

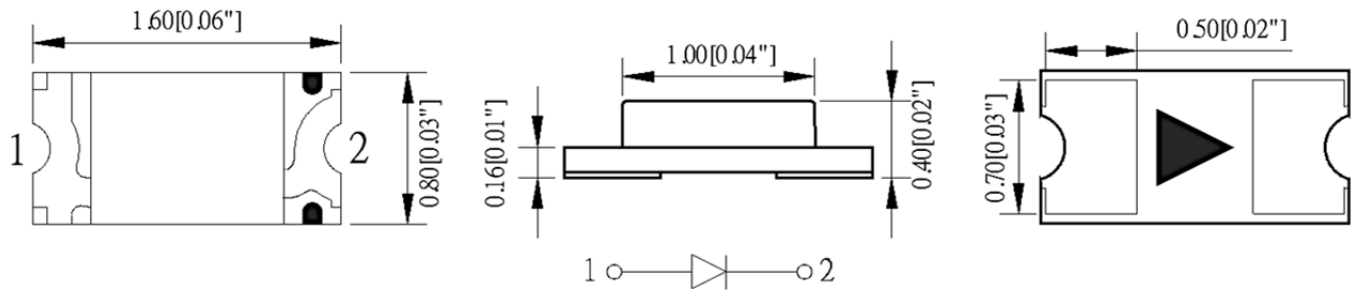


American Opto Plus LED Corp.

L196B-QEC-RR

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

PACKAGE DIMENSION

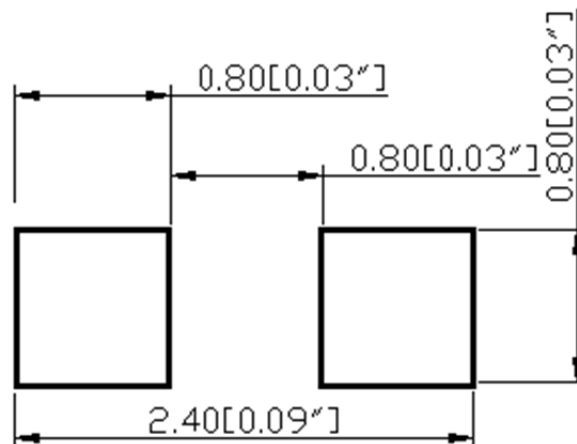


Notes:

1. All dimension are in millimeter tolerance is ± 0.1 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.



American Opto Plus LED Corp.

L196B-QEC-RR

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

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	λ_P		--	655	--	nm
Dominant Wavelength	λ_D		630	640	650	nm
Spectral Half-Width	$\Delta\lambda$		--	19	--	nm
Forward Voltage	Vf		1.7	2.0	2.5	V
Viewing angle	$2\theta_{1/2}$		--	150	--	Deg
Reverse Current	Ir	Vr=5V	--	--	10	μ A



American Opto Plus LED Corp.

L196B-QEC-RR

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

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 $\pm 1.5\text{nm}$.



American Opto Plus LED Corp.

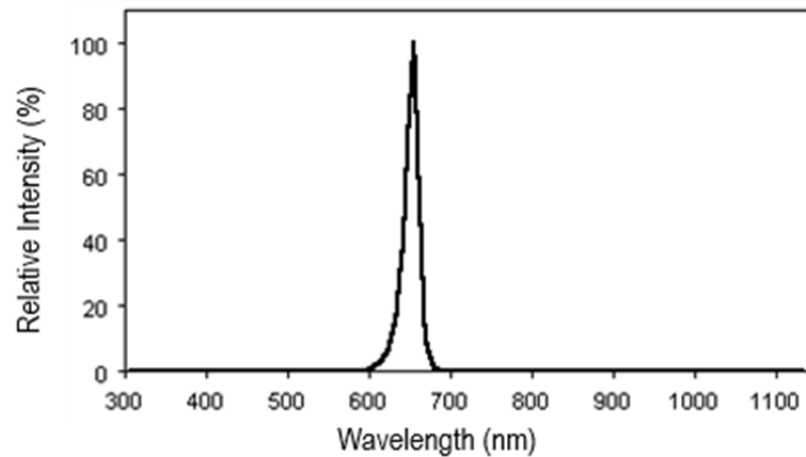
L196B-QEC-RR

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

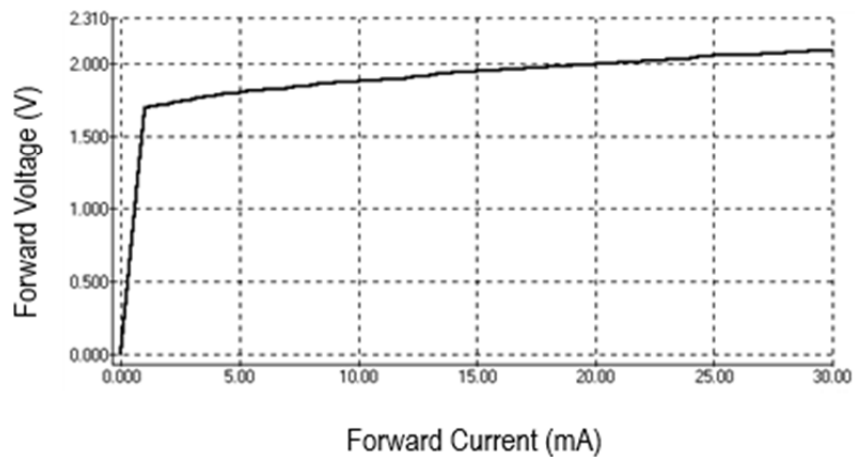
ELECTRICAL-OPTICAL CHARACTERISTIC CURVES

(Ta=25°C)

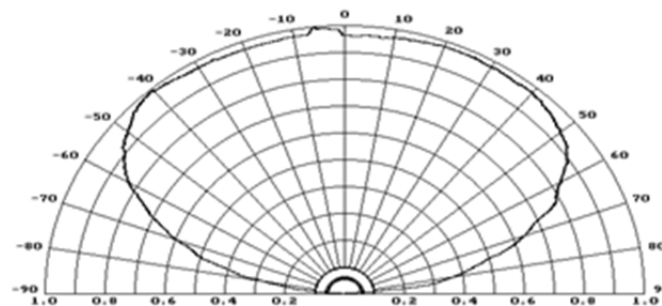
Relative Intensity vs. Wavelength



Forward Current vs. Forward Voltage



Directive Characteristics





American Opto Plus LED Corp.

L196B-QEC-RR

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

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

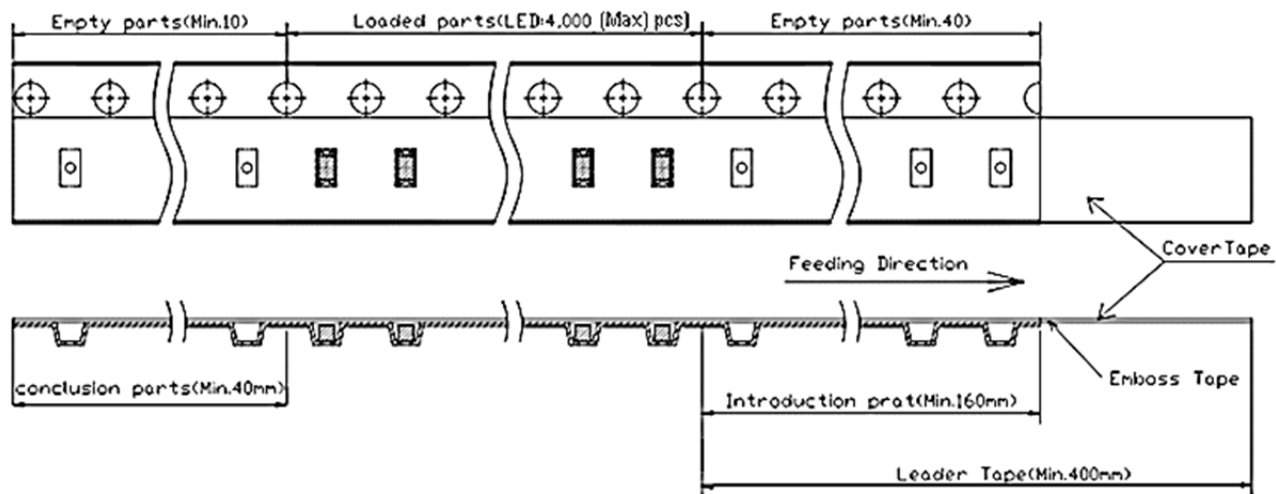
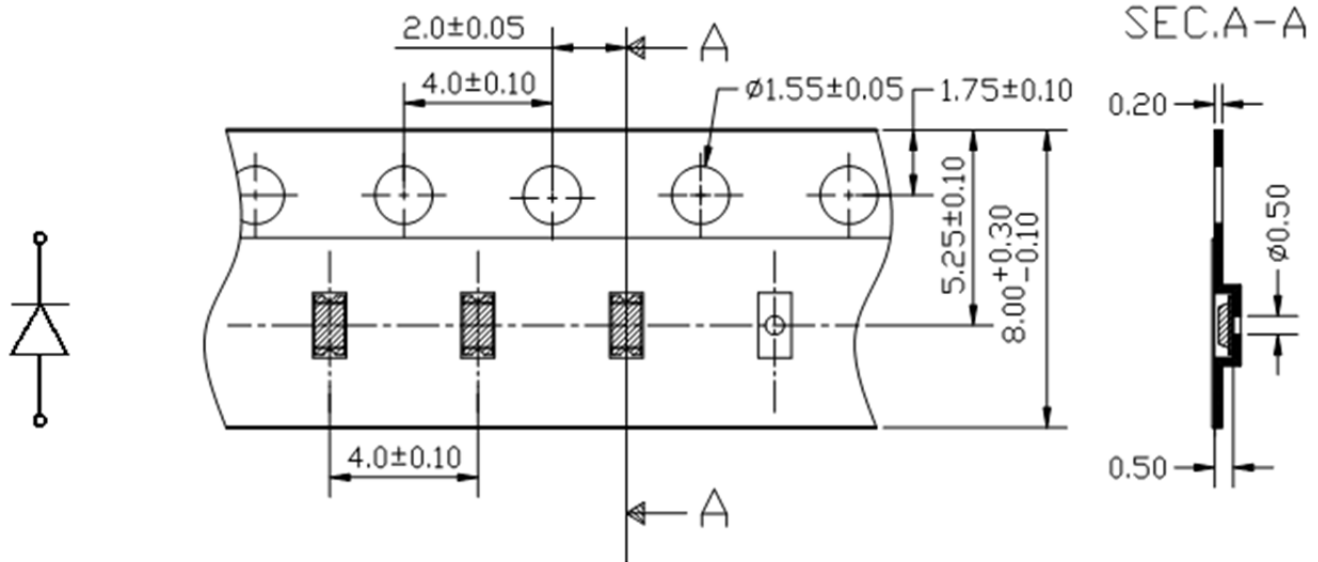


American Opto Plus LED Corp.

L196B-QEC-RR

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

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.

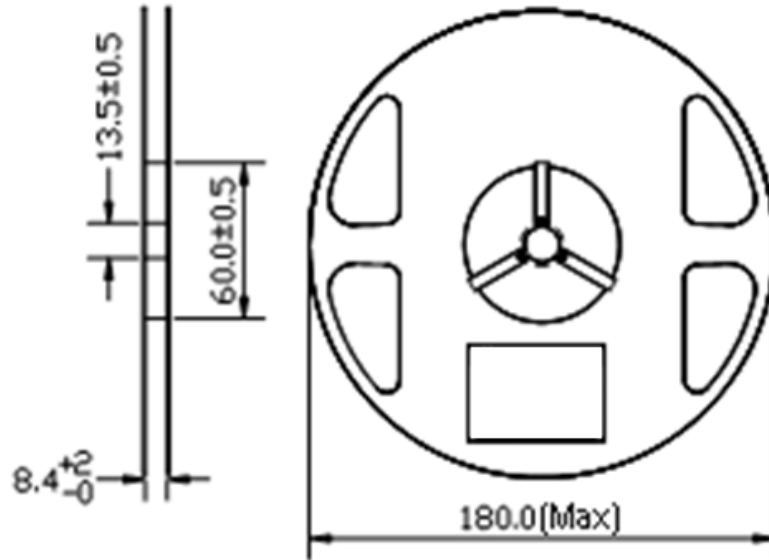


American Opto Plus LED Corp.

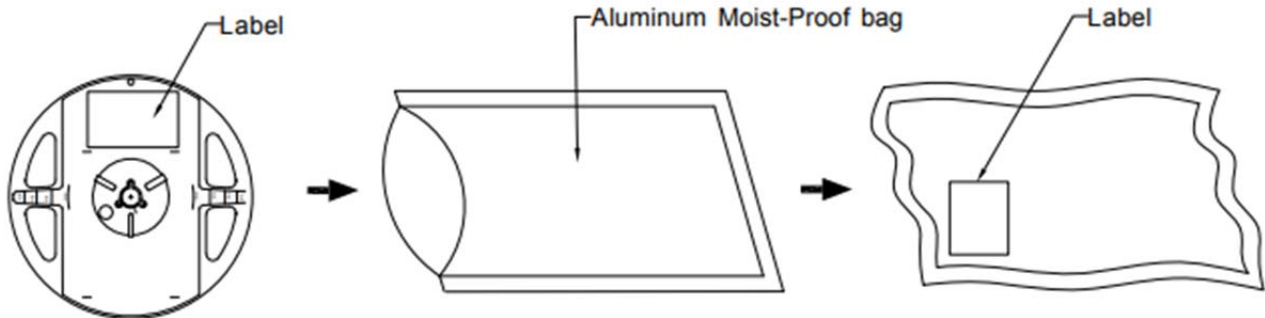
L196B-QEC-RR

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

REEL DIMENSIONS



PACKAGING SPECIFICATION



Quantity/Reel
4000 PCS



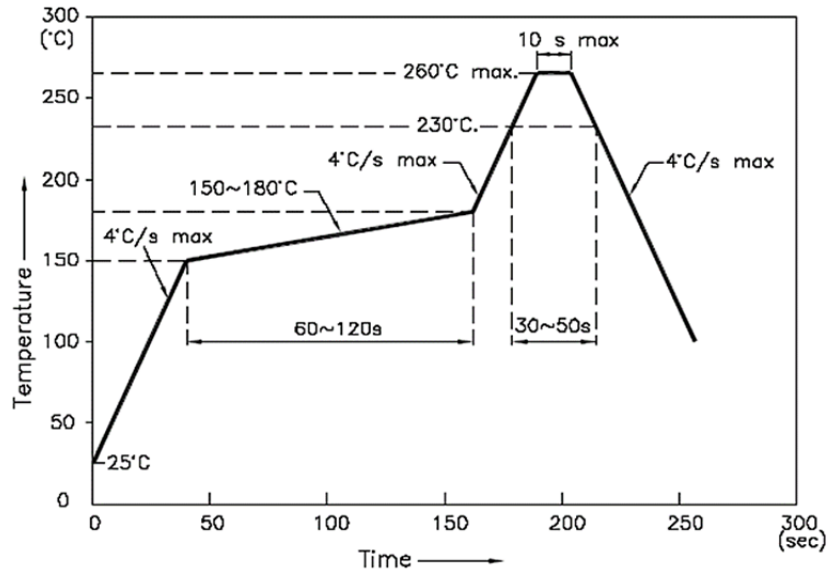
American Opto Plus LED Corp.

L196B-QEC-RR

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

RECOMMENDED SOLDERING CONDITIONS

Reflow Temp/time



Notes:

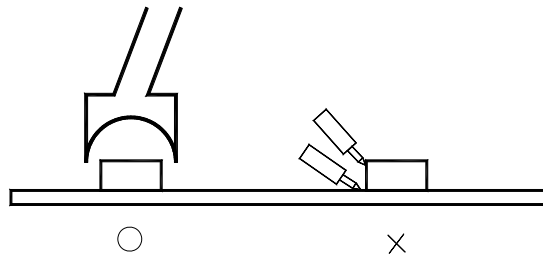
1. We recommend the reflow temperature 245°C ($\pm 5^\circ\text{C}$). The maximum soldering temperature should be limited to 260°C.
2. Do not cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

- Soldering Iron

Basic spec is $\leq 5\text{sec}$ when 260°C. If temperature is higher, time should be shorter ($+10^\circ\text{C} \rightarrow -1\text{sec}$). 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.



American Opto Plus LED Corp.

L196B-QEC-RR

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

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:

