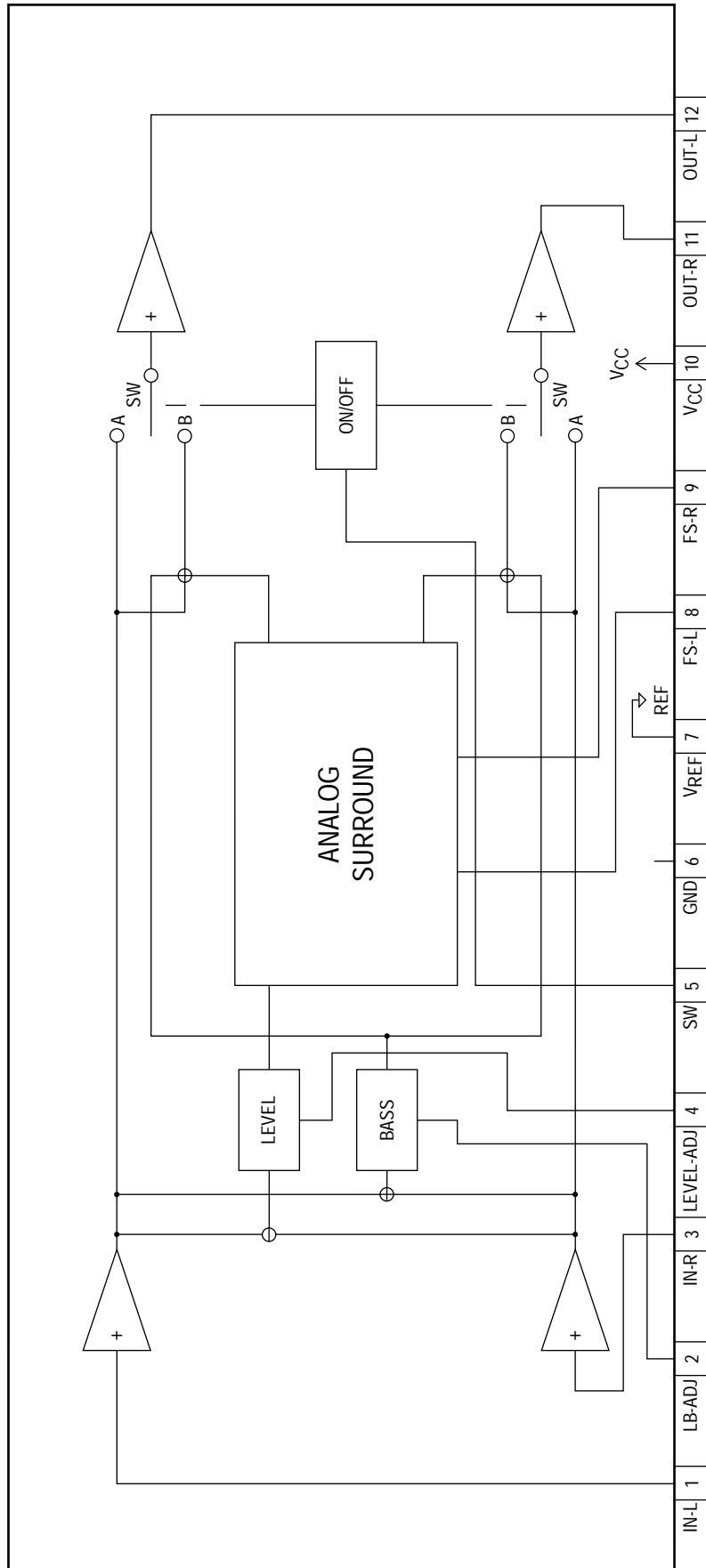
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### Electrical Characteristics at $T_a = 25^\circ\text{C}$ , $V_{CC}=9\text{V}$ , $V_i=300\text{Vrms}$ (L, R, in), $f=1\text{kHz}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Quiescent current	$I_{CCT}$	No signal, surround off		4	8	mA
Voltage gain	VG T	Surround off	-2	0	+2	dB
	VG S	Surround on	-4	-2.3	-0.5	dB
Boost amount	BST1	Surround on, $f_i=100\text{Hz}$	1.5	3	5	dB
Maximum output voltage	$V_{O\ max1}$	THD=1%, surround off	1	2		Vrms
	$V_{O\ max2}$	THD=1%, surround off	1	1.7		Vrms
Total harmonic distortion	THD T	Surround off		0.01	0.03	%
	THD S	Surround on		0.05	0.5	%
Crosstalk	CT T	Surround off	80	85		dB
Output noise voltage	$V_{no\ T}$	Surround off		-110	-100	dBm
	$V_{no\ S}$	Surround off		-90	-80	dBm

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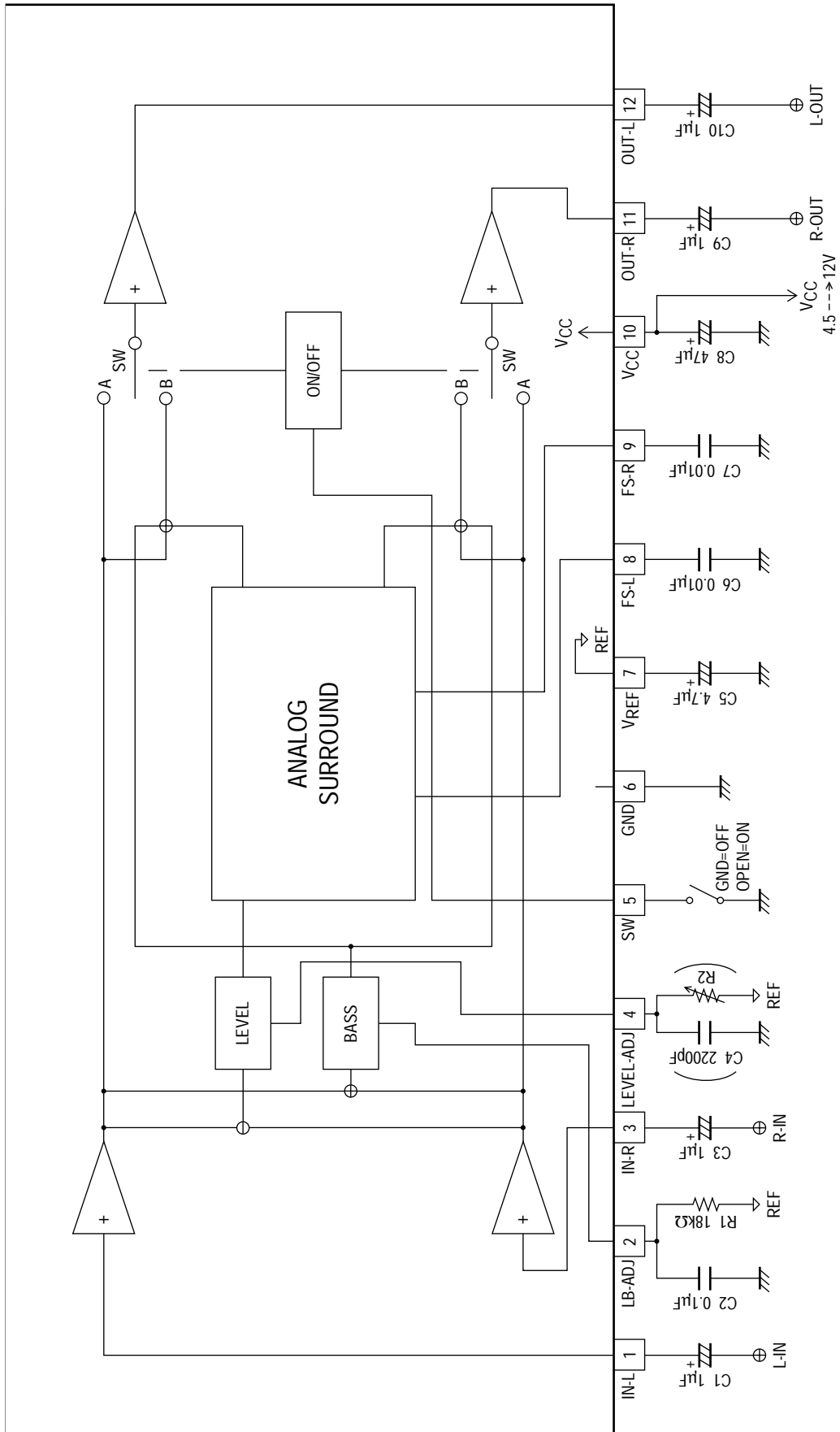
## Block Diagram



A12519

# LA2610

## Sample Application Circuit



A12520

## External Parts Description

Parts	Description
C2	Bass-boost low-pass filter capacitor Bass-boost cutoff frequency is varied according to this capacitance
R1	Determines bass-boost gain Bass-boost gain is varied according to this resistance
C4, R2	Left and right surround signals level can be changed by adding these components externally
C6, C7	Surround effect varying capacitor Surround effect can be changed with these parts' capacitance

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