SOUND SIGNAL PROCESSOR

Surround Processor 2

YM7128 SP-2

■OUTLINE

YM7128 is an LSI which has quality digital surround sound capabilities realized by Yamaha's digital audio technology.

The LSI has built-in A/D and D/A converters which enable digital surround sound processing for analog input/output without using any additional devices. Its eight digital delay lines may provide delay time of up to 100 msec. for each, and digital adding up of delay line signals for two-channel output assures a wide range of application.

■FEATURES

- The built-in RAM realizes digital delay time of 100 msec*, at the maximum.
- Feedback loop can be constructed for reverberation.
- Various surround effect can be obtained by controlling this processor with serial data from microprocessors.
- Digital attenuator is built in for surround sound volume control.
- Sampling frequency is 23.6 kHz*, and 14 bit floating A/D converter is built in.
- Two-times oversampling digital filter and 14 bit floating D/A converter are built in.
- 16 pin DIP packaged silicone gate CMOS LSI, operated by 5V.

NOTE: When XI clock frequency is 7.16 MHz (304 fs is required for X1 clock)

■ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings

Item	Symbol	Rating	Unit
Supply voltage	VDD	−0.3 ~ +7.0	V
Operating temperature	Top	−20 ~ +85	℃
Storage temperature	Tstg	−50 ~ +125	℃

Recommended Operating Conditions (Ta=25℃. VDD=5.0V)

Item	Symbol	Min	Typ	Max	Unit
Supply voltage	VDD	4.75	5.0	5.25	V
Operating temperature	Top	0	25	70	℃

DC Characteristics

Item	Symbol	Condition	Min	Typ	Max	Unit
Supply Current	IDD				50	mA
High-level input voltage (1)	VIH1		2.0			V ※1
Low-level input voltage (1)	VIL1				0.8	V ※1
High-level input voltage (2)	VIH2		4.0			V ※2
Low-level input voltage (2)	VIL2				0.8	V ※2
High-level output voltage	VOH	IOH=−0.4mA	4.0			V
Low-level output voltage	VOL	IOL=0.2mA			0.4	V
Input current leak	IIL	VI=0~5V	−10		10	μA
Input capacitance	CI			5.0	12.0	pF
Output capacitance	CO				10.0	pF

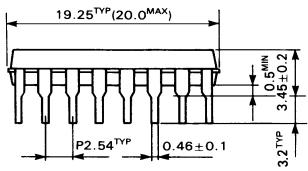※1: Applicable to input terminals except XI
※2: Applicable to XI terminal

■ OUTLINE DIMENSIONS

■ BLOCK DIAGRAM