

UM3561

THREE SIREN SOUND GENERATOR

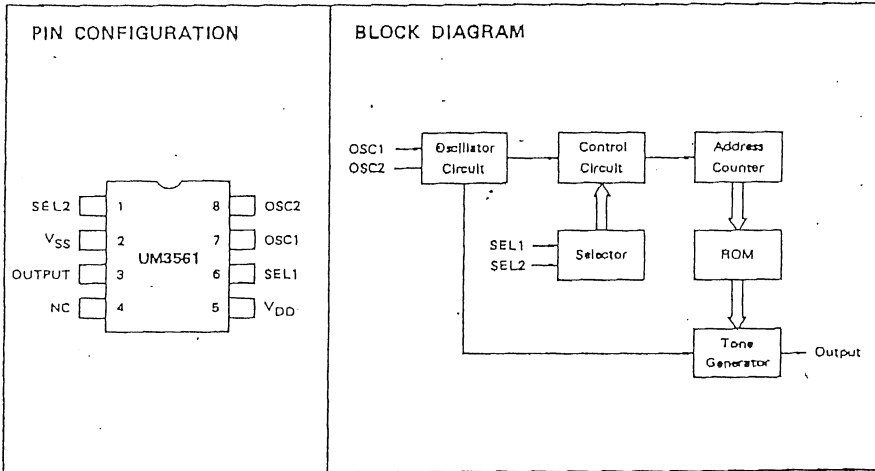
FEATURES

- Four sounds can be selected.
- Typical 3V operation voltage.
- RC oscillator with one external resistor or oscillator resistor is built in. (mask option).
- Mono-tone performance.
- A magnetic speaker can be driven by connection of an NPN transistor.
- Fast test capability.
- Power on reset.

GENERAL DESCRIPTION

The UM3561 is low-cost, low-power CMOS LSI designed for use in toy applications. Since the integrated circuit includes oscillating and selector circuits, a compact sound module can be constructed

with only a few additional components. The UM3561 contains a programmed mask ROM to electronically reproduce alarm sounds.



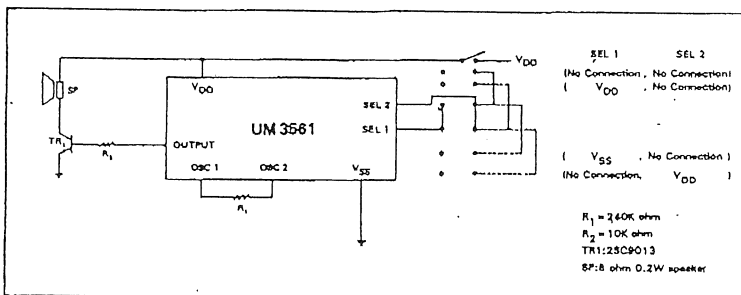
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TYPICAL APPLICATION

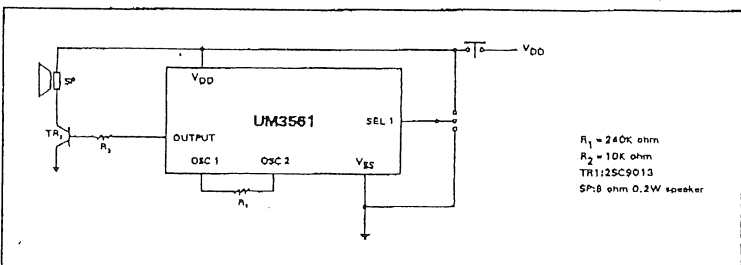
(1) Four sound application

1. Police siren sound 2. Fire engine siren sound 3. Ambulance siren sound 4. Machine gun sound



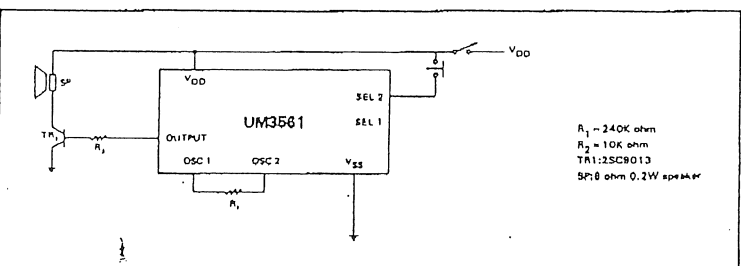
(2) Three sound application

1. Police siren sound 2. Fire engine siren sound 3. Ambulance siren sound



(3) Two sound application

1. Police siren sound 2. Machine gun sound



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ABSOLUTE MAXIMUM RATINGS

DC supply voltage	−0.3V to +5.0V
Input/Output voltage	V _{SS} −0.3V to V _{DD} +0.3V
Operating ambient temperature	−10°C to 60°C
Storage temperature	−55°C to 125°C

ELECTRICAL CHARACTERISTICS V_{SS} = 0V Tamb = 25°C f_{OSC} = 106496Hz Unless otherwise specified:

Parameter	Symbol	Min.	Typ.	Max.	Conditions
Operation voltage	V _{DD}	2.4V	—	3.6V	
Operation current	I _{DD}	—	—	150μA	V _{DD} = 3V
"H" Input voltage	V _{IH}	V _{DD} −0.2	—	V _{DD}	
"L" Input voltage	V _{IL}	V _{SS}	—	V _{SS} +0.2	
Frequency stability	*F/F	—	—	20%	F _{OSC} (3.3V)−F _{OSC} (2.7V) F _{OSC} (2.7V)
Output current	I _O	3mA	—	—	V _{DD} = 3V
Frequency deviation per lot	*F/F	−10%	—	+10%	V _{DD} = 3V

PAD ASSIGNMENT & FUNCTION

Pad	Designation	Description
1	SEL 2	Sound effect selection pin
2	V _{SS}	Negative power supply
3	OUTPUT	Mono-tone output
4	NC	This pad is used for testing; in normal operation this pad is open.
5	V _{DD}	Positive power supply
6	SEL 1	Sound effect selection pin
7	OSC 1	RC oscillator pin
8	OSC 2	RC oscillator pin or inverted clock output

FUNCTIONAL DESCRIPTION

Oscillating Circuit

There are two options for generating oscillator frequency. Either can be selected by changing the mask.
(1) Only one external resistor is required to complete the oscillator frequency.
(2) Oscillator resistor is built in.

Sound Selection

The SEL2 incorporates a resistor for internal pull low, and SEL1 is tri-state control pin. 2 pads of SEL1 and SEL2 should be selected by the sound effect mode.

Sound Effect ROM

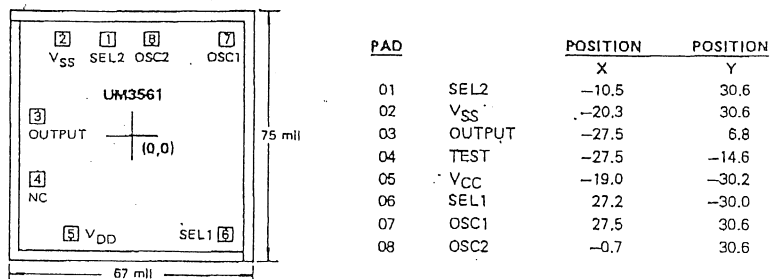
The sound effect ROM is organized as 256 words by 8 bits. The sound effect program and the option are mask programmable and programmed in the N⁺ layer.

Bonding Pad		Sound Effect
SEL 1	SEL 2	
No Connection	No Connection	Police siren sound
V _{DD}	No Connection	Fire engine siren sound
V _{SS}	No Connection	Ambulance siren sound
"—" don't care	V _{DD}	Machine gun sound

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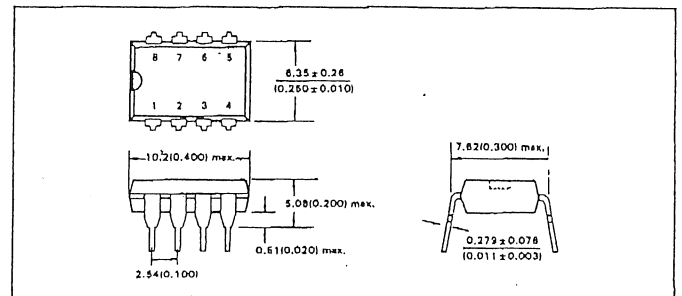
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BONDING PAD LOCATIONS



PACKAGING INFORMATION — mm (inch)

8 Lead Plastic DIP



NOTICE. UMC's products are sold by description only. UMC reserves the right to make changes in circuit design and/or specifications at any time without notice. Accordingly, the reader is cautioned to verify that data sheets are current before placing orders.

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