

# LA2615, 2615M

# Analog Surround IC Featuring the AViSSTM 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)

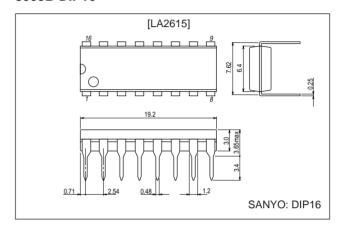
## **Functions**

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

# **Package Dimensions**

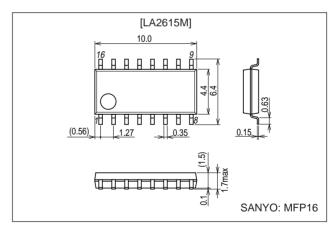
unit: mm

### 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 <sub>CC</sub> 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 $Ta = 25^{\circ}C$

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V <sub>CC</sub>		9.0	V

# Electrical Characteristics at $Ta = 25^{\circ}C$ , $V_{CC} = 9~V$ , $V_{I} = 300~mVrms$ (left and right inputs), f = 1~kHz

Parameter	Cumbal	nbol Conditions	Ratings			Unit
Parameter	Symbol	Conditions			max	
Quiescent current	I <sub>CC</sub> T	No signal, surround off		4	8	mA
Voltage gain	V <sub>G</sub> T	Surround off	-2	0	+2	dB
Voltage gain	V <sub>G</sub> S	Surround on	-2	0	+2	dB
Maximum output voltage	V <sub>O</sub> max T	THD = 3%, surround off	1	2.5		Vrms
	V <sub>O</sub> max S	THD = 3%, surround on	1	2.5		Vrms
Total harmonic distortion	THD T	Surround off		0.01	0.03	%
Total Harmonic distortion	THD S	Surround on		0.2	0.5	%
Crosstalk	CT T	Surround off	80	85		dB
Output paige valtage	V <sub>NO</sub> T	Surround off		-100	-90	dB
Output noise voltage	V <sub>NO</sub> S	Surround off		-90	-80	dB
LED current	I <sub>LED</sub>			6	10	mA

# **Pin Functions**

Pin No.	Pin	Pin voltage	Pin function	Equivalent circuit
1	CONT1	0 V, 5 V	Surround on/off control	1 — W — A13471
2 3	CONT2 CONT3	0 V, 5 V	Surround effect selection	2 3 3 4 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3
5	HPEC	1/2 V <sub>CC</sub>	High-pass filter capacitor connection	5 A13473
7 8	L-IN R-IN	1/2 V <sub>CC</sub>	Input	7 8 8 A13474
9	R-OUT L-OUT	1/2 V <sub>CC</sub>	Output	9 W A13475
12	LED	Vcc	LED connection	(12) A13476
13	LPFC	1/2 V <sub>CC</sub>	Low-pass filter capacitor connection	(13) A13477
15	GUR	1/2 V <sub>CC</sub>	Surround effect maximum value setting	(15) A13478
16	GDR	1/2 V <sub>CC</sub>	Surround effect maximum value setting	16 A13479

## **Surround Effect**

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

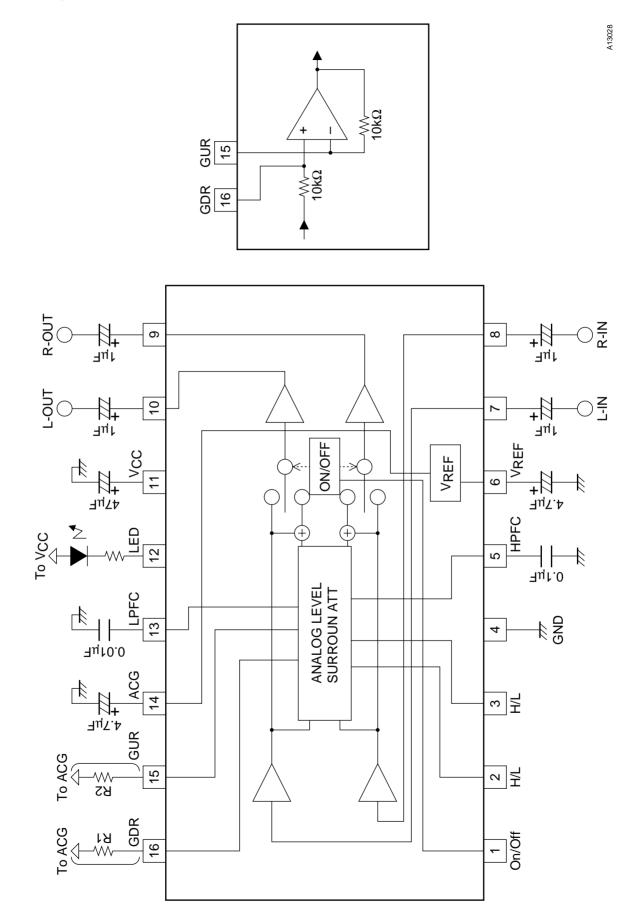
- The surround effect is increased by connecting an external resistor to pin 15.
- The surround effect is decreased by connecting an external resistor to pin 16.
- The device may be used with no external resistors on pins 15 and 16.

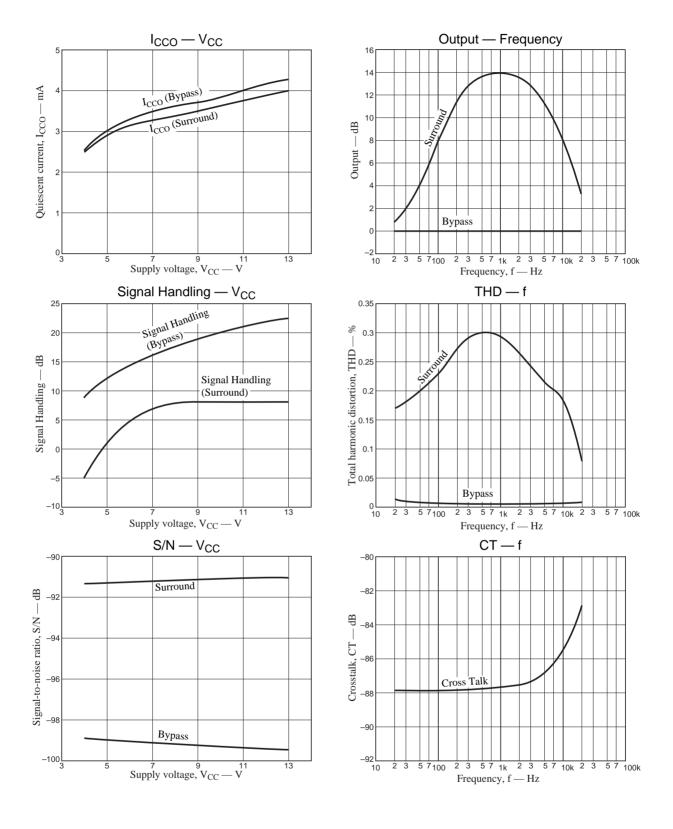
The level of the surround effect is controlled by pins 1 to 3.

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

Note\*: For the high level, a potential over 3 V and under V<sub>CC</sub> must be used.

# **Block Diagram**





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