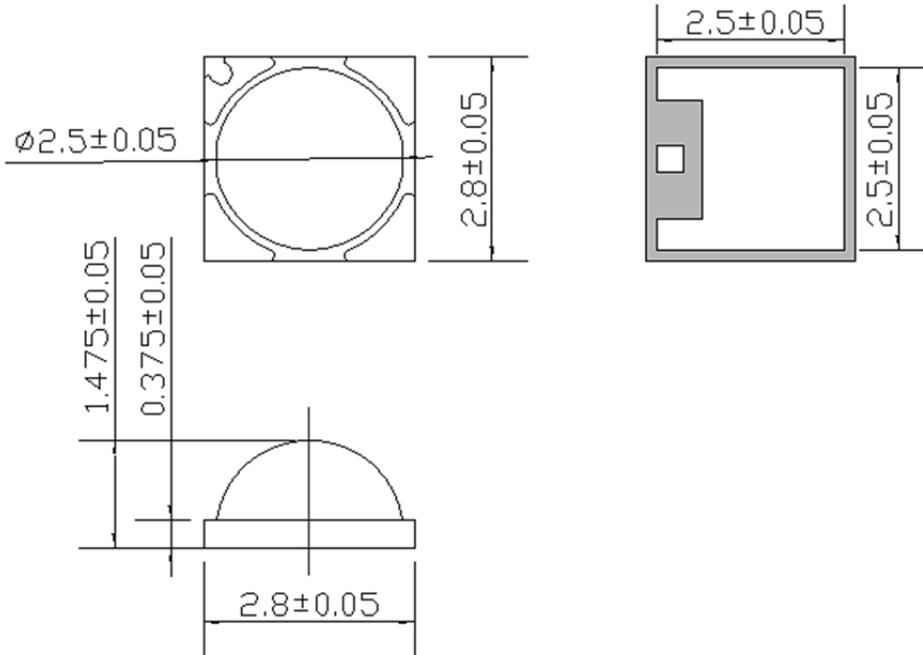




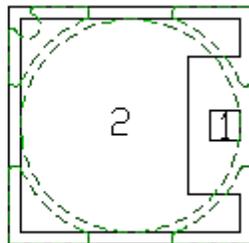
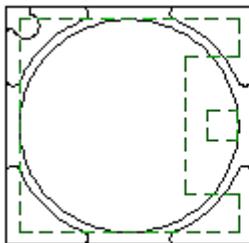
American Opto Plus LED Corp. L990D-MPGC

2.8 x 2.8 x 1.5 mm Dome Lens Pure Green Power LED

PACKAGE OUTLINES



PAD CONFIGURATION



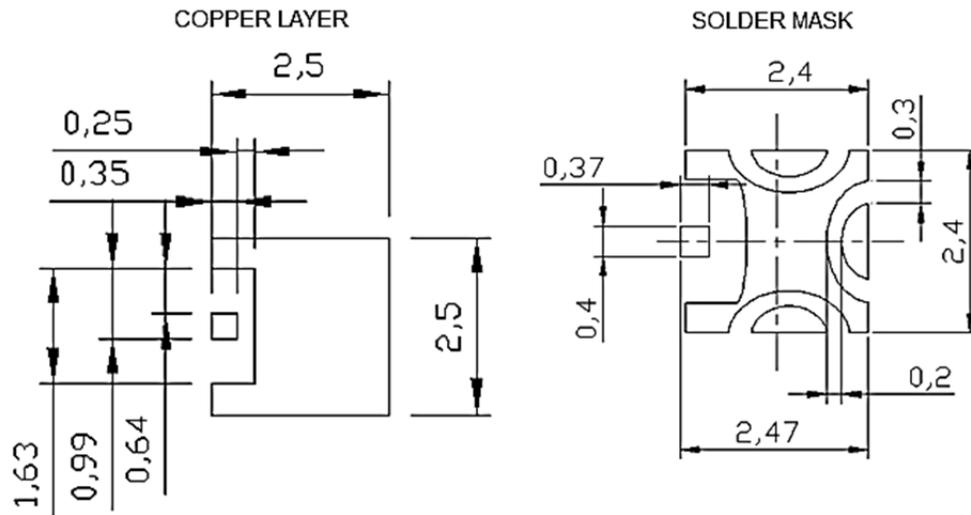
PAD	Function
1	Cathode
2	Anode, Thermal



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RECOMMENDED SOLDER PATTERN





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ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

Parameter	Symbol	Value	Unit
Forward Current	I _F	350	mA
Forward Pulse Current*	I _{FP}	500	mA
Power Dissipation	P _D	1.5	W
Thermal Resistance, Junction-Case	R _{th, J-C1}	5	°C/W
Reverse Voltage	V _R	5	V
LED Junction Temperature	T _J	125	°C
Operating Temperature Range	T _{OPR}	-40~+80	°C
Storage Temperature Range	T _{STG}	-40~+120	°C
Soldering Condition	T _{SOL}	260°C for 5 seconds	

*Note: Forward Pulse Current=1/10 Duty Cycle, 400msec Pulse Width

OPTICAL-ELECTRO CHARACTERISTICS

(Ta=25°C)

Parameter	Test Condition	Symbol	Min	Typ	Max	Unit
Forward Voltage	I _F =350mA	V _F	3.03	3.4	4.23	V
Reverse Current		I _R	--	--	100	μA
Luminous Flux		Φ _V	--	90	--	Lm
Dominant Wavelength		λ _D	520	--	535	Nm



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BIN CODE LIST REFERENCE

Item	Code	Φ_V Min (Lm)	Φ_V Max (Lm)
Luminous Flux	L	80	90
	M	90	100
	N	100	120

Note: Luminous flux measurement allowance is $\pm 10\%$

Item	Code	λ Min (Nm)	λ Max (Nm)
Wavelength	G2	520	525
	G3	525	530
	G4	530	535

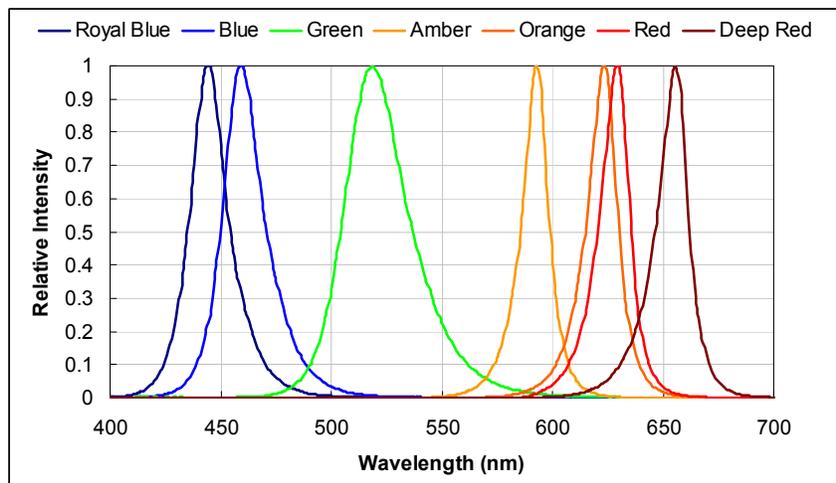
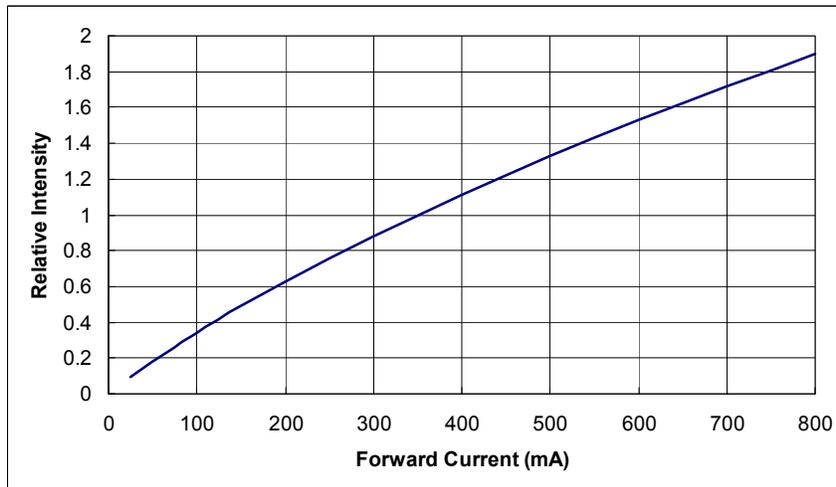
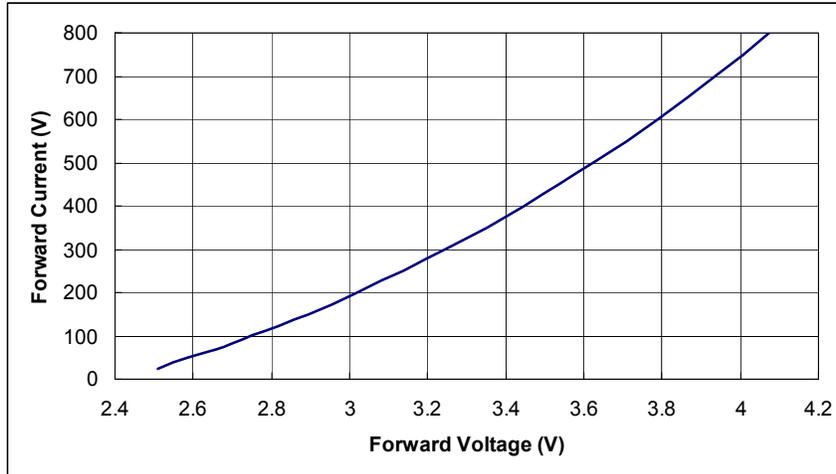
Note: Wavelength measurement allowance is $\pm 2\text{nm}$



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CHARACTERISTIC DIAGRAM



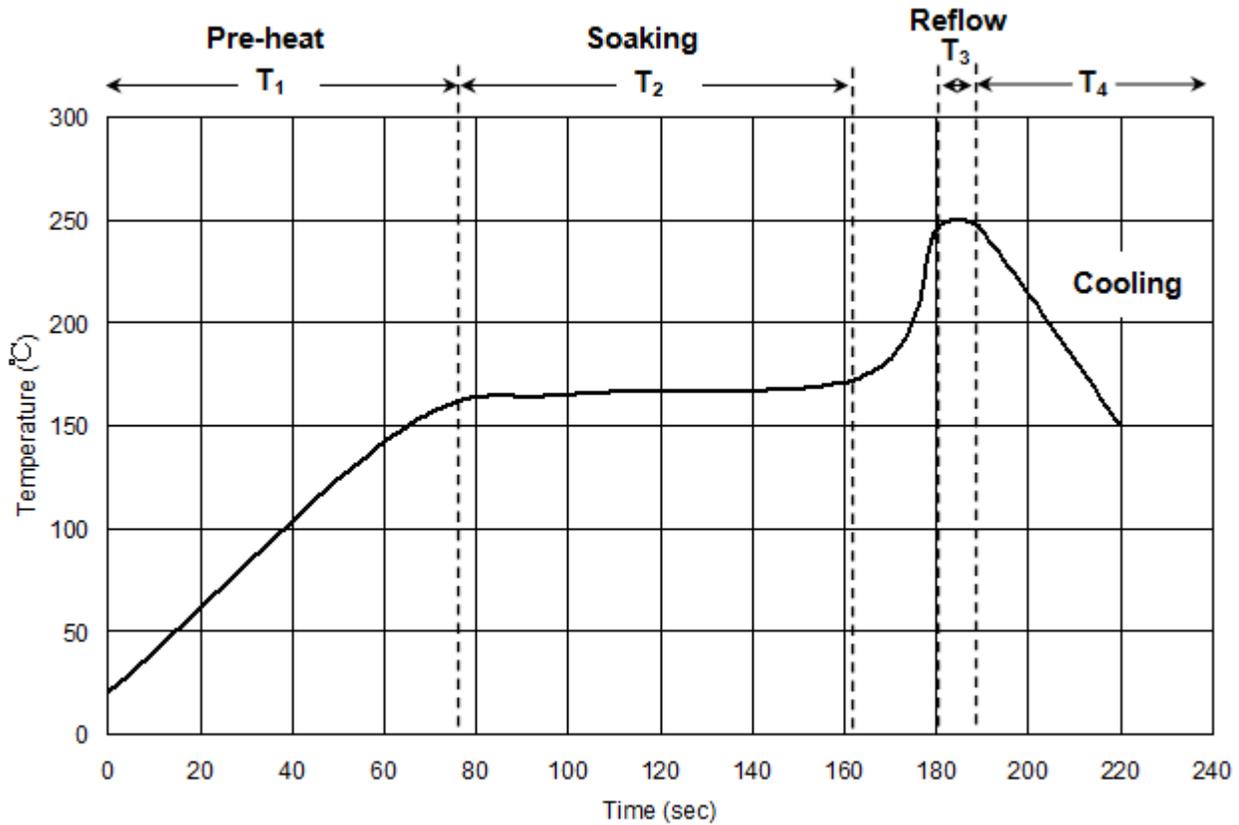


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REFLOW SOLDERING CHARACTERISTICS



T1	Ramp up rate	1.0~3.0 °C/sec
	Pre-heat time	50~80 sec
T2	Soaking temperature	155~185 °C
	Dwell time during soaking	60~120 sec
T3	Reflow temperature	240~250 °C
	Reflow time	Max 10 sec
T4	Ramp up rate during reflow	1.2~2.3 °C/sec
	Cooling	1.0~6.0 °C.sec

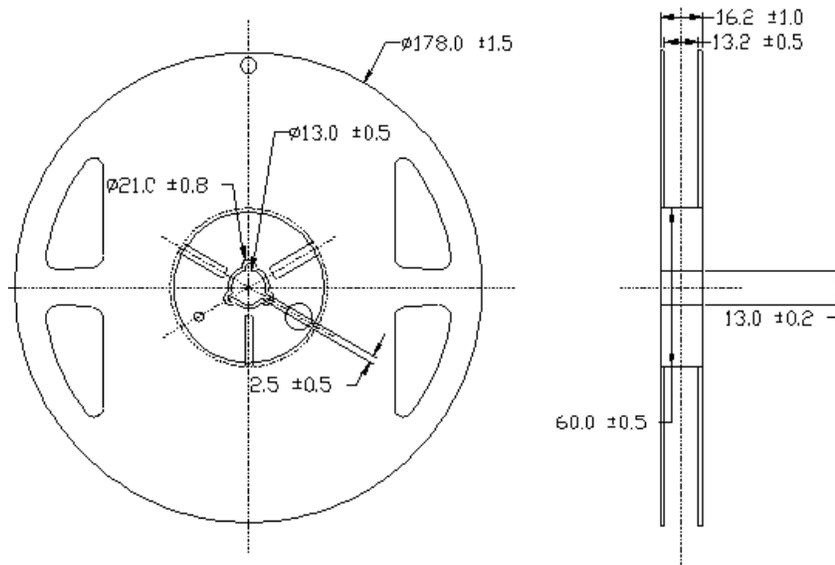
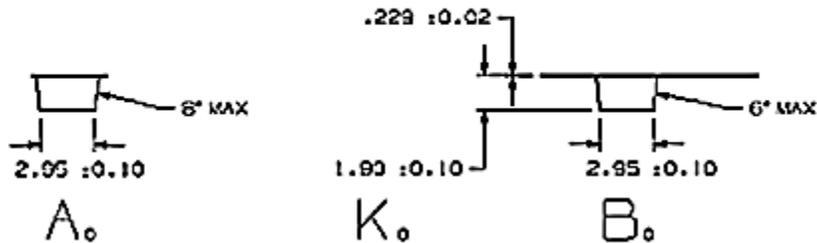
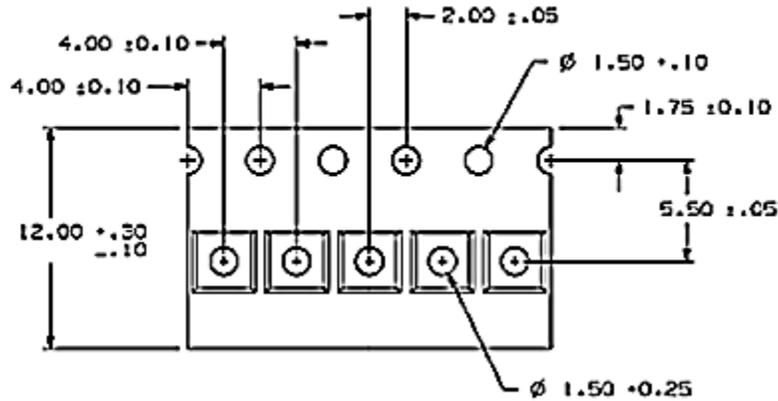
Note: suggest using Sn96Ag3Cu0.5 lead free solder



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SHIPPING PACKAGE DIMENSIONS



- Moisture proof bag
- 1 Reel/Bag
- 2000 (Max)/Reel



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RELIABILITY TESTING

Classification	Test Item	Test conditions	Reference Standard
Endurance Test	Operation Life	$I_f = 60\text{mA}/120\text{mA}(\text{H}28), 350\text{mA}/700\text{mA}(\text{H}40/\text{H}44/\text{H}99)$ $T_a = 25^\circ\text{C}$ Test Duration = 1000hrs	MIL-STD-750: 1026 MIL-STD-883: 1005 JIS C 7021: B-1
	High Temperature High Humidity Storage	$I_f = 60\text{mA}/120\text{mA}(\text{H}28), 350\text{mA}/700\text{mA}(\text{H}40/\text{H}44/\text{H}99)$ $T_a = 85\pm 5^\circ\text{C}$ RH = 85±5% Test Duration = 1000hrs	MIL-STD-202: 103B JIS C 7021: B-11
	High Temperature Storage	$T_a = 105\pm 5^\circ\text{C}$ Test Duration = 1000hrs	MIL-STD-202: 1008 JIS C 7021: B10
	Low Temperature Storage	$T_a = -40\pm 5^\circ\text{C}$ Test Duration = 1000hrs	JIS C 7021: B-12
Environmental Test	Temperature Cycling	$-40^\circ\text{C} \sim 25^\circ\text{C} \sim 105^\circ\text{C} \sim 25^\circ\text{C}$ 30min 5min 30min 5min Test Duration = 10 cycle	MIL-STD-202: 107D MIL-STD-750: 1051 MIL-STD-883: 1010 JIS C 7021: A-4
	Thermal Shock	$-55\pm 5^\circ\text{C} \sim 105\pm 5^\circ\text{C}$ 30min 30min Test Duration = 10 cycle	MIL-STD-202: 107D MIL-STD-750: 1051 MIL-STD-883: 1011
	Solder Resistance	$T_{\text{sol}} = 260\pm 5^\circ\text{C}$ Dwell Time = 10sec	MIL-STD-202: 210A MIL-STD-750: 2031 JIS C 7021: A-1
Measuring Items	Symbol	Measuring Conditions	Failure Criteria
Forward voltage	V_f	$I_f = 60\text{mA}/120\text{mA}(\text{H}28), 350\text{mA}/700\text{mA}(\text{H}40/\text{H}44/\text{H}99)$	V_f shift > 10%
Luminous	$I_v\%$	$I_f = 60\text{mA}/120\text{mA}(\text{H}28), 350\text{mA}/700\text{mA}(\text{H}40/\text{H}44/\text{H}99)$	$I_v\%$ shift > 10%