Ordering number : EN*A1282

Preliminary

SANYO Semiconductors

DATA SHEET

LA2616V —

Monolithic Linear IC

Featuring the AViSS 3D Surround Algorithm

Analog Surround IC

Overview

The LA2616V is sound field playback processing ICs for use in audio equipment, TVs, and PCs.
These ICs allow equipment to easily reproduce a spatial realistic sound field from a stereo signal from a music, video, or other audio source.

Features

- Supports a wide operating supply voltage range, and can be used in a wide range of applications.
- The added surround signal level can be adjusted.
- Low-noise low-distortion bypass mode
- Provides a natural feeling of spaciousness without degrading the tonal coloration of the source.
- Clear vocal positioning without any apparent loss of center to the sound
- Miniature packages : SSOP16

Functions

- Surround signal processing
- Surround/bypass switching
- Variable surround effect
- LED drive circuit

Specifications

Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_{CC} max		13	V
Allowable power dissipation	Pd max	Ta ≤ 70°C *	250	mW
Operating temperature	Topr		-25 to +70	°C
Storage temperature	Tstg		-40 to +125	°C

*Mounted on a specified board : 114.3mm × 76.1mm × 1.6mm, glass epoxy board.

Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V_{CC}		9.0	V
Operating supply voltage range	V_{CC} opg		4.5 to 12.0	V

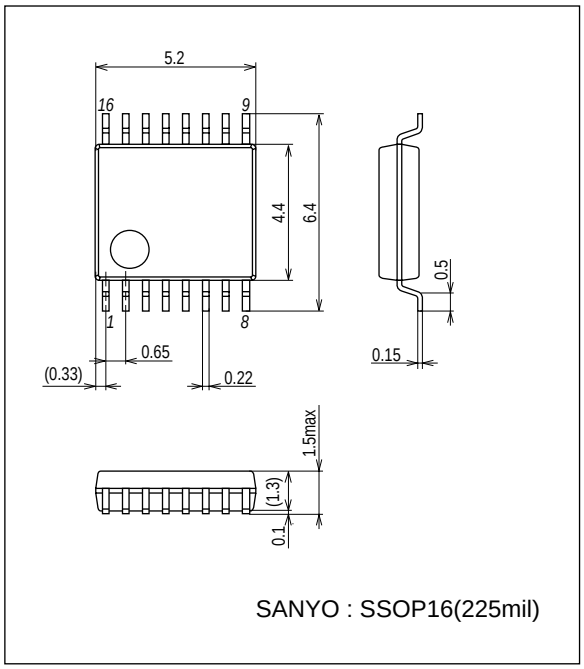
Electrical Characteristics at Ta = 25°C, V_{CC} = 9V, V_I = 300mVrms (left and right input), f = 1kHz

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Quiescent current	$I_{CC}T$	No signal, surround off		4	8	mA
Voltage gain	V_GT	Surround off	-2	0	+2	dB
	V_GS	Surround on	-2	0	+2	dB
Maximum output voltage	V_O max T	THD = 3%, surround off	1	2.5		Vrms
	V_O max S	THD = 3%, surround on	1	2.5		Vrms
Total harmonic distortion	THD T	Surround off		0.01	0.03	%
	THD S	Surround on		0.2	0.5	%
Crosstalk	CT T	Surround off	80	85		dB
Output noise voltage	V_{NO} T	Surround off		-100	-90	dBm
	V_{NO} S	Surround on		-90	-80	dBm
LED current	I_{LED}			6	10	mA

Package Dimensions

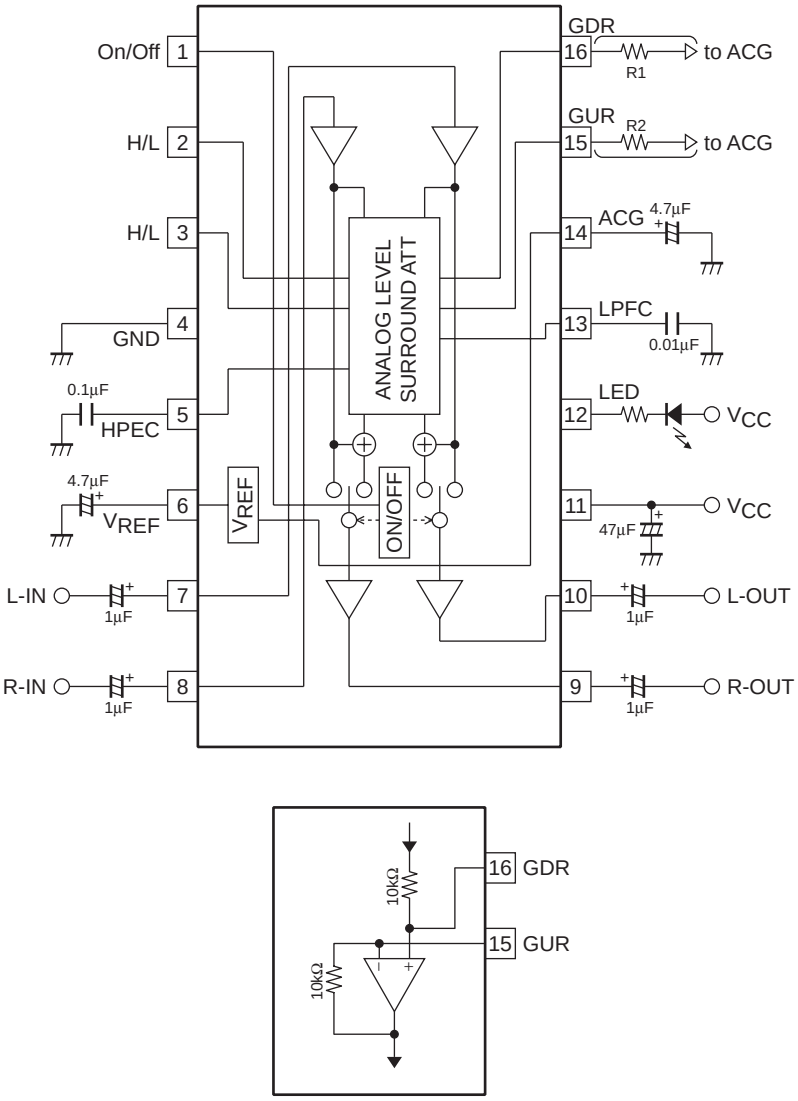
unit : mm (typ)

3178B

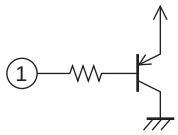
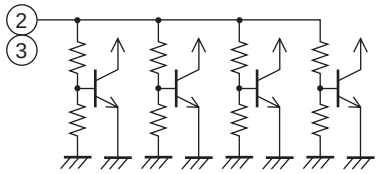
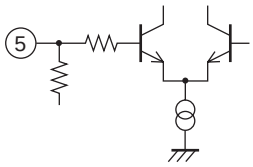
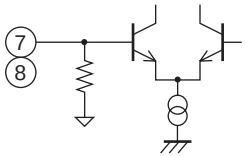
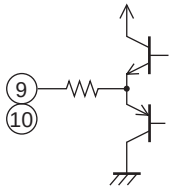
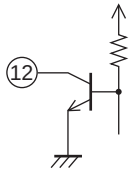
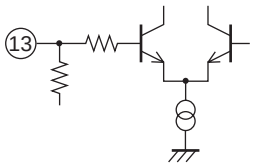
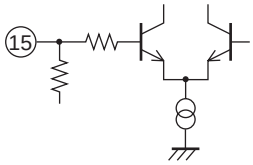
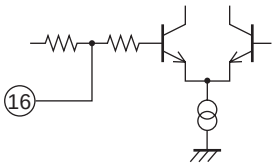


SANYO : SSOP16(225mil)

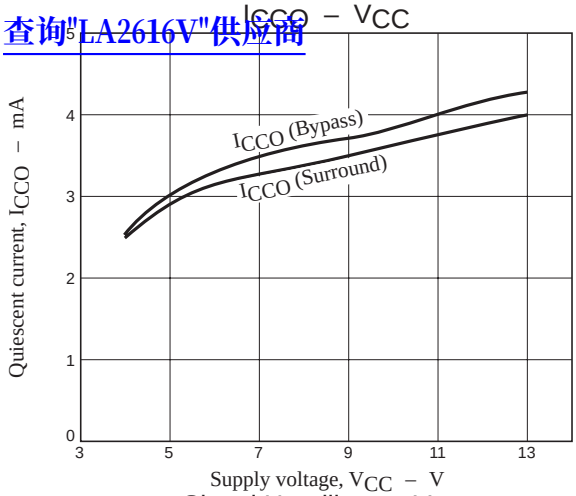
Block Diagram



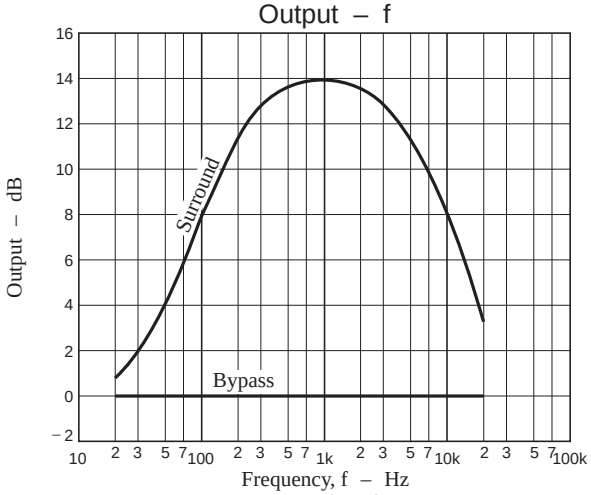
Pin Functions

Pin No.	Pin name	Pin voltage	Pin function	Equivalent circuit
1	CONT1	0V, 5V	Surround on/off control	
2 3	CONT2 CONT3	0V, 5V	Surround effect selection	
5	HPEC	1/2 V_{CC}	High-pass filter capacitor connection	
7 8	L-IN R-IN	1/2 V_{CC}	Input	
9 10	R-OUT L-OUT	1/2 V_{CC}	Output	
12	LED	V_{CC}	LED connection	
13	LPFC	1/2 V_{CC}	Low-pass filter capacitor connection	
15	GUR	1/2 V_{CC}	Surround effect maximum value setting	
16	GDR	1/2 V_{CC}	Surround effect maximum value setting	

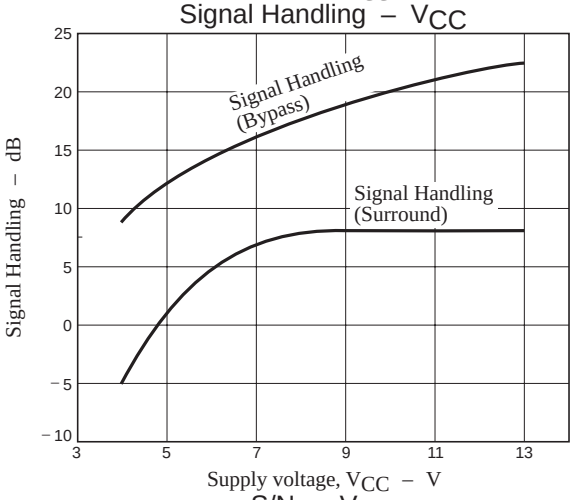
I_{CCO} – V_{CC}



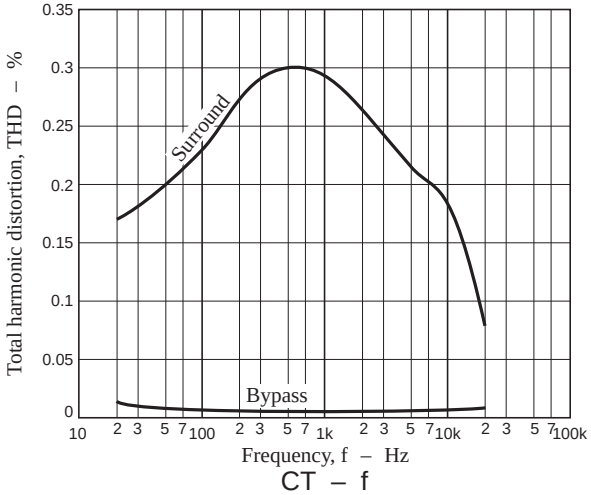
Output – f



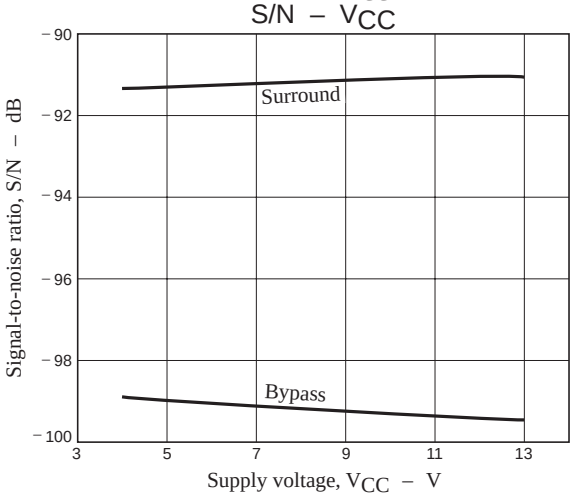
Signal Handling – V_{CC}



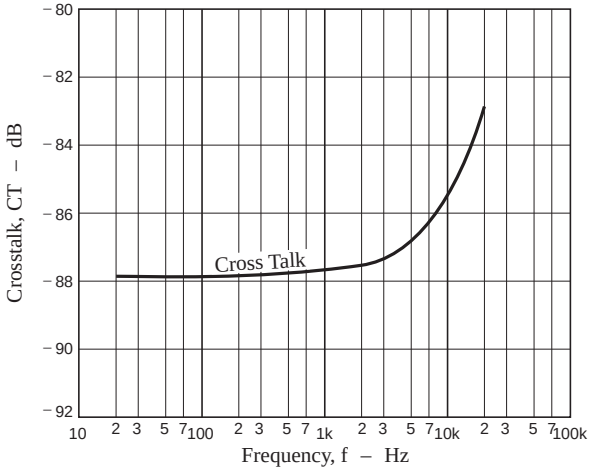
THD – f



S/N – V_{CC}



CT – f



Surround Effect

The maximum value of the surround effect is set with pins 15 and 16.

- The surround effect is increased by connecting an external resistor to pin 15.
- The surround effect is decreased by connecting an external resistor to pin 16.
- The device may be used with no external resistors on pins 15 and 16.

The level of the surround effect is controlled by pins 1 to 3.

Pin 1	Pin 2	Pin 3	Effect
Low	Low	Low	Maximum
	High	Low	Midiam
	Low	High	Minimum
High	Bypass		

Note* : For the high level, a potential over 3V and under V_{CC} must be used.