

KS5310**CMOS DIGITAL INTEGRATED CIRCUIT****SIMPLE MELODY WITH WATCH**

The KS5310 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 stop input
- Selection of automatic stop or repeat of the melody

FEATURES

- One chip CMOS construction
- Plays a melody consisting of 64 notes
- Starts from the head of melody
- Very low stand-by current
- Designed to use with CMOS digital watch circuit
- 32,768Hz operating frequency
- 1.5V operation

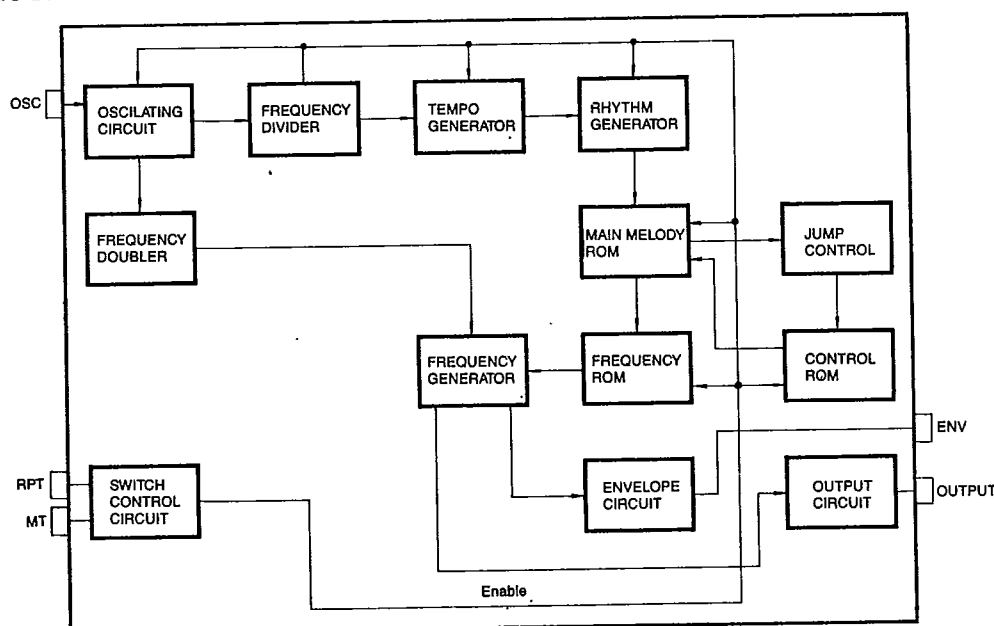
BLOCK DIAGRAM

Fig. 1



KS5310

CMOS DIGITAL INTEGRATED CIRCUIT

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_{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

OUTPUT TIMING

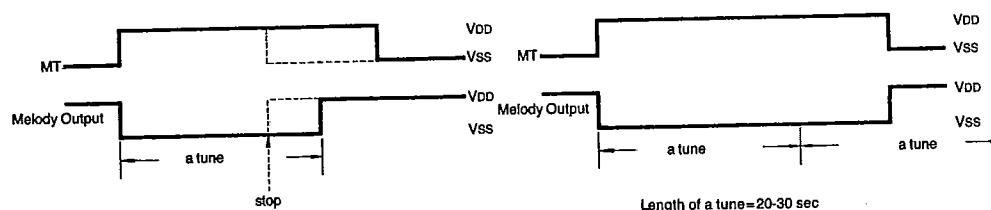
1) $RPT = V_{SS}$ (OPEN)2) $RPT = V_{DD}$ 

Fig. 2

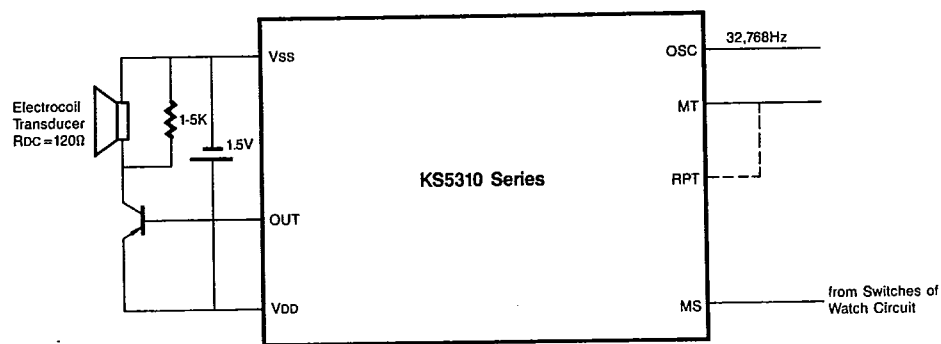


KS5310

CMOS DIGITAL INTEGRATED CIRCUIT

T-77-13

APPLICATION CIRCUIT



*Currently available types
KS5310A: Oh! Susanna

Fig. 3

PAD DIAGRAM

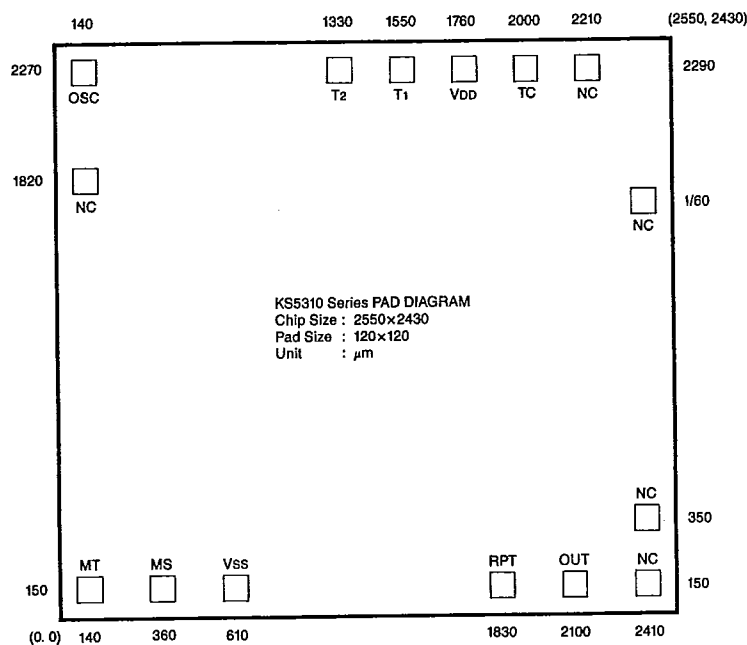


Fig. 4



SAMSUNG SEMICONDUCTOR

KS5310**CMOS DIGITAL INTEGRATED CIRCUIT****CUSTOM ORDER**

Changing the contents of melody ICs are possible by reprogramming the maskable ROM. Please free to contact us for more information including ORDER spec.

CUSTOM ORDER SPEC

1. Request Date:
2. Development Term:
3. Melody
 - a. Song name:
 - b. Melody Time:
 - c. Tempo:
 - d. Octave Range:
 - e. Repeated Syllable: (Yes/No)
4. Function
 - a. Melody Start Input (Active High/Active Floating)
 - b. Melody Start Signal (Level Hold/One Shot)
 - c. Repeat Input (RPT)
 - d. Repeat Interval
 - e. Melody Stop Input:
 - f. Output Pad:
 - g. Application Set
5. Others.

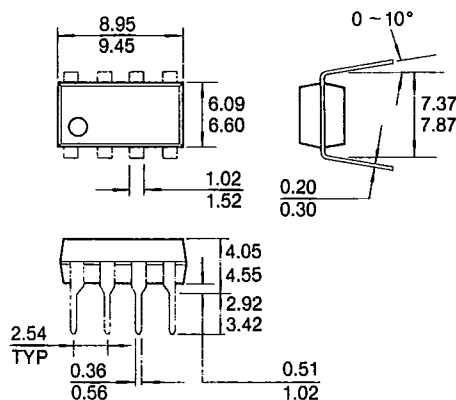


PACKAGE DIMENSIONS

T-90-20

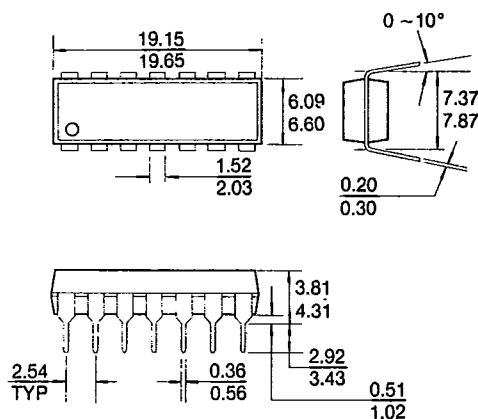
8 DIP

Unit: mm



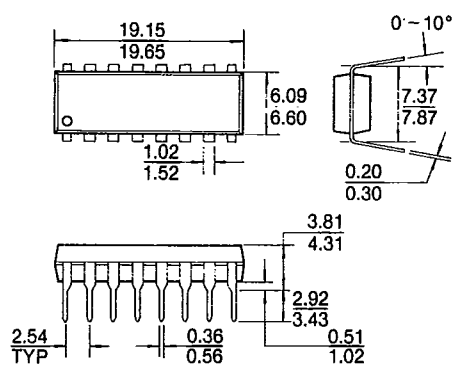
14 DIP

Unit: mm



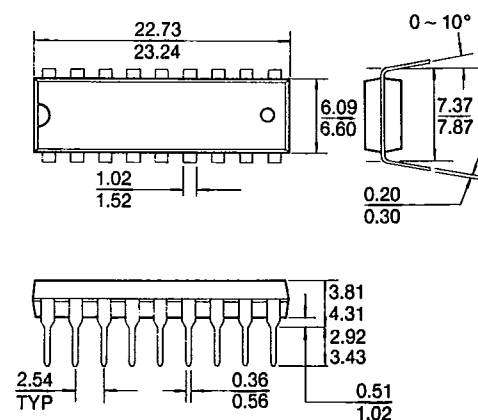
16 DIP

Unit: mm



18 DIP

Unit: mm



7



SAMSUNG SEMICONDUCTOR

0894

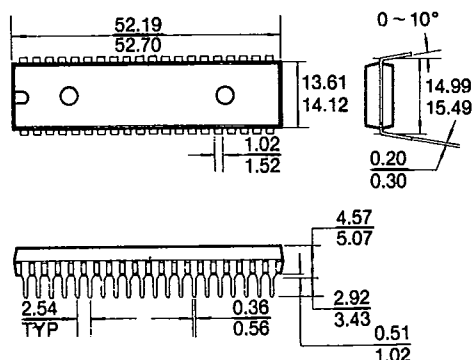
A-07

PACKAGE DIMENSIONS

T-90-20

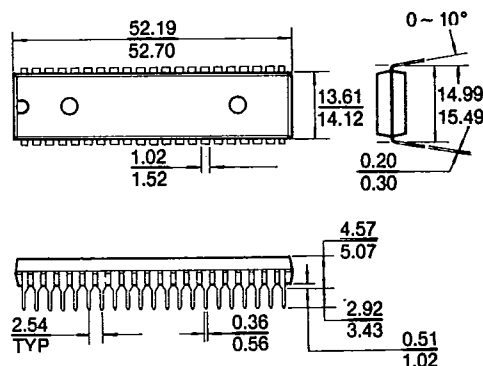
40 DIP

Unit: mm



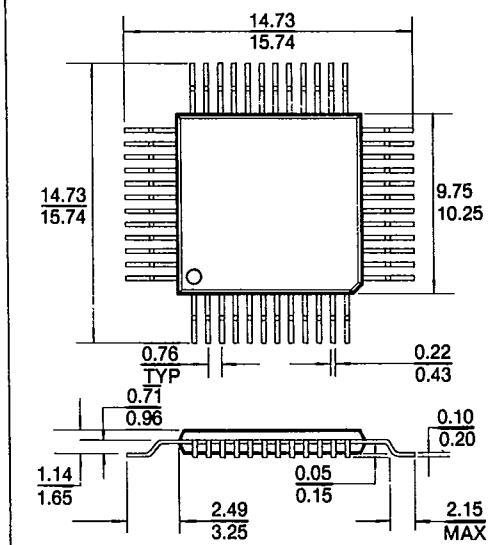
42 DIP

Unit: mm



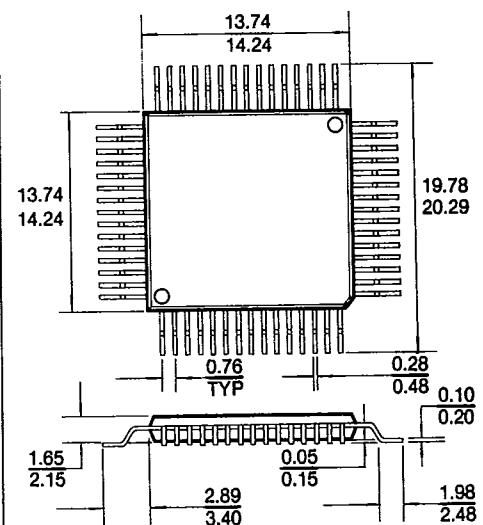
48 FQP

Unit: mm



60 FQP

Unit: mm



SAMSUNG SEMICONDUCTOR

0896

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PACKAGE DIMENSIONS

T-90-20

