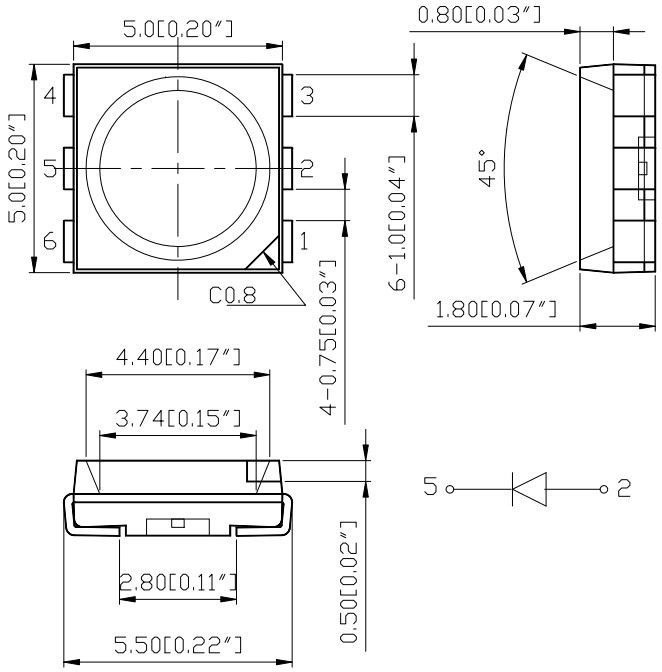
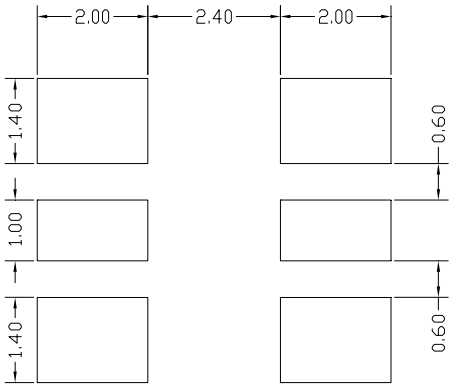
American Opto Plus LED Corp.
L950B-QEC-TR
5.0 x 5.0 x 1.8 mm Red SMD LED

PACKAGE OUTLINES



RECOMMEND PAD LAYOUT



ITEM	MATERIALS
Resin	Silicon
Lens color	Water transparent
Dice	AlGaInP/GaAs
Emitted color	Red

NOTES:
1. All dimensions are in millimeters (inches);
2. Tolerances are ±0.1mm (0.004inch) unless otherwise noted.

ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Parameter	Symbol	Value	Unit
Forward current	If	30	mA
Reverse voltage	Vr	5	V
Power dissipation	Pd	75	mW
Operating temperature range	Top	-40~+85	°C
Storage temperature range	Tstg	-40~+85	°C
Peak pulsing current (1/8 duty f= 1kHz)	Ifp	125	mA

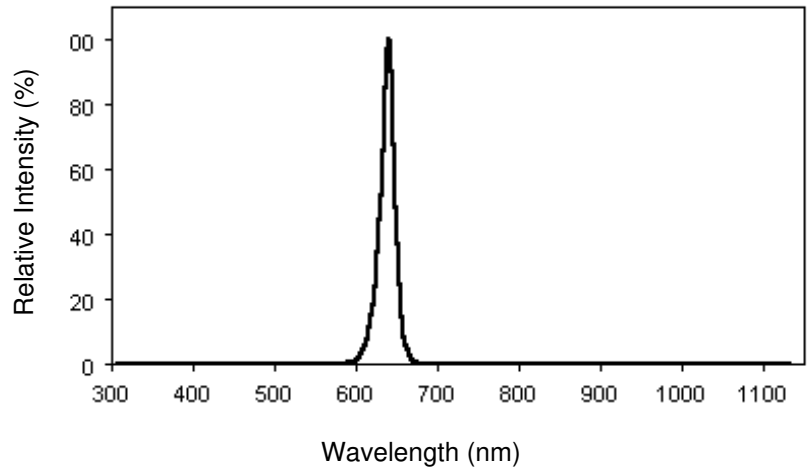
OPTICAL-ELECTRICAL CHARACTERISTICS (Ta=25°C)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Wavelength at peak emission	λ peak	I_F = 20mA	--	640	--	nm
Spectral half bandwidth	Δλ	I_F = 20mA	--	18	--	nm
Dominant wavelength	λ dom	I_F = 20mA	625	630	635	nm
Forward Voltage	Vf	I_F = 20mA	1.7	2.0	2.5	V
Luminous intensity	Iv	I_F = 20mA	80	160	250	mcd
Viewing angle at 50% Iv	2Θ ½	I_F = 10mA	--	120	--	Deg
Reverse current	Ir	Vr=5V	--	10	--	μA

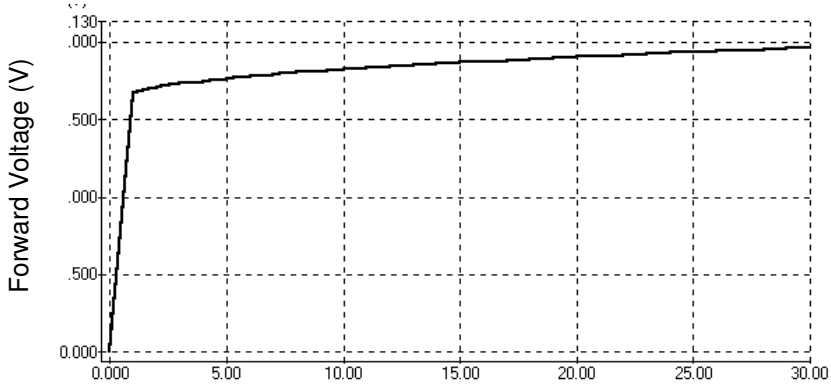
*Note: Luminous intensity tolerance is ±10%.

OPTICAL CHARACTERISTIC CURVES

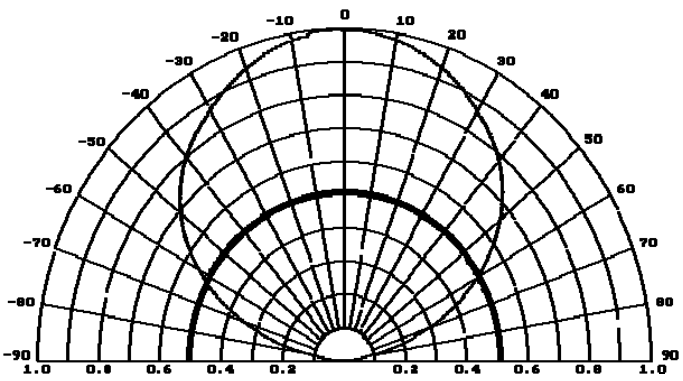
Relative Intensity vs. Wavelength



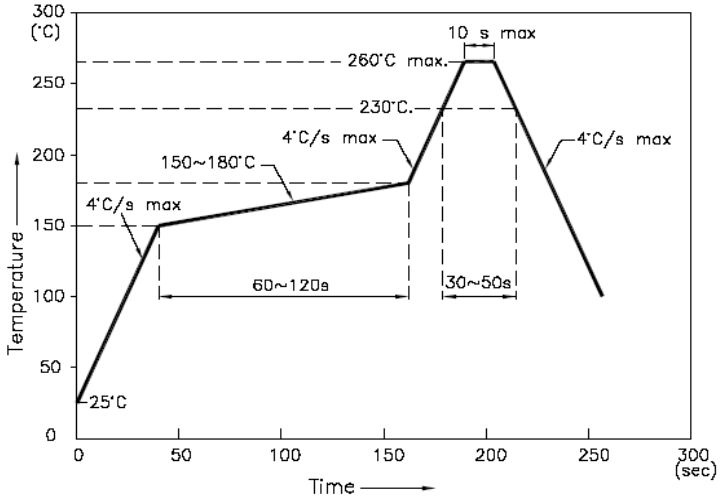
Forward Current vs. Forward Voltage



Directive Characteristics



REFLOW PROFILE



NOTES:

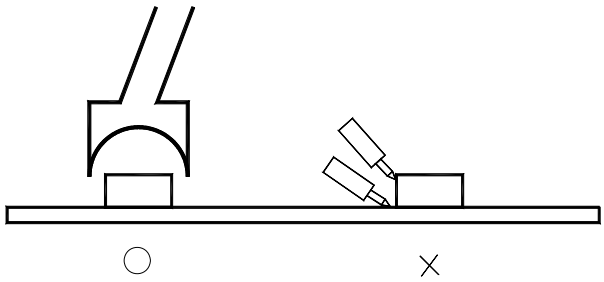
1. We recommend the reflow temperature 245°C (±5°C). The maximum soldering temperature should be limited to 260°C.
2. Do not cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

- 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

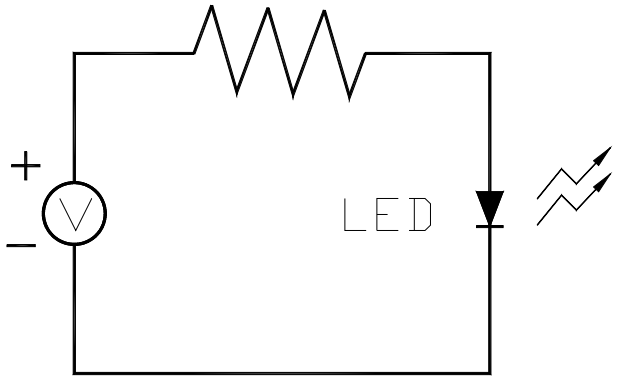
1. Customer must finish rework within 5 sec under 260°C.
2. The head of iron cannot touch copper foil
3. Twin-head type is preferred.



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

TEST CIRCUIT AND HANDLING PRECAUTIONS

- **Test circuit**



- **Handling precautions**

1. Over-current-proof
   Customer must apply resistors for protection; otherwise slight voltage will cause big current change (Burn out will happen).
2. Shelf life in sealed bag: 12 month at ＜5°C ~30°C and ＜60% R.H.
3. After the package is opened:

   3.1 It is recommended to baking before the first use:

   Baking Condition:

   a. 60±3°C x (36~48hrs) and ＜5%RH, taped reel type;

   b. 110±3°C x (8~16hrs), bulk type.

   3.2 The products should be used within a week or they should be stored at ≦20 R.H.

   with zip-lock sealed:

   a. It is recommended to baking before soldering when the pack is unsealed after 72hrs ;

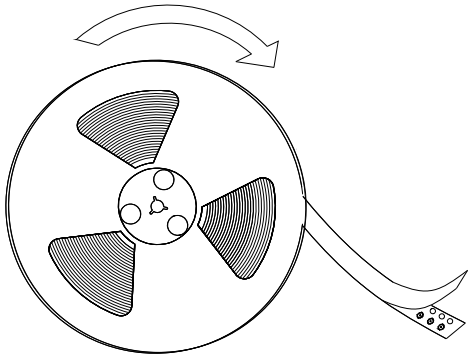
   b. Baking condition as 3.1 baking condition.

Test items and results of reliability

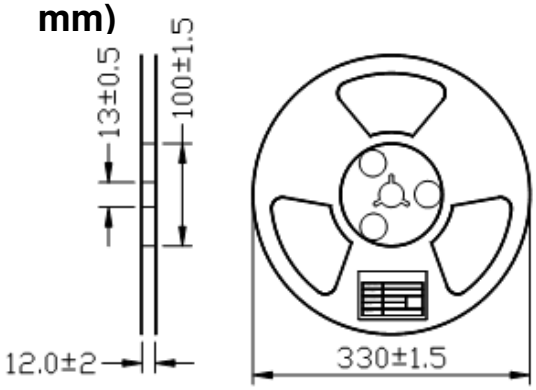
Type	Test Item	Test Conditions	Note	Number of Damaged
Environmental Sequence	Temperature Cycle	-20°C 30min ↑↓ 80°C 30min	100 cycle	0/22
	Thermal Shock	-20°C 15min ↑↓ 80°C 15min	100 cycle	0/22
	High Humidity Heat Cycle	30°C ⇔ 65°C 90%RH 24hrs/1cycle	10 cycle	0/22
	High Temperature Storage	T_a=80°C	1000 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
Operation Sequence	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

PACKAGING SPECIFICATION

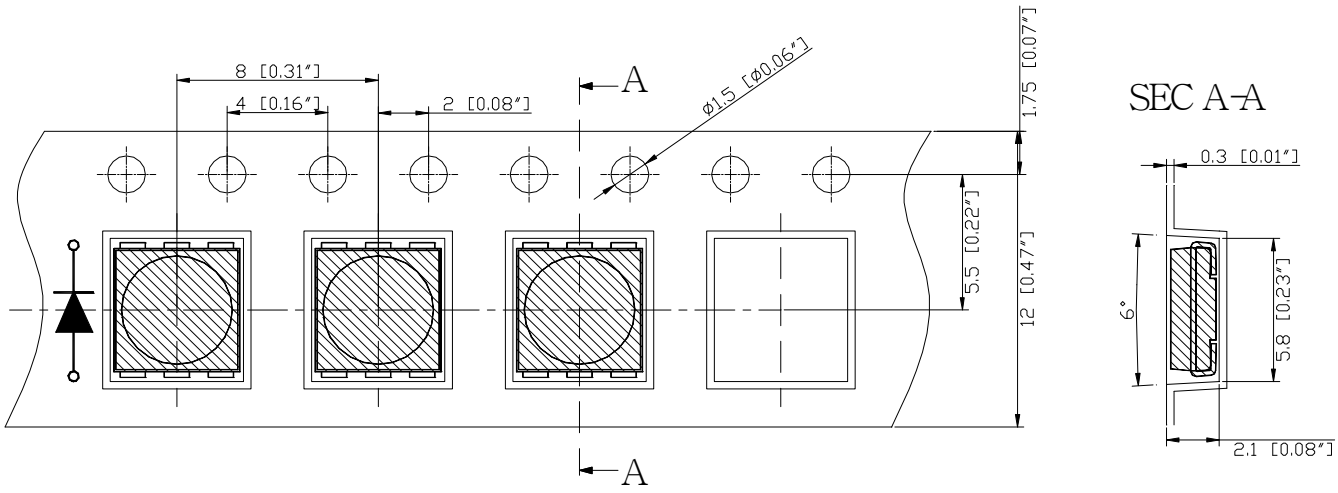
- **Feeding Direction**



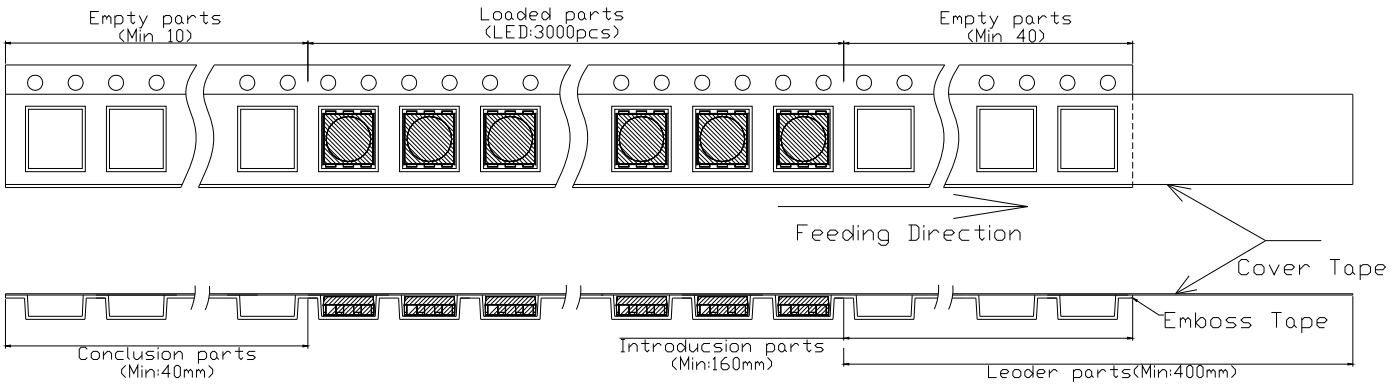
- **Dimensions of Reel (Unit: mm)**



- **Dimensions of Tape (Unit: mm)**



- **Arrangement of Tape**



Notes:

1. Empty component pockets are sealed with top cover tape;
2. The maximum number of missing lamps is two;
3. The cathode is oriented towards the tape sprocket hole.
4. 3,000pcs/Reel

Forward Voltage Rank Combination (I_F=20mA)			
Rank Code	**Min.**	**Max.**	**Unit**
□	1.7	2.5	V

Luminous Intensity Rank Combination (I_F=20mA)			
Rank Code	**Min.**	**Max.**	**Unit**
I	80	100	mcd
J	100	125	
K	125	160	
L	160	200	
M	200	250	

Dominant wavelength Rank Combination (I_F=20mA)			
Rank Code	**Min**	**Max**	**Unit**
u	625	630	nm
v	630	635	

Group Name on Label (Example DATA: □Kv 20)				
DATA: □Kv 20	**Vf (V)**	**Iv (mcd)**	**λd (nm)**	**Test Condition**
□→K→v→20	1.7~2.5	125~160	630~635	I_F=20mA

NOTE:
1. The tolerance of luminous intensity (Iv) is ±15%.
2. The tolerance of dominant wavelength is ±1nm.
3. This specification is preliminary.