



TE8802L

USB 2.0 High-Speed

**Pure-HD USB Audio
Streaming Controller**

Galaxy Far East Corporation

1. Overview

TE8802L provides a very flexible USB2.0-based audio & multimedia solution. Interleaved 2-channel input and output with 16/24-bit resolution and 44.1/48/88.2/96/176.4/192K sample rate are supported.

TE8802L can be partitioned into 4 major blocks, which include the USB core, MCU processor, DMA control, and the peripheral control for I2S/I2C/SPI/UART/MIDI interfaces.

2. Features

USB2.0 High-Speed device supporting Audio Class v2.0

USB2.0 Full-Speed device supporting Audio Class v1.0

USB HID device supported for GPIO/ I2C/ SPI function

■ Audio Features

- USB2.0 Audio Class v2.0 and v1.0
- 2-Inputs support by one I2S pairs with 128/256 Fs.
- 2-Output support by one I2S pairs with 128/256 Fs.
- Resolutions support 16/ 24-bit with sampling rates support 44.1/48/88.2/96/176.4/192KHz
- Adaptive/Asynchronous Mode supported
 - High-Speed mode support Adaptive and Asynchronous operate
 - Full-Speed mode support Adaptive operate only
- Built in one IEC60958 professional 24 bit/96KHz S/PDIF RX
- Built in one IEC60958 professional 24 bit/192KHz S/PDIF TX

■ Peripheral Features

- One set of master I2C ports
- Two sets of standard MPU-401 compliant MIDI Tx/Rx pair by UART with pass-thru.
- One USART 0, master or slave clocked synchronous/asynchronous operation.
- Two SPI, master or slave mode supported.

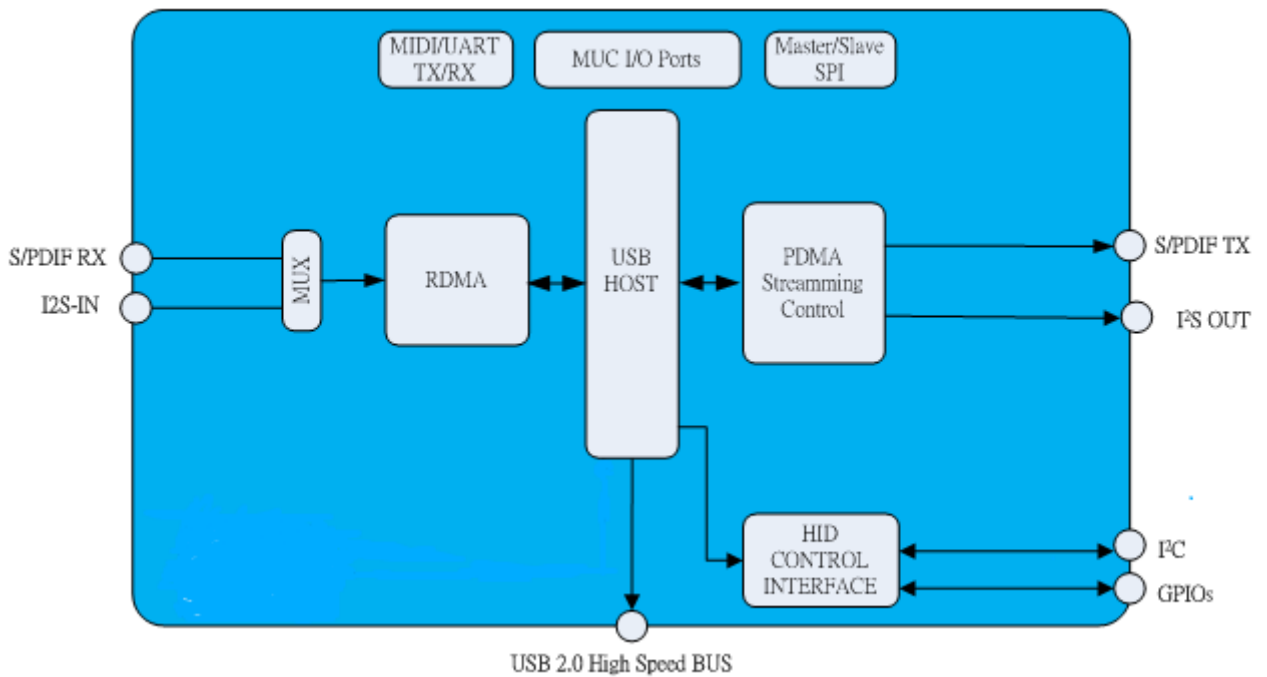
■ Other Features

- PLL integrated to support single 12MHz crystal operation
- Built in 1.8V LDO
- 1.8V core, 3.3V analog and I/O (3.3V tolerant)
- 0.18 um CMOS process
- LQFP-128 package
- PB-Free

3. Applications

- USB DAC amp
- Hi-Fi Studio
- Musical Instrument
- Digital Audio Workstation

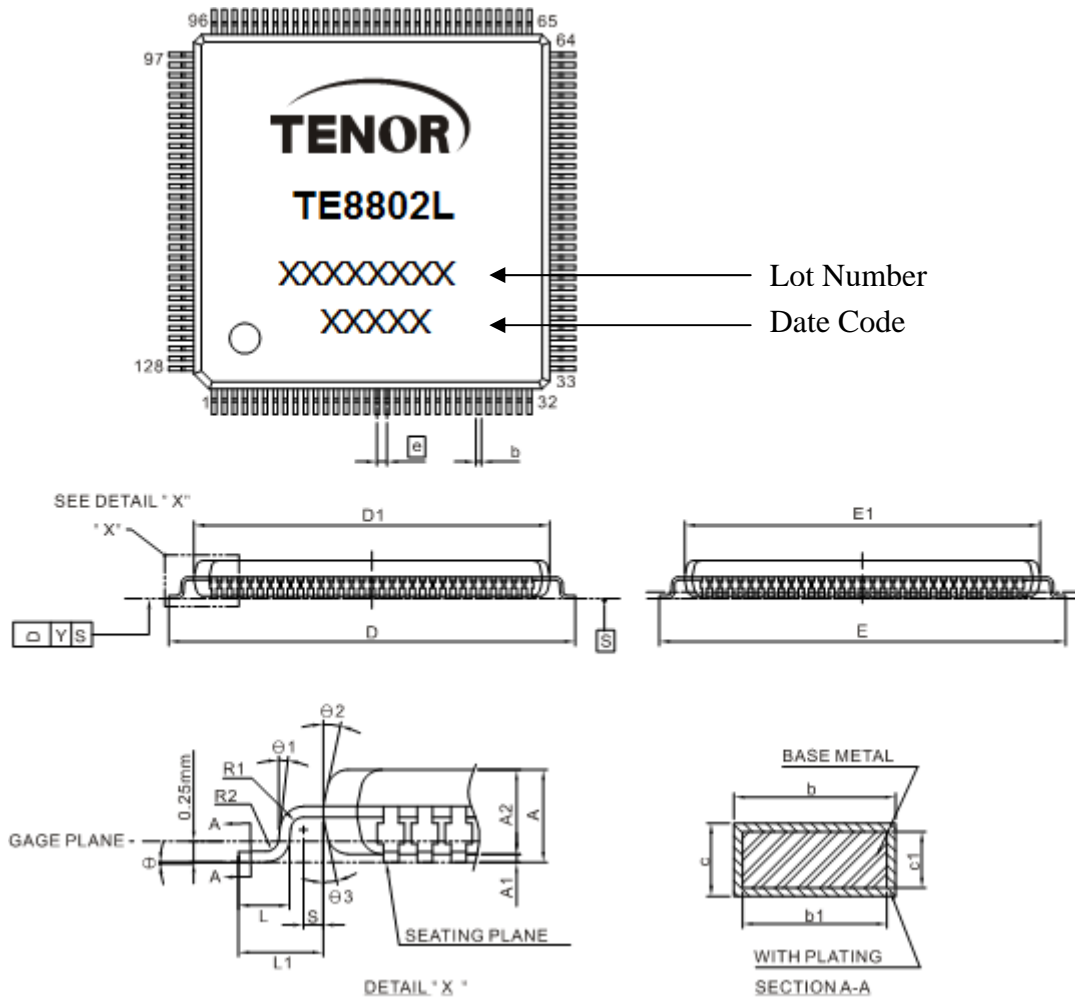
4. Blocks Diagram



■ **Standard Operation Modes**

- USB to SPDIF TX
- USB to I2S Output (connect to DAC)
- SPDIF RX to USB
- I2S Input to USB (I2S connect to ADC)

5. Package Dimensions



128-Pin LQFP Package Mechanical and Marking Specifications

SYMBOL	DIMENSION(MM)			DIMENSION(NIL)		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A			1.6			63
A1	0.05		0.15	2		6
A2	1.35	1.40	1.45	53	55	57
b	0.13	0.18	0.23	5	7	9
b1	0.13	0.16	0.19	5	6.3	7.5
c	0.09		0.2	4		8
c1	0.09		0.16	4		6
D	16.00 BSC			630 BSC		
D1	14.00 BSC			551 BSC		
E	16.00 BSC			630 BSC		
E1	14.00 BSC			551 BSC		
e	0.40 BSC			16 BSC		
L	0.45	0.60	0.75	18	24	30
L1	1.00REF			39 REF		
R1	0.08			3		
R2	0.08		0.20	3		8
Y			0.075			3
θ	0°	3.5°	7°	0°	3.5°	7°
θ1	0°			0°		
θ2	11°	12°	13°	11°	12°	13°
θ3	11°	12°	13°	11°	12°	13°
s	0.20			8		

Note.

REFER TO JEDEC MS-026 / BBC
 DIMENSION D1 AND E1 DO NOT INCLUDE MOLD PROTRUSION.
 DIMENSION b DOES NOT INCLUDE DAMBER PROTRUSION. ALLOWABLE THE MAXIMUM b DIMENSION BY MORE THAN 0.08mm.
 ALL DIMENSIONS IN MILLIMETERS.