



HT— 2050	DEC.29.1993
FIVE LAMP/LED FLASH DRIVER	PAGE: 1

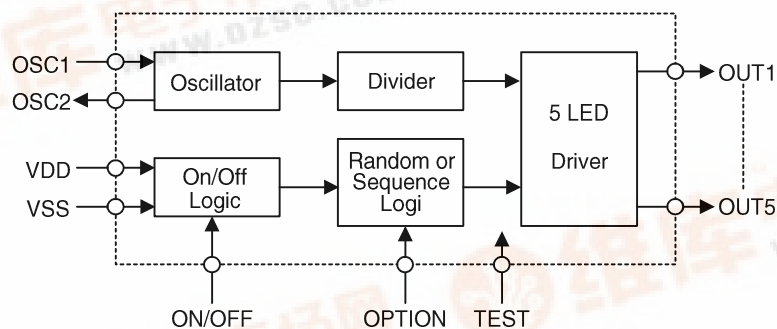
A. General Description —

The HT-2050 is a low cost, low-power C-MOS LSI designed for lamp and LED flash driver. It has five flash outputs with 10mA drive capability that can implement random or sequence flashing function controlled by one option pin. It only requires one external resistor for typical application. It is very suitable for the use of the flash products such as disco glasses, disco hat, gift card, X'mas decoration and so forth.

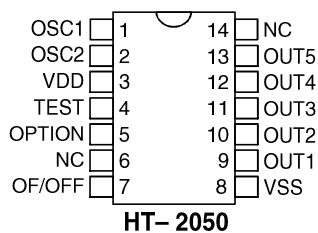
B. Features —

- C-MOS Metal-Gate Process.
- Operating voltage: 1.2V ~ 4.5V.
- Low stand-by current: 1 μ A at 3V.
- Five lamp flash driver with 10mA driving capability.
- Random or sequence flash selection
- toggle on/off control function.
- 1/10 duty cycle output.
- Built-in oscillator.
- Minimum external components.

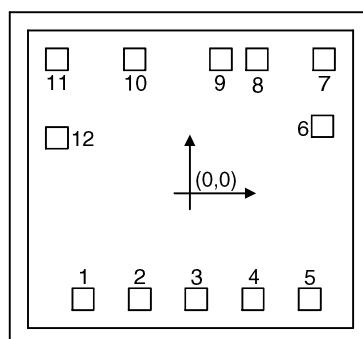
C. Block Diagram —



D. Pin Assignment —



E. Pad Assignment & Position —



Chip Size: 64 × 59 (mil)²

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

Unit: mil

Pad No.	Symbol	x	Y	Pad No.	Symbol	X	Y
1	OUT1	-21.09	-20.9	7	OSC2	26.55	26.5
2	OUT2	-9.89	-20.9	8	VDD	13.35	26.5
3	OUT3	1.31	-20.9	9	TEST	6.15	26.5
4	OUT4	12.51	-20.9	10	OPT	-10.89	26.5
5	OUT5	23.71	-20.9	11	ON/OFF	-26.25	26.5
6	OSC1	26.23	13.3	12	VSS	-26.25	10.98

F. Absolute Maximum Ratings —

Parameter	Symbol	Minimum	Maximum	Unit
Supply Voltage	V _{DD}	-0.3	5	V
Input/Output Voltage	V _I , V _O	V _{SS} -0.3	V _{DD} +0.3	V
Storage Temperature	T _{STG}	-50	125	°C
Operating Temperature	T _{OP}	0	70	°C

G. Electrical Characteristics —

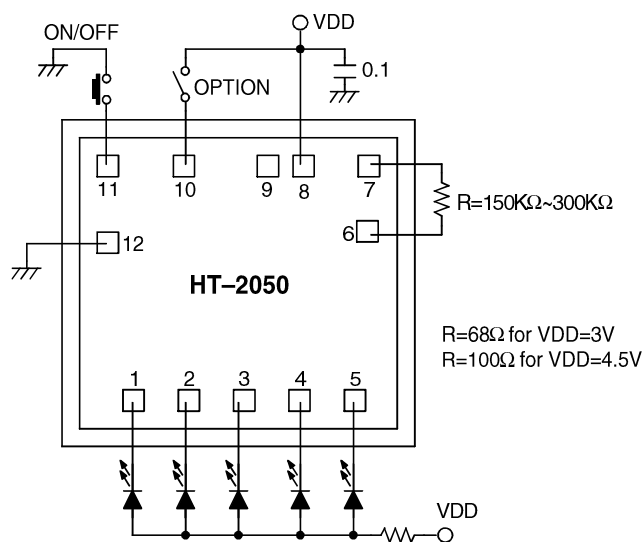
Symbol	Parameter	Test Condition		Min.	Typ.	Max.	Unit
		V _{DD}	Condition				
V _{DD}	Operating Voltage	—	—	1.2	3	4.5	V
I _{STB}	Stand-by Current	3V	—	—	1	2	μA
I _{DD}	Operating Current	3V	No load	—	200	500	μA
I _{OL}	Output Sink Current	1.5V	V _{OL} =0.5V	5	8	—	mA
		3V	V _{OL} =0.5V	10	15	—	mA
F _{OSC}	Oscillator Frequency	—	R=150K~300KΩ	—	64K	—	Hz

H. Pad Description —

Pad No.	Pad Name	I/O	Description
1	OUT1	O	Lamp/LED flash drive output pad.
2	OUT2	O	Lamp/LED flash drive output pad.
3	OUT3	O	Lamp/LED flash drive output pad.
4	OUT4	O	Lamp/LED flash drive output pad.
5	OUT5	O	Lamp/LED flash drive output pad.
6	OSC1	I	Oscillator input pad.
7	OSC2	O	Oscillator output pad.
8	VDD	I	Positive power supply.
9	TEST	I/O	For IC test only.
10	OPTION	I	Random or sequence function selection pad.
11	ON/OFF	I	Togale ON/OFF control pad.
12	VSS	I	Negative power supply, GND.

Note: OPTION= 1 → Sequence Mode
 OPTION= Open → Random Mode

I. Application Diagram —



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

