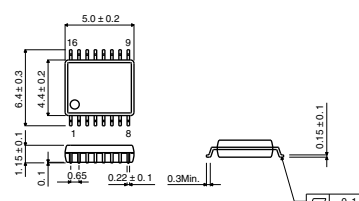


# Tone generator LSI for cellular phones BU8766FV

## ●Description

The BU8766FV is a tone generator IC for producing a triple chord that has both a RAM and sequencer to reduce the load of CPU soft. Cellular phones can give a musical performance by down-loading melody data from the C-MIDI format. This IC corresponds to three master clocks and has an adjustment function for a parameter needed to generate a chord. Waveform parameter can be selected from sine wave and special square wave.

## ●Dimension ( Units : mm )



SSOP-B16

## ●Features

- 1) Triple chord can be generated by control from CPU.
- 2) CPU soft load can be decreased by incorporating RAM and sequencer.
- 3) RAM 1kByte as a buffer for download data.
- 4) Can adjust parameter needed to generate a chord.
- 5) DTMF generating function
- 6) Can select a wave parameter for generating sound.  
(sine wave/special square wave)
- 7) Control from CPU by serial data

## ●Applications

Cellular phones with a function to register melody at receiving the call

## ● Absolute Maximum Ratings ( Ta=25°C )

| Parameter                   | Symbol | Limits        | Unit |
|-----------------------------|--------|---------------|------|
| Power supply voltage        | VDD    | - 0.3 ~ + 4.5 | V    |
| Power dissipation           | Pd     | 450 *         | mW   |
| Operating temperature range | Topr   | - 40 ~ + 85   | °C   |
| Storage temperature range   | Tstg   | - 50 ~ + 125  | °C   |

\* Derating : 4.5mW / °C for operation above Ta=25°C

## ● Recommended Operating Conditions ( Ta=25°C )

| Parameter            | Symbol | Min. | Typ. | Max. | Unit |
|----------------------|--------|------|------|------|------|
| Power supply voltage | VDD    | 2.2  | 2.5  | 3.6  | V    |

● Electrical characteristics ( Unless otherwise noted: Ta=25°C )

| Parameter                                         | Symbol            | Min.                  | Typ.               | Max.                 | Unit | Conditions                             |                |         |
|---------------------------------------------------|-------------------|-----------------------|--------------------|----------------------|------|----------------------------------------|----------------|---------|
| < Digital DC characteristics>                     |                   |                       |                    |                      |      |                                        |                |         |
| High level input voltage                          | V <sub>IH</sub>   | 0.7V <sub>DD</sub>    | -                  | -                    | V    |                                        |                |         |
| Low level input voltage                           | V <sub>IL</sub>   | -                     | -                  | 0.3V <sub>DD</sub>   | V    |                                        |                |         |
| High level input current                          | I <sub>IH</sub>   | -                     | -                  | 10                   | μ A  | V <sub>IH</sub> =V <sub>DD</sub>       |                |         |
| Low level input current                           | I <sub>IL</sub>   | - 10                  | -                  | -                    | μ A  | V <sub>IH</sub> =GND                   |                |         |
| High level output voltage                         | V <sub>OH</sub>   | V <sub>DD</sub> - 0.3 | -                  | -                    | V    | I <sub>OH</sub> =- 0.8mA               |                |         |
| Low level output voltage                          | V <sub>OL</sub>   | -                     | -                  | GND+ 0.3             | V    | I <sub>OL</sub> =0.8mA                 |                |         |
| < Analog DC characteristics>                      |                   |                       |                    |                      |      |                                        |                |         |
| V <sub>REF</sub> pin voltage                      | V <sub>AGND</sub> | 0.475V <sub>DD</sub>  | 0.5V <sub>DD</sub> | 0.525V <sub>DD</sub> | V    | I <sub>OUT</sub> =0A( No load)         |                |         |
| A <sub>OUT</sub> pin voltage                      | V <sub>OUT</sub>  | 0.47V <sub>DD</sub>   | 0.5V <sub>DD</sub> | 0.53V <sub>DD</sub>  | V    | I <sub>OUT</sub> =0A( No load)         |                |         |
| < Whole characteristics( V <sub>DD</sub> =2.5V) > |                   |                       |                    |                      |      |                                        |                |         |
| Circuit current                                   | I <sub>DD1</sub>  | -                     | -                  | 1                    | μ A  | RESET=L                                | Other inputs=L | No load |
|                                                   | I <sub>DD2</sub>  | -                     | 1500               | 2200                 | μ A  | RESET=H                                | MCLK=2.688MHz  |         |
|                                                   | I <sub>DD3</sub>  | -                     | 1700               | 2500                 | μ A  | Other                                  | MCLK=3.25MHz   |         |
|                                                   | I <sub>DD4</sub>  | -                     | 2500               | 3400                 | μ A  | inputs=L                               | MCLK=4.92MHz   |         |
| V <sub>REF</sub> pin rise time                    | t <sub>RMR</sub>  | -                     | 25                 | 40                   | nS   | At C <sub>VREF</sub> =1μ F, RESET=L→ H |                |         |

- Block Diagram

