

UTC UM66TXXL LINEAR INTEGRATED CIRCUIT

ABSOLUTE MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified.)

PARAMETER	SYMBOL	VALUE	UNIT
DC supply voltage		1.5 ~ 4.5	V
Operating Ambient Temperature Range	T _{opr}	-10 ~ +60	°C
Storage Temperature Range	T _{str}	-55 ~ +125	°C

Notes:

Stress above those listed under absolute maximum ratings may cause permanent damage to the device. These are stress ratings only. Functional operations of this device at these or any other conditions above those indicated in the operational section of this specification is not implied and exposure to absolute maximum ratings conditions for extended periods may affect device reliably.

ELECTRICAL CHARACTERISTICS (V_{ss}=0V, F_{osc}=65536Hz, T_j=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Operating Voltage	BV _{dd}		1.5		4.5	V
Operating Current	I _d	V _{dd} =1.5V O/P open			60	μA
O/P Drive Current	I _{o/p}	V _{dd} =1.3V, O/P=0.8V	400	600		μA
O/P Sink Current	I _{o/p}	V _{dd} =1.3V O/P=0.5V open	350	450		μA
Frequency Deviation Deviation Per Lot	ΔF/F	V _{dd} =1.5V	-12			%
Frequency Stability	ΔF/F	$\frac{F_{osc}(1.6V) - F_{osc}(1.3V)}{F_{osc}(1.3V)}$	10			%

FUNCTIONAL DESCRIPTION

OSCILLATOR CIRCUIT

The oscillator frequency is used as a time for tone and beat generators. Its accuracy affects the quality of the music.

TONE GENERATOR

Tone Frequencies are oscillator frequencies-M, where m is any even number from 64 to 256. Within a melody 14C scales can be selected including Pause code and End code. The tone generator is a programmed divider, The Range of Scales is from "C4" to "C6" and range of frequency varies from 258Hz to 23768Hz.

RHYTHM GENERATOR

The rhythm generator is also programmed dividers. It contain 15 available rhythms as follows: 1/4, 1/2, 3/4, 1, 1-1/4, 1-1/2, 1-3/4, 2, 2-1/4, 2-1/2, 2-3/4, 3, 3-1/4, 3-1/2, 3-3/4. Four rhythms can be selected from these.

MELODY ROM

The Mask Rom can memorize 64 notes with 6 bit. 4 bits are used for controlling the scale code and 2 bits are used for controlling the rhythm code.

TEMPO GENERATOR

There are 15 available tempos in the UTC UM66T series. The 15 tempos are: 128, 137, 148, 160, 175, 192, 213, 240, 274, 320, 480, 640, 960, 1920 J/minute.

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APPLICATION CIRCUITS

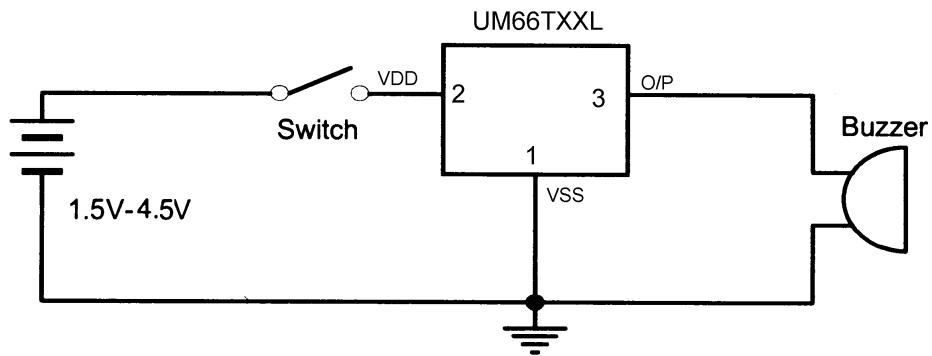


Fig.1

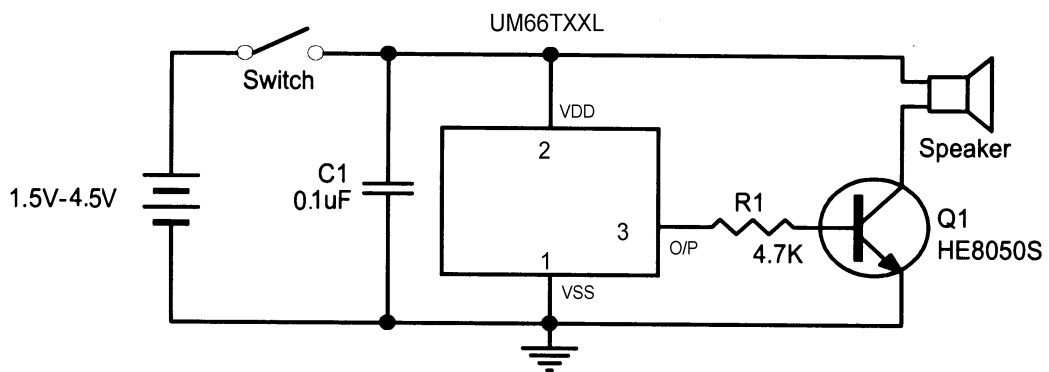
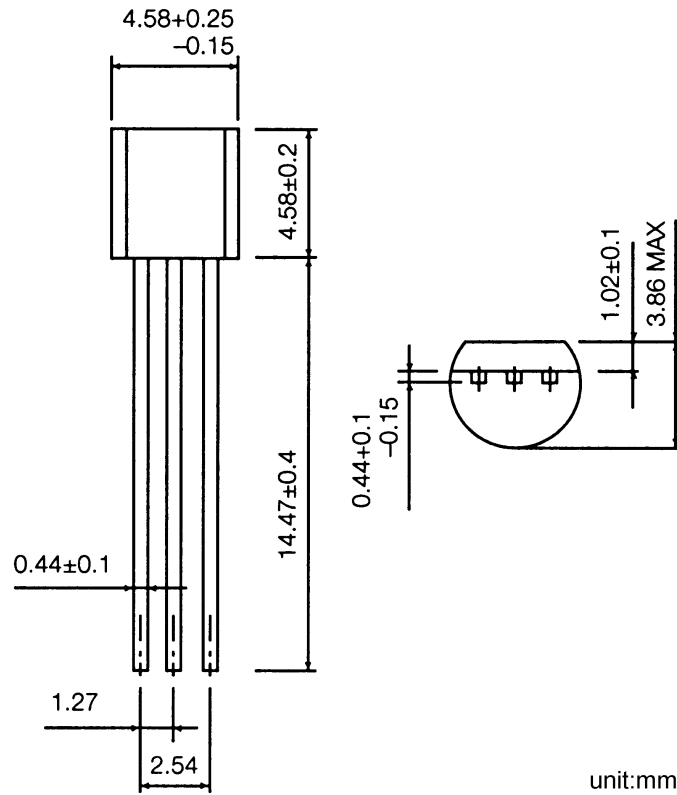


Fig.2

UTC UM66TXXL LINEAR INTEGRATED CIRCUIT

DIMENSION (TO-92)



M66T-L Series

UM66T Simple Melody Generator

Features

- 64-note ROM memory
- 1.3V to 3.3V operating voltage and low power consumption
- Packaged in inexpensive TO-92 package
- Built-in RC oscillator
- Level-hold mode to play repeatedly
- Dynamic speaker can be driven with external NPN transistor.

General Description

The M66T series is a CMOS LSI designed melody generator IC for use in telephones and toys application. It has an on-chip ROM programmed for musical performance. Produced by CMOS technology, the device results in very low power consumption. And with built-in RC oscillator, a compact melody module can be constructed with only a few additional components.

Absolute Maximum Ratings

DC Supply Voltage -0.3V to +5.0V
 Operating Ambient Temperature -10°C to 60°C
 Storage Temperature -55°C to 125°C

Electrical Characteristics

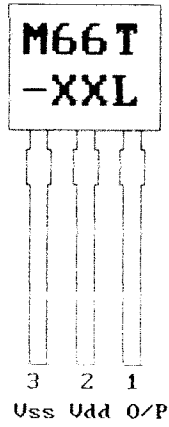
(V_{ss}=0V, V_{dd}=1.5V, T_a=25°C, unless otherwise specified.)

Parameter	Symbol	Min.	Typ.	Max.	Conditions
Operating voltage	V _{dd}	1.3V	1.5V	3.3V	
Current Consumption	I _{dd}	-	16μA	50μA	Playing with no load
Output Current	I _{o/p}	2mA	-	-	
Osc. frequency	F _{osc}	63kHz	90kHz	117kHz	

Song Series List

Part number	Song name
M66T-01L	Jingle Bells + Santa Claus Is Coming To Town + We Wish You A Merry Christmas
M66T-05L	Home Sweet Home
M66T-09L	Wedding March (Mendelssohn)
M66T-19L	For Alice
M66T-68L	It Is A Small World

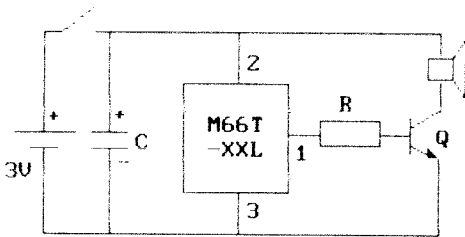
Pin Configuration (Front View)



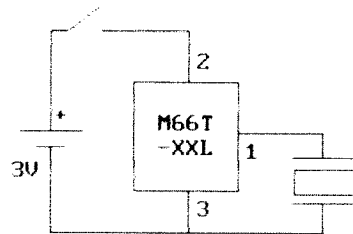
Pin no.	Symbol	Description
1	O/P	Melody Output
2	Vdd	Positive Power Supply
3	Vss	Negative Power Supply

Typical Application Circuits

LEVEL HOLD MODE FOR SPEAKER



LEVEL HOLD MODE FOR PIEZO BUZZER



Recommended values : C = 1 μ F , R = 4.7K Ω , Q = 2SC9013

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