

4-Sound Generator + 5 Flashing LEDs

Features

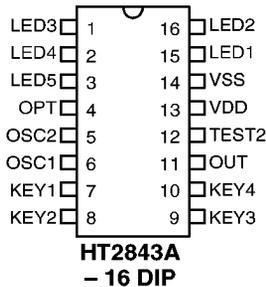
- Single power supply: 2.4V~3.3V
- Low standby current: 1μA (Typ.) at V_{DD}=3V
- Auto power-off function
- Four different sound sections
- Option mode for power-on flash or trigger key flash
- Five LED sequential flash outputs
- Minimal external components

General Description

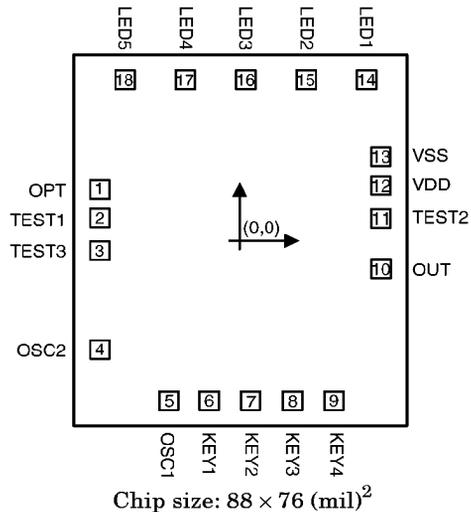
The HT2843A is a CMOS fabricated LSI chip designed for use in sound effect products. It is equipped with four sound sections, tone circuit, noise circuit, and other control logic to generate various sounds including rifle fire, machine gun Fire, bombing, door bell, alarm, and so on. The HT2843A will output 5 LED sequential flashes

along with a sound output during the time when the chip is triggered. Customer's sound sample can be analyzed and programmed into an internal ROM by changing a mask layer during device fabrication. The HT2843A is suitable for various toy applications.

Pin Assignment

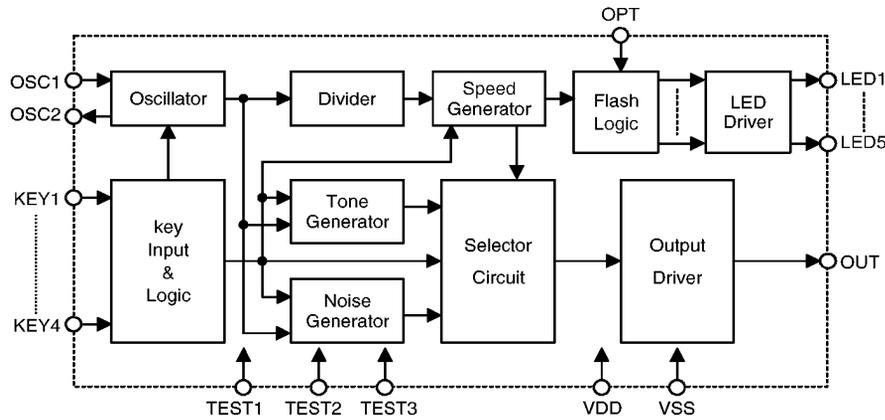


Pad Assignment



* The IC substrate should be connected to VDD in the PCB layout artwork.

Block Diagram



Pad Coordinates

Unit: mil

Pad No.	X	Y	Pad No.	X	Y
1	-33.40	12.80	10	33.78	-6.96
2	-33.41	5.76	11	33.71	5.69
3	-33.37	-2.456	12	33.75	13.78
4	-33.37	-27.03	13	33.75	21.03
5	-16.87	-39.79	14	30.38	40.11
6	-7.28	-39.77	15	15.93	40.11
7	2.67	-39.77	16	1.49	40.12
8	12.62	-39.77	17	-12.97	40.11
9	22.55	-39.78	18	-27.41	40.11

Pin Description

Pin No.	Pin Name	I/O	Description
1	LED3	O	LED flash output, open drain NMOS
2	LED4	O	LED flash output, open drain NMOS
3	LED5	O	LED flash output, open drain NMOS
4	OPT	I	Selection of power-on flash or trigger key flash
5	OSC2	O	Oscillator output
6	OSC1	I	Oscillator input
7	KEY1	I	KEY1 input, low active
8	KEY2	I	KEY2 input, low active

Pin No.	Pin Name	I/O	Description
9	KEY3	I	KEY3 input, low active
10	KEY4	I	KEY4 input, low active
11	OUT	O	Sound output
12	TEST2	I	For IC test only
13	VDD	—	Positive power supply
14	VSS	—	Negative power supply, GND
15	LED1	O	LED flash output, open drain NMOS
16	LED2	O	LED flash output, open drain NMOS

Absolute Maximum Ratings*

Supply Voltage -0.3V to 5V Storage Temperature -50°C to 125°C
 Input Voltage V_{SS}-0.3 to V_{DD}+0.3V Operating Temperature 0°C to 70°C

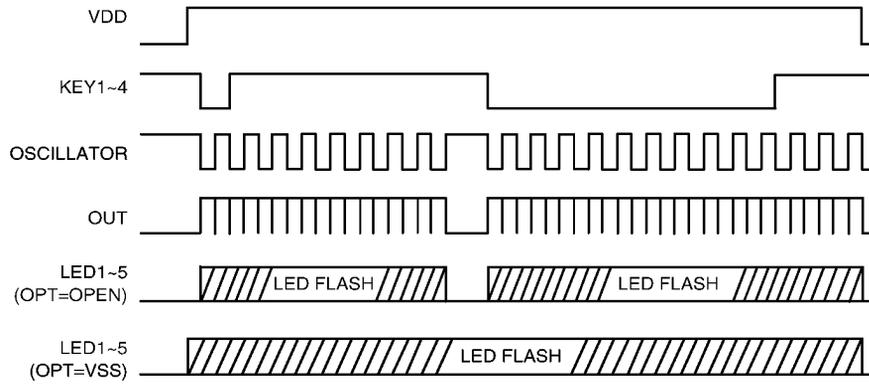
*Note: Stresses above those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only. Functional operation of this device at these or any other conditions above those indicated in the operational sections of this specification is not implied and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

Electrical Characteristics

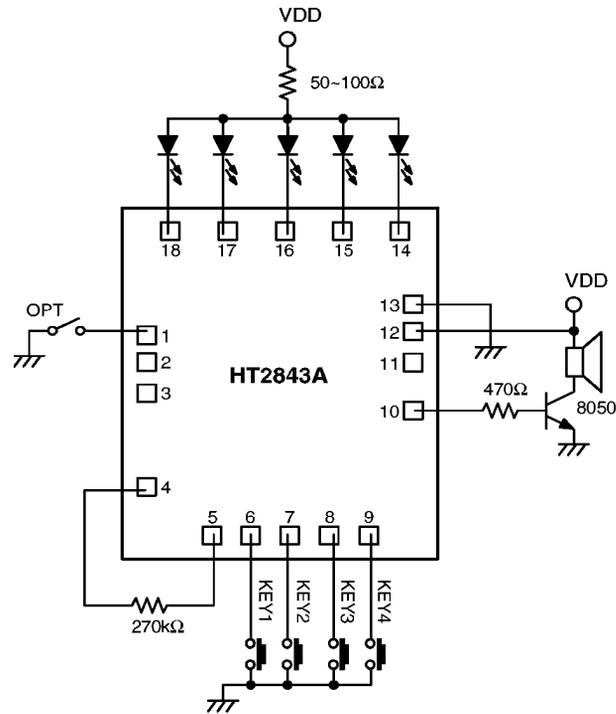
 (T_a=25°C)

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V _{DD}	Conditions				
V _{DD}	Operating Voltage	—	—	2.4	3	3.3	V
I _{STB}	Standby Current	3V	—	—	1	5	μA
I _{DD}	Operating Current	3V	No load	—	300	600	μA
I _{OH}	OUT Source Current	3V	V _{OH} =2.5V	-1	-2	—	mA
I _{OL}	OUT Sink Current	3V	V _{OL} =0.5V	1	2	—	mA
I _{LED}	LED Sink Current	3V	V _{OL} =0.5V	5	10	—	mA
V _{IH}	“H” Input Voltage	3V	—	2.4	—	—	V
V _{IL}	“L” Input Voltage	3V	—	—	—	0.6	V
F _{OSC}	Oscillator Frequency	—	R=270kΩ	—	128	—	kHz

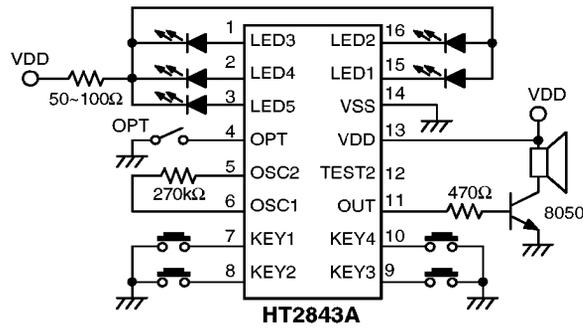
Timing Diagram



Application Circuits (HT2843A — Four Toy Gun Sounds with Five LED Flashes)



* The IC substrate should be connected to VDD in the PCB layout artwork.



KEY1: Rifle Gun OPT=OPEN → Trigger Key Flash
 KEY2: TV Game OPT=VSS → Power-On Flash
 KEY3: Bombing
 KEY4: Machine Gun