

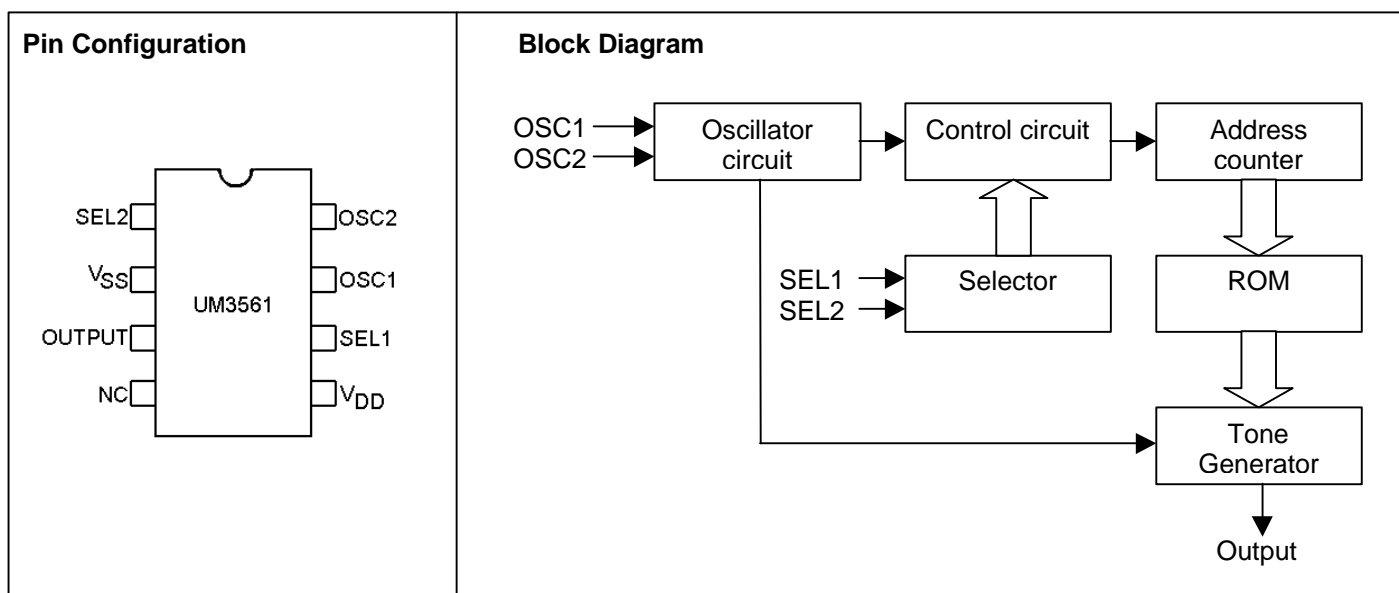
## UM3561 - Three siren sound generator

### General description:

The UM3561 is a 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.

### Features:

- Three alarm sounds and one sound effect
- Typical 3V operation
- Mono-tone performance
- A magnetic speaker can be driven by connecting an NPN transistor
- Fast test capability
- Power on reset



### Absolute Maximum Ratings:\*

DC Supply voltage	: -3.0 to +5.0V
Input/Output voltage	: V <sub>SS</sub> -3.0V to V <sub>DD</sub> +3.0V
Operating ambient temperature	: -10°C to 60°C
Storage temperature	: -55°C to 125°C

**\*Comments** – Stress above those listed under “Absolute maximum ratings” may cause permanent damage to the device. These are stress ratings only. Functional operation of this device at these or any other conditions above those indicated in the operational sections of this specification is not implied and exposure to absolute maximum rating conditions for extended periods may effect device reliability.

### **Electrical characteristics:**

$V_{SS} = 0V$ ,  $T_A = 25^\circ C$ ,  $F_{OSC} = 106496$  Hz, unless otherwise specified.

Parameter	Symbol	Min.	Typ.	Max.	Conditions
Operational voltage	$V_{DD}$	2.4V	3V	3.6V	
Operational current	$I_{DD}$	-	-	150 $\mu$ A	$V_{DD}$
'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%	$V_{DD} = 3V$

### **Pin description:**

Pin No.	Designation	Description
1	SEL2	Sound effect selection pin
2	VSS	Negative power supply
3	OUTPUT	Mono-tone output
4	NC	This pad is used for testing – leave open in normal operation
5	VDD	Positive power supply
6	SEL1	Sound effect selection pin
7	OSC1	RC oscillator pin
8	OSC2	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 built in

#### Sound selection

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

#### Sound effect ROM

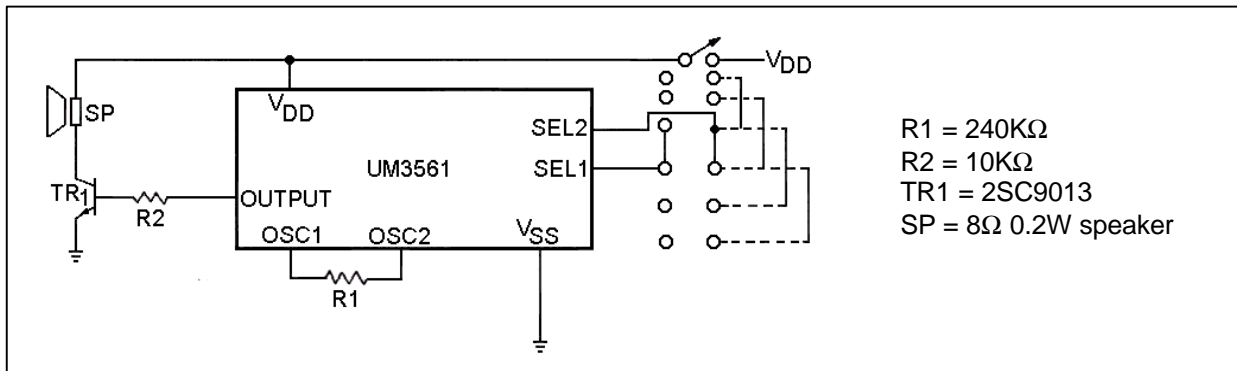
The sound effect ROM is organised as 256 words by 8 bits. The sound effect program and the option mask are programmable and programmed in the N+ layer.

SEL1	SEL2	Sound effect
No connection	No connection	Police siren
$V_{DD}$	No connection	Fire engine siren
$V_{SS}$	No connection	Ambulance siren
“-“ don't care	$V_{DD}$	Machine gun sound

**Typical Application:**

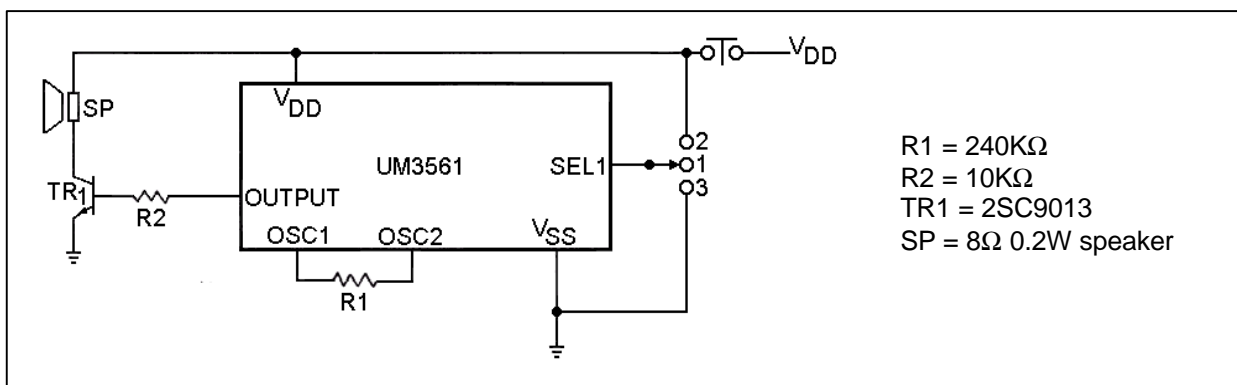
**Four sound application:**

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



**Three sound application:**

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



**Two sound application:**

1. Police siren    2. Fire engine siren

