Ordering number : ENN6464

Monolithic Linear IC

LA2615, 2615M

Analog Surround IC Featuring the AViSS™ 3D Surround Algorithm*

*: AViSS is a trademark of SANYO Electric Co., Ltd.

Overview

The LA2615 and LA2615M are 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: 16-pin DIP (LA2615) and 16-pin MFP (LA2615M)

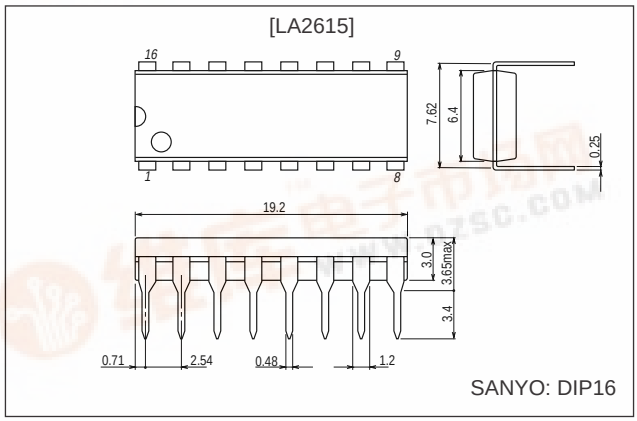
Functions

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

Package Dimensions

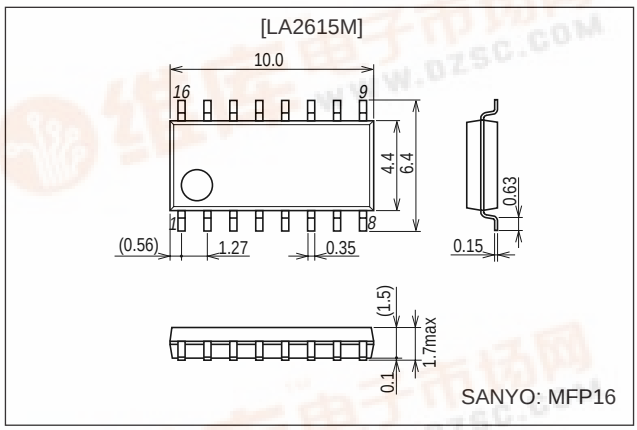
unit: mm

3008B-DIP16



unit: mm

3035B-MFP16



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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		250	mW
Operating temperature	Topr		–25 to +70	°C
Storage temperature	Tstg		–40 to +125	°C

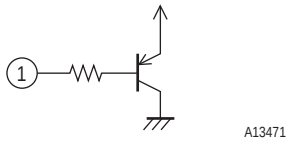
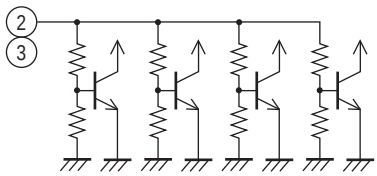
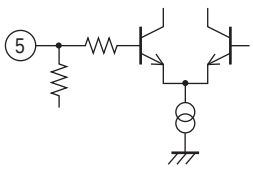
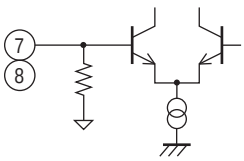
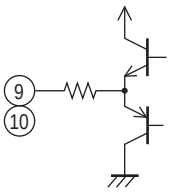
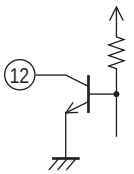
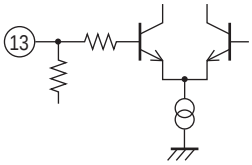
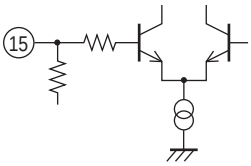
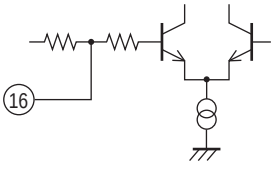
Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V_{CC}		9.0	V

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

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	dB
	V_{NO} S	Surround off		–90	–80	dB
LED current	I_{LED}			6	10	mA

Pin Functions

Pin No.	Pin	Pin voltage	Pin function	Equivalent circuit
1	CONT1	0 V, 5 V	Surround on/off control	 A13471
2 3	CONT2 CONT3	0 V, 5 V	Surround effect selection	 A13472
5	HPEC	1/2 V_{CC}	High-pass filter capacitor connection	 A13473
7 8	L-IN R-IN	1/2 V_{CC}	Input	 A13474
9 10	R-OUT L-OUT	1/2 V_{CC}	Output	 A13475
12	LED	V_{CC}	LED connection	 A13476
13	LPFC	1/2 V_{CC}	Low-pass filter capacitor connection	 A13477
15	GUR	1/2 V_{CC}	Surround effect maximum value setting	 A13478
16	GDR	1/2 V_{CC}	Surround effect maximum value setting	 A13479

Surround Effect

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

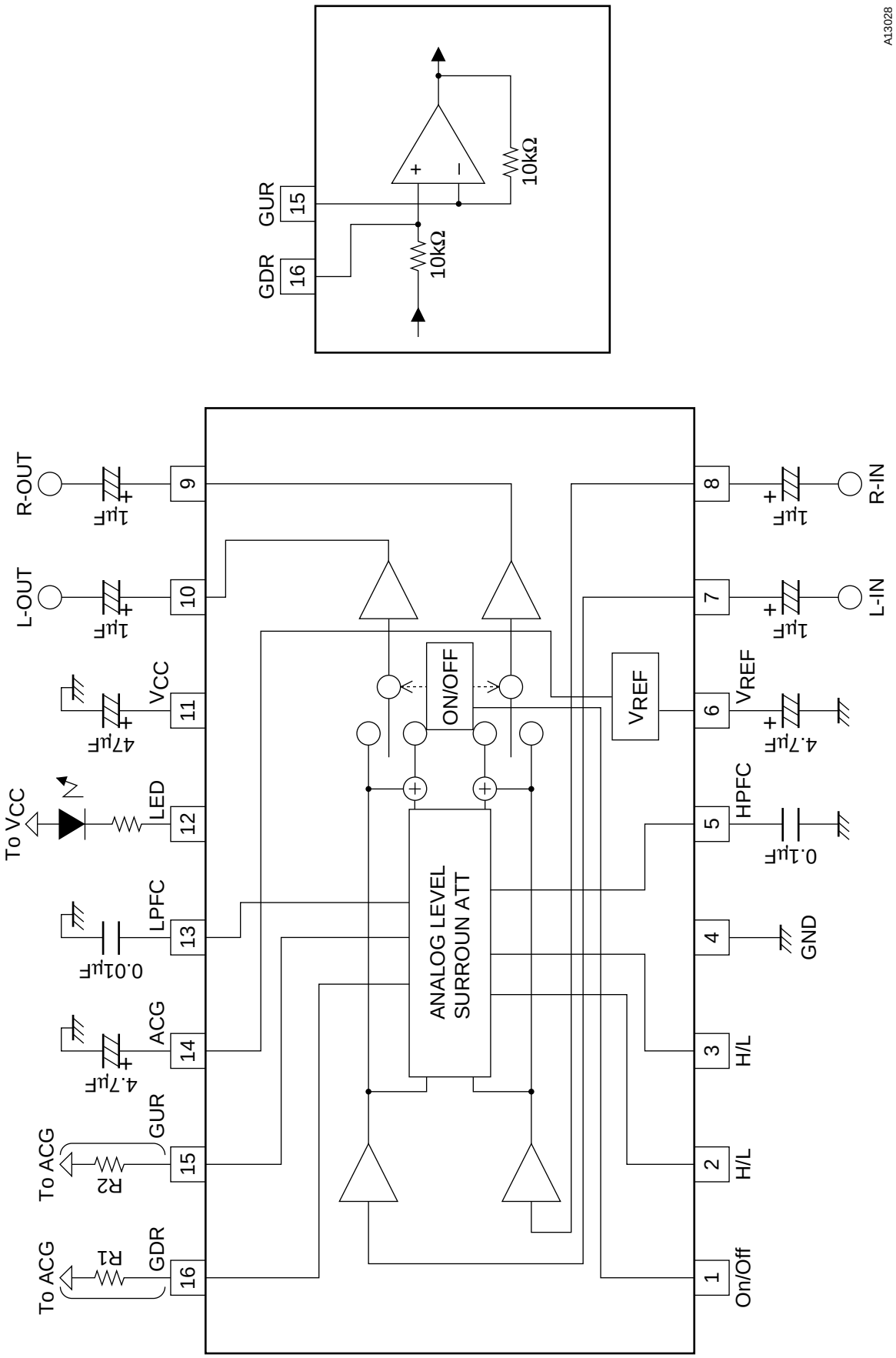
- The surround effect is increased by connecting an external resistor to pin 15.
- The surround effect is decreased by connecting an external resistor to pin 16.
- The device may be used with no external resistors on pins 15 and 16.

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

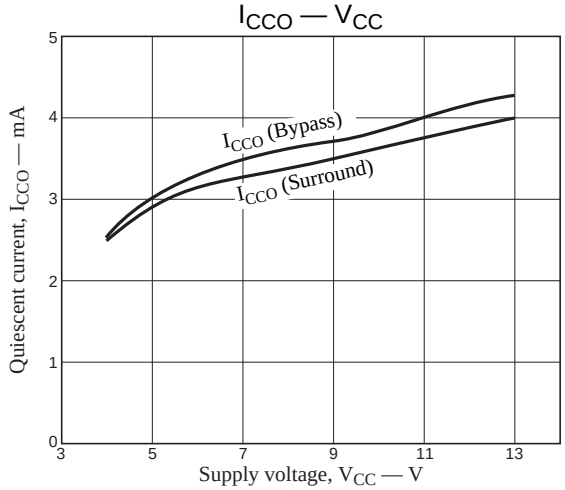
Pin 1	Pin 2	Pin 3	Effect
Low	Low	Low	Maximum
	High	Low	Midiam
	Low	High	Minimum
High	Bypass		

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

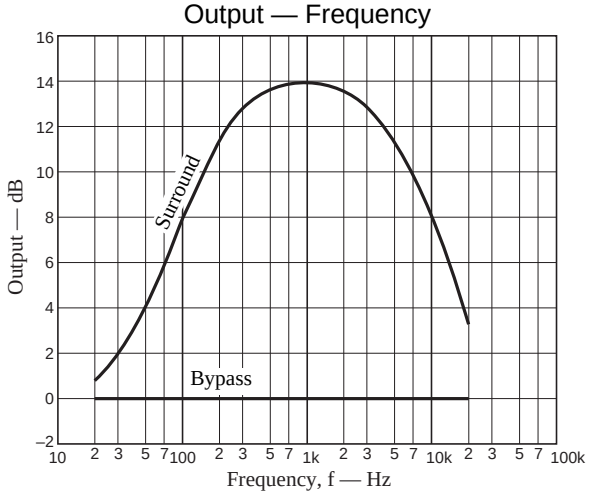
Block Diagram



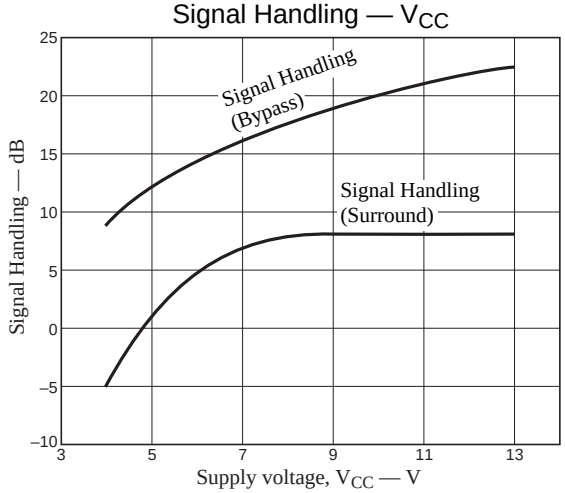
I_{CCO} — V_{CC}



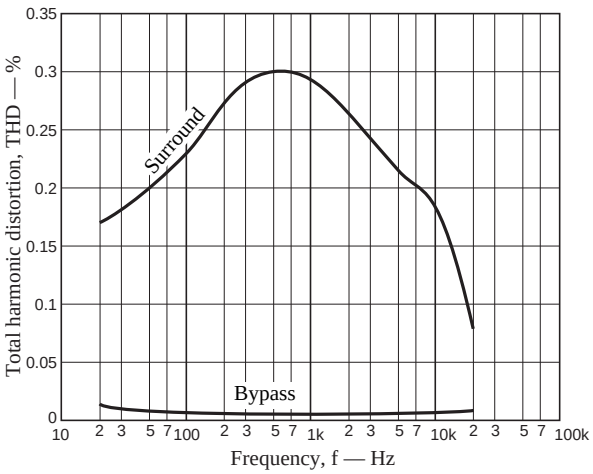
Output — Frequency



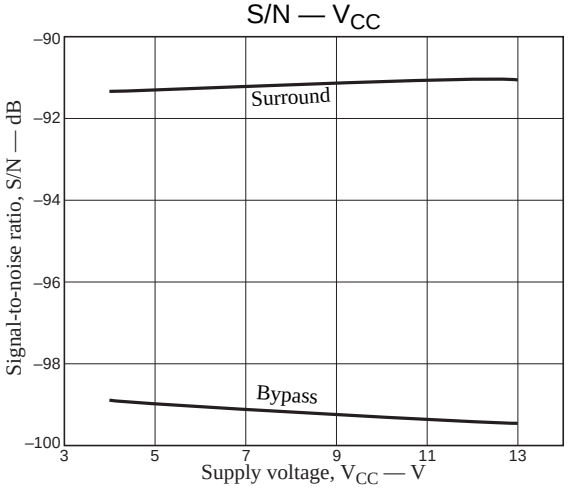
Signal Handling — V_{CC}



THD — f



S/N — V_{CC}



CT — f