

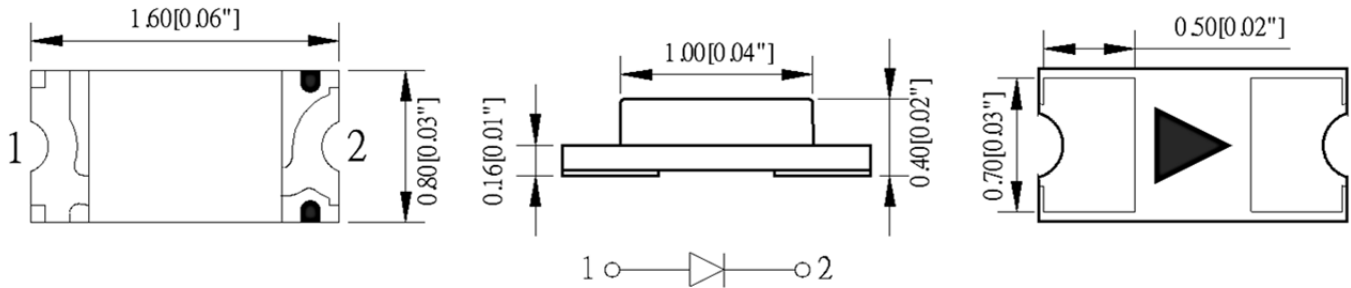


American Opto Plus LED Corp.

L196B-QEC-RR

1.6 x 0.8 x 0.4mm Red SMD LED (0603 Package)

PACKAGE DIMENSION

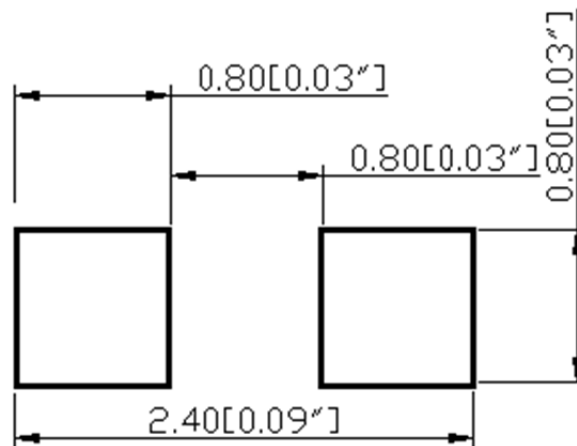


Notes:

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	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	32	50	100	mcd
Peak Wavelength	λP		--	655	--	nm
Dominant Wavelength	λD		630	640	650	nm
Spectral Half-Width	$\Delta\lambda$		--	19	--	nm
Forward Voltage	Vf		1.7	2.0	2.5	V
Viewing angle	$2\theta \frac{1}{2}$		--	150	--	Deg
Reverse Current	Ir	Vr=5V	--	--	10	μA



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LUMINOUS INTENSITY CLASSIFICATION

(IF=20mA)

Bin Code	Min	Max	Unit
E	32	40	mcd
F	40	50	
G	50	63	
H	63	80	
I	80	100	

DOMINANT WAVELENGTH CLASSIFICATION

(IF=20mA)

Bin Code	Min	Max	Unit
v	630	635	nm
w	635	650	

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 dominant wavelength is $\pm 1.5\text{nm}$.



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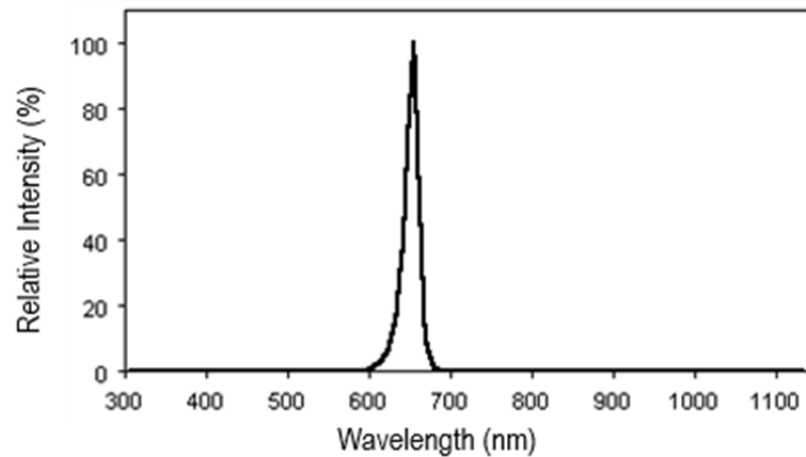
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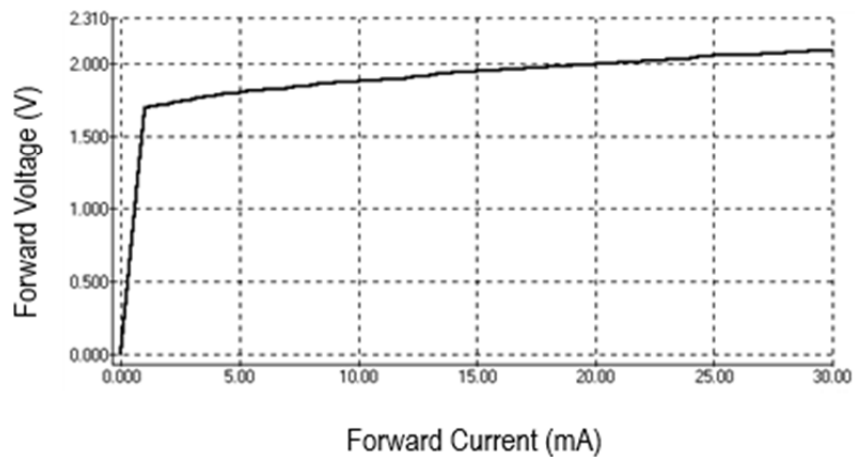
ELECTRICAL-OPTICAL CHARACTERISTIC CURVES

(Ta=25°C)

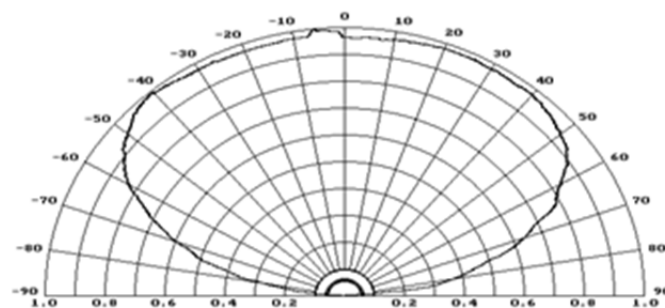
Relative Intensity vs. Wavelength



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 _a =80°C	1000 hrs	0/22
Humidity Heat Storage	T _a =60°C RH=90%	1000 hrs	0/22
Low Temperature Storage	T _a =-30°C	1000 hrs	0/22
Life Test	T _a =25°C I _F =20mA	1000 hrs	0/22
High Humidity Heat Life Test	60°C RH=90% I _F =10mA	500 hrs	0/22
Low Temperature Life Test	T _a =-20°C I _F =20mA	1000 hrs	0/22

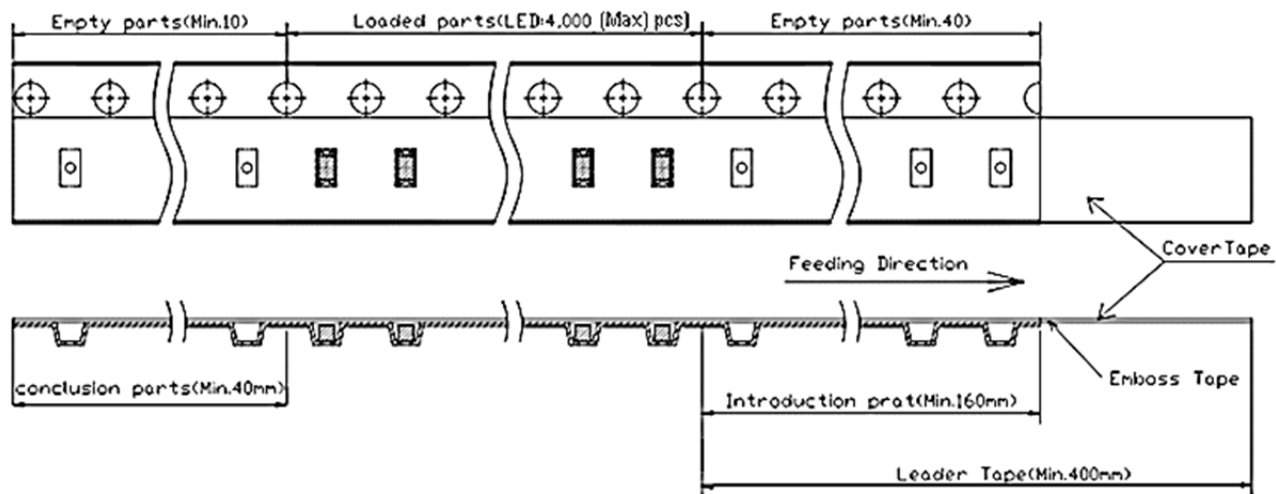
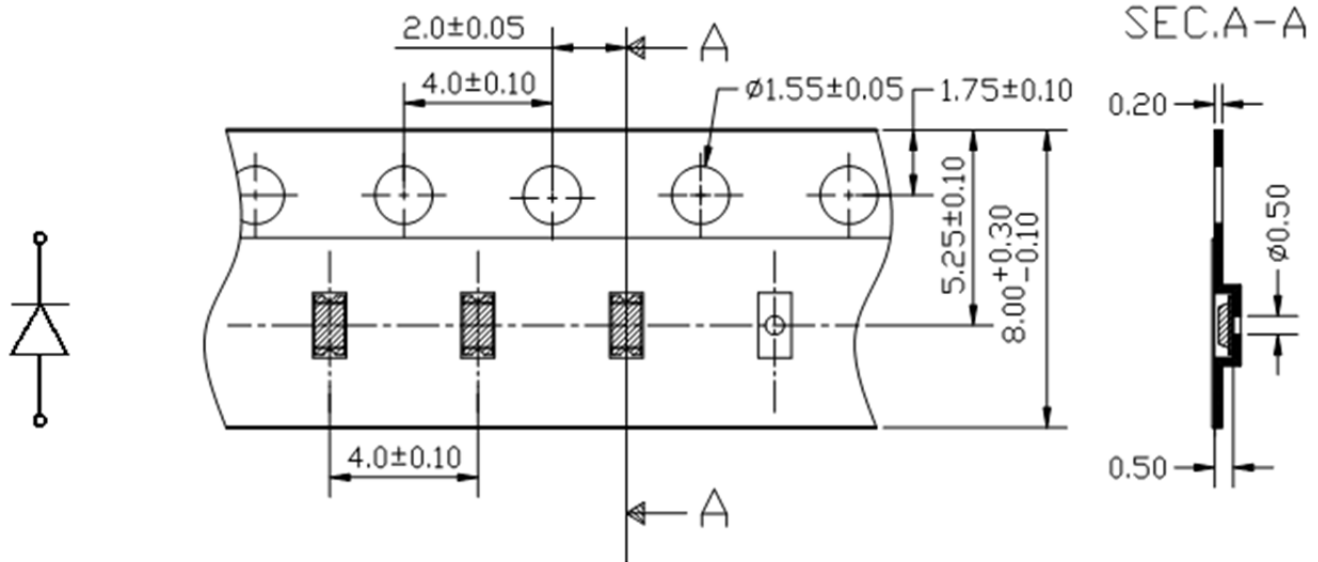


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CARRIER TAPE DIMENSIONS



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.

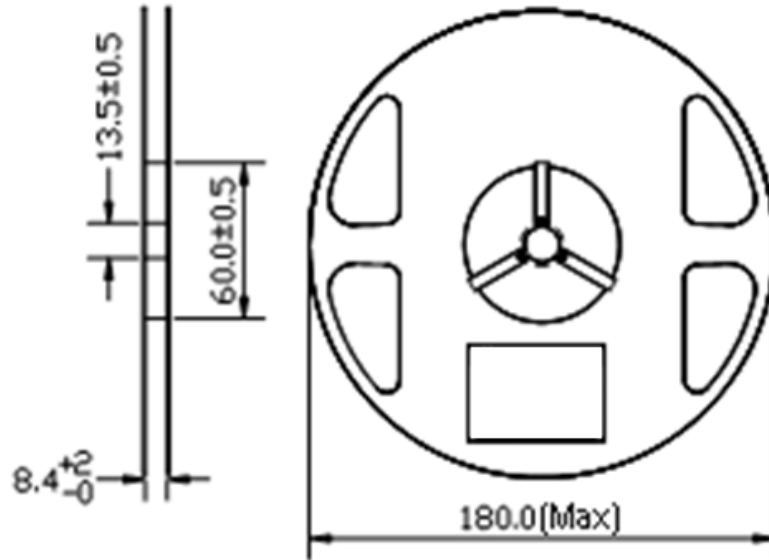


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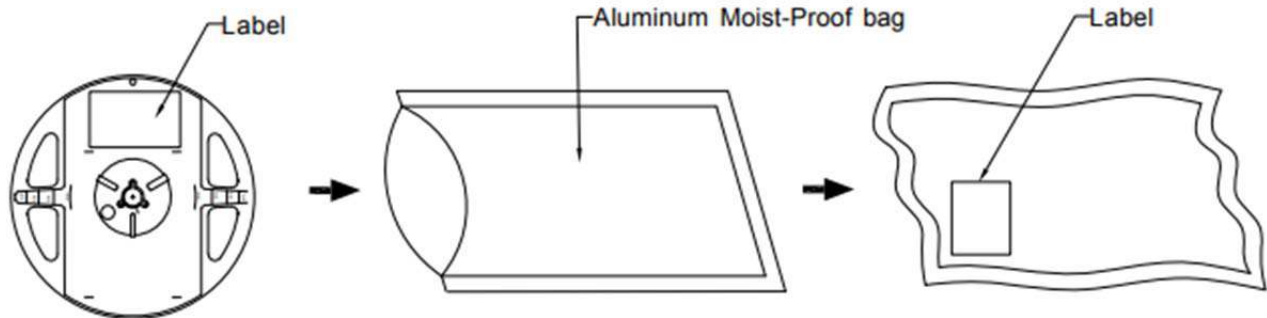
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REEL DIMENSIONS



PACKAGING SPECIFICATION



Quantity/Reel
4000 PCS



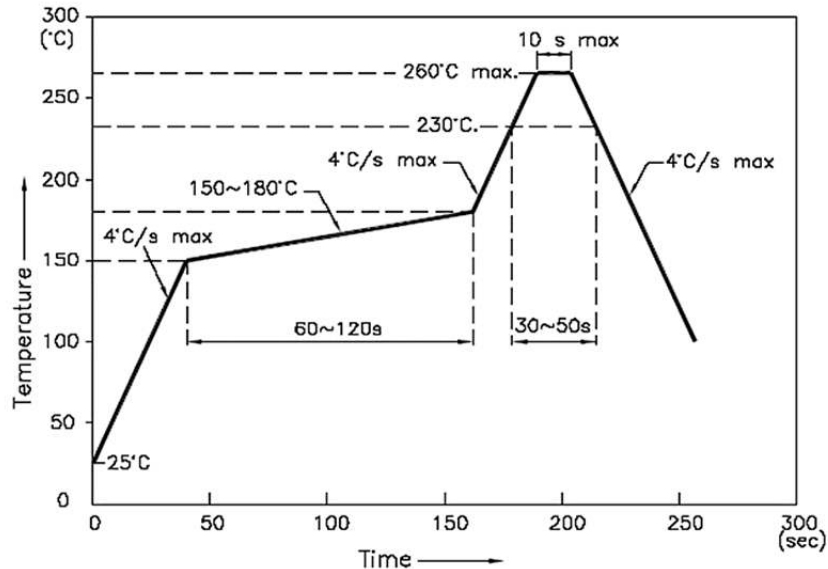
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RECOMMENDED SOLDERING CONDITIONS

Reflow Temp/time



Notes:

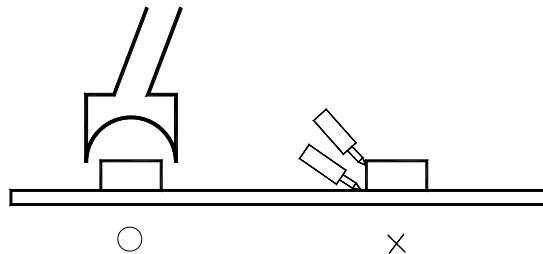
1. We recommend the reflow temperature 245°C (±5°C). The maximum soldering temperature should be limited to 260°C.
2. Do not cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

- 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:

