

STRUCTURE	Silicon Monolithic Integrated Circuit
PRODUCT SERIES	Wireless Audio Link LSI (FM Stereo Transmitter)
TYPE	BU2682MUV
FEATURE	<ul style="list-style-type: none"> - Analog Audio and I2S Digital Audio input - 2 wire serial I/F. - Output 2ch. Possible to select TX power by serial I/F. - Possible to operate RDS. - Adjustment free wideband PLL frequency synthesizer (76MHz~108MHz) - Possible to select reference clock frequency freely. - Possible to select pre-emphasis time constant by serial control. - Built-in high performance Low-pass Filter. - Built-in pilot-tone system FM stereo modulator circuit. - The transmission frequency is stable because it has PLL system FM transmitter circuit. - Possible to operate in monaural mode. - Built-in the sound muting circuit.

○ Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit	Condition
Supply voltage	V_{CC}, V_{DD}	4.0	V	Include PAOUT1/2
Data input voltage	V_{IN-D}	-0.3 to $V_{CC}+0.3$	V	
Phase detector output voltage	V_{OUT-P}	-0.3 to $V_{CC}+0.3$	V	
Power dissipation	Pd	780	mW	(Note 1)
Storage temperature	Tstg	-55 to +125	°C	

(Note 1) To use at a temperature higher than Ta=25°C, derate 7.8mW per 1°C.

Status of this document

The Japanese version of this document is the formal specification. A customer may use this translation version only for a reference to help reading the formal version. If there are any differences in translation version of this document, formal version takes priority.

○ Operating Supply Voltage Range

Parameter	Symbol	Limits	Unit	Conditions
Operating supply voltage	$V_{CC} \cdot V_{DD}$	2.7 to 3.6	V	Pin8, 14, 31
	V_{DDIO}	1.7 to 3.6	V	Pin27, with external clock
Operating temperature	T_{opr}	-20 to +85	°C	
Audio input level	V_{IN-A}	to -10	dBV	Pin1, 2
Audio input frequency	f_{IN-A}	20 to 15k	Hz	Pin1, 2
Transmission frequency	f_{TX}	76 to 108	MHz	100kHz step
Control terminal "H" level input voltage1	V_{IH1}	$0.7 \times V_{DDIO}$ to V_{DDIO}	V	Pin15, 16
Control terminal "H" level input voltage2	V_{IH2}	$0.7 \times V_{DDIO}$ to 4.0	V	Pin19, 20
Control terminal "L" level input voltage	V_{IL}	GND to $0.3 \times V_{DDIO}$	V	Pin15, 16, 19, 20
I2S terminal "H" level input voltage	V_{ISH}	$0.7 \times V_{DDIO}$ to V_{DDIO}	V	Pin21, 22, 23
I2S terminal "L" level input voltage	V_{ISL}	GND to $0.3 \times V_{DDIO}$	V	Pin21, 22, 23

○ Electrical Characteristics

Unless otherwise specified $T_a = +25^\circ\text{C}$, $V_{CC} = 3.0\text{V}$, $V_{DDIO} = 3.0\text{V}$

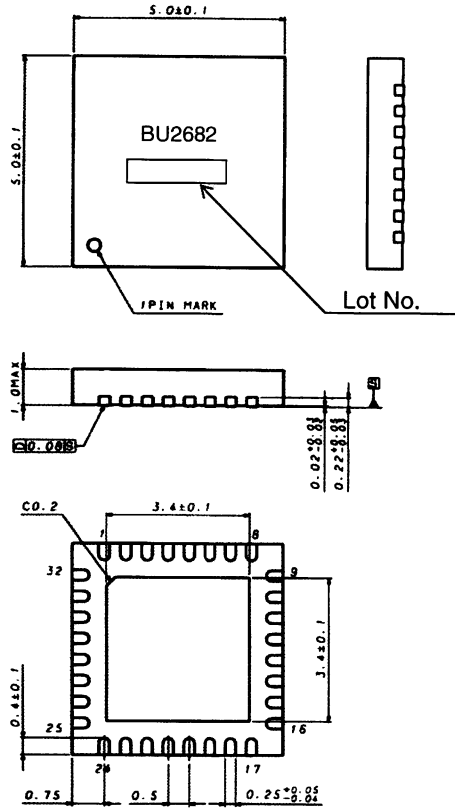
Signal source : $f_{IN} = 1\text{kHz}$, $V_{IN} = -20\text{dBV}$ Common condition : $f_{TX} = 90\text{MHz}$, $\Delta f = \pm 75\text{kHz}$, $\tau = 50\mu\text{s}$

Parameter	Symbol	Limits			Unit	Condition
		Min.	Typ.	Max.		
Quiescent current1	I_{QA}	11	18	27	mA	Tx Power Control : 0dB Analog input mode
Quiescent current2	I_{QD}	8	13	20	mA	Tx Power Control : 0dB Digital input mode
Power down current	I_{STB}	—	0	10	μA	BUSEN=Lo
Signal to noise ratio	SN_{MN}	61	70	—	dB	MONO
	SN_{ST}	60	69	—	dB	L+R
Total harmonic distortion	THD_{MN}	—	0.1	0.3	%	MONO
	THD_{ST}	—	0.1	0.4	%	L+R
Transmission power level	P_{TX}	-11	-8	-5	dBm	Tx Power Control : 0dB
"H" level input current	I_{IH}	—	—	3.0	μA	Pin15, 16 $V_{IN} = 3\text{V}$
"L" level input current	I_{IL}	-3.0	—	—	μA	Pin15, 16 $V_{IN} = 0\text{V}$
"L" level output voltage	V_{OL}	—	—	$0.2V_{DDIO}$	V	Pin20 $I_O = 3\text{mA}$

⊙ This product is not designed for protection against radioactive rays.

⊙ The specification of transmission output level be based on the Radio Law in every country and the area.

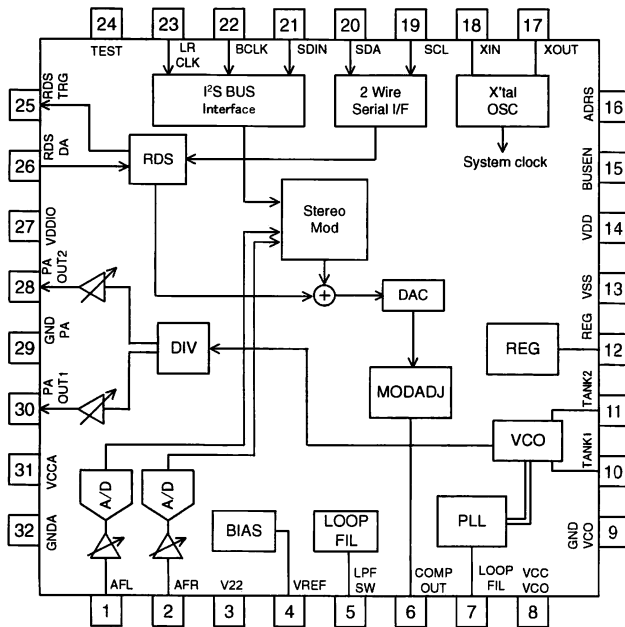
○ Package Outline



VQFN032V5050

(UNIT: mm)

○ Block Diagram



○ Pin No. – Pin Name

No.	Pin name	No.	Pin name
1	AFL	17	XOUT
2	AFR	18	XIN
3	V22	19	SCL
4	VREF	20	SDA
5	LPFSW	21	SDIN
6	COMPOUT	22	BCLK
7	LOOPFIL	23	LRCLK
8	VCCVCO	24	TEST
9	GNDVCO	25	RDSTRG
10	TANK1	26	RDSDA
11	TANK2	27	VDDIO
12	REG	28	PAOUT2
13	VSS	29	GNDPA
14	VDD	30	PAOUT1
15	BUSEN	31	VCCA
16	ADRS	32	GND

○ Cautions on use

- (1) Numbers and data in entries are representative design values and are not guaranteed values of the items.
- (2) Although we are confident in recommending the sample application circuits, carefully check their characteristics further when using them. When modifying externally attached component constants before use, determine them so that they have sufficient margins by taking into account variations in externally attached components and the Rohm LSI, not only for static characteristics but also including transient characteristics.
- (3) Absolute maximum ratings
If applied voltage, operating temperature range, or other absolute maximum ratings are exceeded, the LSI may be damaged. Do not apply voltages or temperatures that exceed the absolute maximum ratings. If you think of a case in which absolute maximum ratings are exceeded, enforce fuses or other physical safety measures and investigate how not to apply the conditions under which absolute maximum ratings are exceeded to the LSI.
- (4) GND potential
Make the GND pin voltage such that it is the lowest voltage even when operating below it. Actually confirm that the voltage of each pin does not become a lower voltage than the GND pin, including transient phenomena.
- (5) Thermal design
Perform thermal design in which there are adequate margins by taking into account the allowable power dissipation in actual states of use.

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