# SD300
# 5 LED and 8 Sound Effect with One Key

## Features

- Power supply 2.4V to 5.5V.
- Low power consumption.
- 1 sequential trigger key.
- 2 option key for series off and random output.
- Built in oscillator.
- 5 LED flash drive.
- Direct drive speaker with an NPN transistor.
- 8 sound effect mode; rifle, echo rifle, ringer tone, bomb1, bomb2, gun1, gun2, TV game.

## General Description

The SD300 is designed for toys, door bell, alarm system, TV/Arcade game. This chip has one sequence trigger key to play sequentially. Five LED flash and 8 sound effect output to make this chip easy design for multi purposes LED flash application. One option pin is designed for turning off the series sound output, the other option control pin is used for a random output or sequential output application.

## Pin Description

| Pin No. | Symbol | Description |
|---|---|---|
| 1 | OSCO | Oscillator output pin. |
| 2 | OSCI | Oscillator input pin. |
| 3 | T1 | Testing pin. |
| 4 | GND | Ground. |
| 5 | LED5 | LED flash pin 5. |
| 6 | LED4 | LED flash pin 4. |
| 7 | LED3 | LED flash pin 3. |
| 8 | LED2 | LED flash pin 2. |
| 9 | LED1 | LED flash pin 1. |
| 10 | BZ | Sound output. |
| 11 | VDD | Positive power supply. |
| 12 | RA | Random option 1. |
| 13 | OFF | Series off option 2. |
| 14 | TG | Trigger pin. |

## Absolute Maximum Ratings

| RATING | VALUE |
|---|---|
| DC Supply Voltage | < 5.5V |
| Input/Output Voltage | GND-0.3V to VDD+0.3V |
| Operating Temperature | -0° C to 50° C |
| Storage Temperature | -25° C to 100° C |

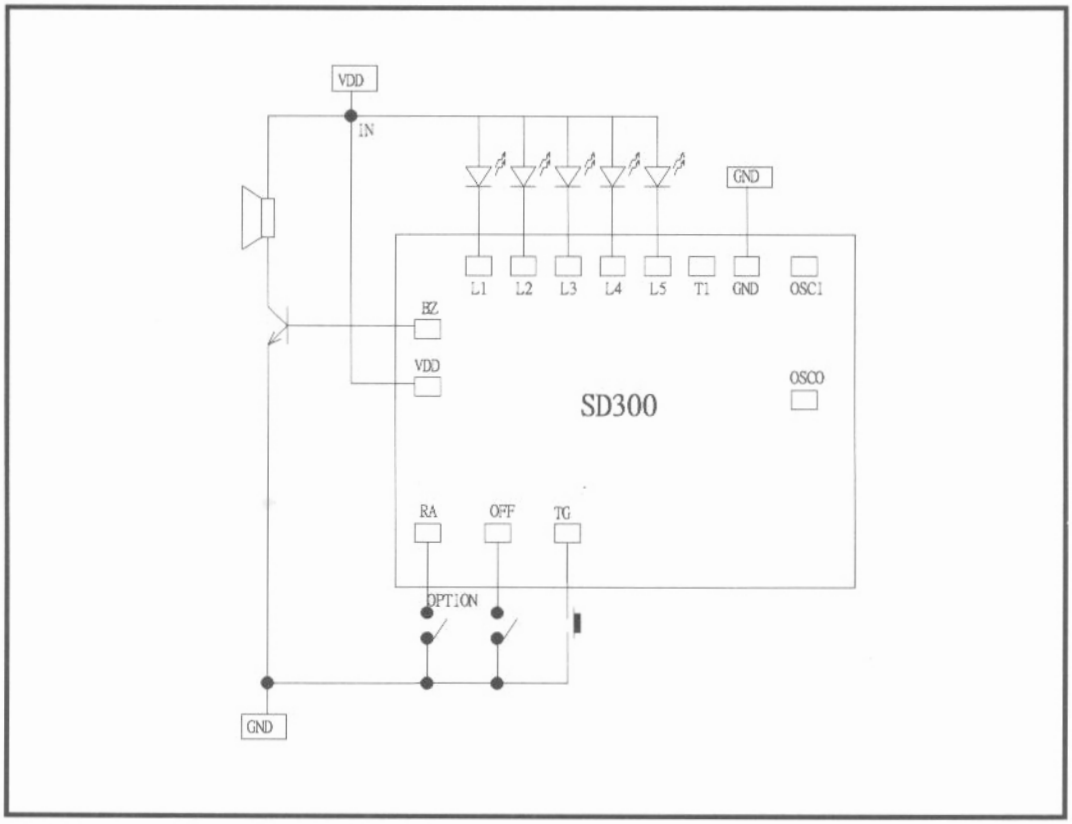
**Notice:** Stress greater than those listed under **Absolute Maximum Ratings** may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied , Exposure to absolute maximum rating conditions for extended period may affect reliability.

## Electrical Characteristics

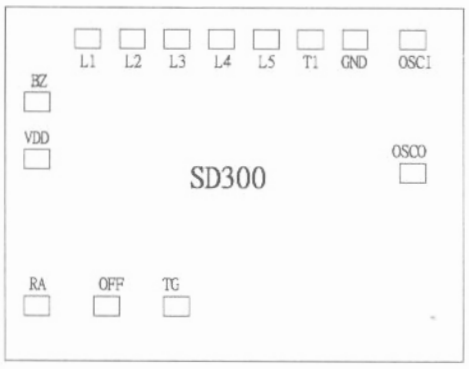
( VDD = 3V, GND = 0V, Ta = 25℃, unless otherwise specified)

| Parameter | Symbol | Min. | Typ. | Max. | Condition |
|---|---|---|---|---|---|
| Operating Voltage | Vdd | 2.4V | 3V | 5.5V | |
| Standby Current | Istb | --- | 2μA | 10μA | No load |
| Operating Current | Iop | --- | 0.3mA | 0.6mA | No load |
| Current On BZ | $I_{driving}$ | 2mA | --- | --- | |

## Application Circuits




## Bonding Diagram




| Pad No | Pad Name | X | Y |
|---|---|---|---|
| 1 | OSCO | 78.29 | 38.25 |
| 2 | OSCI | 71.10 | 73.87 |
| 3 | GND | 62.35 | 73.87 |
| 4 | T1 | 53.38 | 73.87 |
| 5 | L5 | 45.39 | 73.87 |
| 6 | L4 | 37.40 | 73.87 |
| 7 | L3 | 28.94 | 73.87 |
| 8 | L2 | 20.95 | 73.87 |
| 9 | L1 | 12.96 | 73.87 |
| 10 | BZ | 3.40 | 58.69 |
| 11 | VDD | 3.40 | 48.62 |
| 12 | RA | 3.40 | 3.40 |
| 13 | OFF | 12.16 | 3.40 |
| 14 | TG | 20.91 | 3.40 |

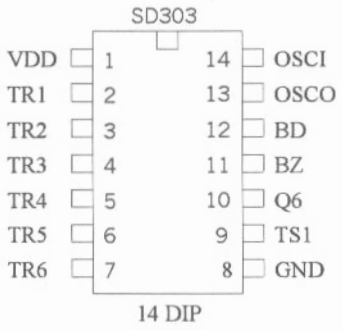
Unit:mil
Note:Substrate is connected to VDD

# SD303
# 6 Sound Siren Effect

## Features

- Power supply 2.4V to 5.5V.
- Low power consumption.
- Typical oscillator frequency 128KHZ.
- 6 siren sound effects can be selected individually.
- 6 sound effects mode and level hold mode.

## Pin Configuration




## Pin Description

| Pin No. | Symbol | Description |
|---|---|---|
| 1 | VDD | Positive power supply. |
| 2 | TR1 | Trigger 1. |
| 3 | TR2 | Trigger 2. |
| 4 | TR3 | Trigger 3. |
| 5 | TR4 | Trigger 4. |
| 6 | TR5 | Trigger 5. |
| 7 | TR6 | Trigger 6. |
| 8 | GND | Ground. |
| 9 | TS1 | Test pin 1. |
| 10 | Q6 | Tbase test pin. |
| 11 | BZ | BZ ouput pin. |
| 12 | BD | BD ouput pin. |
| 13 | OSCO | Oscillator output pin. |
| 14 | OSCI | Oscillator intput pin. |

## Absolute Maximum Ratings

| RATING | VALUE |
|---|---|
| DC Supply Voltage | < 5.5V |
| Input/Output Voltage | GND-0.3V to VDD+0.3V |
| Operating Temperature | -0° C to 50° C |
| Storage Temperature | -25° C to 100° C |

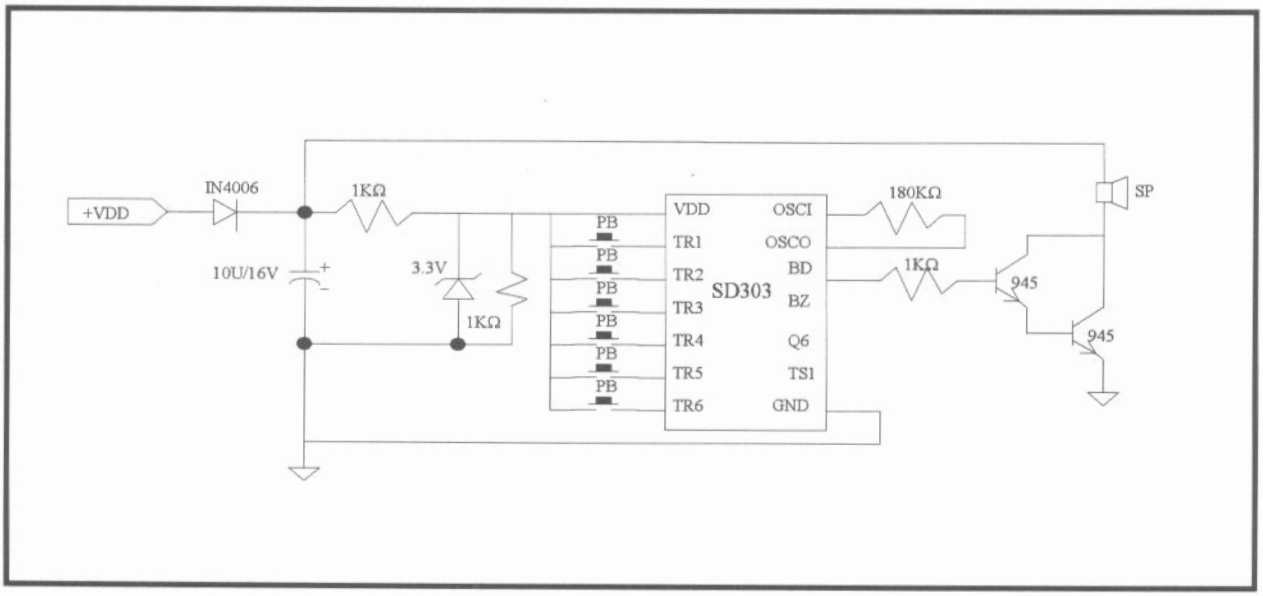
**Notice:** Stress greater than those listed under **Absolute Maximum Ratings** may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied , Exposure to absolute maximum rating conditions for extended period may affect reliability.

## Electrical Characteristics

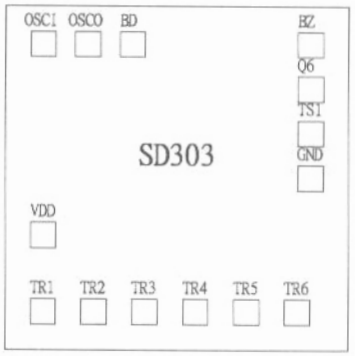
( VDD = 3V, GND = 0V, Ta = 25℃, unless otherwise specified)

| Parameter | Symbol | Min. | Typ. | Max. | Condition |
|---|---|---|---|---|---|
| Operating Voltage | Vdd | 2.4V | 3V | 5.5V | --- |
| Standby Current | Istb | --- | 2μA | 10μA | No load |
| Operating Current | Iop | --- | 0.2mA | 0.5mA | No load |
| Drive Current | $I_{driving}$ | --- | 4mA | --- | --- |

## Application Circuits




## Bonding Diagram




| Pad No. | Pad Name | X | Y |
|---|---|---|---|
| 1 | VDD | 87.5 | 548.0 |
| 2 | TR1 | 87.5 | 87.5 |
| 3 | TR2 | 359.7 | 87.5 |
| 4 | TR3 | 631.9 | 87.5 |
| 5 | TR4 | 904.1 | 87.5 |
| 6 | TR5 | 1176.3 | 87.5 |
| 7 | TR6 | 1446.8 | 87.5 |
| 8 | GND | 1666.5 | 1196.0 |
| 9 | TS1 | 1666.5 | 1427.0 |
| 10 | Q6 | 1666.5 | 1635.9 |
| 11 | BZ | 1666.4 | 1870.5 |
| 12 | BD | 520.0 | 1870.5 |
| 13 | OSCO | 330.0 | 1870.5 |
| 14 | OSCI | 87.5 | 87.5 |

Unit μm

Note:Substrate is connected to VDD