

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

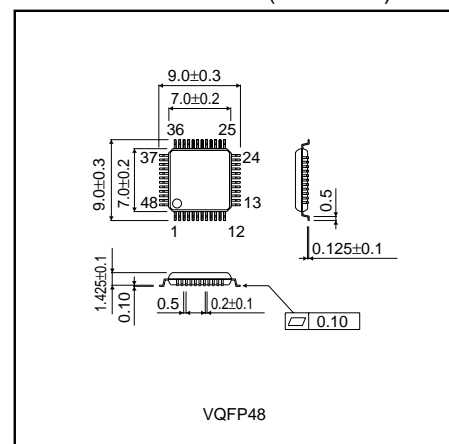
Digital mobile phones

●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) Arbitrary 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. (32Ω BTL 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.

●External dimensions (Units : mm)



Communication ICs

●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	P _d	400 *	mW
Storage temperature range	T _{stg}	-50 to +125	°C
Operation temperature range	T _a	-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 voltage	DV _{DD}	2.7	-	3.3	V
Analog power supply voltage	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)

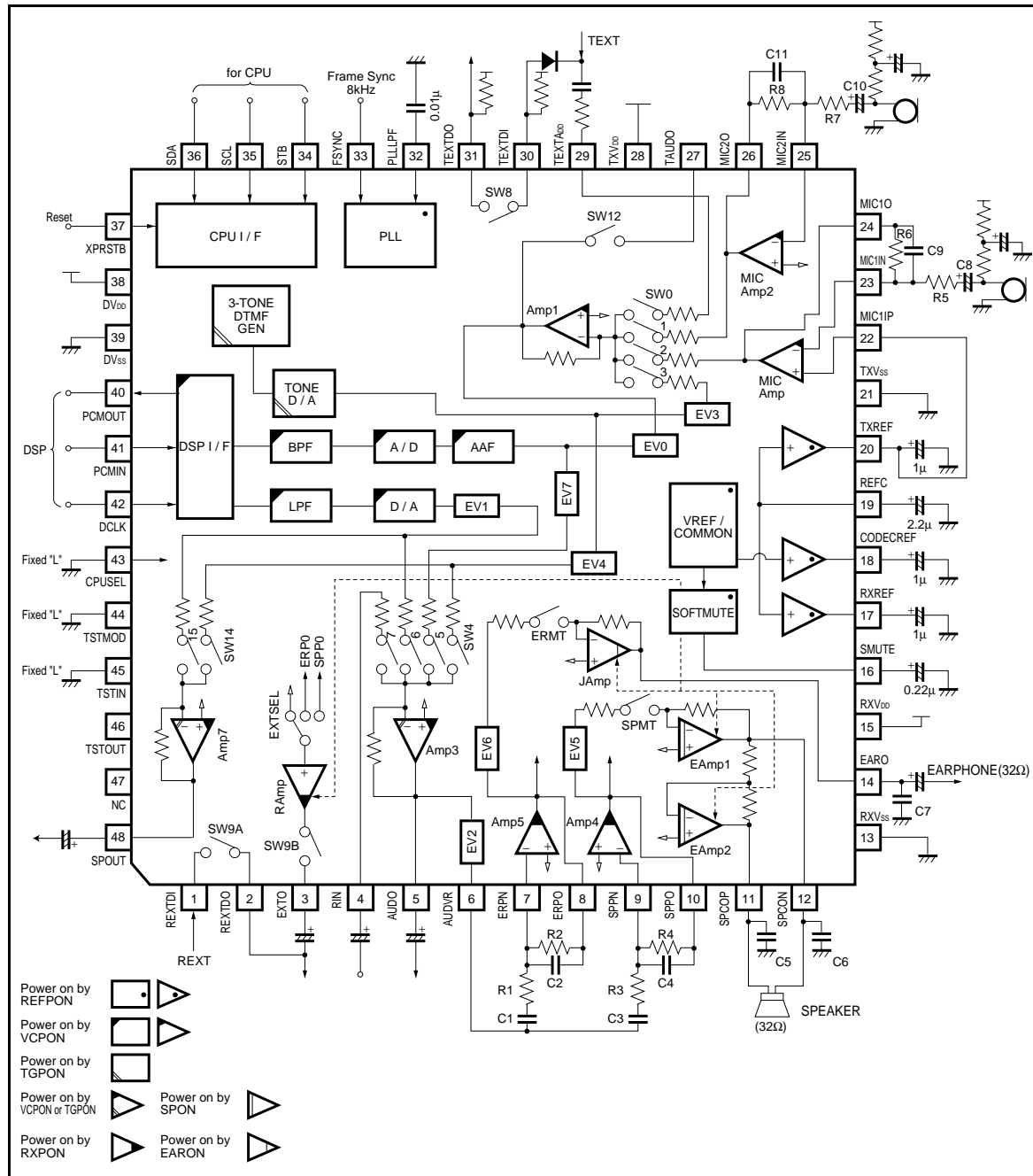
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Current consumption*1	I _{DD1}	-	8.0	11.5	mA	When all operating
	I _{DD2}	-	7.0	10.2		Reference, Voice, SPC ON
	I _{DD3}	-	6.0	8.6		Reference, Voice, EAR ON
	I _{DD4}	-	5.4	7.8		Reference, Voice, RAMP ON
	I _{DD5}	-	5.1	7.3		Reference, Voice, ON
	I _{DD6}	-	3.7	5.3		Reference, Tone, ON
	I _{DD7}	-	3.3	4.8		Only Reference ON
	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 (DV_{DD}, RXV_{DD}, TXV_{DD}) : 3V. No load for digital and analog output pin. Digital input pin except FSYNC. CLK pin should be connected to DV_{DD} or DV_{SS}. Analog input pin should be connected to TXREF or RXREF with appropriate resistance. Soft mute release voltage (SMUTE="0")

*2 FSYNC=8kHz, DCLK=256kHz

Communication ICs

●Application circuit



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