

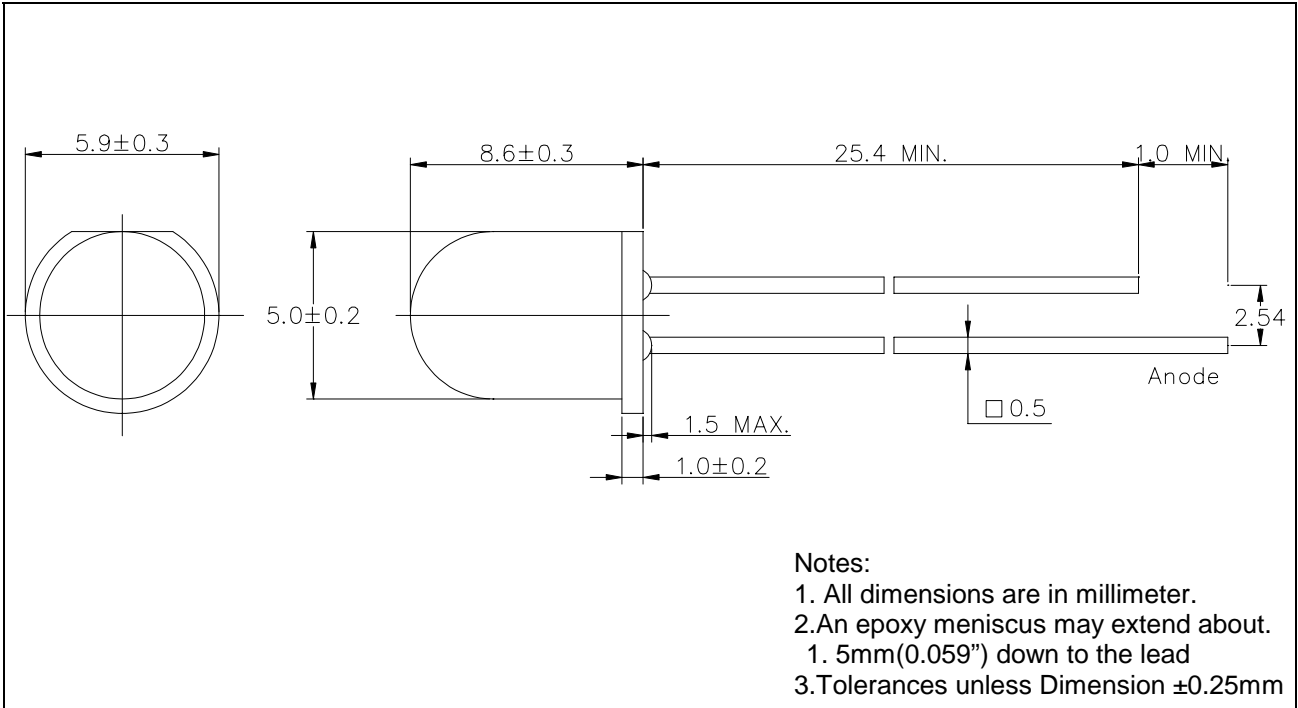
## Part No. LLL-GREEN

5 mm

Round

Type : LED Lamps

### Package Dimension :



### ■ Features :

- Choice of various viewing angles.
- Available on Tape and Reel.
- Reliable and robust.

### ■ Descriptions :

- The series is specially designed for application requiring higher brightness.
- The LED lamps are available with different color, intensities, epoxy colors etc.

### ■ Applications :

- TV set
- Monitor
- Telephone

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PART NO.	Chip		Lens Color
	Material	Emitted Color	
AL-513BG3C	InGaN	Bluish Green	Water Clear

**■ Absolute Maximum Ratings at Ta=25**

Parameter	Symbol	Rating	Unit
Forward Current	I <sub>F</sub>	30	mA
Operating Temperature	T <sub>opr</sub>	-40 to +85	
Storage Temperature	T <sub>stg</sub>	-40 to +85	
Soldering Temperature	T <sub>sol</sub>	260 ±5	
Electrostatic Discharge	ESD	1000	V
Power Dissipation	P <sub>D</sub>	120	mW
Peak Forward Current (Duty 1/10@1KHz)	I <sub>F</sub> (Peak)	100	mA
Reverse Voltage	V <sub>R</sub>	5	V

**■ Electronic Optical Characteristics :**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I <sub>V</sub>	7000	9000	/	mcd	I <sub>F</sub> =20mA
Viewing Angle	2θ <sub>1/2</sub>	/	15	/	deg	I <sub>F</sub> =20mA
Peak Wavelength	p	/	505	/	nm	I <sub>F</sub> =20mA
Dominant Wavelength	d	/	507	/	nm	I <sub>F</sub> =20mA
Spectrum Radiation Bandwidth		/	20	/	nm	I <sub>F</sub> =20mA
Forward Voltage	V <sub>F</sub>	/	3.50	4.00	V	I <sub>F</sub> =20mA
Reverse Current	I <sub>R</sub>	/	/	100	μA	V <sub>R</sub> =5V

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## ■ Reliability test items and conditions :

NO	Item	Test Conditions	Test Hours/Cycle	Sample Size	Ac/Re
1	Solder Heat	TEMP : 260 ± 5	5 SEC	76 PCS	0/1
2	Temperature Cycle	H : +85 30min ∫ 5min L : -55 30min	50 CYCLES	76 PCS	0/1
3	Thermal Shock	H : +100 5min ∫ 10set L : -10 5min	50 CYCLES	76 PCS	0/1
4	High Temperature Storage	TEMP : 100	1000 HRS	76 PCS	0/1
5	Low Temperature Storage	TEMP : -55	1000 HRS	76 PCS	0/1
6	DC Operating Life	TEMP : 25 I <sub>F</sub> =20mA	1000 HRS	76 PCS	0/1
7	High Temperature / High Humidity	85 / 85%RH	1000 HRS	76 PCS	0/1

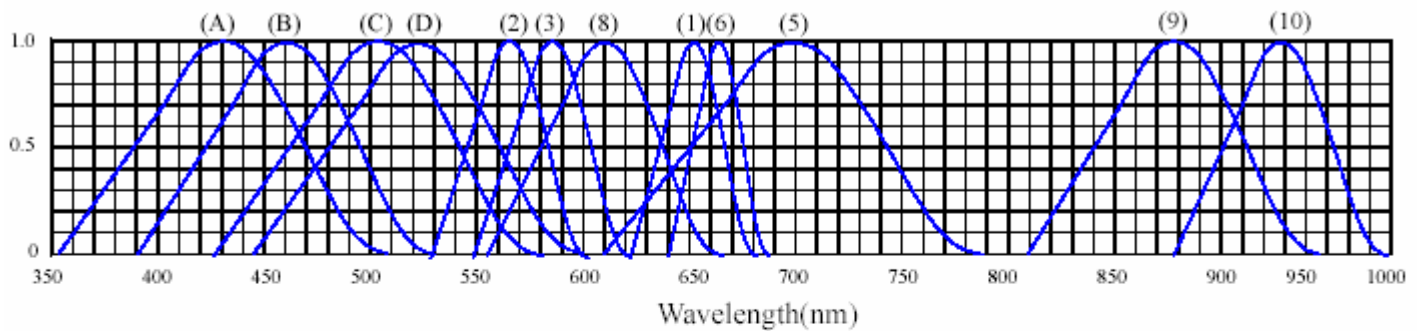
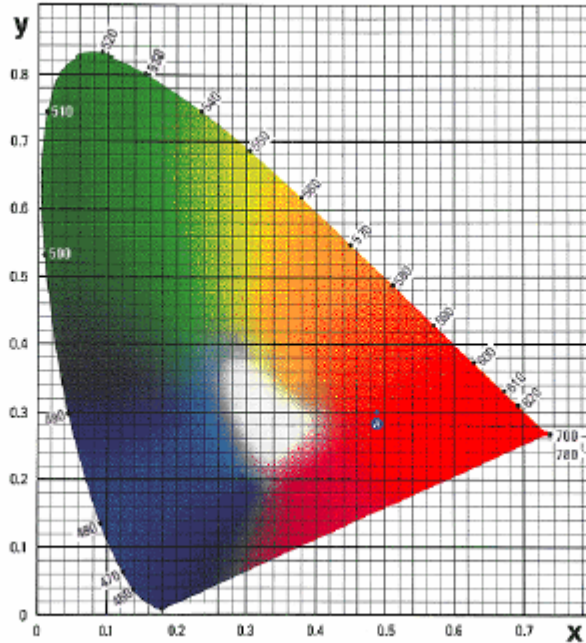
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### ◆ TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS CURVES



RELATIVE INTENSITY VS. WAVELENGTH( $\lambda_p$ )

- |   |                                  |
|---|----------------------------------|
| (1) GaAsP/GaAs 655nm/Red                | (9)- GaAlAs 880nm                |
| (2) GaP 568nm/ Yellow Green             | (10)-GaAs/GaAs&GaAlAs/GaAs 940nm |
| (3) GaAsP/GaP 585nm/Yellow              | (A)- GaN 430nm/Blue              |
| (4) GaAsP/GaP 635nm/Orange & Hi-Eff Red | (B)- InGaN 470nm/Blue            |
| (5) GaP 700nm/Bright Red                | (C)- InGaN 502nm/Ultra Green     |
| (6) GaAlAs/GaAs 660nm/Super Red         | (D)- InGaN 523nm/Ultra Green     |
| (8) GaAsP/GaP 610nm/Super Red           |                                  |

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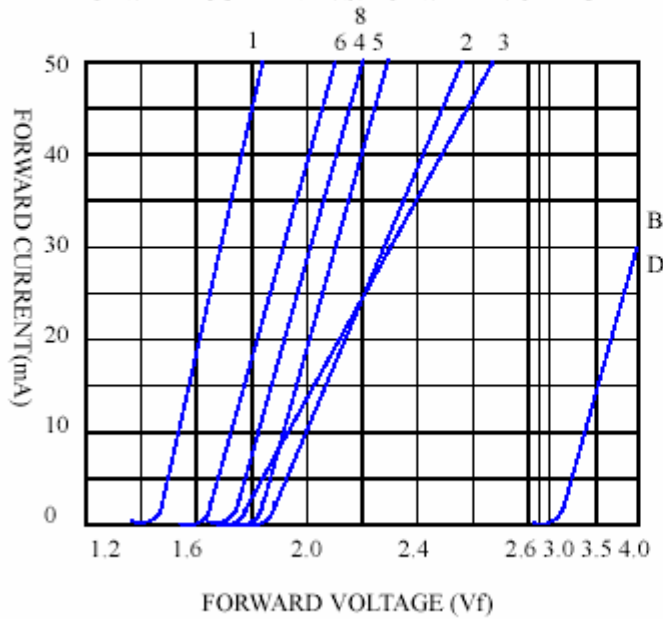
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Round

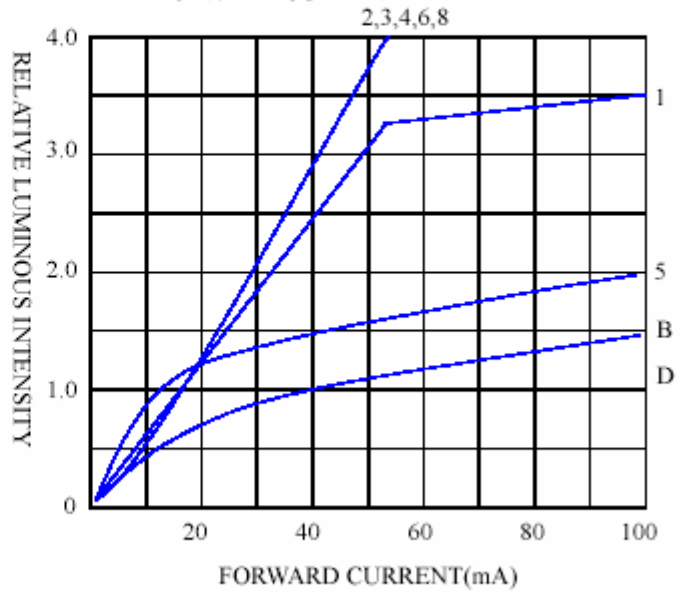
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#### ◆ CHARACTERISTICS DIAGRAMS

FORWARD CURRENT VS. FORWARD VOLTAGE



RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



FORWARD CURRENT VS. AMBIENT TEMPERATURE

