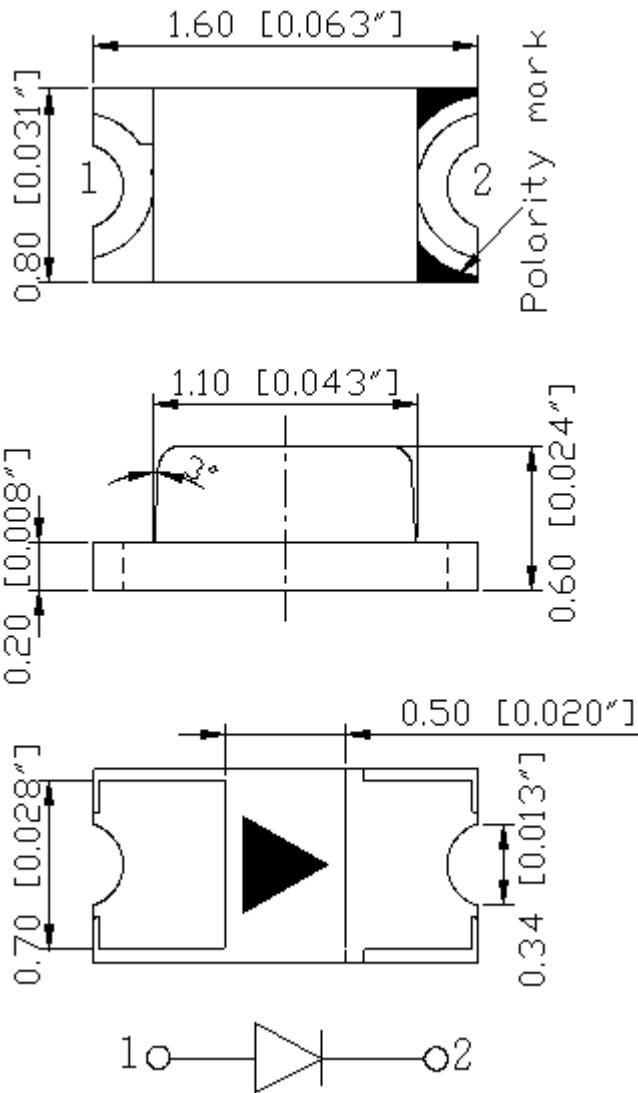




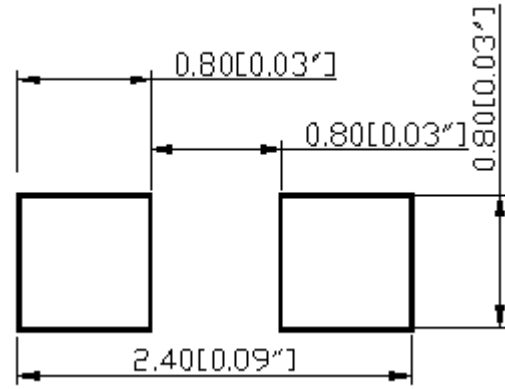
American Opto Plus LED Corp. L195QRC

1.6 x 0.8 x 0.6 mm RED SMD LED

PACKAGE OUTLINES



RECOMMENDED PAD LAYOUT



ITEM	MATERIALS
Resin (mold)	Epoxy
Lens color	Water transparent
Dice	AlGaInP/GaAs
Emitted color	Red

Notes:

1. All dimensions are in millimeters (inches);
2. Tolerances are $\pm 0.1\text{mm}$ (0.004inch) unless otherwise noted.



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ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

Parameter	Symbol	Value	Unit
Forward current	I _F	30	mA
Reverse voltage	V _R	5	V
Power dissipation	P _D	75	mW
Operating temperature range	T _{OPR}	-40~+80	°C
Storage temperature range	T _{STG}	-40~+85	°C
Peak pulsing current (1/8 duty f= 1kHz)	I _{FP}	125	mA

OPTICAL-ELECTRICAL CHARACTERISTICS

(Ta=25°C)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Peak Wavelength	λ _P	If=20mA	--	640	--	nm
Spectral Half Bandwidth	Δλ		--	18	--	nm
Dominant Wavelength	λ _D		625	630	635	nm
Forward Voltage	V _F		1.7	2.0	2.5	V
Luminous Intensity	I _V		50	99	160	mcd
Viewing Angle @ 50% I _V	2θ _{1/2}	If=10mA	--	140	--	deg
Reverse Current	I _R	Vr=5V	--	--	10	μA



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OPTICAL CHARACTERISTIC CURVES

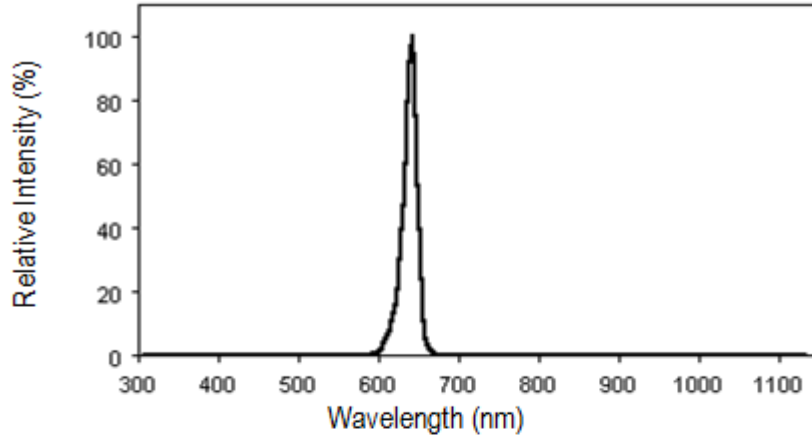


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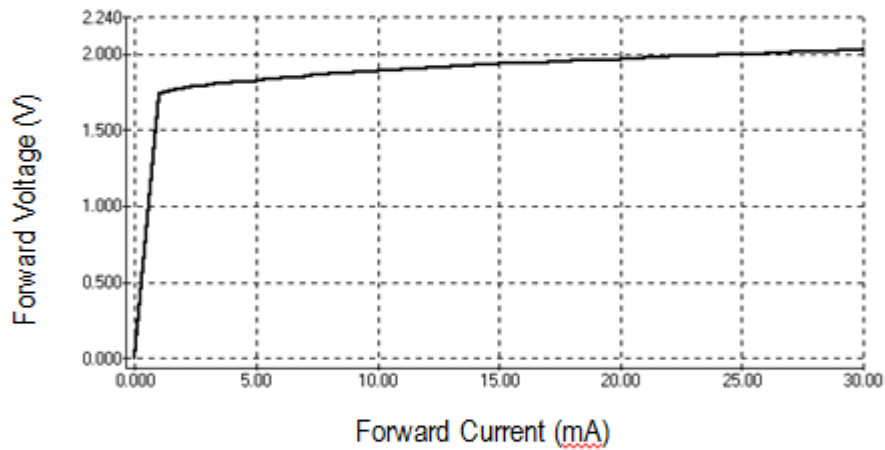
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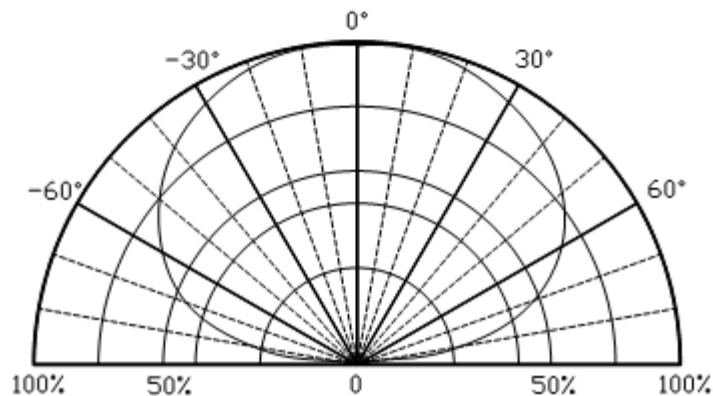
Relative Intensity vs. Wavelength



Forward Current vs. Forward Voltage



Directive Characteristics



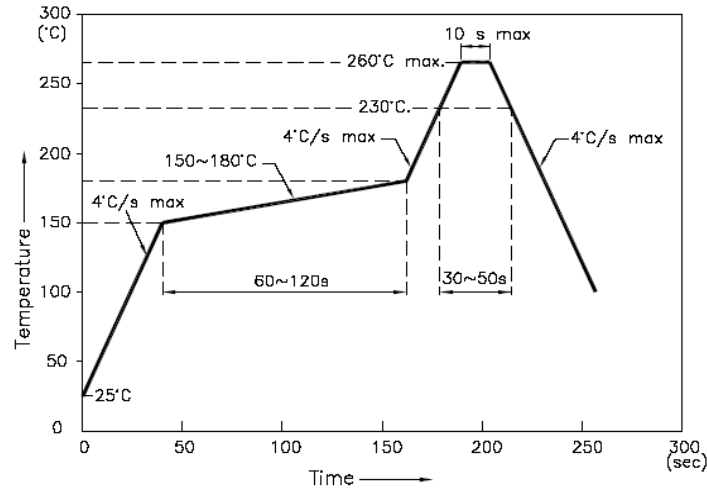


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REFLOW PROFILE

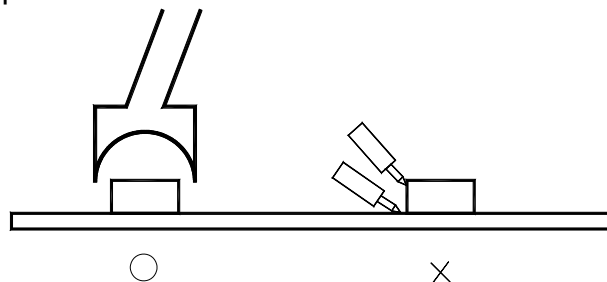


Notes:

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°C \rightarrow -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.**



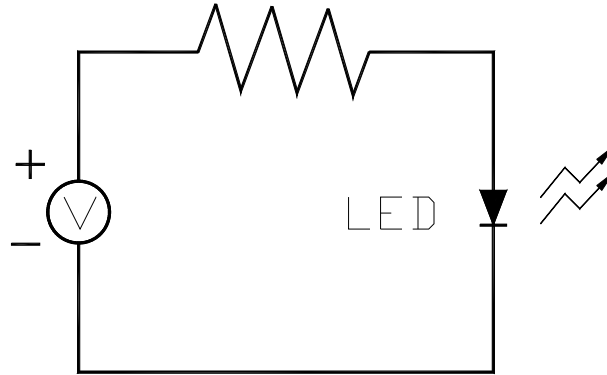
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TEST CIRCUIT AND HANDLING PRECAUTIONS

- **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 months at 5°C~30°C and <60%RH;
3. Baking

It is recommended to baking before soldering when the pack is unsealed after 72hrs. The conditions are as followings:

- 3.1 60±3°C x(36~48hrs) and < 5%RH, taped reel type
- 3.2 110±3°C x(8~16hr), bulk type



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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

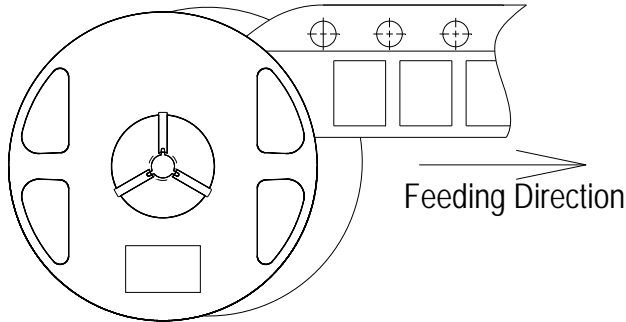


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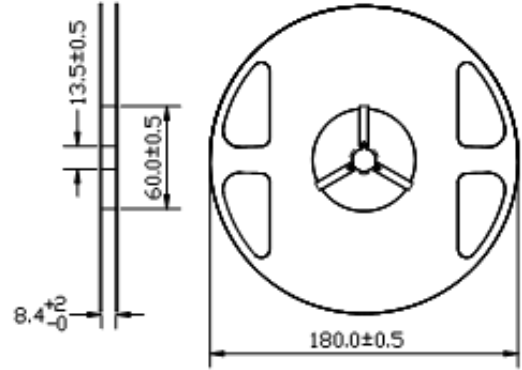
1.6 x 0.8 x 0.6 mm RED SMD LED

PACKAGING SPECIFICATION

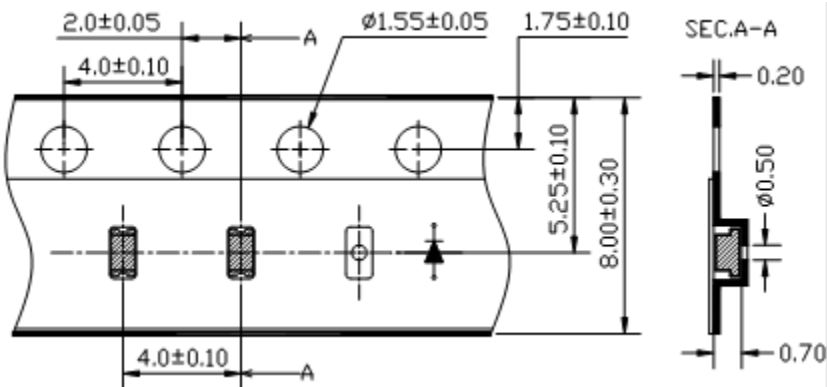
- Feeding Direction



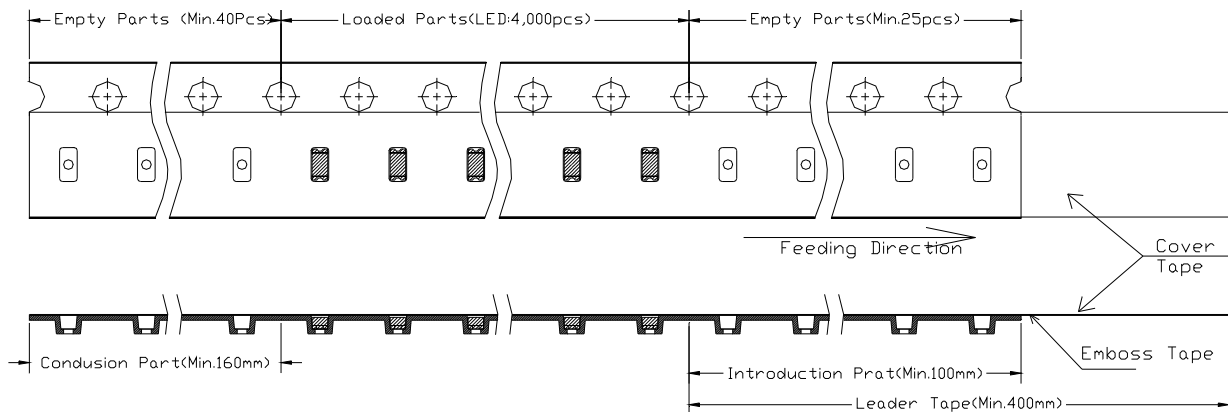
- Dimensions of Reel (Unit: mm)



- 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. 4,000pcs/Reel



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BIN COMBINATIONS

FORWARD VOLTAGE RANK COMBINATION (IF=20MA)				
Rank	Min.	Max.	Unit	
□	1.7	2.5	V	
LUMINOUS INTENSITY RANK COMBINATION (IF=20MA)				
Rank	Min.	Max.	Unit	
G	50	63	mcd	
H	63	80		
I	80	100		
J	100	125		
K	125	160		
DOMINANT WAVELENGTH RANK COMBINATION (IF=20MA)				
Rank	Min.	Max.	Unit	
u	625	630	nm	
v	630	635		
GROUP NAME ON LABEL (EXAMPLE DATA: □lv 20)				
DATA: □lv 20	Vf(V)	lv (mcd)	λd (nm)	Test Condition
□→I→v→20	1.7~2.5	80~100	630~635	IF=20mA

Notes:

1. Tolerance of luminous intensity (lv) is $\pm 15\%$.
2. Tolerance of dominant wavelength is $\pm 1\text{nm}$.