

# AN7395K, AN7395S

## Spatializer IC

### ■ Overview

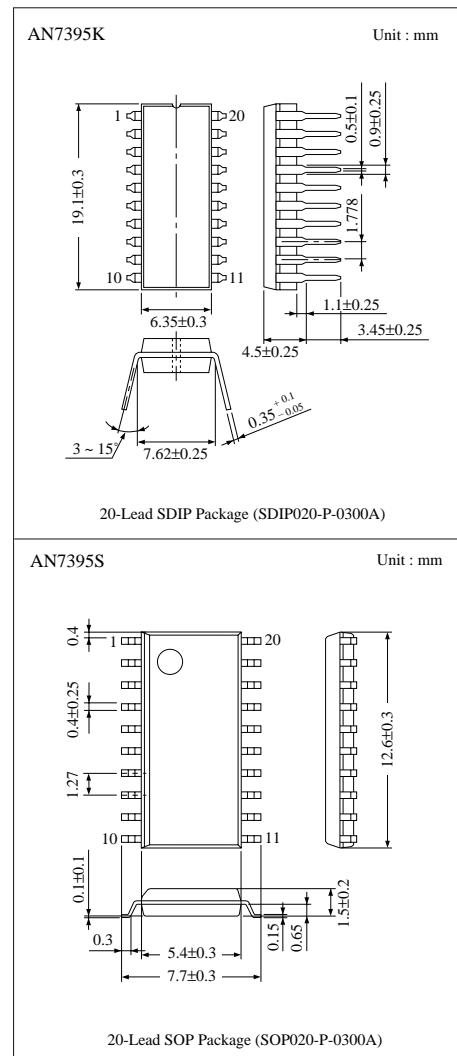
AN7395K and AN7395S developed for the consumer electronics and multimedia markets, the Spatializer integrated circuit is based on Desper Products multi-channel PRO Spatializer® 3D Audio Production System. The AN7395K and AN7395S make use of this innovative technology to enhance and expand the sound from conventional two-speaker systems.

### ■ Features

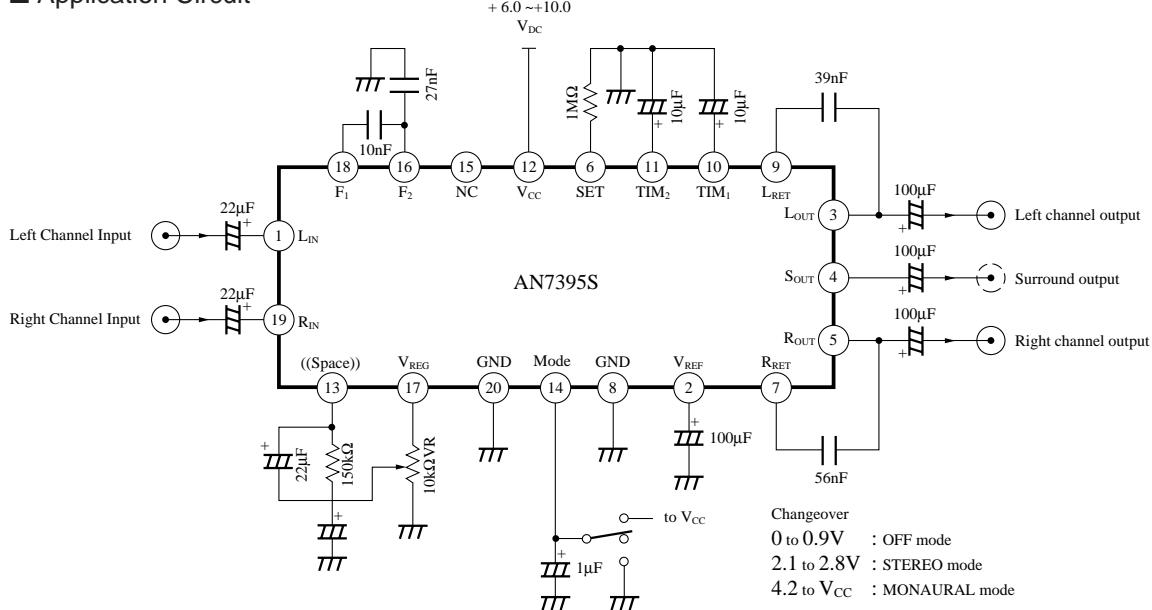
- Profound three-dimensional spatial sound with conventional two-speaker system
- Audio signal recorded through this IC reproducible by ordinary stereo unit
- Optimization of enhancement effect
- Sound expansion variably controllable
- Pseudo stereo effect with monaural sound signal
- Positioning/Shift of individual sound source along 270 degrees arc in real time

### ■ Application

- Computer sound board
- Active speaker system
- Multi-media equipment for home
- Desk-top type TV meeting unit
- HiFi unit (amp., preamp.)
- Stereo TV and video
- Portable audio equipment
- Car audio
- Converter for cable or satellite broadcasting
- Video game for home and business



## ■ Application Circuit



## ■ Product Specification Outline Table

Main Characteristics ( $V_{CC} = 9V$ ,  $f = 1kHz$ ,  $Ta = 25^{\circ}C$ )

Parameter	Symbol	Condition	min.	typ.	max.	Unit
Total Circuit Current	$I_{tot}$	$V_{in} = 0mV$	5	11	17	mA
Maximum Input Voltage	$V_{in}(\max.)$	$L_{in}, R_{in}$ THD = 1% Note 3)	2.0	2.8	—	Vrms
Output Noise Voltage Note 1)	$V_{no}$	$L_{out}, R_{out}$ $R_g = 4.7k\Omega$ Note 4)	—	20	100	μVrms
Total Harmonics Distortion Note 2)	THD	$L_{out}, R_{out}$ $V_{in} = 400mV$ Note 3)	—	0.05	0.3	%
Input Resistance	$R_{IN}$	—	—	50	—	kΩ

Note 1) Measured through filter of A characteristic curve

Note 2) Measured through 15Hz to 30kHz (12dB/OCT) filter

Note 3) Mode : ST  $L_{in} + R_{in}$  ((Space)) MIN

Note 4) Mode : ST ((Space)) MIN

## ■ Operational Description

The AN7395K and AN7395S are respectively equipped with the following devices :

### • Type E Spatializer (Spatial Expansion)

It uses the ordinary stereo record and broadcasting as a sound source and can offer sound expansion exceeding speaker location. →It provides natural sound effect which can not be obtained only with conventional two-speaker stereo system. Sound image positioned at the center does not move at all, and music instruments and sound positioned to left and right surround listeners. The surround stage can be created, exceeding location of two speakers. Real three-dimensional sound field can be created by ambience sound. Listeners feel as if no speakers exist.

### • Type D Spatializer (Directional Positioning)

It can position or shift the individual sound source along 270° arc in real time for example at game play or reproduction. →The AN7395K and AN7395S can support almost infinitive number of inputs. They require only the function panning these signals between L and R. These ICs can be easily incorporated in the video game machine or sound board of computer and thereby the sound source can be controlled in three dimensions without DSP.

### • Type S Spatializer (Spatial Synthesis)

Though almost all the sound of computer, video game or multi-media uses mono-source, playback is often performed by the stereo unit. The spatializer can give the mono-source profoundness and realism, providing the natural and comfortable pseudo stereo effect.

## ■ Miscellaneous

When users use these products, licensing contract should be made with the Desper Products, Inc. For details, refer to the following :

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## ■ Printed Circuit Board Layout

