



GENERAL DESCRIPTION

M3060 is a metal gate CMOS LSI circuit. It can directly drive 3 LED with two flashing modes (manual and auto). A manual-triggering input TG1 or a auto-triggering input TG2 can sequentially change from one to another combinations for 3 LED.

M3060 can be widely applied in toy, etc..

FUNCTION

- Power Supply 3.0V (2.4 ~ 3.6V)
- 3 LED drivers with two flashing modes
- Flashing combination change once in the sequence listed in below table when TG1 pressed once
- Flashing combination change sequentially and automatically from one to another when TG2 connected to Vss
- TEST convenient for functional testing

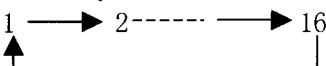
FEATURES

- Built in RC OSC
- Fosc adjustable by an external resistor or choose internal resistor by mask option if Fosc doesn't need to be adjusted.
- Directly drive 3 LED (open-drain output)
- Two keys TG1 & TG2 debounced and pull-up
- CMOS structure with low power consumption

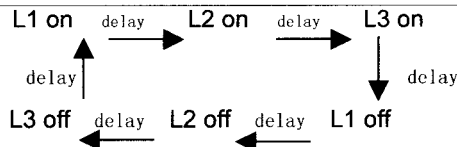
FUNTION DESCRIPTION

TG Input	LED Output		
	L1	L2	L3
Sequential trigger			
1	1	0	0
2	0	0	0
3	0	1	0
4	0	0	0
5	0	0	1
6	0	0	0
7	1	1	0
8	0	0	0
9	0	1	1
10	0	0	0
11	1	0	1
12	0	0	0
13	1	1	1
14	0	0	0
* 15 (Note 4)	1	1	1
16	0	0	0

- Note :**
1. "1" represents Light on, "0" represents Light off.
 2. When first power on, M3060 can be self tested by sequentially turning on L1-L3 then all off and standby.
 3. Connecting TG1 to Vss once manually can make 3 LED flashing sequentially from combination 1 to 16 in the above table.



4. In combination 15 in the above table, 3 LED flash in the following sequences:



5. When TG2 is connected to Vss, the flashing combination of 3 LED will sequentially from 1 -> 16 automatically and circularly.

ABSOLUTE MAXIMUM RATINGS(Ta = 25 °C)

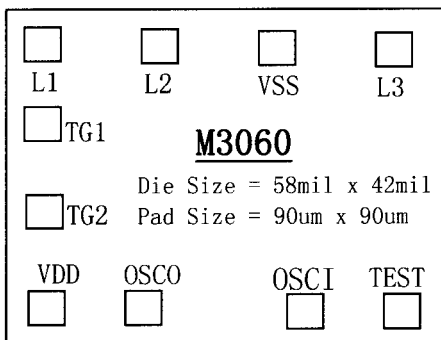
Parameter	Symbol	Limits
Power supply voltage range	VSS - VDD	-0.3 V to +5.0V
Input voltage range	Vin	VSS -0.3 to VDD +0.3
Operating temperature range	TA	-10 to +60°C
Storage temperature range	Tstg	-40 to +85°C

DC ELECTRICAL CHARACTERISTICS

(Ta = 25°C, VDD = 3.0V, Vss = 0V, unless otherwise specified)

Characteristics	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Operating voltage range	VDD	2.4	3.0	3.6	V	-
Standby current	I _{sb}	-	-	2.5	µA	No load
Operating current	I _{op}	-	50	100	µA	No load
Output current	I _{oL}	20	-	-	mA	VoL=0.8V
Oscillator Frequency	Fosc	150	200	250	KHz	

PAD ASSIGNMENT

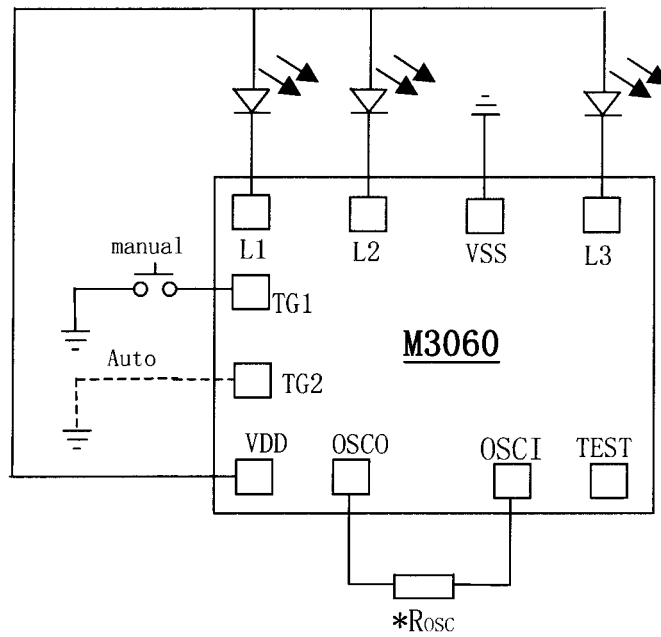


Pad Name & Description

Coordinate of Pad

L1	LED Output 1	(99.2, 805.6)
L2	LED Output 2	(373.1, 805.6)
VSS	Power supply	(813.8, 805.6)
L3	LED Output 3	(1253.7, 805.6)
TEST	Testing Pin	(1253.7, 22.6)
OSCI	OSC input	(978.5, 22.6)
OSCO	OSC output	(350.8, 22.6)
VDD	Power supply	(99.2, 22.6)
TG2	Trigger Input 1	(99.2, 238.1)
TG1	Trigger Input 2	(99.2, 435.9)

APPLICATION DIAGRAM



- Note:**
1. Substrate must be connected to Vdd or left it open.
 2. If it is unnecessary to adjust the Fosc, Rosc can be chosen built-in one by mask option and the external Rosc doesn't need to be connected.