

USB Two Channel Audio Controller

SN11113

DATA SHEET SN11113 USB Two Channel Audio Controller Revision 1.1

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I. Description

SONIX SN11113 is an USB audio controller. It supports 32KHz, 44.1KHz and 48KHz sampling rate in digital playback and recording; 44.1KHz and 48 KHz sampling rate in analog audio playback and recording.

In digital playback mode, it receives audio stream from PC via USB interface and transmits audio data according to the AES/EBU, IEC60958, S/PDIF consumer interface standards. In analog playback mode, it supports AC 97 Codec for analog playback.

In digital recording mode, it receives S/PDIF digital audio input and sends back to PC through USB. Three sampling rates; includes 32 KHz, 44.1 KHz, and 48 KHz; are automatically locked internally. In analog recording mode, 44.1KHz and 48 KHz sampling rate are supported by analog audio recording.

Totally one control pipe, two isochronous pipes, and one interrupt pipe are supported by SN11113.

II. Ordering information

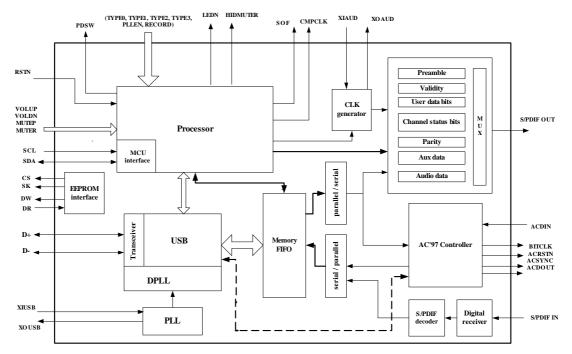
SN11113F : 64-pin LQFP (10x10x1.4 mm)



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III. Block diagram



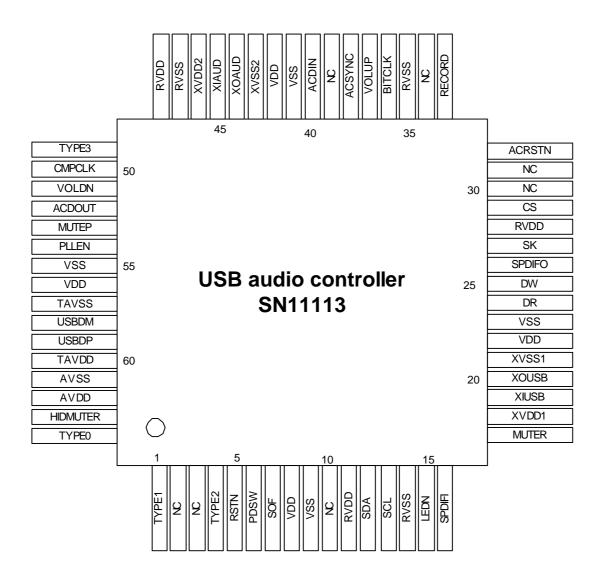
IV. Pin description

4.1 SN11113 pin chart (64-pin LQFP)



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4.2 pin assignment and description (64-pin LQFP)

Pin No.	Pin Name	Pin Type	Description	
1	TYPE1	I, ST	Product type setting pin1	
2	NC			
3	NC			
4	TYPE2	I, ST	Product type setting pin2	
5	RSTN	I, ST, PU	System reset pin, pull low to reset	
6	PDSW	O, 4mA, SR	Power down switch control 0: normal mode, 1: power down mode	
7	SOF	O, 4mA, SR	USB SOF (Start of Frame) pin provides 1KHz signal	
8	VDD	Р	Power pin	
9	VSS	Р	Power pin	



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51	VOLDN	I, ST	Volume down control, edge trigger with 64ms do bounding sizewit	
50	CMPCLK	O, 4mA, SR	PLL comparator input	
49	TYPE3	I, ST	Product type setting pin3	
48	RVDD	Р	Power pin for pad	
47	RVSS	Р	Power pin for pad	
46	XVDD2	Р	Power pin for external crystal	
45	XIAUD	I, ST	12.288 MHz Crystal input / connected to PLL VCO output	
44	XOAUD	0	12.288 MHz Crystal output	
43	XVSS2	Р	Power pin for external crystal	
42	VDD	Р	Power pin	
41	VSS	Р	Power pin	
40	ACDIN	I, ST	AC' 97 Codec serial data input	
39	NC			
38	ACSYNC	O, 4mA, SR	AC' 97 Codec sync (48 kHz) signal	
37	VOLUP	I, ST	Volume up control, edge trigger with 64ms de-bouncing circuit	
36	BITCLK	O, 8mA, SR	AC' 97 serial data clock	
35	RVSS	Р	Power pin for pad	
34	NC			
33	RECORD	I, ST	Recording function enable (=1)	
32	ACRSTN	O, 4mA, SR	AC' 97 Codec reset	
31	NC			
30	NC			
29	CS	O, 4mA, SR	EEPROM chip select	
28	RVDD	Р	Power pin for pad	
27	SK	O, 4mA, SR	EEPROM clock pin	
26	SPDIFO	O, 8mA, SR	SPDIF data output	
25	DW	O, 4mA, SR	EEPROM data output	
			0C45); PU or PD is used for different product ID	
			Fixing this pin to H or L sets USB vendor ID to SONiX USB vendor ID (hex	
24	DR	I, ST	EEPROM data input	
23	VSS	Р	Power pin	
22	VDD	Р	Power pin	
21	XVSS1	Р	Power pin for USB external crystal	
20	XOUSB	0	6 MHz clock osc pin for USB PLL	
19	XIUSB	Ι	6 MHz clock osc pin for USB PLL	
18	XVDD1	Р	Power pin for USB external crystal	
17	MUTER	I, ST	Recording mute, edge trigger with 64ms de-bouncing circuit	
16	SPDIFI	I, ST	Input pin for SPDIF signal	
15	LEDN	O, 8mA, SR	LED indicator pin, output low after power on reset, toggle during operation	
14	RVSS	P	Power pin for pad	
13	SCL	I, ST	Two wire serial port clock pin for external MCU control	
12	SDA	I/O, 4mA, SR	Two wire serial port data pin for external MCU control	
11	RVDD	Р	Power pin for pad	



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52	ACDOUT	O, 4mA, SR	AC' 97 Codec serial data	
53	MUTEP	I, ST	Playback mute control pin, edge trigger with 64ms de-bouncing circuit	
54	PLLEN	I, ST	Use PLL (=1) or Crystal at XIAUD pin	
55	VSS	Р	Power pin	
56	VDD	Р	Power pin	
57	TAVSS	Р	Power pin for USB transceiver	
58	USBDM	I/O	USB data minus	
59	USBDP	I/O	USB data plus	
60	TAVDD	Р	Power pin for USB transceiver	
61	AVSS	Р	Power pin for PLL	
62	AVDD	Р	Power pin for PLL	
63	HIDMUTER	O, 8mA, SR	Playback mute led indicator	
64	TYPE0	I, ST	Product type setting pin0	

** All input pin are 5 volt tolerance, TTL level and Schmitt trigger All output pins are slew rate control

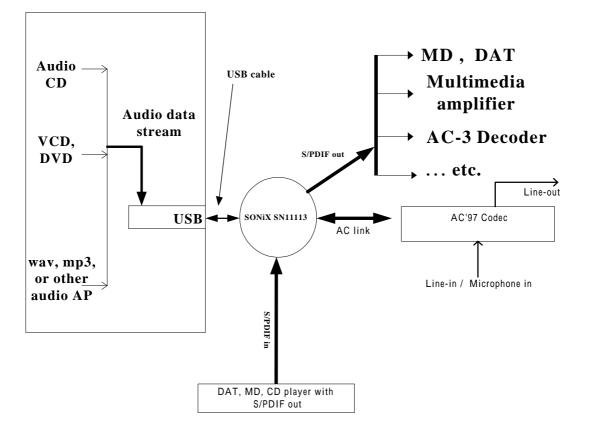
I – input pin , O – output pin, P – power pin, ST – Schmitt trigger, SR – slew rate control, PU/PD – pull up or pull down



V. Application

5.1 Application example

PC or NoteBook

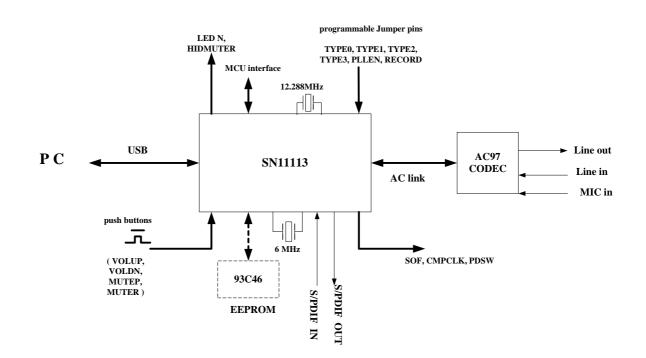


5.2 Brief application circuit chart



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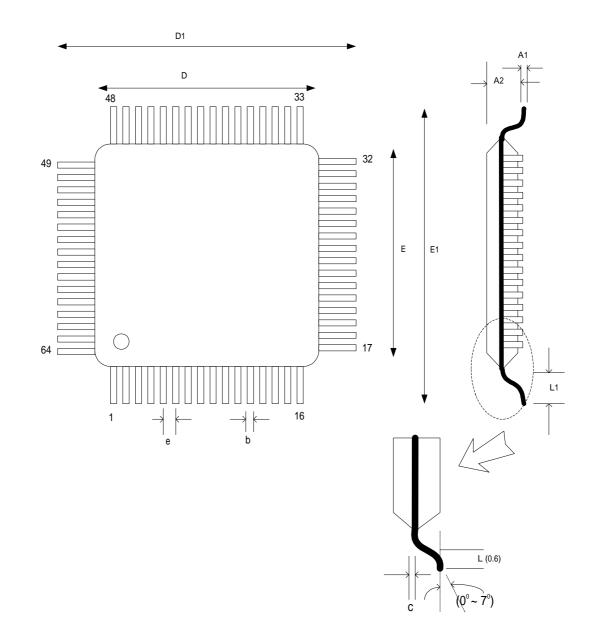
* detail application circuit is available by customer request

VI. Package Specification



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Lead Count	Body Size			
64	D	Е	D1	E1
	10.00	10.00	12.00	12.00

Stand-off	Body Thk	Lead Length	Lead Width	Lead Thk	Lead Pitch
A1	A2	L1	b	с	e
0.10	1.40	1.00	0.24	0.125	0.50
	•	•	•	•	TT •/

Unit : mm



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Revision History

Revision	Revision Date	Description of changes
Revision V1.02	Apr. 11, 2003	Initial Release
Revision V1.1	March 19, 2004	Format modification



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