LUCKY LIGHT

3mm Bi-Color With Common Cathode ,T-1 Type
Hi-Eff Red & Yellow Green LED
Technical Data Sheet

Part No :LL-309IGM2E

Features

- ◇ Red and Yellow Green chips are matched for uniform light output.
- ◇ Common Cathode.
- ◇ T-1 type package.
- ◇ Long life solid state reliability.
- ◇ Low power consumption.
- ◇ I.C. compatible.
- ◇ Pb free

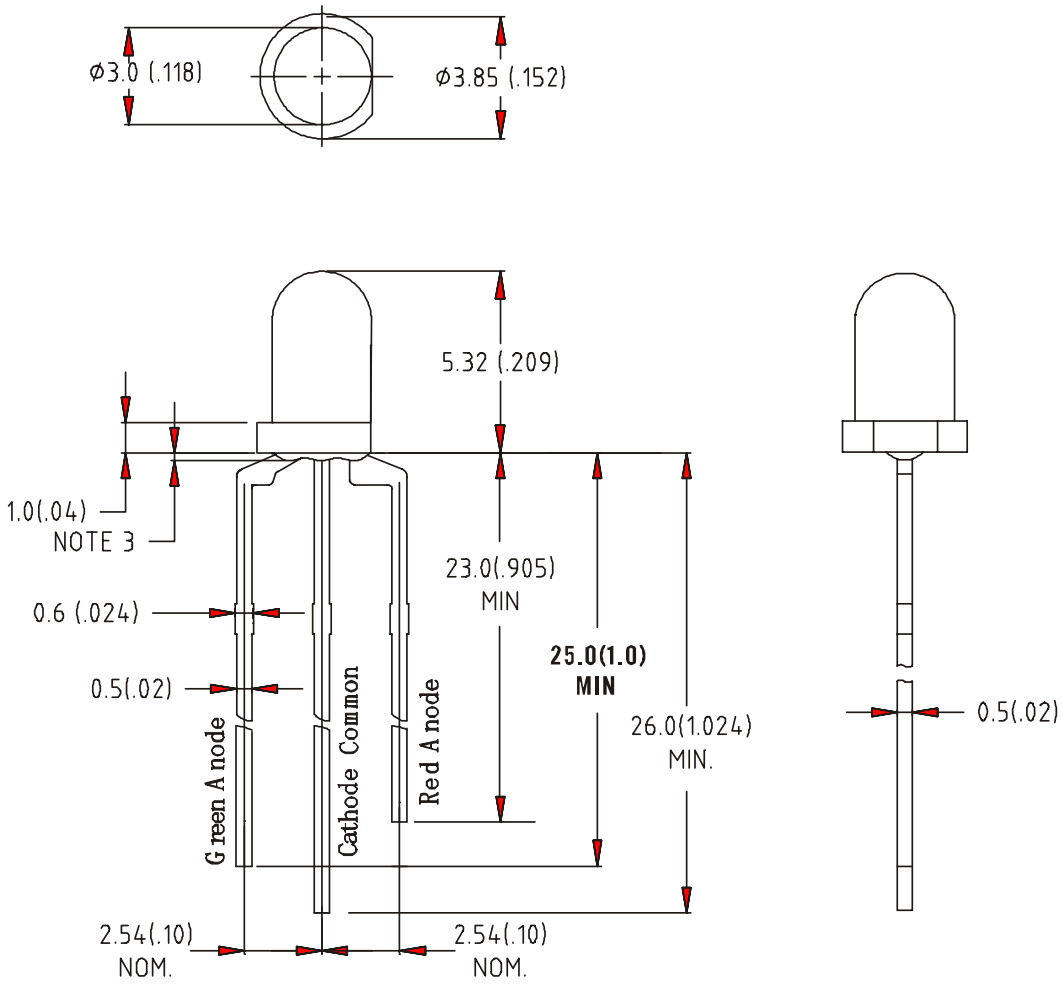
Descriptions

- ◇ The lamp contain two integral chips and is available bicolor.
- ◇ The Red and Yellow Green light is emitted by diodes of GaAsP/ GaP and GaP respectively.
- ◇ White Diffused lens color .

Applications

- ◇ TV set.
- ◇ Monitor.
- ◇ Telephone.
- ◇ Computer
- ◇ Circuit board

Package Dimension:



Part No.	Material	Lens Color	Source Color
LL-309IGM2E	GaAsP/ GaP	White Diffused	Hi-Eff Red
	GaP		Yellow Green

Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.25(.010")mm unless otherwise noted.
3. Protruded resin under flange is 1.0mm(.04") max
4. Specifications are subject to change without notice.

Absolute Maximum Ratings at Ta=25℃

Parameter	Symbol	MAX	Unit
Power Dissipation	PD	100	mW
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	IFP	100	mA
Red Chip Continuous Forward Current	IF	25	mA
Yellow Green Chip Continuous Forward Current	IF	30	mA
Reverse Voltage	VR	5	V
Operating Temperature Range	Topr	-40℃ to +85℃	
Storage Temperature Range	Tstg	-40℃ to +100℃	
Lead Soldering Temperature [4mm(.157”) From Body]	Tsld	260℃ for 5 Seconds	

Electrical Optical Characteristics at Ta=25℃

Parameter	Symbol	Emitting Color	Min.	Typ.	Max.	Unit	Test Condition
Viewing Angle*	$2\theta_{1/2}$	Hi-Eff Red	---	70	---	Deg	(Note 2)
		Yellow Green	---	70	---		
Forward Voltage	V_F	Hi-Eff Red	---	2.0	2.8	V	IF =20mA
		Yellow Green	---	2.1	2.8		
Reverse Current	I_R	Hi-Eff Red	---	---	10	μA	V_R=5V
		Yellow Green	---	---	10		
Peak Emission Wavelength	λp	Hi-Eff Red	---	635	---	nm	IF =20mA
		Yellow Green	---	565	---		
Dominant Wavelength	λd	Hi-Eff Red	---	625	---	nm	IF =20mA
		Yellow Green	---	570	---		
Luminous Intensity (Note 1)*	IV	Hi-Eff Red	1.1	4.5	---	mcd	IF =10mA
		Yellow Green	1.1	4.5	---		

Notes:

1.Luminous Intensity Measurement allowance is±10%

2. $\theta_{1/2}$ is the off-axis angle at which the luminous intensity is half the axial luminous intensity

Reliability

1) Test Items and Results

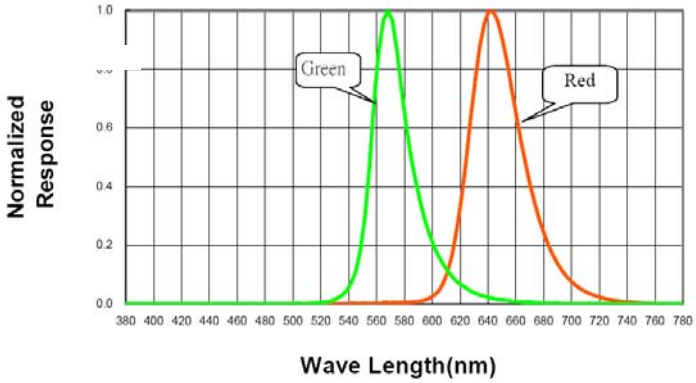
Test Item	Standard Test Method	Test Conditions	Note	Number of Damaged
Resistance to Soldering Heat	JEITA ED-4701 300 302	Tsld=260±5℃,10sec 3mm from the base of the epoxy bulb	1 time	0/100
Solderability	JEITA ED-4701 300 303	Tsld=235±5℃,5sec(using flux)	1time over 95%	0/100
Themal Shock	JEITA ED-4701 300 307	0℃~100℃ 15sec,15sec	100 cycles	0/100
Temperature Cycle	JEITA ED-4701 100 105	-40℃~25℃~100℃~25℃ 30min,5min,30min,5min	100 cycles	0/100
Moisture Resistance Cylic	JEITA ED-4701 200 203	25℃~65℃~-10℃ 90%RH 24hrs/1cycle	10 cycles	0/100
High Temperature Storage	JEITA ED-4701 200 201	Ta=100℃	1000hrs	0/100
Terminal Strength (Pull test)	JEITA ED-4701 400 401	Load 10N (1kgf) 10±1sec	Nonotic eable damage	0/100
Terminal Strength (bending test)	JEITA ED-4701 400 401	Load 5N (0.5kgf) 0° ~90° ~0° bend 2 times	Nonotic eable damage	0/100
Temperature Humidity Storage	JEITA ED-4701 100 103	Ta=60℃,RH=90%	1000hrs	0/100
Low Temperature Storage	JEITA ED-4701 200 202	Ta=-40℃	1000hrs	0/100
Steady State Operating Life		Ta=25℃, IF=30mA	1000hrs	0/100
Steady State Operating Life of High Humidity Heat		Ta=60℃,RH=90% ,IF=30mA	500hrs	0/100
Steady State Operating Life of Low Temperature		Ta=-30℃, IF=20mA	1000hrs	0/100

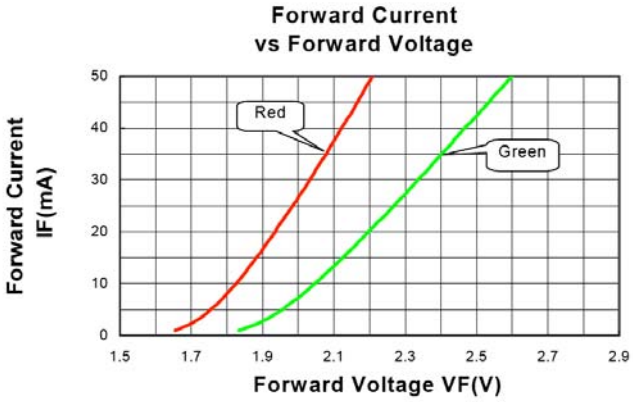
2)Critera For Judning The Damage

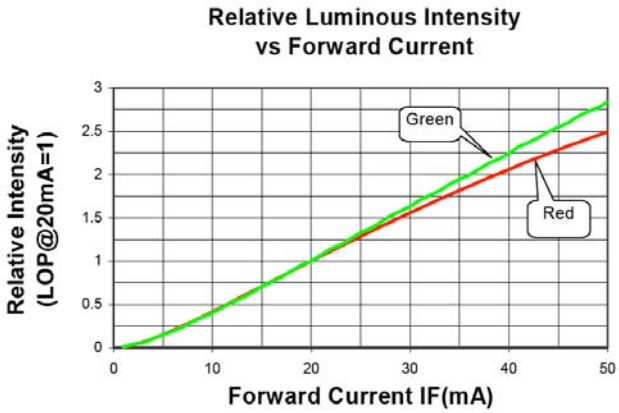
Item	Symbl	Test Conditions	Criteria for Judgement	
			Min	Max
Forward Voltage	VF	I_F=20mA	—	F.V.*)×1.1
Reverse Current	IR	VR=5V	—	F.V.*)×2.0
Luminous Intensity	IV	I_F=10mA	F.V.*)×0.7	—

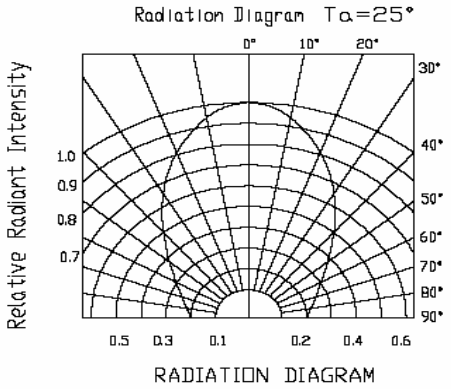
*)F.V.:First Value

Typical Electrical / Optical Characteristics Curves
(25℃ Ambient Temperature Unless Otherwise Noted)









Please read the following notes before using the datasheets

1. Over-current-proof

Customer must apply resistors for protection , otherwise slight voltage shift will cause big current change (Burn out will happen).

2. Storage

2.1 Do not open moisture proof bag before the products are ready to use.

2.2 Before opening the package, the LEDs should be kept at 30℃ or less and 90%RH or less.

2.3 The LEDs should be used within a year.

2.4 After opening the package, the LEDs should be kept at 30℃ or less and 70%RH or less.

2.5 The LEDs should be used within 168 hours (7 days) after opening the package.

3. Soldering Condition

3.1 Pb-free solder temperature profile

3.2 Reflow soldering should not be done more than two times.

3.3 When soldering, do not put stress on the LEDs during heating.

3.4 After soldering, do not warp the circuit board.

4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 260℃ for 5 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering

of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

5.Repairing

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used. It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.