



BTM-38-Z1

DATA SHEET

26 May 2016

Version 1.0

SHENZHEN TTK TECHNOLOGY CO., LTD.

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ShenZhen TTK Technolghy CO.,LTD

Website: WWW.szttk.com

TEL:0755-89484041 FAX:0755-89484040

TTK DSP 数字音频处理模块

BTM-38-Z1 (RF 发射系列):

一>概述:

BTM-38-Z1 采用高性能专业音频处理双核 DSP 芯片,内置 ADC/ DAC ,RF 音频发射, 数字接口丰富,支持 TDS 解码,适合作为多媒体/汽车音响的音频处理模块,使客户可以方便快速开发出多种音频产品.

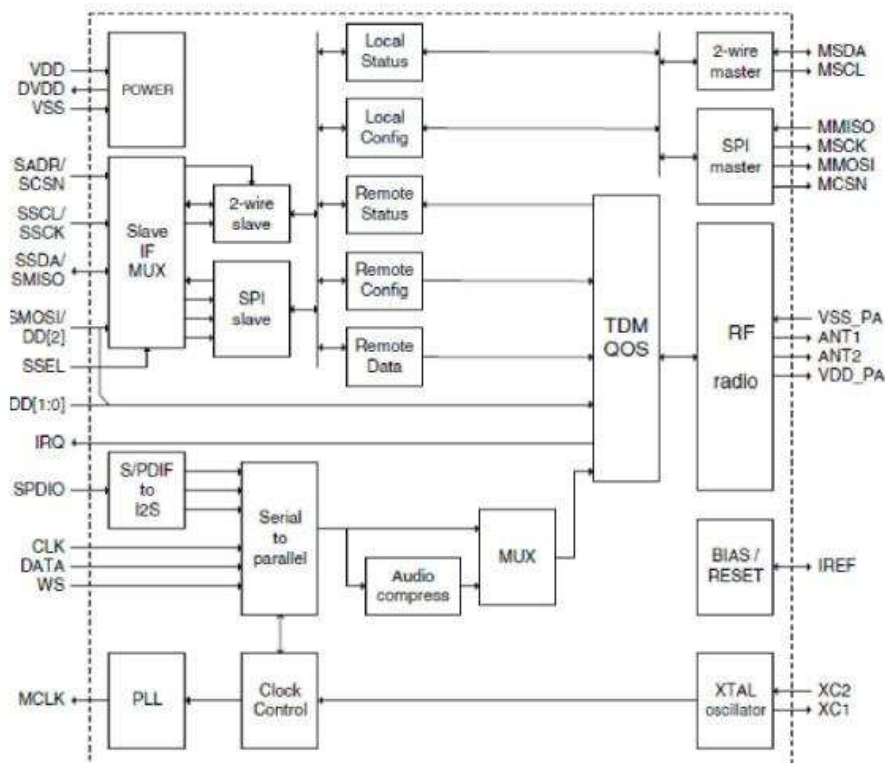
模组尺寸: L43 x W22 x T3mm

二>产品功能特点:

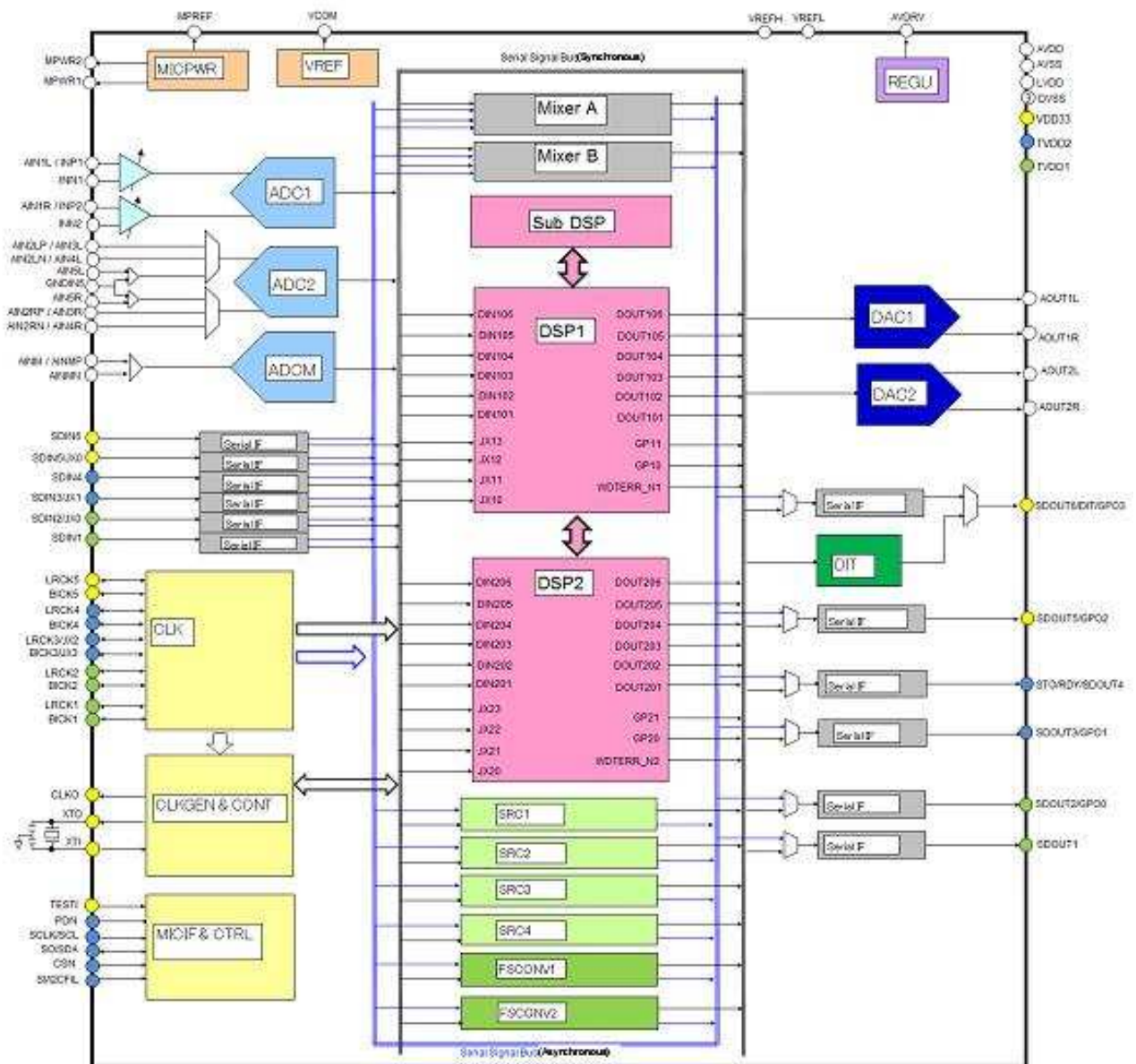
- 1.采用专业音频处理双核 dsp 芯片,
- 2.四路模拟差分/端单输入,每路内置 ADC $f_s=8\text{kHz}$ to $192\text{kHz}/24\text{bit}$, $S/N:102\text{dB}$ ($f_s=48\text{kHz}$, Differential Input), 数字滤波器,增益调节,多段 EQ,压限,延时,3D.
- 3.独立五路数字输入 LRCK/BICK x 5SDIN, 支持 MSB32, 24-bit/ LSB24, 20, 16-bit/I2S.PCM.
- 4.四路模拟输出, 每路内置 DAC $f_s=8\text{kHz}$ to 192kHz , $S/N:108\text{dB}(f_s=48\text{kHz})$.
- 5.独立六路数字输出,可方便快捷组 2.0,2.1,5.1,7.1...最大 16 通道输出.
- 6.RF 音频发射空中速率 4Mbps,数字音频 f_s 高达 48kHz .,分辨率高达 24bit.可编程控时延.适用 Soundbar 的低音发射,从而省去连线的烦扰.
- 7.丰富的外部扩展接口,I2C,UART,GPIO,支持外挂蓝牙,SPDIF,HDMI,WiFi,等主流多媒体音频.可作为客户产品的主控或受控.

三>模块内部结构

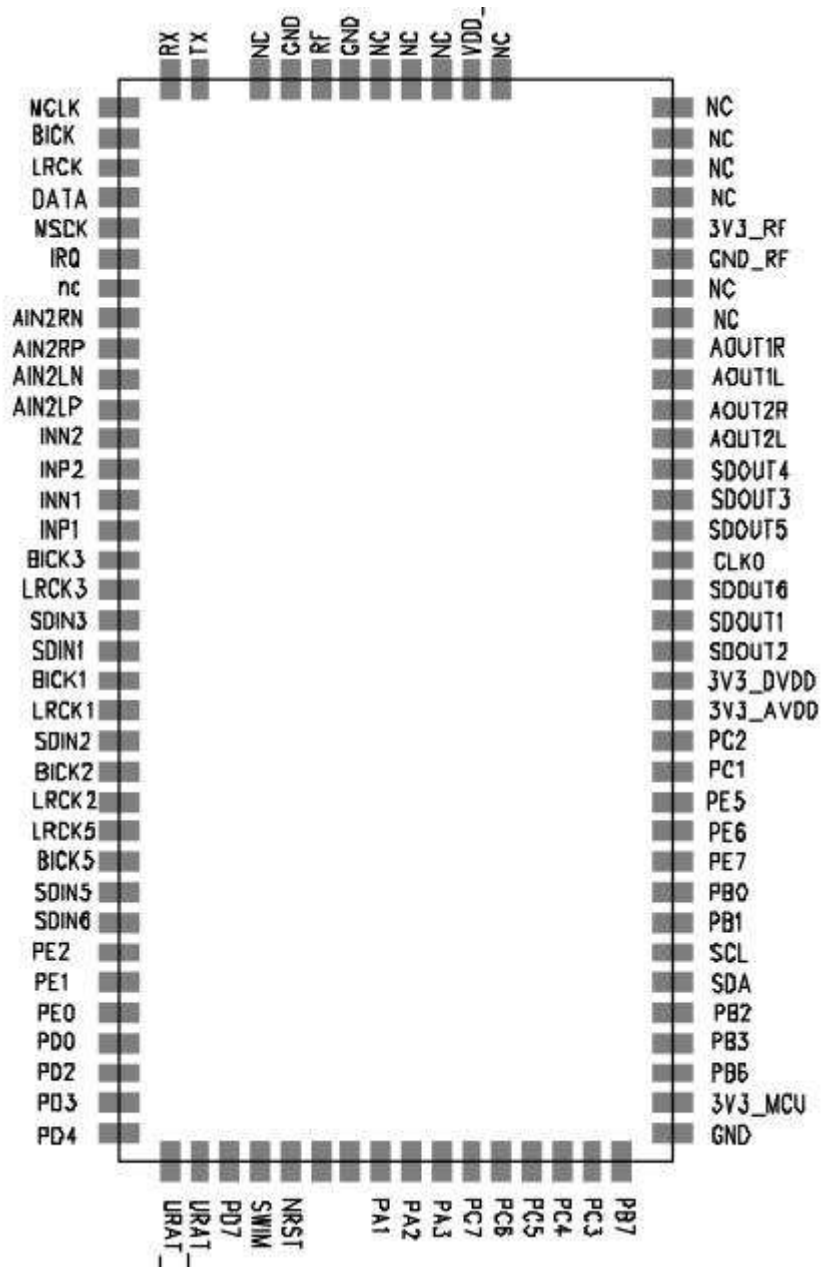
1>RF 发射部分:



2>DSP 部分



四>模组引脚功能:



No	符号	名称	功能
1	MCLK	I2S	TEST PORT
2	BICK	I2S	TEST PORT
3	LRCK	I2S	TEST PORT
4	DATA	I2S	TEST PORT
5	MSCK	SPI	TEST PORT
6	IRQ	IRQ	Interrupt request port
7	NC		
8	AIN2RN	Analog Audio	Analog Input
9	AIN2RP	Analog Audio	Analog Input
10	AIN2LN	Analog Audio	Analog Input
11	AIN2LP	Analog Audio	Analog Input
12	INN2	Analog Audio	Analog Input
13	INP2	Analog Audio	Analog Input
14	INN1	Analog Audio	Analog Input
15	INP1	Analog Audio	Analog Input
16	BICK3	Digital Audio	I2S PORT
17	LRCK3	Digital Audio	I2S PORT
18	SDIN3	Digital Audio	I2S PORT
19	SDIN1	Digital Audio	I2S PORT
20	BICK1	Digital Audio	I2S PORT
21	LRCK1	Digital Audio	I2S PORT
22	SDIN2	Digital Audio	I2S PORT
23	BICK2	Digital Audio	I2S PORT
24	LRCK2	Digital Audio	I2S PORT
25	BICK5	Digital Audio	I2S PORT
26	LRCK5	Digital Audio	I2S PORT
27	SDIN5	Digital Audio	I2S PORT
28	SDIN6	Digital Audio	I2S PORT
29	PE2	GPIO	GPIO
30	PE1	GPIO	GPIO
31	PE0	GPIO	GPIO
32	PD0	GPIO	GPIO
33	PD2	GPIO	GPIO
34	PD3	GPIO	GPIO
35	PD4	GPIO	GPIO
36	URAT_TX2	URAT	URAT/GPIO
37	URAT_RX2	URAT	URAT/GPIO
38	PD7	GPIO	GPIO
39	SWIM	SPI	SPI PORT
40	NRST	SPI	SPI PORT
41	GPIO	GPIO	GPIO

42	GPIO	GPIO	GPIO
43	PA1	GPIO	GPIO
44	PA2	GPIO	GPIO
45	PA3	GPIO	GPIO
46	PC7	GPIO	GPIO
47	PC6	GPIO	GPIO
48	PC5	GPIO	GPIO
49	PC4	GPIO	GPIO
50	PC3	GPIO	GPIO
51	PB7	GPIO	GPIO
52	GND	GND	GND
53	3V3_MCU	POWER	POWER
54	PB6	GPIO	GPIO
55	PB3	GPIO	GPIO
56	PB2	GPIO	GPIO
57	SDA	I2C	SDA
58	SCL	I2C	SCL
59	PB1	GPIO	GPIO
60	PB0	GPIO	GPIO
61	PE7	GPIO	GPIO
62	PE6	GPIO	GPIO
63	PE5	GPIO	GPIO
64	PC1	GPIO	GPIO
65	PC2	GPIO	GPIO
66	3V3_DVDD	POWER	Digital POWER
67	3V3_AVDD	POWER	Analog POWER
68	SDOUT2	Digital Audio	I2S OUTPUT
69	SDOUT1	Digital Audio	I2S OUTPUT
70	SDOUT6	Digital Audio	I2S OUTPUT
71	CLK0	CLK	MAIN_CLK
72	SDOUT5	Digital Audio	I2S OUTPUT
73	SDOUT3	Digital Audio	I2S OUTPUT
74	SDOUT4	Digital Audio	I2S OUTPUT
75	AOUT2L	Analog Audio	Analog output
76	AOUT2R	Analog Audio	Analog output
77	AOUT1L	Analog Audio	Analog output
78	AOUT1R	Analog Audio	Analog output
79	NC	LED	LED
80	NC	LED	LED
81	GND_RF	GND	GND
82	3V3_RF	POWER	POWER
83	NC		
84	NC		

85	NC		
86	NC		
87	NC		
88	VDD_PA	VDD_PA	POWER
89	NC		
90	NC		
91	NC		
92	GND	GND	GND
93	RF	RF	RF
94	GND	GND	GND
95	NC		
96	TX	URAT	URAT/TEST
97	RX	URAT	URAT/TEST