

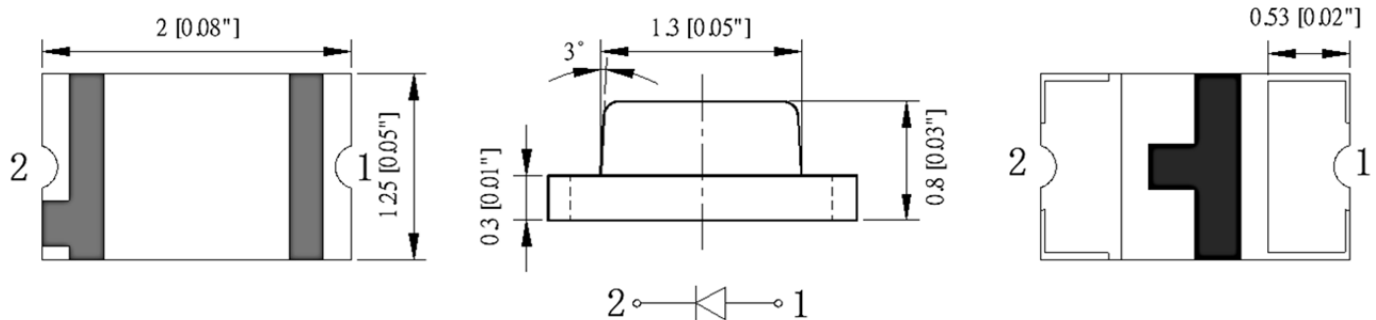


# American Opto Plus LED Corp.

## L170B-EC-TR

2.0 x 1.25 x 0.8mm Red SMD LED (0805 Package)

### PACKAGE DIMENSION

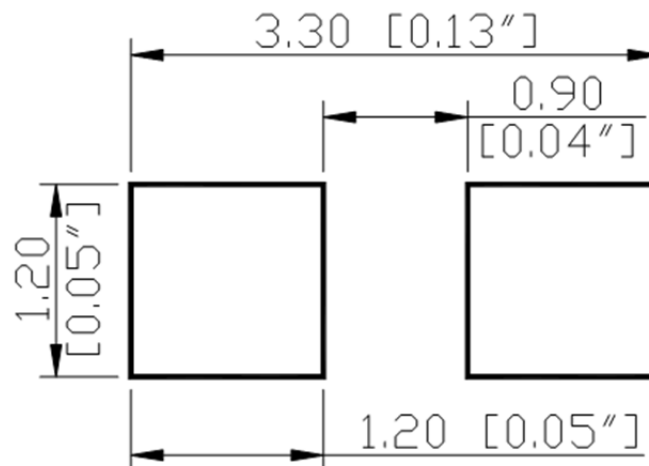


### Notes:

1. All dimension are in millimeter tolerance is  $\pm 0.1\text{mm}$  unless otherwise noted.
2. Specifications are subject to change without notice.

Material	Color	
	Emitted	Lens
AlGaInP/GaAs	Red	Water Clear

### RECOMMENDED SOLDERING PAD PATTERN



### Notes:

1. Unit = mm.



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### ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

Parameter	Symbol	Value	Unit
Forward Current	If	30	mA
Peak Forward Current (Duty 1/8 @ 1kHz)	Ifp	125	mA
Power Dissipation	Pd	75	mW
Reverse Voltage	Vr	5	V
Operating Temperature Range	Topr	-40~+80	°C
Storage Temperature Range	Tstg	-40~+85	°C

### OPTICAL-ELECTRICAL CHARACTERISTICS

(Ta=25°C)

Parameter	Symbol	Test Condition	Value			Unit
			Min	Typ	Max	
Luminous intensity	Iv	IF = 20mA	50	90	160	mcd
Peak Wavelength	$\lambda P$		--	640	--	nm
Spectral Half width	$\Delta\lambda$		--	18	--	nm
Dominant Wavelength	$\lambda D$		625	630	635	nm
Forward Voltage	Vf		1.7	2.0	2.5	V
Viewing angle	$2\theta \frac{1}{2}$		--	140	--	Deg
Reverse Current	Ir	Vr=5V	--	--	10	$\mu A$



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### LUMINOUS INTENSITY CLASSIFICATION

(IF=20mA)

Bin Code	Min	Max	Unit
G	50	63	mcd
H	63	80	
I	80	100	
J	100	125	
K	125	160	

### DOMINANT WAVELENGTH CLASSIFICATION

(IF=20mA)

Bin Code	Min	Max	Unit
u	625	630	nm
v	630	635	

### FORWARD VOLTAGE CLASSIFICATION

(IF=20mA)

Bin Code	Min	Max	Unit
□	1.7	2.5	V

Note:

1. The tolerance of luminous intensity is  $\pm 15\%$ .
2. The tolerance of chromaticity coordinates is  $\pm 0.02$ .



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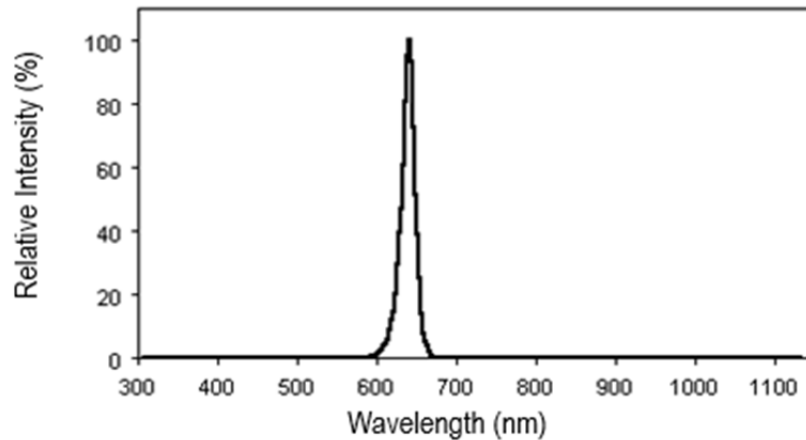
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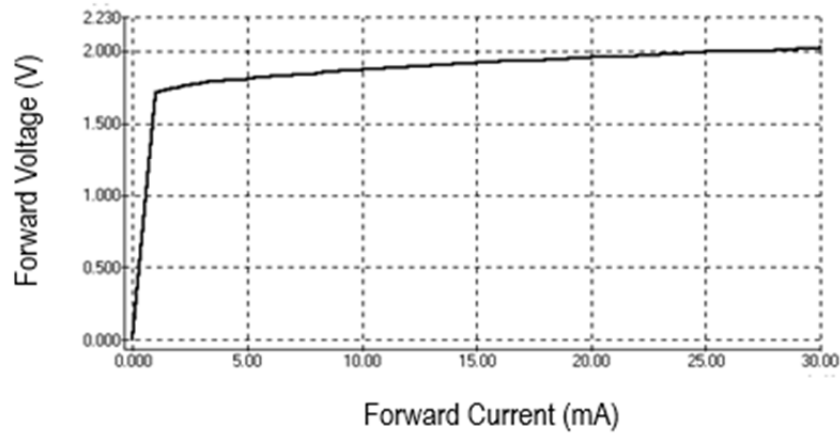
### ELECTRICAL-OPTICAL CHARACTERISTIC CURVES

(Ta=25°C)

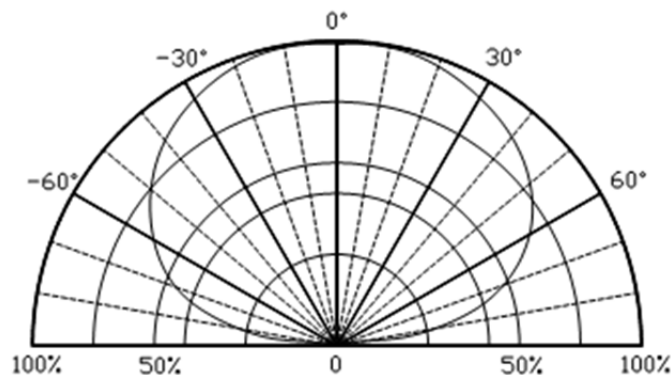
Relative Intensity vs. Wavelength



Forward Current vs. Forward Voltage



Directive Characteristics





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### RELIABILITY TEST

Test Item	Test Conditions	Note	Number of Damaged
Temperature Cycle	-20°C 30min ↑↓ 80°C 30min	100 cycle	0/22
Thermal Shock	-20°C 15min ↑↓ 80°C 15min	100 cycle	0/22
High Humidity Heat Cycle	30°C ↔ 65°C 90%RH 24hrs/1cycle	10 cycle	0/22
High Temperature Storage	T <sub>a</sub> =80°C	1000 hrs	0/22
Humidity Heat Storage	T <sub>a</sub> =60°C RH=90%	1000 hrs	0/22
Low Temperature Storage	T <sub>a</sub> =-30°C	1000 hrs	0/22
Life Test	T <sub>a</sub> =25°C I <sub>F</sub> =20mA	1000 hrs	0/22
High Humidity Heat Life Test	60°C RH=90% I <sub>F</sub> =10mA	500 hrs	0/22
Low Temperature Life Test	T <sub>a</sub> =-20°C I <sub>F</sub> =20mA	1000 hrs	0/22



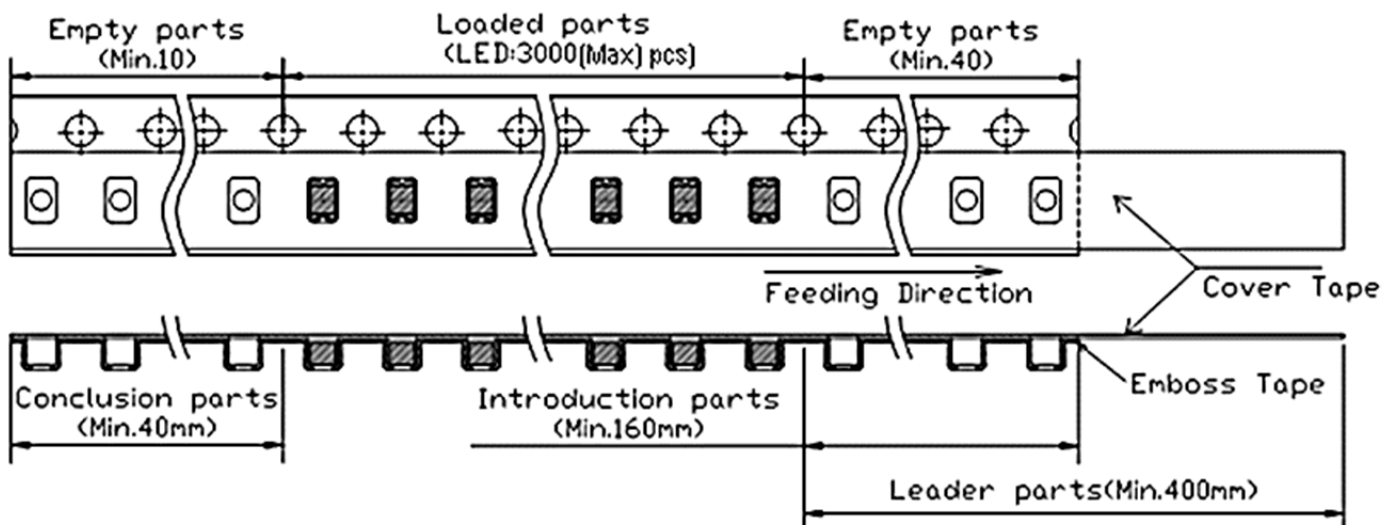
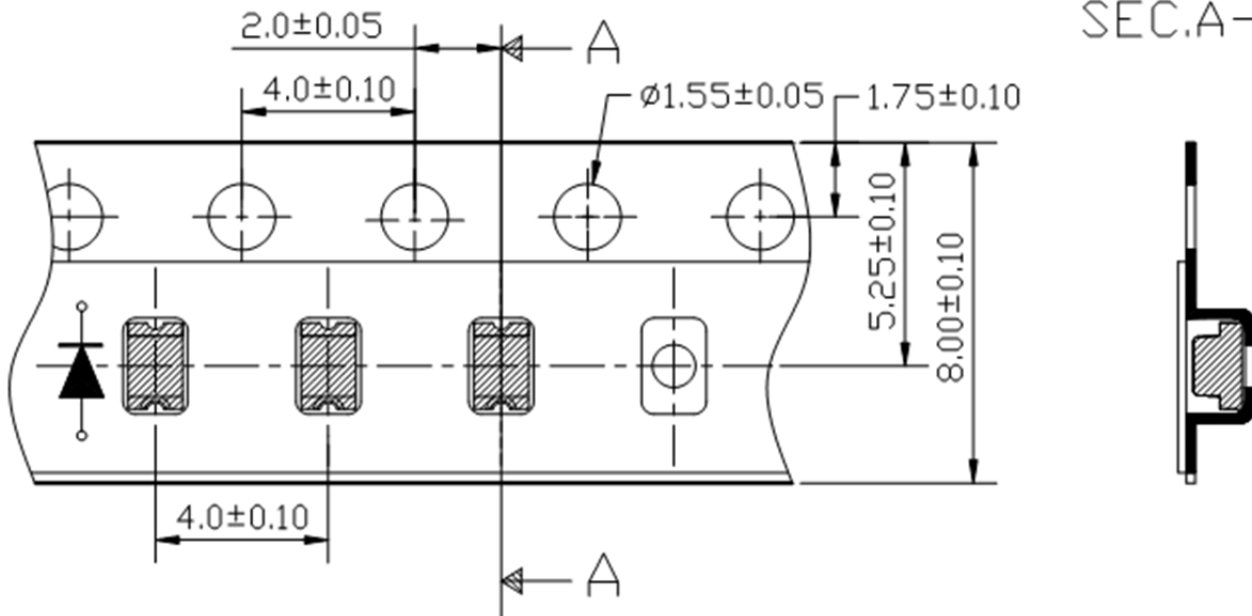
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### CARRIER TAPE DIMENSIONS

SEC.A-A



#### Note:

1. Empty components pockets are sealed with top cover tape.
2. The maximum number of missing lamp is 2.
3. The cathode is oriented towards the tape sprocket hole.

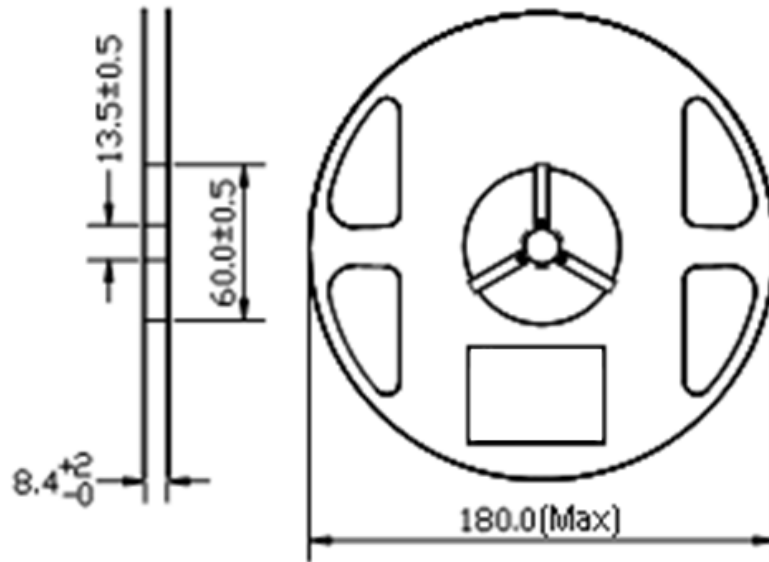


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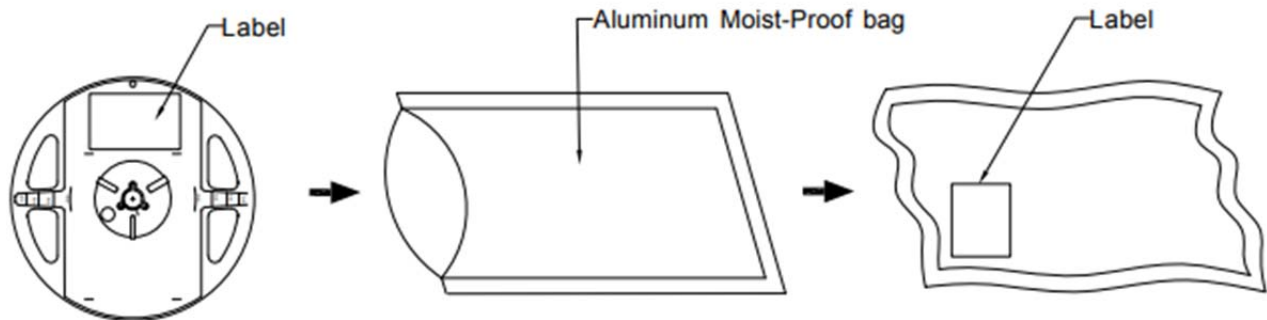
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### REEL DIMENSIONS



### PACKAGING SPECIFICATION



Quantity/Reel
3000 PCS



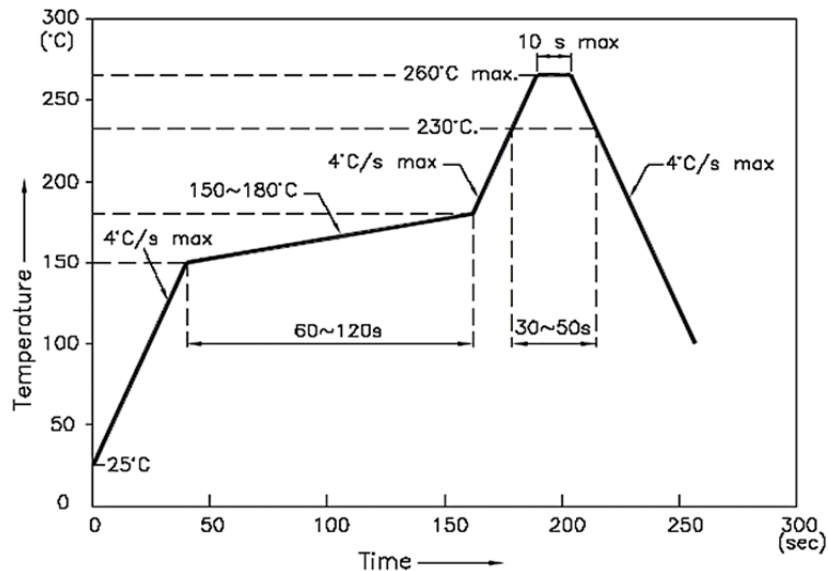
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### RECOMMENDED SOLDERING CONDITIONS

#### Reflow Temp/time



#### Notes:

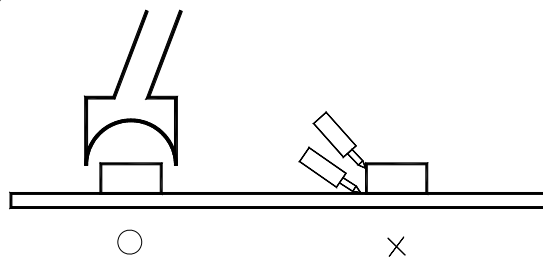
1. We recommend the reflow temperature 245°C (±5°C). The maximum soldering temperature should be limited to 260°C.
2. Do not cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

- Soldering Iron

Basic spec is ≤ 5sec when 260°C. If temperature is higher, time should be shorter (+10°C → -1sec). Power dissipation of iron should be smaller than 20W, and temperatures should be controllable. Surface temperature of the device should be under 230°C.

- Rework

1. Customer must finish rework within 5 sec under 260°C.
2. The head of iron cannot touch copper foil
3. Twin-head typ



Avoid rubbing or scraping the resin by any object, during high temperature, for example reflow, solder etc.





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### PRECAUTIONS FOR USE:

#### Storage time:

1. Shelf life in sealed bag: 12 month at 5°C~30°C and <60% R.H;
2. After the package is opened:
  - 2.1. It is recommended to baking before the first use:  
Baking condition:
    - a. 60±5°C x (24~48hrs) and <5%RH, taped reel type.
    - b. 110±5°C x (8-16hr), bulk type.
  - 2.2. The products should be used within a week or they should be keeping to be stored at ≤20 R.H. with zip-lock sealed.
    - a. It is recommended to baking before soldering when the pack is unsealed after 24hrs.
    - b. Baking condition as 2.1 baking condition.

#### Drive method:

##### Over-Current-Proof

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

#### Test Circuit:

