

T1-3/4 PACKAGE TYPE
 ALL-IN-ONE LED SPARKLING LAMP

P/N: RAINBOW LED SERIES

1) Description

The RAINBOW LED, adopting the latest AlInGaP, InGaN and CMOS driving technology, is an ALL-IN-ONE LED sparkling and flashing lamp. With multi-colored SMD chip and controller chip embedded in a standard T1-3/4 Package, it shows various colors by simply applying DC power. The package epoxy is available in transparent or diffused form.

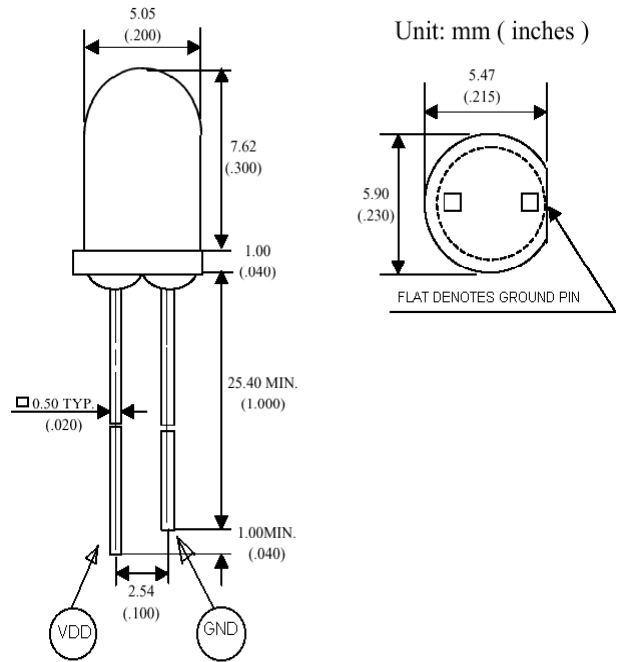
2) Features

- ◆ AlInGaP and InGaN materials.
- ◆ SMD LED and controller in a standard T1-3/4 package.
- ◆ High reliability and compact size.
- ◆ Multi-color combination and optional working mode.

3) Applications

- ◆ Electronic toys
- ◆ Decoration lighting
- ◆ Electronic candles
- ◆ Shoes and bags
- ◆ Warning signal
- ◆ Fishing tools
- ◆ Bicycle signal light
- ◆ Light pens
- ◆ Key chain and other gifts

4) Package Dimensions



- Notes:
- 1) Tolerance is 0.25mm(0.10") unless otherwise noted
 - 2) Protruded resin under flange is 0.15mm(0.059") maximum
 - 3) Lead spacing is measured where the leads emerge from the body of the package

5) Absolute Maximum Ratings

Parameter	Maximum Rating	Unit
Forward Voltage	6.0	V
Reverse Voltage	-3.0	V
Power Dissipation	75	mW
Operating Temperature Range	-15 ~ +70	°C
Storage Temperature Range	-25 ~ +100	°C
Soldering Temperature	+235°C, less than 5 seconds	

@Ta=25°C

6) Recommended Working Condition

Parameter	Minimum	Typical	Maximum	Unit
Power Supply Voltage (VDD)	3.0	4.5	5.0	V
Power Dissipation (Pd)	-	50	70	mW
Operating Current (Id)	20	40	55	mA
Operating Temperature Range	-5	40	65	°C

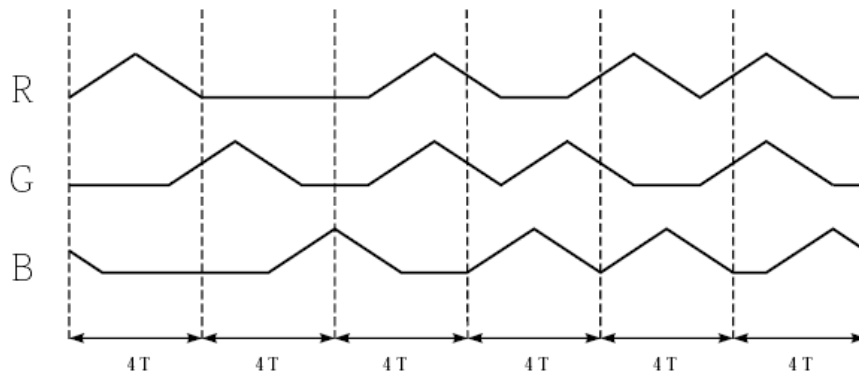
7) Initial Optical-Electrical Characteristics

Color	Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
Red	AlInGaP Technology						
	Luminous Intensity	20mA DC	Iv	45	80	-	mcd
	Forward Voltage	20mA DC	Vf	-	2.1	2.6	V
	Reverse Current	Vr=5V DC	Ir	-	-	10	μA
	Dominant Wave Length	20mA DC	λd	-	625	-	nm
	Spectral Radiation Bandwidth	20 mA DC	Δλ	-	20	-	nm
Green	InGaN Technology						
	Luminous Intensity	20mA DC	Iv	65	130	-	mcd
	Forward Voltage	20mA DC	Vf	-	3.5	4.2	V
	Reverse Current	Vr=5V DC	Ir	-	-	30	μA
	Dominant Wave Length	20mA DC	λd	-	525	-	nm
	Spectral Radiation Bandwidth	20 mA DC	Δλ	-	35	-	nm
Blue	InGaN Technology						
	Luminous Intensity	20mA DC	Iv	20	55	-	mcd
	Forward Voltage	20mA DC	Vf	-	3.5	4.2	V
	Reverse Current	Vr=5V DC	Ir	-	-	30	μA
	Dominant Wave Length	20mA DC	λd	-	470	-	nm
	Spectral Radiation Bandwidth	20 mA DC	Δλ	-	35	-	nm
Viewing Angle		VDD= 4.5V	2θ1/2	-	35	-	deg
Controller's Timing Interval		VDD= 4.5V	T	1.0	-	1.75	S
Controller's Clock Frequency		VDD = 4.5V	F0		128		KHz

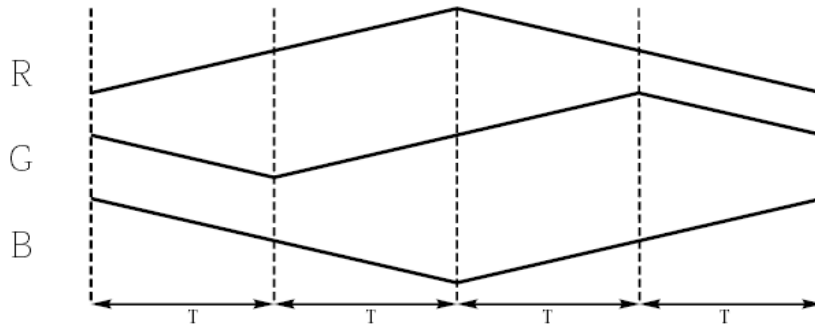
8) Working Mode Options

Working mode, as stated below, could be selected among different choices while bonding the controller chip.

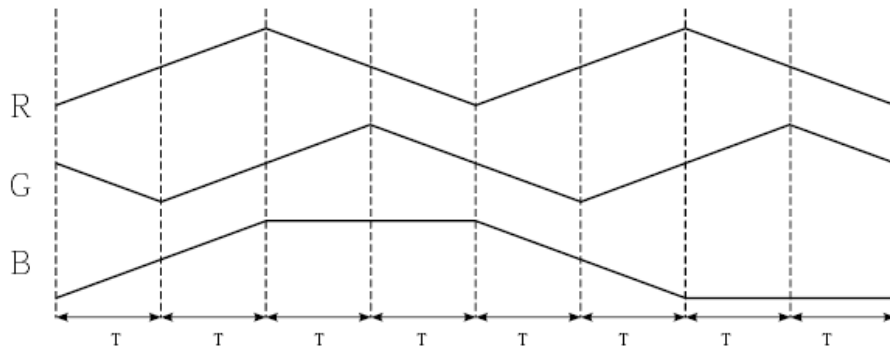
◆ Timing chart for mode R1



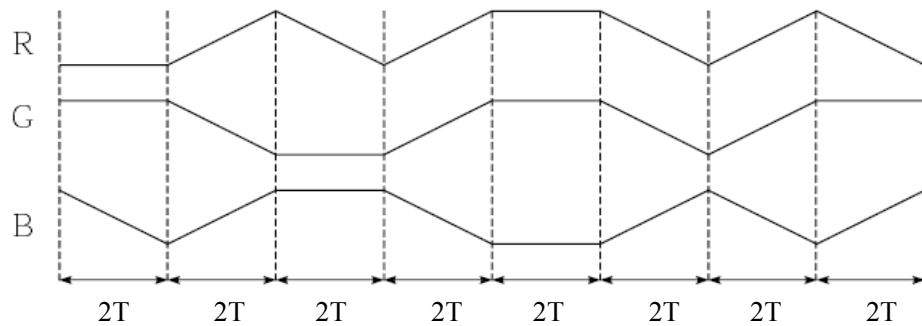
◆ Timing chart for mode R2



◆ Timing chart for mode R3



◆ Timing chart for mode R4



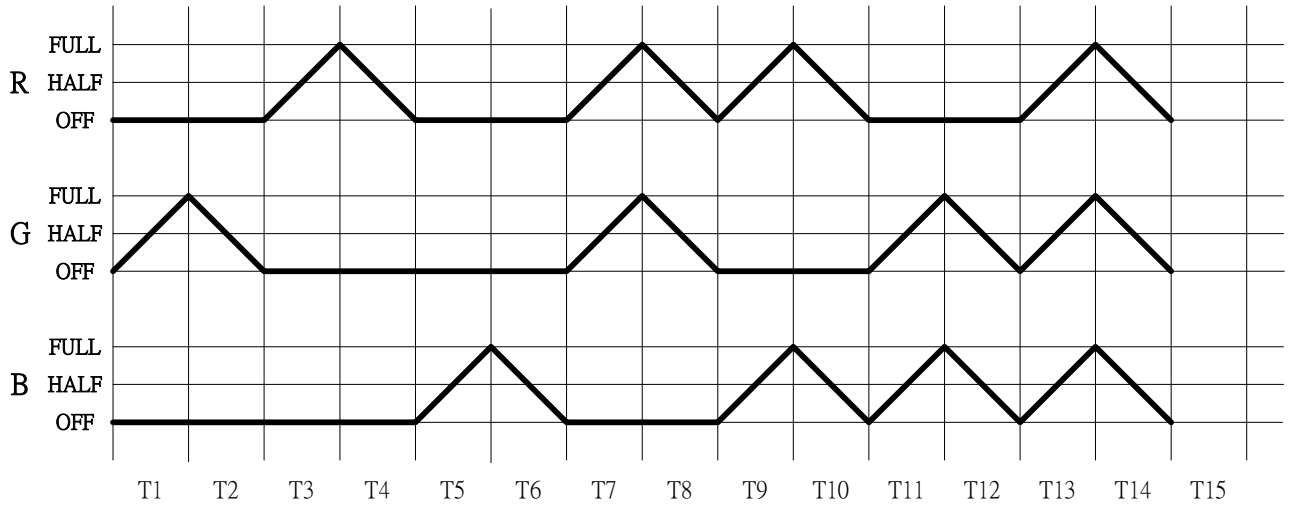
◆ Working mode R5

LEDs are lit by the sequence of R-G-B-RG-RB-GB-RGB, repeating continuously. Repeating frequency is 4Hz.

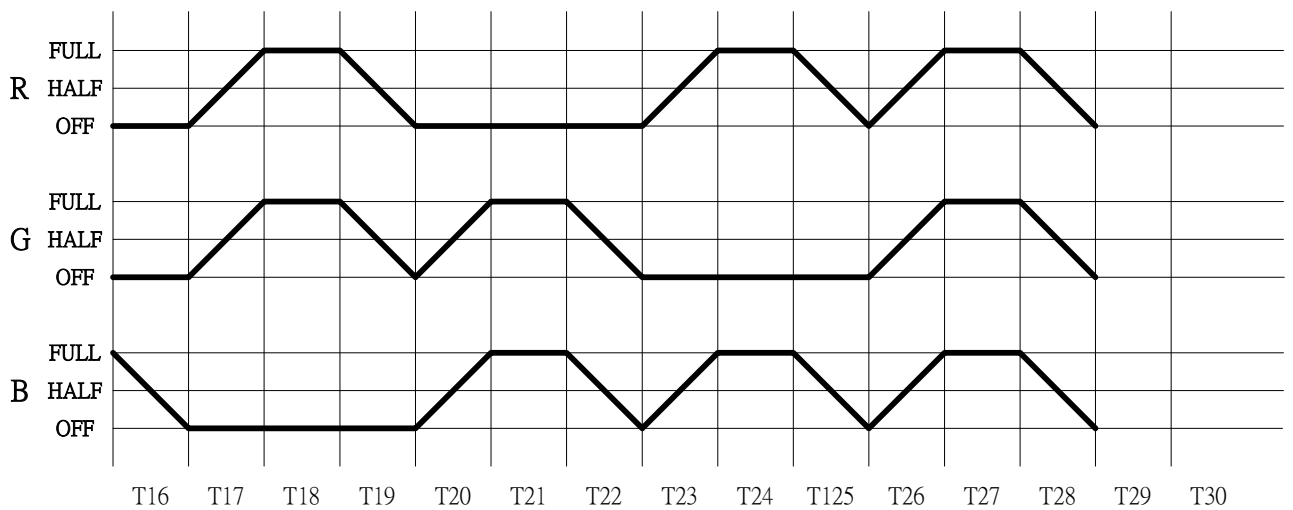
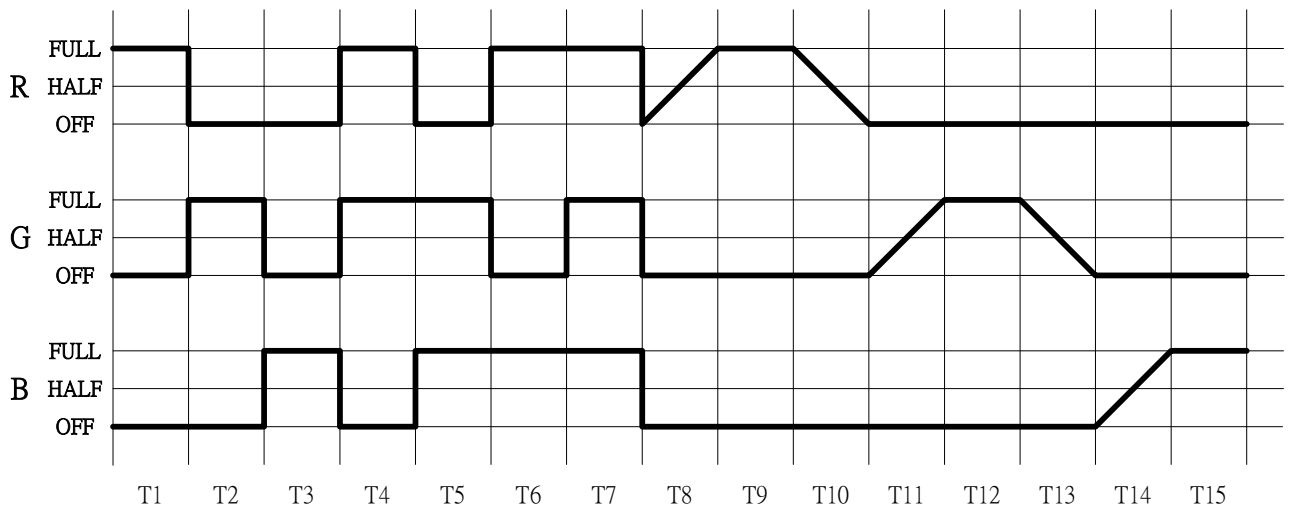
◆ Working mode R6

LEDs are lit by the sequence of R-OFF-G-OFF-B-OFF-RG-OFF-RB-OFF-BG-OFF-RGB-OFF, repeating continuously. Repeating frequency is 128Hz.

◆ Timing chart for mode R7



◆ Timing chart for mode R8



9) Ordering Information

Buyers should supply additional information, as indicated by the following numbering system:

