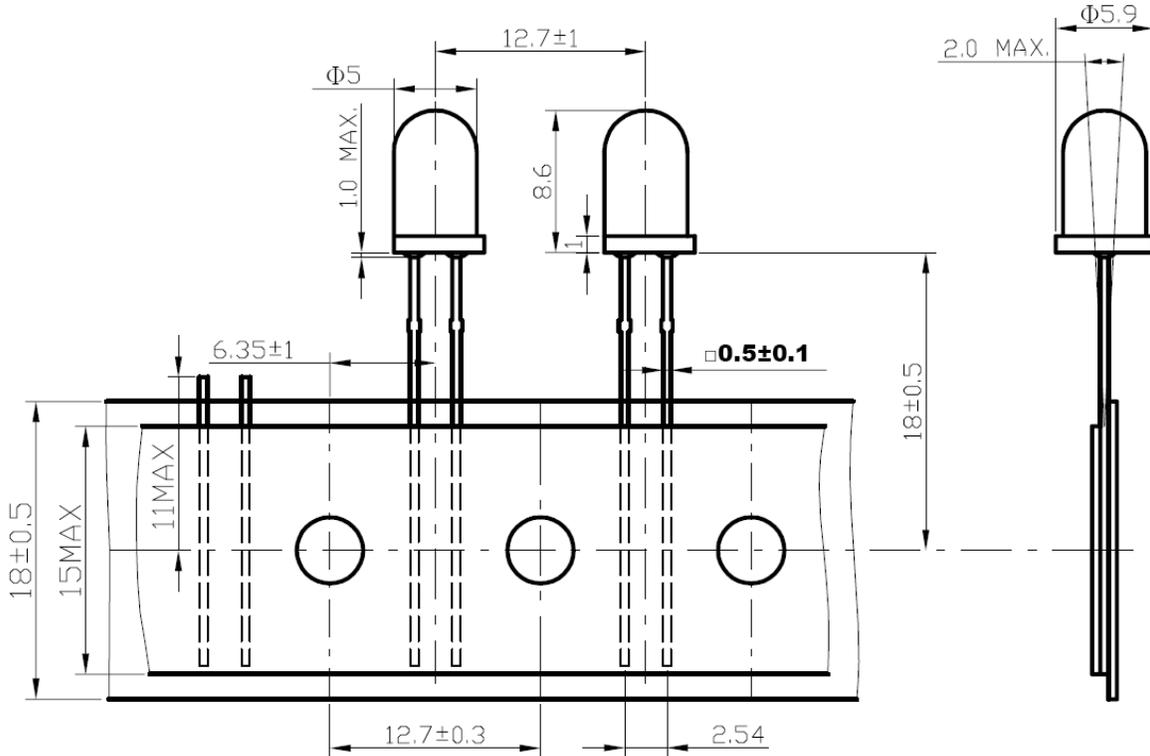




**American Opto Plus LED**  
**L513GD-TR**  
 5mm Dia LED LAMP – Green Diffused

- ◆ 5.0mm DIA LED LAMP
- ◆ I.C. COMPATIBLE
- ◆ LOW POWER CONSUMPTION

**DIMENSIONS**



**SELECTION GUIDE**

Chip Material	Chip Emitted	Lens Color	Viewing Angle
GaP	Green	Green Diffused	60°



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## ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

Parameter	Symbol	Max Rating	Unit
Power Dissipation	$P_D$	65	mW
Pulse Forward Current (1/10 Duty Cycle @1KHz )	$I_{PF}$	100	mA
Forward Current	$I_F$	25	mA
Reverse Voltage	$V_R$	5.0	V
Operating Temperature Range	$T_{OPR}$	-40~+85	°C
Storage Temperature Range	$T_{STG}$	-40~+85	°C

## OPTICAL-ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Luminous Intensity	$I_v$	$I_F = 20\text{mA}$	5	20		mcd
Forward Voltage	$V_F$	$I_F = 20\text{mA}$		2.05	2.6	V
Reverse Current	$I_R$	$V_R = 5\text{V}$			10	uA
Viewing Angle	2θ1/2	$I_F = 20\text{mA}$		60		deg.
Dominant Wavelength	$\lambda_D$	$I_F = 20\text{mA}$		568	570	nm
Spectral line half-width	$\Delta\lambda$	$I_F = 20\text{mA}$		30		Nm
Capacitance	C	$V_F = 0\text{V}, F = 1\text{MHz}$		45		pF



# American Opto Plus LED

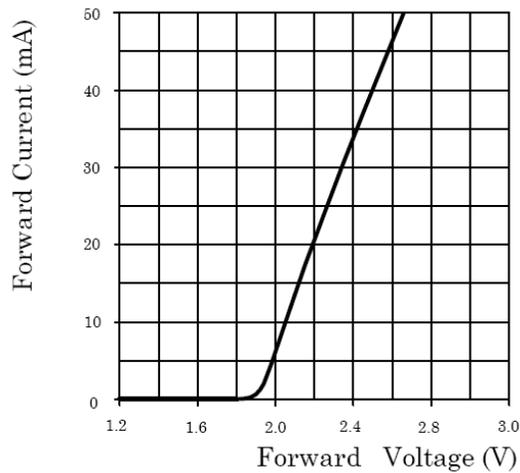
## L513GD-TR

5mm Dia LED LAMP – Green Diffused

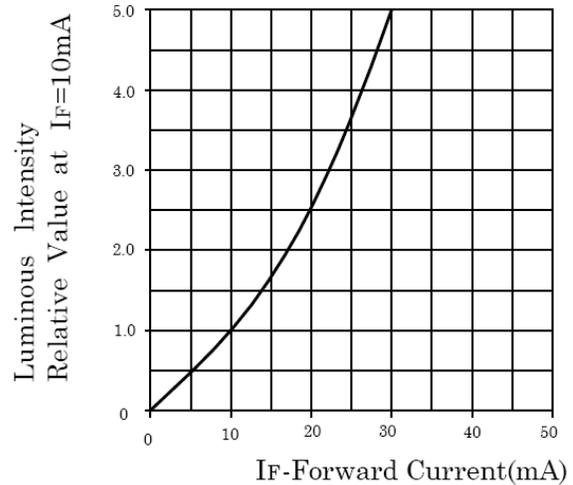
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### TYPICAL ELECTRO-OPTICAL CHARACTERISTIC CURVES

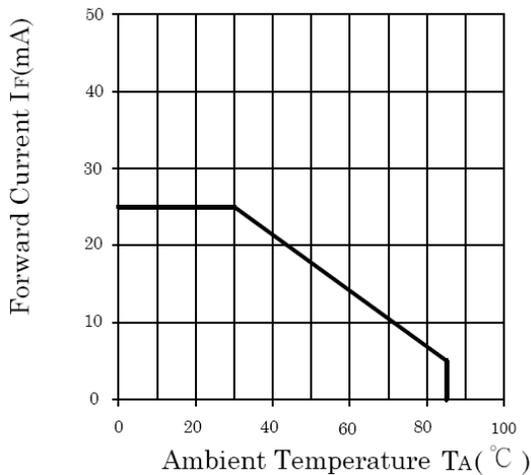
Forward Current vs. Forward Voltage



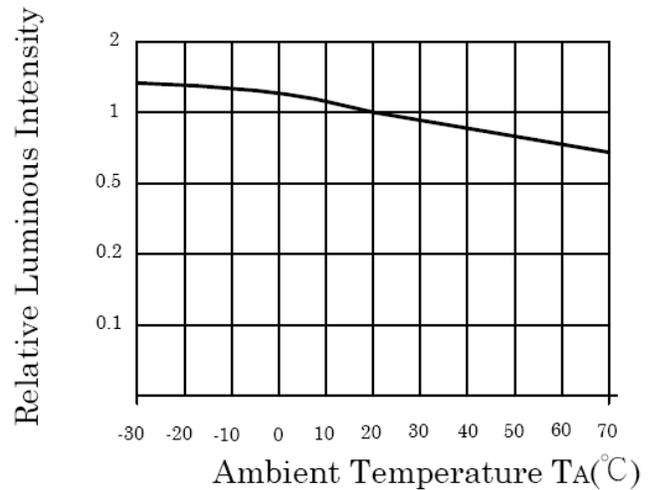
Relative Intensity vs. Forward Current



Forward Current vs. Temperature



Relative Intensity vs. Temperature

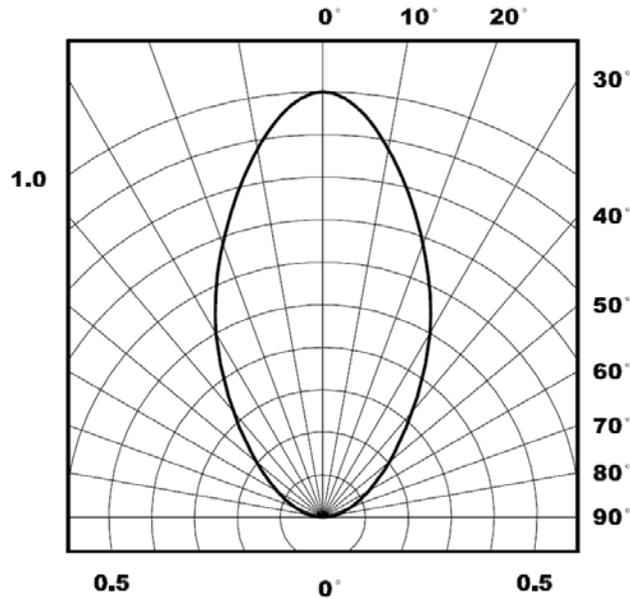




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View Angle  $2\Theta_{1/2} 60^\circ$

## Wave Soldering

### SOLDERING INSTRUCTIONS

TYPES	DIP AND WAVE SOLDERING			IRON SOLDERING(WITH 1.5mm IRON TIP)		
	TEMPERATURE OF THE SOLDERING BATH	MAXIMUM SOLDERING TIME	DISTANCE FROM SOLDER JOINT TO CASE	TEMPERATURE OF SOLDERING IRON	MAXIMUM SOLDERING TIME	DISTANCE FROM SOLDER JOINT TO CASE
LEDS	$\leq 260^\circ\text{C}$	3S	>2mm	$\leq 295^\circ\text{C}$	3S	>2mm
	$\leq 260^\circ\text{C}$	5S	>4mm	$\leq 295^\circ\text{C}$	5S	>4mm
DISPLAYS	$\leq 260^\circ\text{C}$	3S	>2mm	$\leq 295^\circ\text{C}$	3S	>2mm



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## LAMP HANDLING AND APPLICATION PRECAUTIONS

### STORAGE

(1.1) It is recommended to store the products in the following conditions:

Humidity: 60% RH Max.

Temperature: 5°C~40°C(41°F~105°F)

(1.2) Shelf life in sealed bag: 3 month at < 40°C and < 90% RH.

### FORMING

1. Any forming on lead pin must be done before soldering, not during or after soldering.
2. Avoid applying any stress to resin in order to prevent the epoxy fracture and break on bonding wire.
3. While forming, please use a tie bar cut or equivalent to hold or bend the pin.
4. 2mm from the base of resin is the minimum distance for the place bending the lead pin.
5. Avoid bending the lead pin at the same point twice or more.

### SOLDERING

1. No stress can be applied to lead pins when they are heated, otherwise disconnection may occur.
2. When an LED is mounted into a P.C. board, pitch spacing should be aligned carefully to avoid causing any stress to the lead wires.
3. Mounting direction ( electrode direction ) of SMD LED and Display should be perpendicular to direction of p.c. board curve.
4. After soldering, don't bend the P.C. board.

### CLEANING

1. Avoid using any unspecified chemical solvent to clean LED. For example, Trichoroethylene, Chlorosen, Acetone, and Diflon S3MC.
2. Any cleaning method can only be taken under normal temperature in one minute or less if it is required.
3. Special attention should be taken when using any chemicals for cleaning because some chemicals may damage the surface of epoxy.