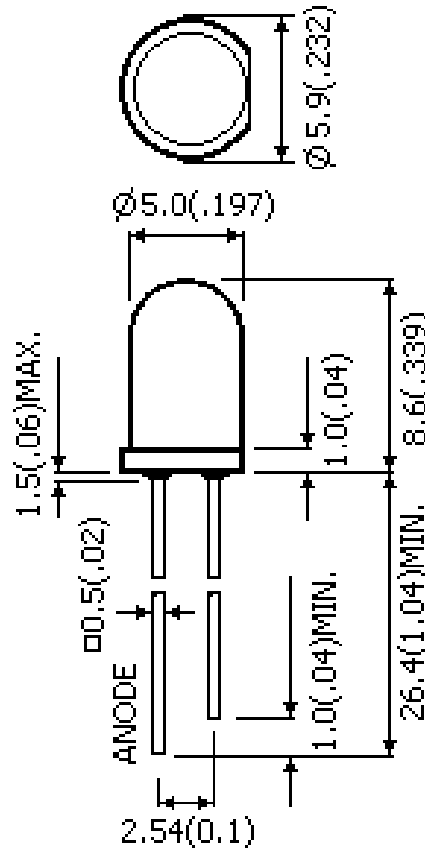




# American Opto Plus LED Corp.

## L513ET-16D

5mm Red LED Lamp, Red Transparent



### Notes:

1. All dimensions are in millimeters.
2. Tolerance is  $\pm 0.01$  inch/0.25mm unless otherwise noted.

Part Number	Material	Lens Color	
		Emitted	Lens
L513ET-16D	GaAsP on GaP	Hi-Eff Red	Red Transparent



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### ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

Parameter	Symbol	Rating	Unit
Power Dissipation	$P_D$	85	mW
Peak Forward Current Duty (1/10 Duty Cycle @1KHz)	$I_{FP}$	100	mA
Recommended Operating Current	$I_F$	20	mA
Reverse Voltage	$V_R$	5	V
Operating Temperature Range	$T_{OPR}$	-40~+85	°C
Storage Temperature Range	$T_{STG}$	-40~+100	°C
Soldering Temperature [1.6mm (1/16 inch) from body]	$T_{SOL}$	Max 260°C for 5 sec	

### OPTICAL-ELECTRICAL CHARACTERISTICS

(Ta=25°C)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Luminous Intensity	$I_V$	$I_F=20mA$	40	70	100	mcd
Viewing Angle	$2\theta_{1/2}$		--	16	--	deg
Peak Emission Wavelength	$\lambda_P$		--	635	--	nm
Dominant Wavelength	$\lambda_D$		--	625	--	nm
Spectral Line Half-Width	$\Delta\lambda$		--	45	--	nm
Forward Voltage	$V_F$		1.8	2.0	2.6	V
Reverse Current	$I_R$	$V_R=5V$	--	--	10	$\mu A$

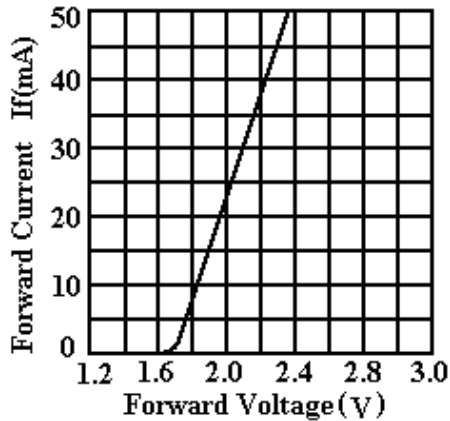


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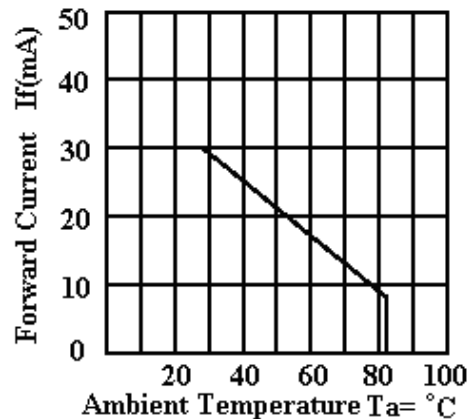
## L513ET-16D

### 5mm Red LED Lamp, Red Transparent

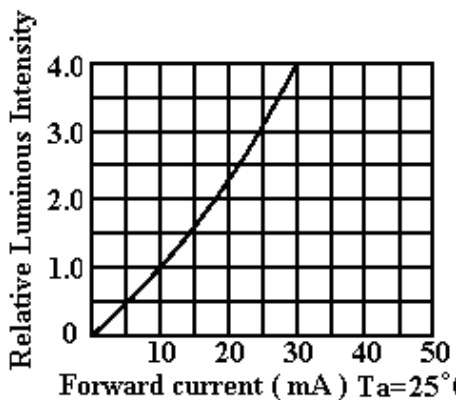
#### TYPICAL ELECTRO-OPTICAL CHARACTERISTIC CURVES



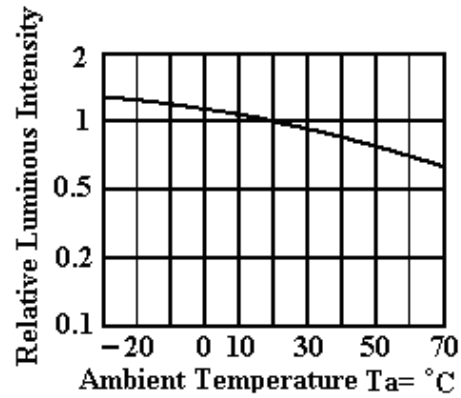
Forward current vs. Forward Voltage



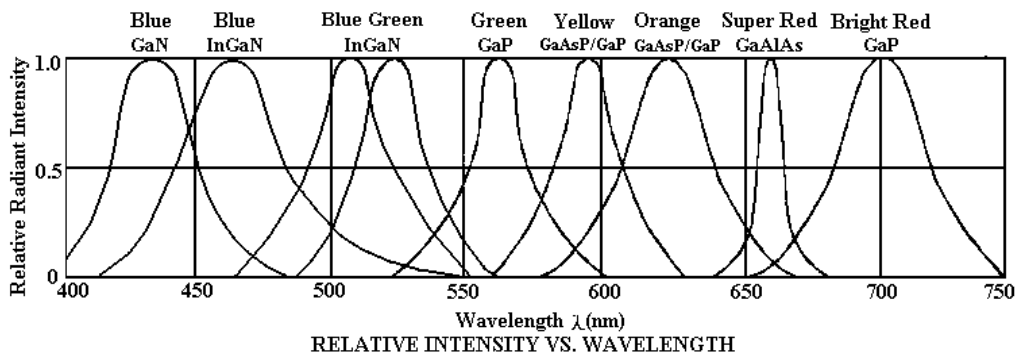
Forward current Derating curve



Luminous Intensity vs. Forward current



Luminous Intensity vs. Ambient Temperature





# American Opto Plus LED Corp.

## L513ET-16D

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### RELIABILITY TEST FOR LED LAMPS

NO.	Item	Test Conditions	Test Time/ Cycle	Sample Size	Ac/Re
1	DC Operating Life	Temperature:25℃ IF:20mA	1000HRS	76PCS	0/1
2	High Temperature High Humidity	Temperature:85℃ 85%RH	1000HRS	76PCS	0/1
3	High Temperature Storage	Temperature:100℃	1000HRS	76PCS	0/1
4	Low Temperature Storage	Temperature:—40℃	1000HRS	76PCS	0/1
5	Temperature Cycling	85℃~25℃~—35℃ 15min~5min~15min	15Cycles	76PCS	0/1
6	Thermal Shock	85℃~25℃~—10℃ 5min~10sec~5min	15Cycles	76PCS	0/1
7	Solder Heat	Temperature:260℃±5℃	10SEC.	76PCS	0/1



# American Opto Plus LED Corp.

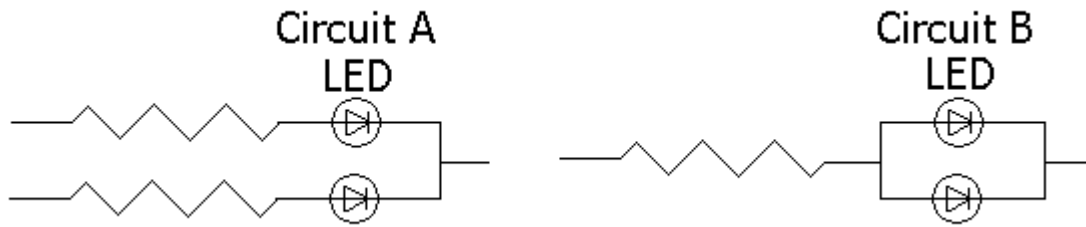
## L513ET-16D

5mm Red LED Lamp, Red Transparent

### PRECAUTIONS FOR LED USE

#### 1. Drive Method

LED is current-operated device. In order to ensure intensity uniformity on multiple LEDs connected in parallel in a application, it is recommended that a current limiting resistor be incorporated in the drive circuit.



(a) Circuit A it is recommended circuit.

(b) Circuit B the brightness of each LED might appear different due to the differences in the I-V characteristics of those LEDs.

#### 2. Over-current-proof

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

#### 3. Storage

The Storage Temperature and RH are: 5°C ~ 30°C, RH 60% or less. Once the package is opened, the products should be used within a week. Otherwise, they should be kept in moisture proof package with moisture absorbent material (silica gel).

we suggest our customers to use our products within a year. If the moisture absorbent material (silica gel) has faded away or the LEDs exceeded the storage time, baking treatment should be performed using the following conditions. Baking treatment: more than 24 hours at 60°C  $\pm$ 5°C.

#### 4. Electrostatic Discharge (ESD)

Static electricity or surge voltage will damage the LEDs. Suggestions to prevent ESD damage: Use of a conductive wrist band or ante-electrostatic glove when handing these LEDs. All devices, equipment, and machinery must be properly grounded.

Work tables storage racks, etc. should be properly grounded. In the events of manual working in process, make sure the devices are well protected from ESD at any time.



# American Opto Plus LED Corp.

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### 5. Others

(a) If want to have the uniform luminance and color, please use the same binning number,

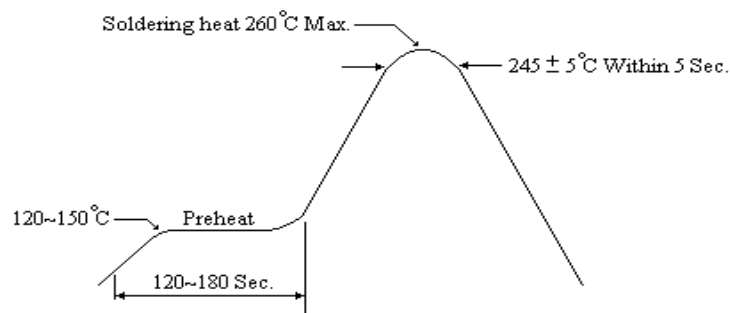
and avoid using intermix to cause the differences of luminance and color.

(b) The appearance and specifications of the product may be modified for improvement without prior notice.

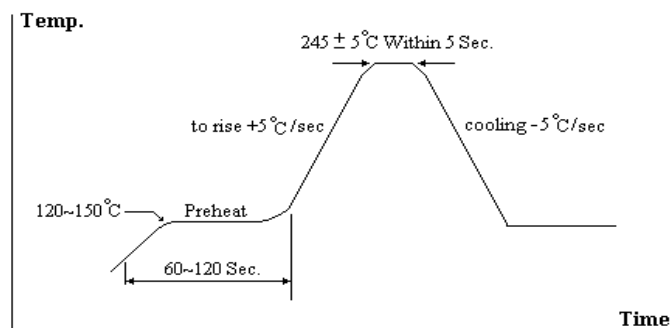
### 6. Soldering

Recommended soldering condition as shown below:

Soldering heat (DIP)



Reflow Temp./Time



Soldering Iron

Temperature at tip of iron : 300°C Max. ( 25 W Max. ). Soldering Time : 3 sec. ± 1 sec.( one time only ). If temperature is higher, time should be shorter.