

DATA SHEET

ESL NO.. : ESL-V50RGC008

CUS NO. : 90728

REV : A / 0

Producer: \_\_\_\_\_ Auditor: \_\_\_\_\_ Approver: \_\_\_\_\_

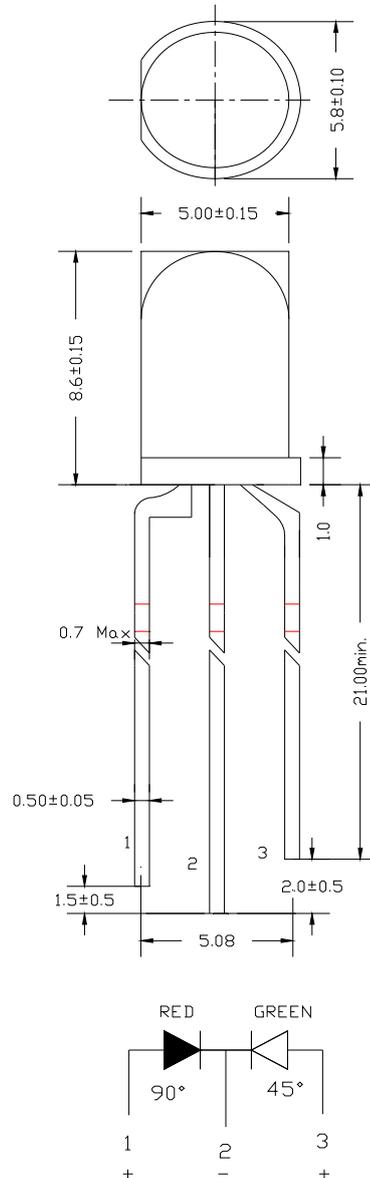
CUSTOMER'S APPROVAL : \_\_\_\_\_ DCC : \_\_\_\_\_

# 5.0 mm DIA LED LAMP

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### PACKAGE DIMENSIONS



#### Note:

1. All Dimensions are in millimeters.
2. Tolerance is  $\pm 0.25$  mm (0.010 ") unless otherwise specified.
3. The lamps have sharp and hard points that may injure human eyes or fingers etc., so please pay enough care in the handling.

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### FEATURES

- \* 5.0mm DIA LED LAMP
- \* LOW POWER CONSUMPTION.
- \* I.C. COMPATIBLE.
- \* LONG LIFE SOLID STATE RELIABILITY.
- \* PB FREE PRODUCTS(Compliant with EU's RoHS)

### CHIP MATERIALS

- \* Dice Material : GaAsP/GaAs & GaP/GaP
- \* Light Color : Green & Red
- \* Lens Color :White Diffused

ABSOLUTE MAXIMUM RATING : ( Ta = 25 C )

SYMBOL	PARAMETER	Red	Green	UNIT
PAD	Power Dissipation	78	78	mW
VR	Reverse Voltage	5	5	V
IF	Average Forward Current(Duty=0.1,1KHZ)	30	30	mA
IPF	Peak Forward Current Per Chip (Duty=0.1,1KHz)	100	100	mA
—	Derating Linear From 25°C	0.4	0.4	mA/°C
Topr	Operating Temperature Range	-25°C to 85°C		
Tstg	Storage Temperature Range	-40°C to 85°C		

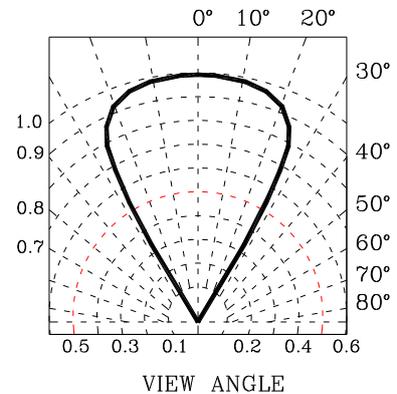
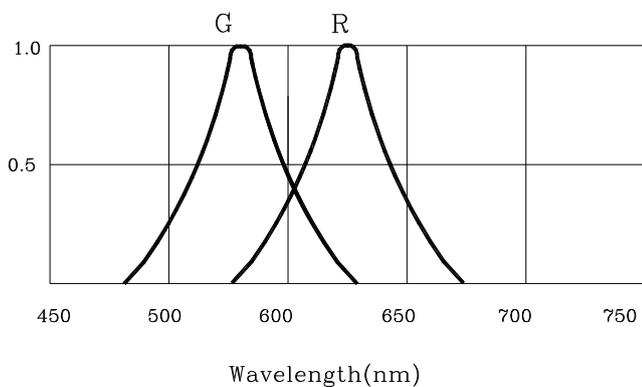
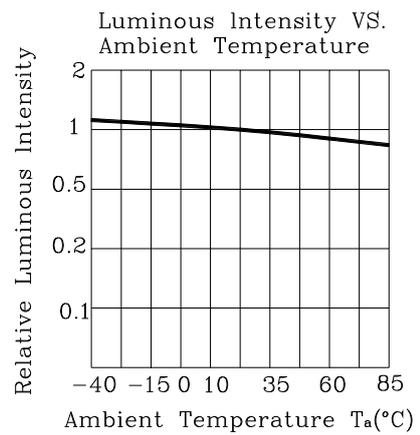
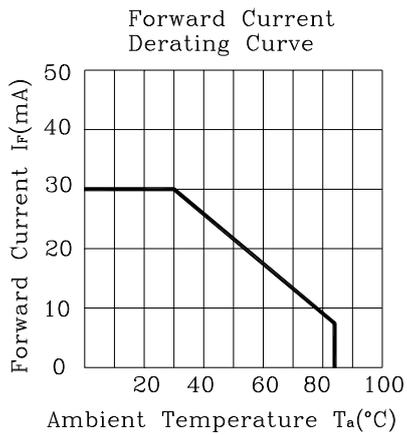
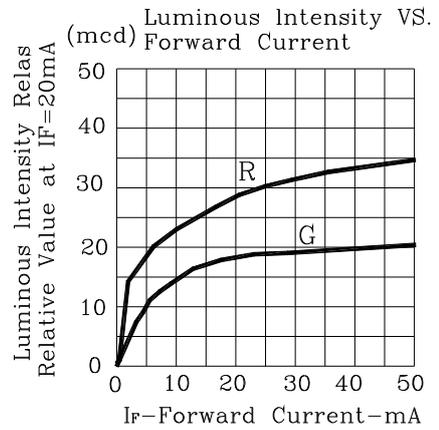
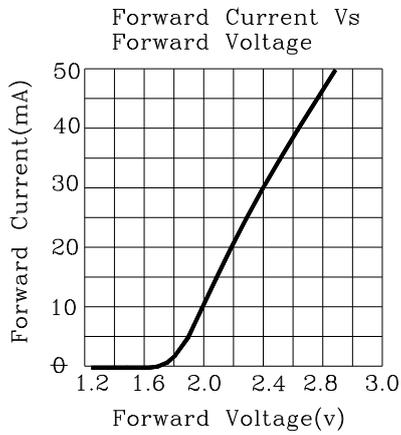
### ELECTRO-OPTICAL CHARACTERISTICS : ( Ta = 25 C )

SYMBOL	DESCRIPTION	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Vf	Forward Voltage	IF=20mA	Green	1.8	2.2	2.6	V
			Red	1.8	2.1	2.4	
IR	Reverse Current	VR=5 V	Green			10	μA
			Red			10	
D	Dominant Wavelength	IF=20mA	Green	567	570	573	nm
			Red	620	62	630	
Δ	Spectral Line Half-Width	IF=20mA	Green		25		nm
			Red		20		
2θ	Half Intensity Angle	IF=20mA	G/R		60	deg	
Iv	Luminous Intensity	IF=20mA	Green	15	20	25	mcd
			Red	25	30	35	

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### •SOLDERING

METHOD	SOLDERING CONDITIONS	REMARK
IR REFLOWER	Bath temperature: 240°C Immersion time: with 5 sec, 1 time	<ul style="list-style-type: none"> <li>• Solder no closer than 3mm from the base of the package</li> <li>• Using soldering flux, "RESIN FLUX" is recommended.</li> <li>• Attached data of temperature cure for your reference</li> </ul>
DIP SOLDERING	Bath temperature: 240°C Immersion time: with 5 sec, 1time	
SOLDERING IRON	Soldering iron: 30W or smaller Temperature at tip of iron: 260°C or lower Soldering time: within 5 sec.	<ul style="list-style-type: none"> <li>• During soldering, take care not to press the tip of iron against the lead. (To prevent heat from being transferred directly to the lead, hold the lead with a pair of tweezers while soldering</li> </ul>

- 1) When soldering the lead of LED in a condition that the package is fixed with a panel (See Fig.1), be careful not to stress the leads with iron tip.

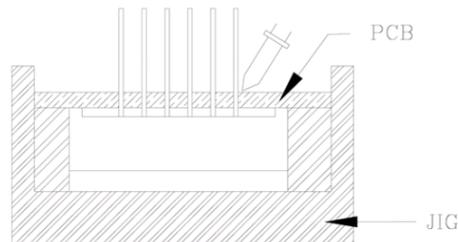


Fig.1

- 2) When soldering wire to the lead, work with a Fig (See Fig.2) to avoid stressing the package.

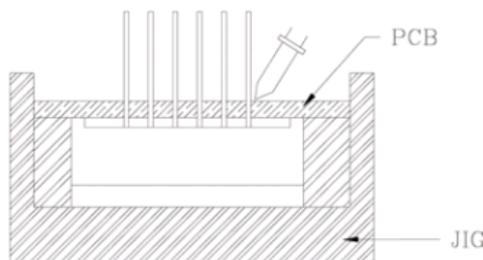


Fig.2

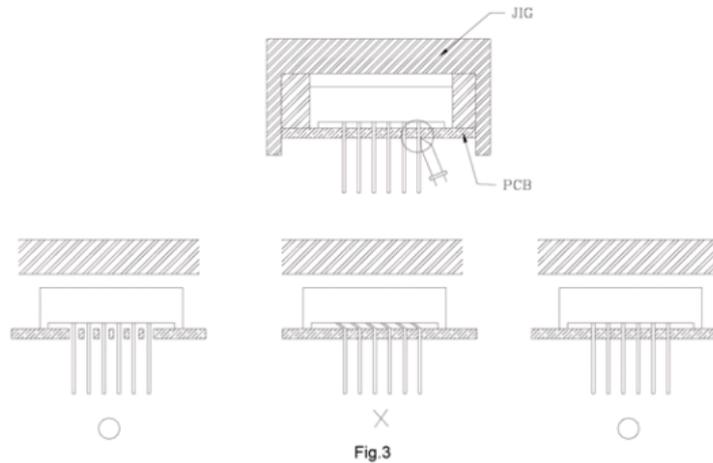
Regarding solution in the tinning oven for product-tinning, compound sub-solution made of tin & copper and silver is proposed with the temperature of Celsius 260. The proportion of the alloyed solution is tin 95.5: copper 3.5: silver 0.5 by percentage. The time of tinning is constantly 3 seconds.

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- 3) Similarly, when a jig is used to solder the LED to PC board, take care as much as possible to avoid steering the leads (See Fig.3).



- 4) Repositioning after soldering should be avoided as much as possible. If inevitable, be sure to preserve the soldering conditions with irons stated above: select a best-suited method that assures the least stress to the LED.
- 5) Lead cutting after soldering should be performed only after the LED temperature has returned to normal temperature.

## ● STORAGE

- 1) The LEDs should be stored at 30°C or less and 70% RH or less after being shipped from PARA and the storage life limits are 3 months .
- 2) PARA LED lead frames are comprised of a stannum plated iron alloy. The silver surface may be affected by environments which contain corrosive gases and so on. Please avoid conditions which may cause the LEDs to corrode, tarnish or discolor. This corrosion or discoloration may cause difficulty during soldering operations. It is recommended that the LEDs be used as soon as possible.

Please avoid rapid transitions in ambient temperature, especially, in high humidity environments where condensation can occur.

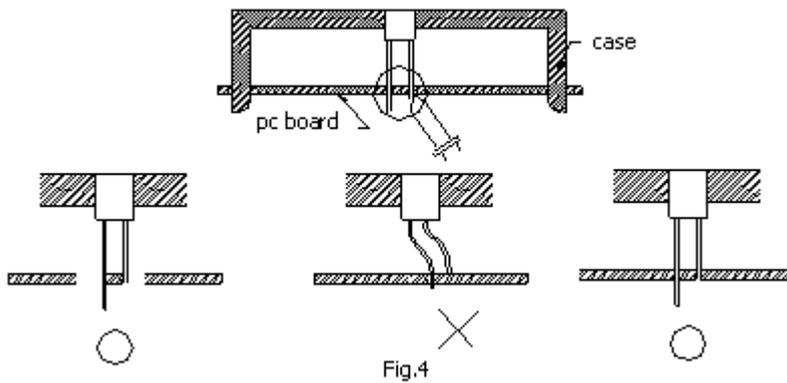
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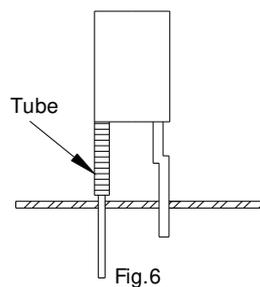
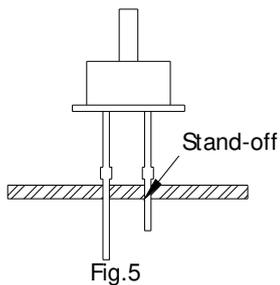
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## •LED MOUNTING METHOD

3) When mounting the LED by using a case, as shown Fig.4, ensure that the mounting holds on the PC board match the pitch of the leads correctly-tolerance of dimensions of the respective components including the LED should be taken into account especially when designing the case, PC board, etc. to prevent pitch misalignment between the leads and board holes, the diameter of the board holes should be slightly larger than the size of the lead. Alternatively, the shape of the holes should be made oval. (See Fig.4)



4) Use LEDs with stand-off (Fig.5) or the tube or spacer made of resin (Fig.6) to position the LEDs.



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## •FORMED LEAD

- 1) The lead should be bent at a point located at least 2mm away from the package. Bending should be performed with base fixed means of a jig or pliers (Fig.7)

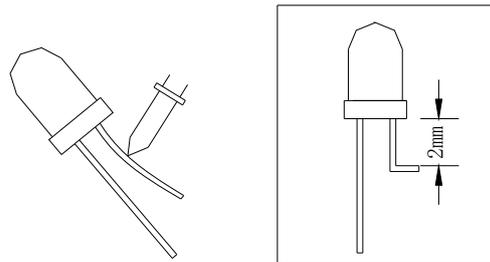


Fig. 7

- 2) Forming lead should be carried out prior to soldering and never during or after soldering.
- 3) Form the lead to ensure alignment between the leads and the hole on board, so that stress against the LED is prevented. (Fig.8)

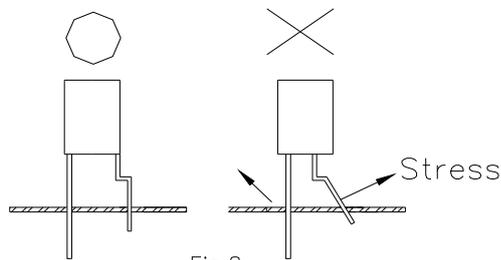


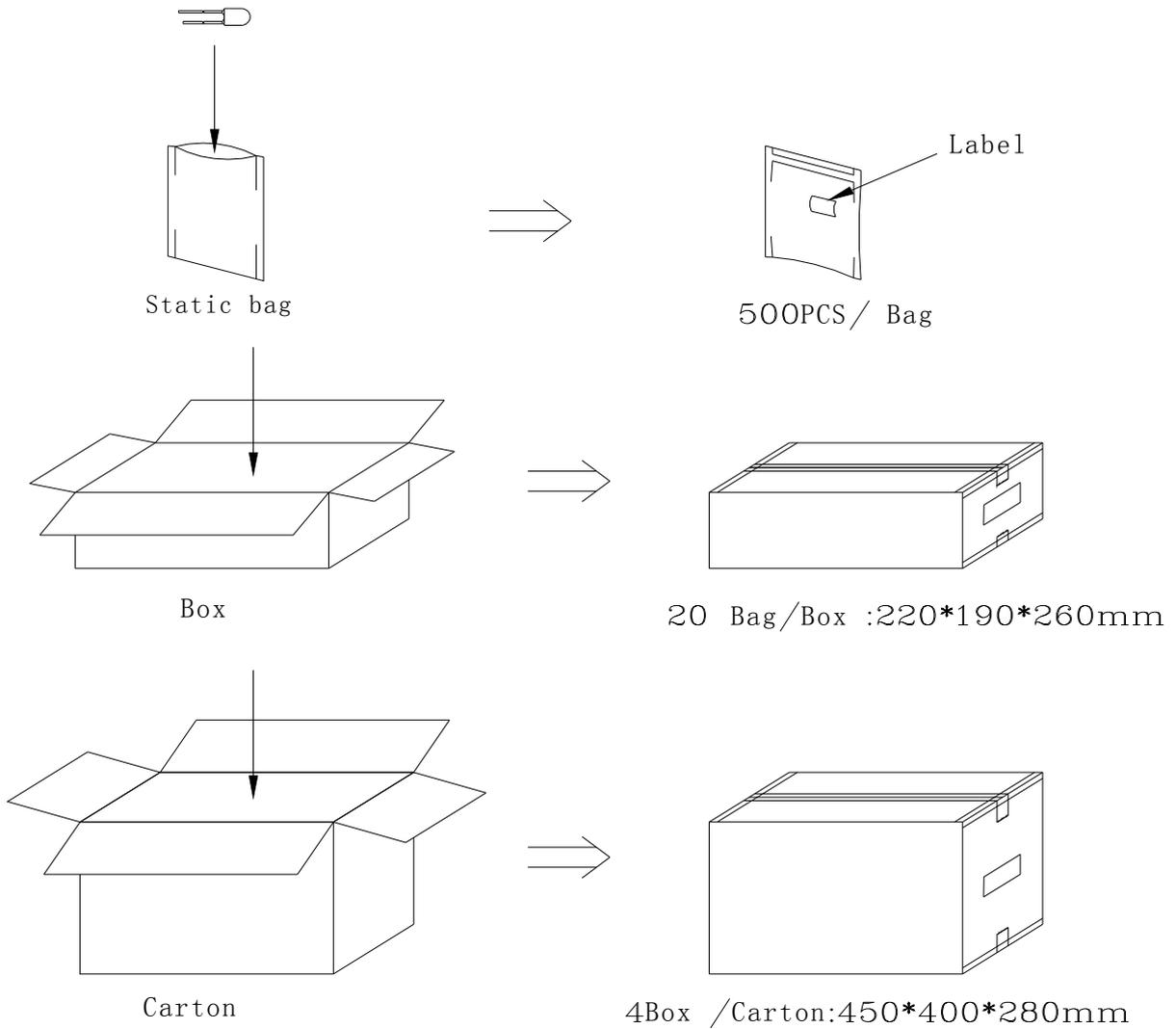
Fig.8

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### Moisture Resistant Packaging



Label :

Jiangsu Everstars Electronics Co., Ltd.	
LED LAMPS	
Part NO.:	_____
Lot NO.:	_____
VF:	_____ IV: _____
WL:	_____ Q'ty: _____
DATE:	_____ QC: _____

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### Reliability Test:

Item	Test Condition	Reference Standard
	Lamp & IR	
OPERATION LIFE	Ta : 25±5°C IF= 20mA RH : ≤60%RH ① DYNAMIC:100mA 1ms 1/10 duty ② STATIC STATE: IF=20mA TEST TIME: 168HRS (-24HRS , +24HRS) 500HRS (-24HRS , +24HRS) 1000HRS (-24HRS , +72HRS)	MIL-STD-750 : 1026 MIL-STD-883 : 1005 JIS C 7021 : B-1
HIGH TEMPERATURE HIGH HUMIDITY STORAGE	Ta : 65°C±5°C RH : 90~95%RH TEST TIME : 240HRS±2HRS	MIL-STD-202 : 103B JIS C 7021 : B-1
TEMPERATURE CYCLING	105°C ~ 25°C ~ -55°C ~ 25°C 30min 5min 30min 5min 10CYCLES	MIL-STD-202 : 107D MIL-STD-750 : 1051 MIL-STD-883 : 1010 JIS C 7021 : A-4
THERMAL SHOCK	105°C±5°C ~ -55°C±5°C 10min 10min 10CYCLES	MIL-STD-202 : 107D MIL-STD-750 : 1051 MIL-SYD-883 : 1011
SOLDER RESISTANCE	T , sol : 260°C±5°C DWELL TIME : 10±1sec	MIL-STD-202 : 210A MIL-STD-750-2031 JIS C 7021 : A-1
SOLDERABILITY	T , sol : 230°C±5°C DWELL TIME : 5±1sec	MIL-STD-202 : 208D MIL-STD-750 : 2026 MIL-STD-883 : 2003 JIS C 7021 : A-2