

KS5311

CMOS DIGITAL INTEGRATED CIRCUIT

SIMPLE MELODY IC

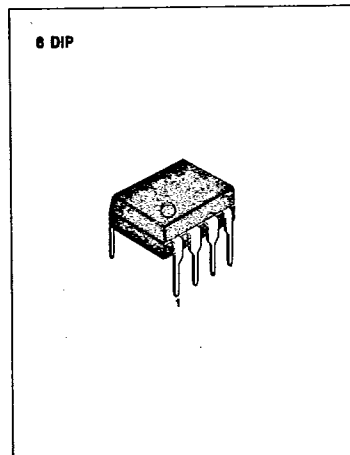
The KS5311 series is a CMOS LSI chip which electronically plays a prearranged melody.

FUNCTIONS

- Tempo: 16 kinds (presto-largo)
- Sound range: 2.5 octave
- High start input
- Melody start input
- Automatic repeat of the melody

FEATURES

- One chip CMOS construction
- Plays a melody consisting of 64 notes
- Starts from the head of melody
- On chip RC oscillator circuit
- Very low stand-by current
- 1.5V operation



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BLOCK DIAGRAM

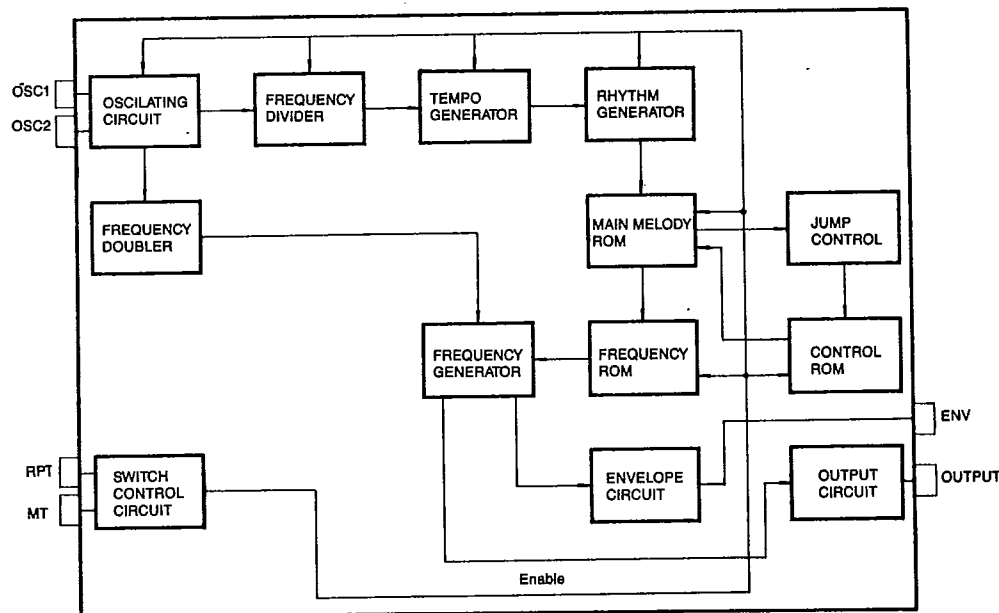


Fig. 1



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ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

| Characteristic | Symbol | Value | Unit |
|-----------------------|-----------|----------------------------------|------------------|
| Supply Voltage | V_{SS} | +0.3 ~ -2.0 | V |
| Input Voltage | V_{IN} | $V_{SS} + 0.3 \sim V_{DD} - 0.7$ | V |
| Operating Temperature | T_{opr} | -20 ~ +70 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | -55 ~ +125 | $^\circ\text{C}$ |

ELECTRICAL CHARACTERISTICS

($T_a = 25^\circ\text{C}$, $V_{SS} = -1.5\text{V}$, $V_{DD} = 0\text{V}$ unless otherwise specified)

| Characteristic | Symbol | Test Conditions | Min | Typ | Max | Unit |
|--|------------|---|----------------|----------|----------------|---------------|
| Operating Voltage | $ V_{SS} $ | | 1.2 | 1.5 | 2 | V |
| Stand-by Current | I_{ST} | Without Load | | 0.1 | 0.3 | μA |
| Operating Current | I_{OP} | Without Load | | 20 | 30 | μA |
| Input Low Voltage | V_{IL} | | V_{SS} | V_{SS} | $V_{SS} + 0.1$ | V |
| Input High Voltage | V_{IH} | | $V_{DD} - 0.1$ | V_{DD} | | V |
| Input Low Current | I_{IL} | $V_{IL} = V_{SS}$ | | | 0.05 | μA |
| Input High Current | I_{IH} | $V_{IH} = V_{DD}$ | 1.5 | | 15 | μA |
| Output High Current (Output Terminal) | I_{OH} | $V_{SS} = -1.2\text{V}$ $V_{OH} = 0.7\text{V}$ | 30 | | | μA |
| Output Low Voltage | V_{OL} | Without Load | V_{SS} | V_{SS} | $V_{SS} + 0.1$ | V |
| Output High Voltage | V_{OH} | Without Load | $V_{DD} - 0.1$ | V_{DD} | V_{DD} | V |
| Operating Frequency | F_{req} | | 31 | 33 | 35 | KHz |

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APPLICATION CIRCUIT

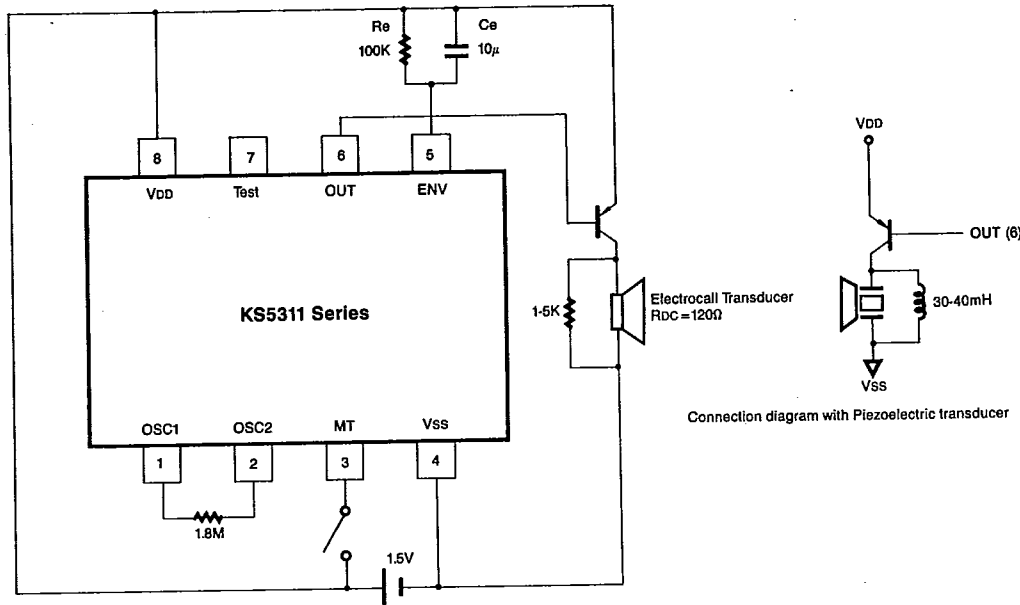
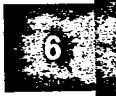


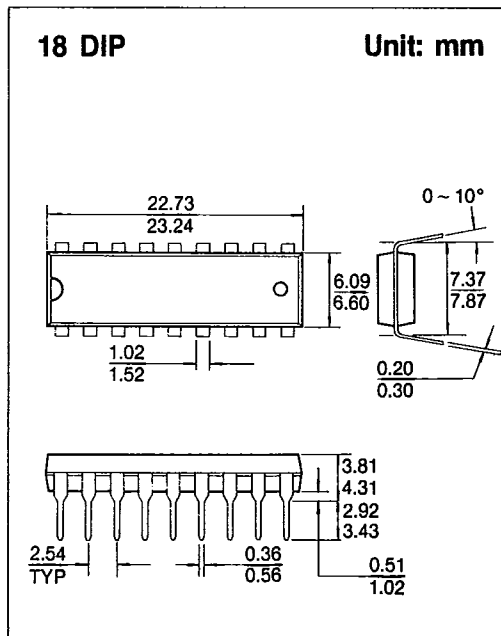
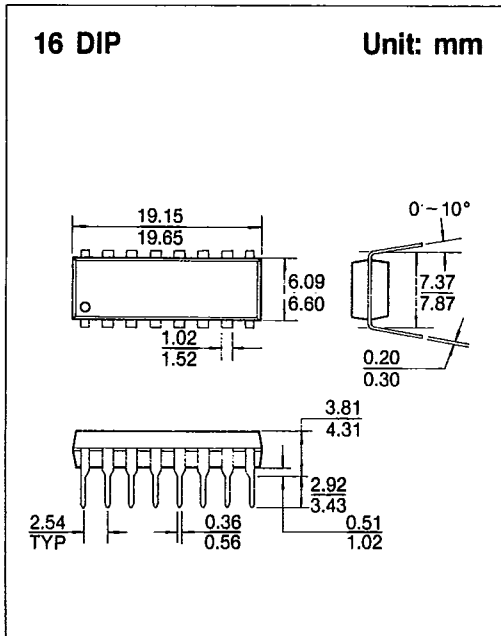
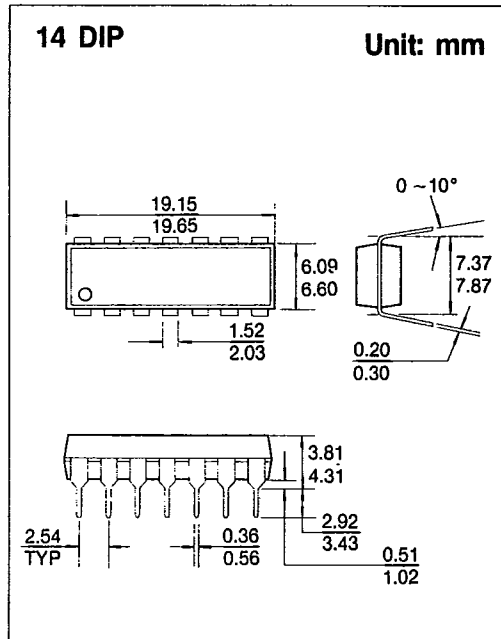
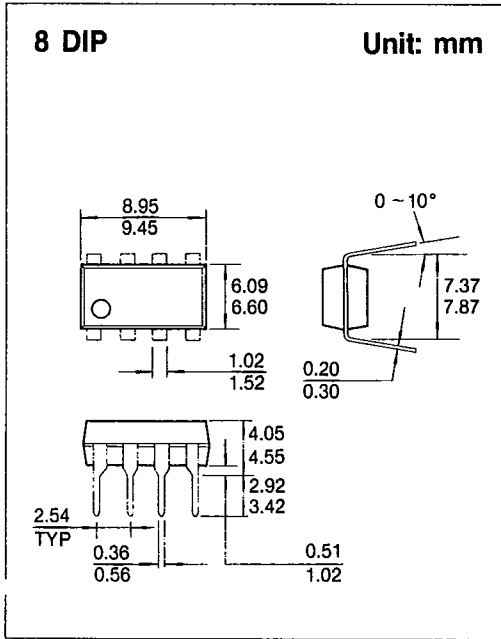
Fig. 2

*Capacitor Ce and Resistor Re is necessary only when employing EN-VELOPE circuit, Otherwise, EN V terminal must be connected to Vss.
 *Currently available types:
 KS5311A: Cuckoo's Walts.



PACKAGE DIMENSIONS

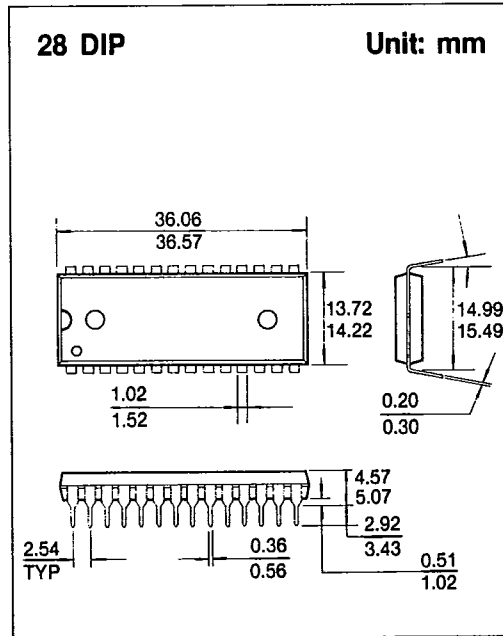
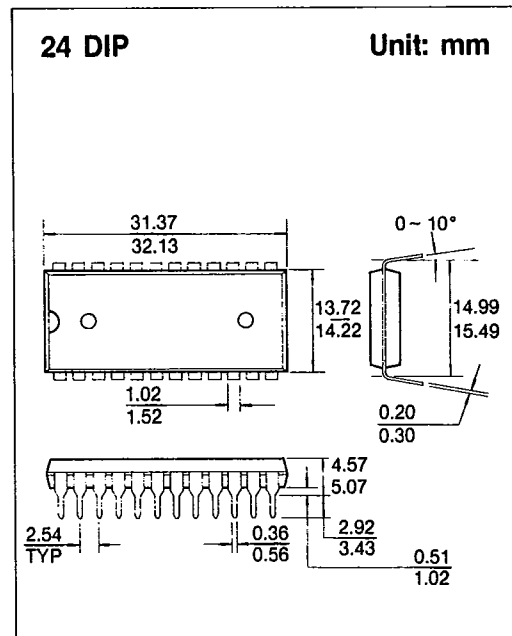
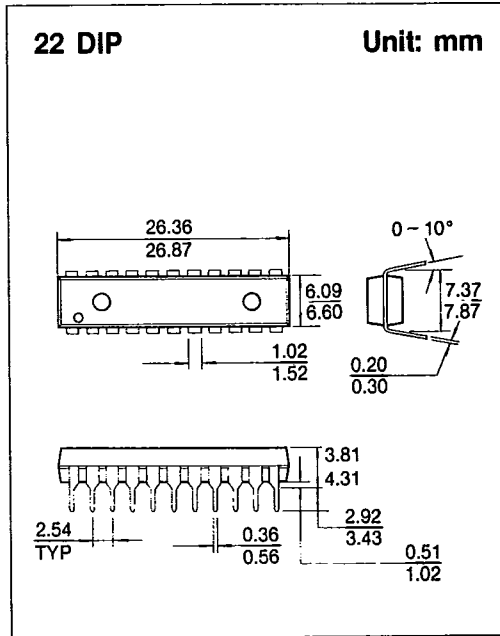
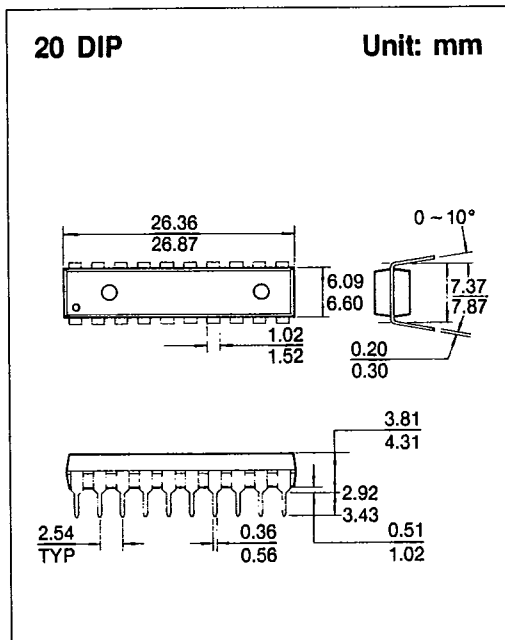
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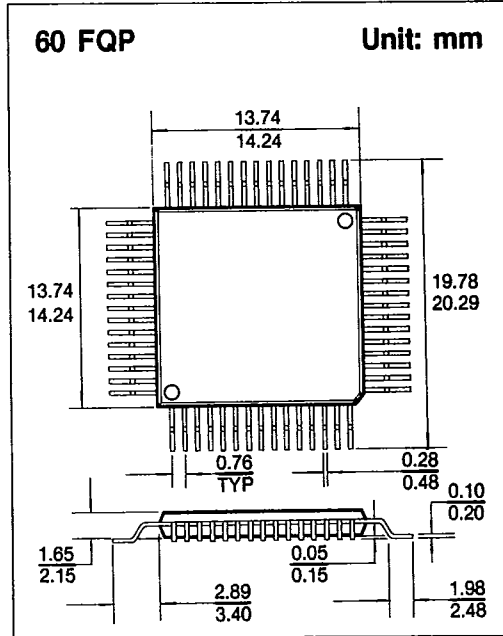
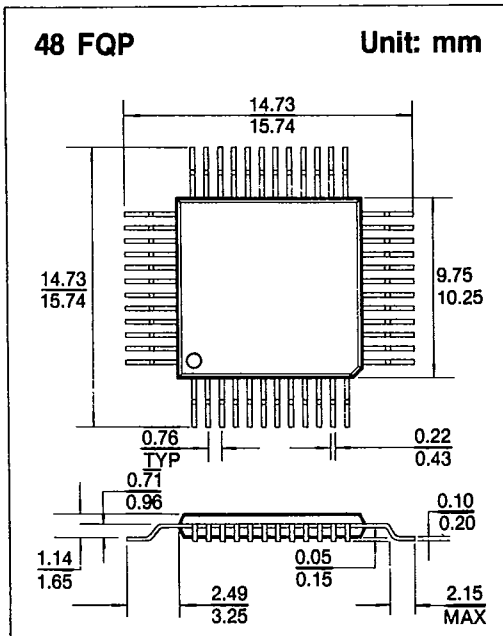
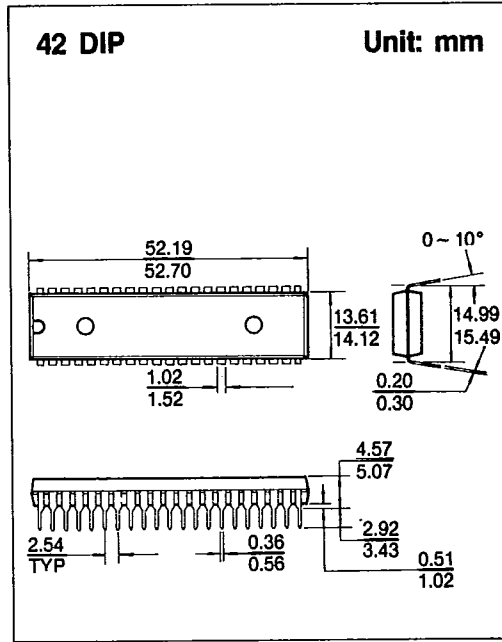
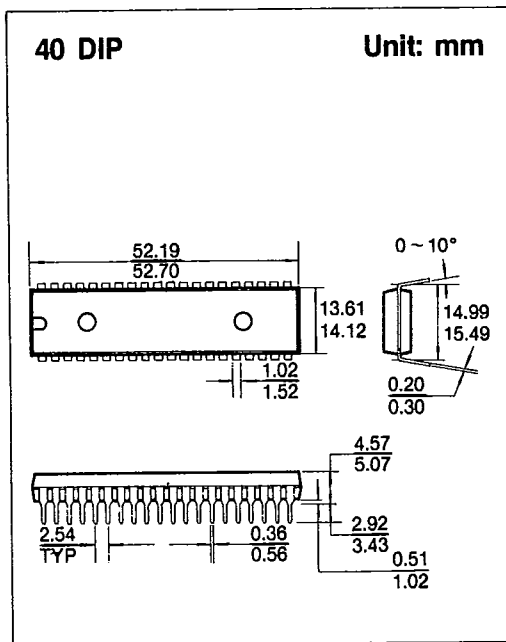
PACKAGE DIMENSIONS

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