CODEC IC for digital mobile phone

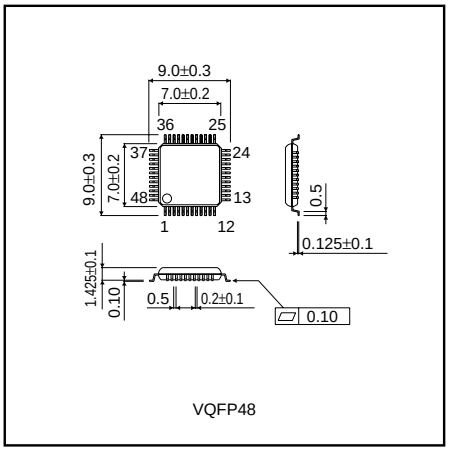
BU8761KV

BU8761KV is a PCM CODEC IC developed for digital mobile phones. This IC incorporates many analog I/O functions such as 14bit precision linear μ / A-LAW codec, two systems of microphone, amplifiers for receiver and earphone, and data signal I/O circuit. Tone generator that can output maximum 3 chord is incorporated.

●Applications

Digital mobile phones

●External dimensions (Units：mm)



VQFP48

●Features

1) +3V single power supply. (V_{DD}=2.7 to 3.3V)
2) 14bit precision linear μ / A-LAW codec.
3) Transmission filter of the codec block is in conformity to the ITU-T recommendation G.714.
4) Built-in PLL circuit for system clock generation.
5) Built-in DSP I/F which is in conformity with digital mobile phones.
6) Arbitary setting of the clock frequency of PCM data transmission is allowed.

μ / A-LAW	64kHz to 2048kHz
Linear	28kHz to 2048kHz

7) Plenty of input / output analog functions :
   - Two systems of built-in microphone amplifier. (differential input type, single input type)
   - Built-in speaker amplifier for receiver. (32ΩBTL type)
   - Built-in speaker amplifier for earphone. (32Ω single type)
   - Built-in speaker amplifier for REXT of call receiving system. (600Ω)
   - Built-in electronic volumes for gain adjustment. (Call-receiving system, call sending system, TONE system)
   - Built-in input / output circuit for data signal which allows external connection.
   - Pop noise of REXT earphone and receiver outputs at the time of switching on and off the power supply is reduced by means of soft mute.
8) Tone generator building in that maximum 3 chord output is possible.
   - DTMF signal, musical scale tone can be generate.
   - Envelope on/ off the output wave shape can be set up in each part.
   - SIN wave, rectangle wave can be chosen in the output wave shape.
9) VQFP48 pin package.

●**Absolute maximum rating** (Unless otherwise noted, Ta = 25°C)

Parameter	Symbol	Limits	Unit
Digital power supply voltage	DV_{DD}	–0.3 to +4.5	V
Analog power supply voltage	RXV_{DD}	–0.3 to +4.5	V
	TXV_{DD}	–0.3 to +4.5	V
Digital pin apply voltage	V_{TD}	DV_{SS}–0.3 to DV_{DD}+0.3	V
Analog pin apply voltage	V_{TA}	RXV_{SS}–0.3 to RXV_{DD}+0.3	V
		TXV_{SS}–0.3 to TXV_{DD}+0.3	V
Input current	I_{IN}	–10 to +10	mA
Power dissipation	Pd	400 *	mW
Storage temperature range	Tstg	–50 to +125	°C
Operation temperature range	Ta	–30 to +85	°C

* Drops by 4.0mW per 1°C when used at more than Ta=25°C.

●**Recommendable operation condition** (Unless otherwise noted, Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Digital power supply voltege	DV_{DD}	2.7	–	3.3	V
Analog power supply voltege	RXV_{DD}	2.7	–	3.3	V
	TXV_{DD}	2.7	–	3.3	V

*Radiation resistance is not included design.

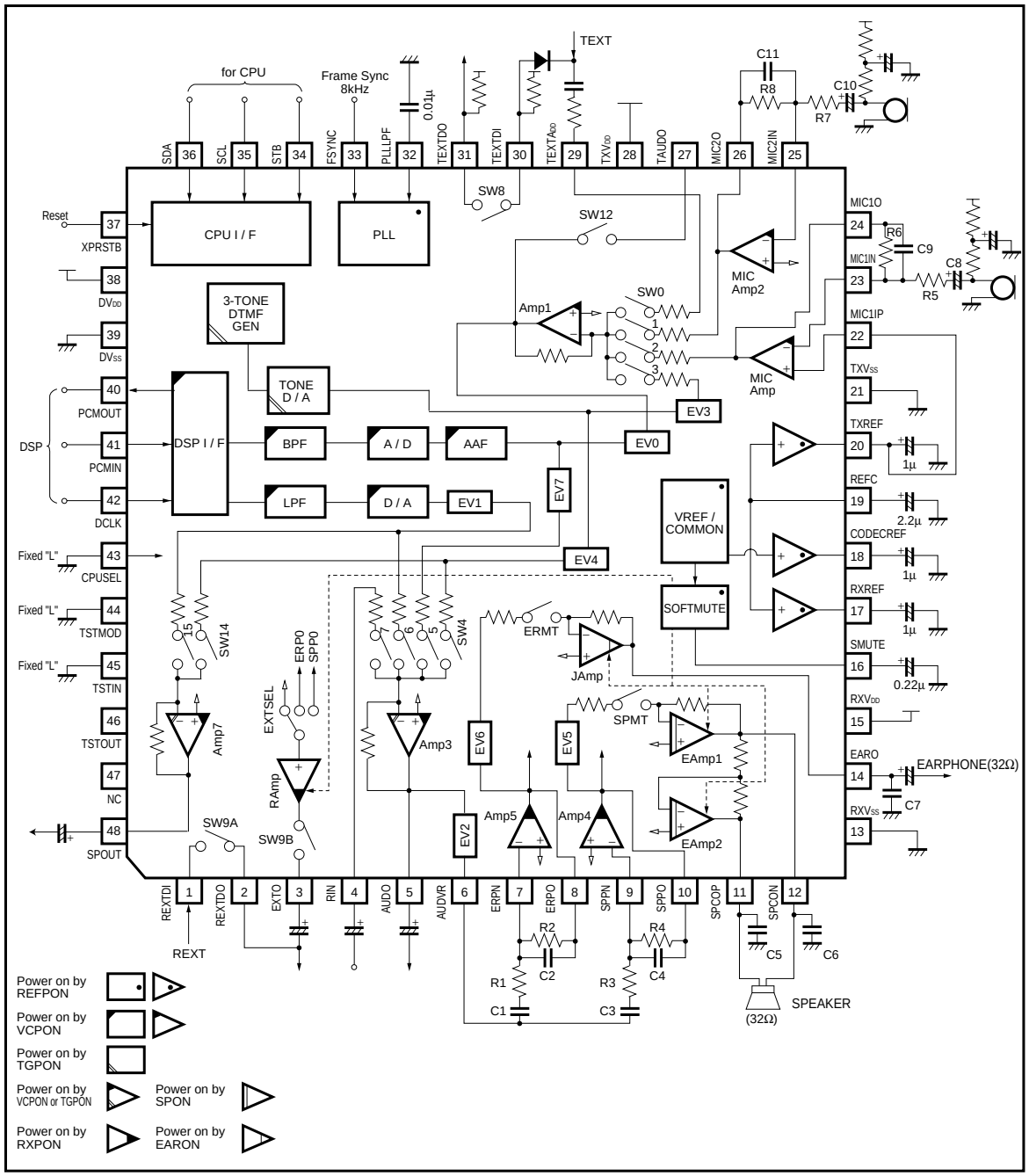
●**Electrical characteristics**

(Unless otherwise noted, Ta = 25°C, DV_{DD} = RXV_{DD} = TXV_{DD} = 3.0V, FSYNC = 8kHz, DCLK = 256kHz, Gain of each attenuator = 0dB)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Current consumption*1	I_{DD1}	–	8.0	11.5	mA	When all operating *2
	I_{DD2}	–	7.0	10.2		Reference, Voice, SPC ON *2
	I_{DD3}	–	6.0	8.6		Reference, Voice, EAR ON *2
	I_{DD4}	–	5.4	7.8		Reference, Voice, RAMP ON *2
	I_{DD5}	–	5.1	7.3		Reference, Voice, ON *2
	I_{DD6}	–	3.7	5.3		Reference, Tone, ON *2
	I_{DD7}	–	3.3	4.8		Only Reference ON *2
	I_{DD8}	–	0.1	20	µA	When all power down, FSYNC, DCLK pin fixed
Digital "H" level input voltage	V_{IH}	0.8DV_{DD}	–	–	V	
Digital "L" level input voltage	V_{IL}	–	–	0.2DV_{DD}	V	
Digital "H" level input current	I_{IH}	–	–	10	µA	V_{IH}=DV_{DD}
Digital "L" level input current	I_{IL}	–10	–	–	µA	V_{IL}=0V
Digital "H" level output voltage	V_{OH}	DV_{DD}–0.5	–	–	V	I_{OH}=–1mA
Digital "L" level output voltage	V_{OL}	–	–	0.5	V	I_{OL}=1mA

*1 Supply voltage (DVDD, RXVDD, TXVDD) : 3V. No load for digital and analog output pin. Digital input pin except FSYNC. CLK pin should be connected to DV_{DD} or DVss.
Analog input pin should be connected to TXREF or RXREF with appropriate resistance.
Soft mute release voltage (SMUTE="0")
*2 FSYNC=8kHz, DCLK=256kHz

●**Application circuit**



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