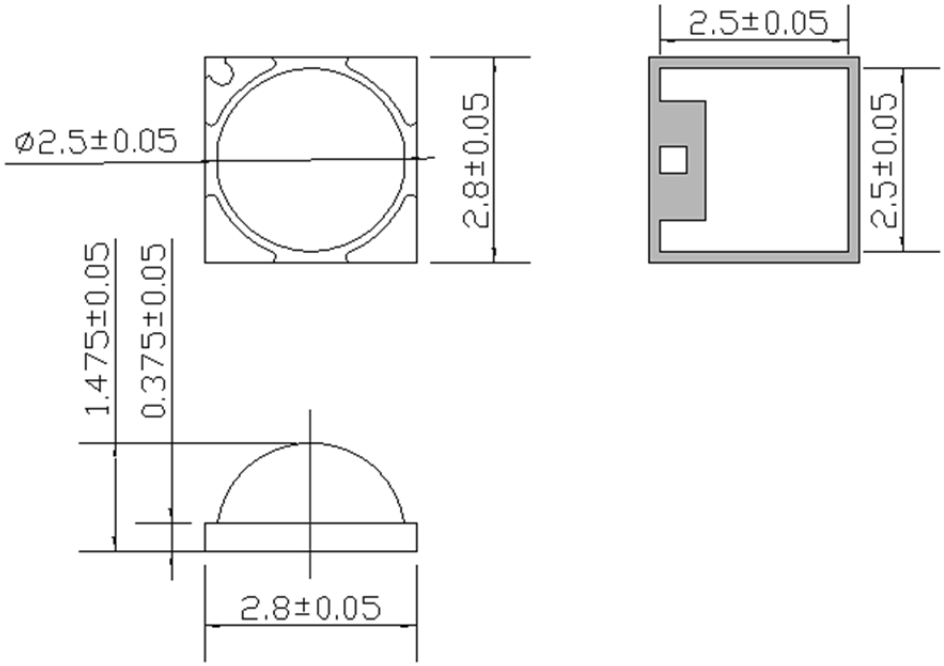
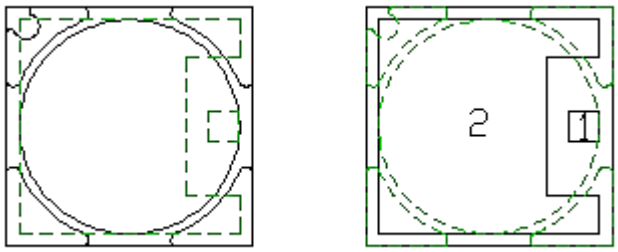
American Opto Plus LED Corp.
L990D-MBC
2.8 x 2.8 x 1.5 mm Dome Lens Blue Power LED

PACKAGE OUTLINES

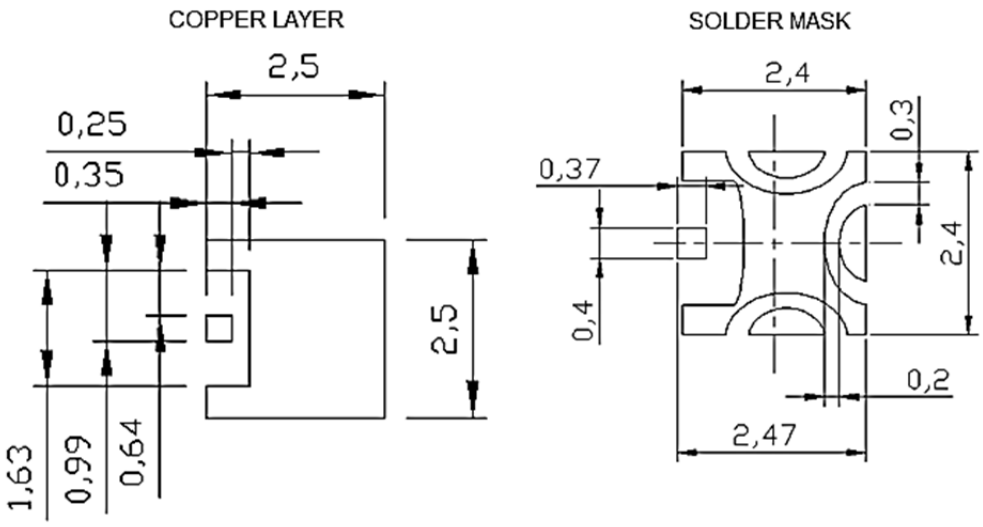


PAD CONFIGURATION



PAD	Function
1	Cathode
2	Anode, Thermal

RECOMMENDED SOLDER PATTERN



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	ºC/W
Reverse Voltage	V_R	5	V
LED Junction Temperature	T_J	125	ºC
Operating Temperature Range	T_{OPR}	-40~+80	ºC
Storage Temperature Range	T_{STG}	-40~+120	ºC
Soldering Condition	T_{SOL}	260ºC 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*[1]	I_F=350mA	V_F	2.79	3.2	4.23	V
Reverse Current		I_R	--	--	100	μA
Radiant Flux*[2]		Φ_E	--	400	--	Lm
Peak Wavelength		λ_P	440	--	460	Nm

Notes:
1. Forward voltage measurement allowance is ± 0.1V.
2. Radiant Flux measurement allowance is ± 10%.

BIN CODE LIST REFERENCE

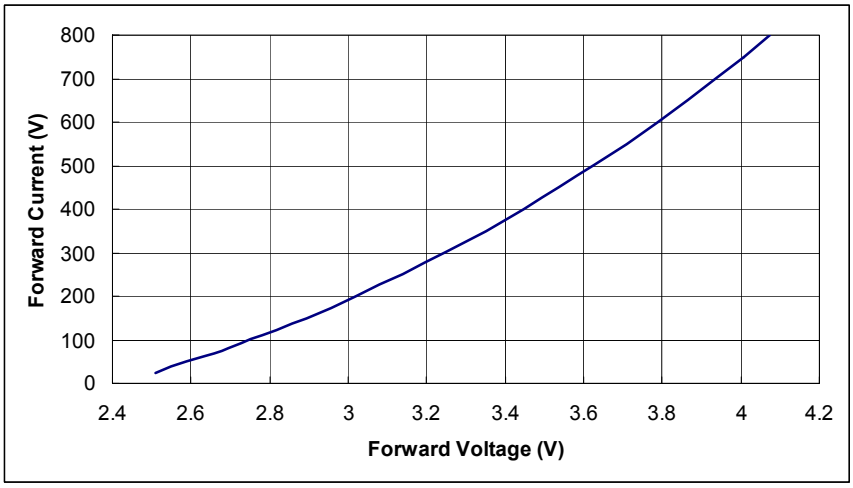
Item	Code	Φ_V Min (Lm)	Φ_V Max (Lm)
Radiant Flux	C	13.9	18.1
	D	18.1	23.5

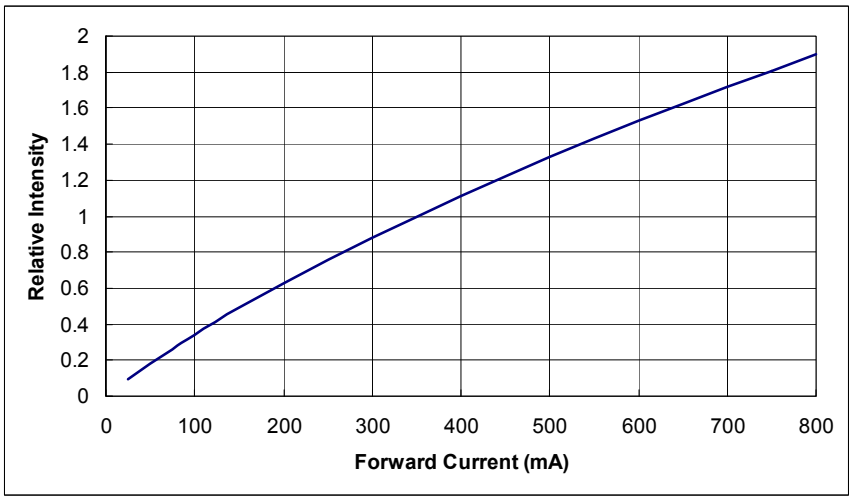
Note: Luminous flux measurement allowance is ± 10%

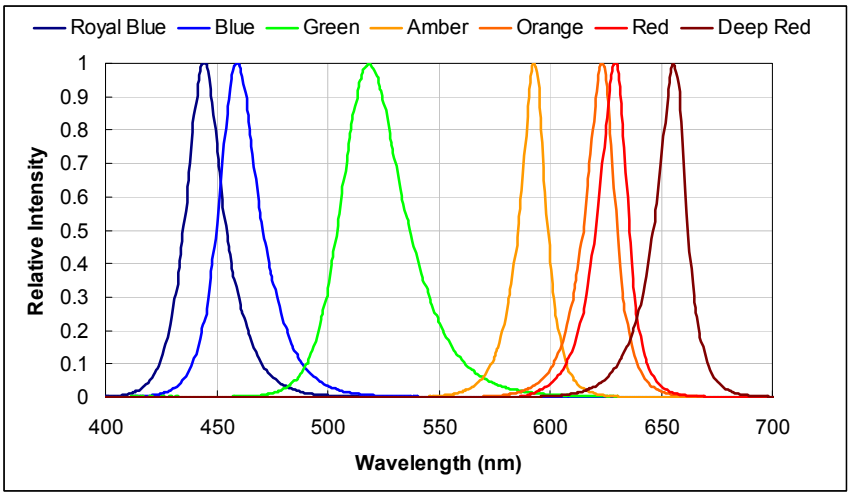
Item	Code	λ Min (Nm)	λ Max (Nm)
Wavelength	D0	440	445
	D1	445	450
	D2	450	455

Note: Wavelength measurement allowance is ± 2nm

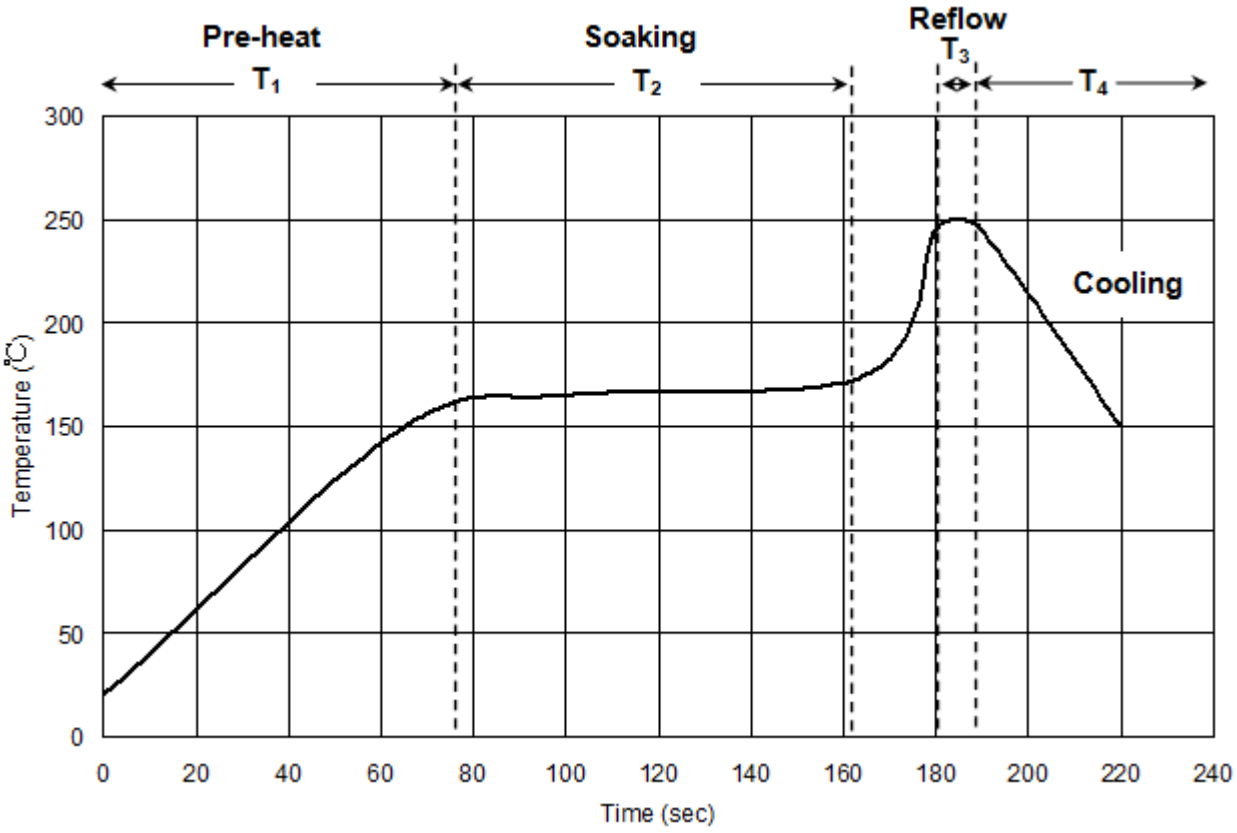
CHARACTERISTIC DIAGRAM







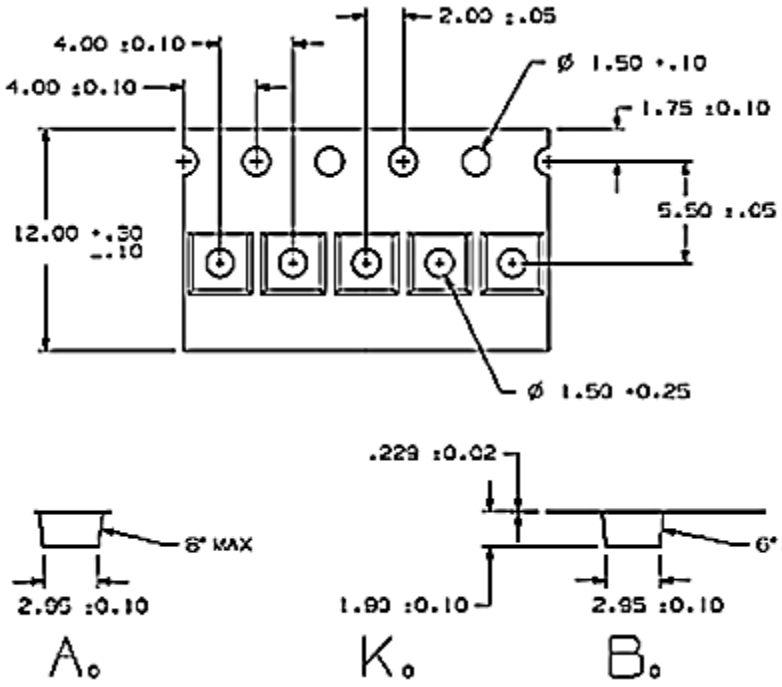
REFLOW SOLDERING CHARACTERISTICS

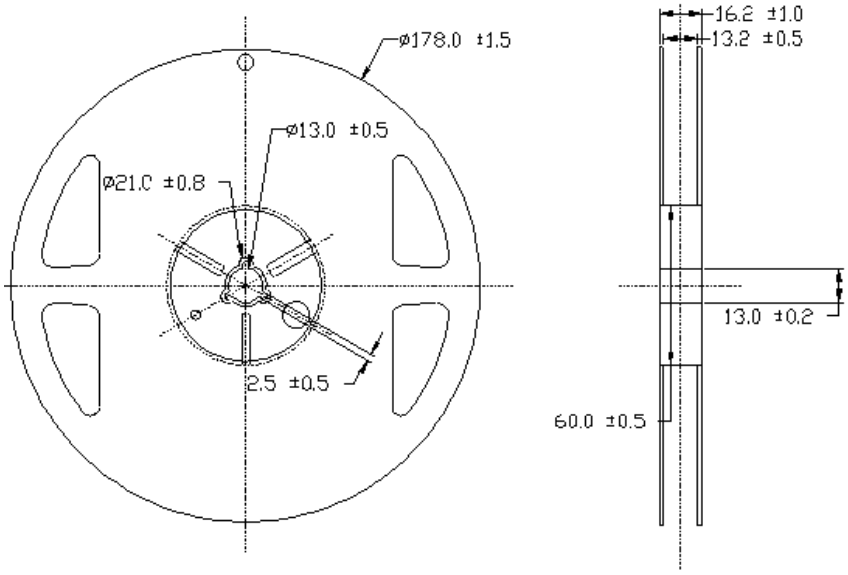


T1	Ramp up rate	1.0~3.0 ºC/sec
	Pre-heat time	50~80 sec
T2	Soaking temperature	155~185 ºC
	Dwell time during soaking	60~120 sec
T3	Reflow temperature	240~250 ºC
	Reflow time	Max 10 sec
T4	Ramp up rate during reflow	1.2~2.3 ºC/sec
	Cooling	1.0~6.0 ºC.sec

Note: suggest using Sn96Ag3Cu0.5 lead free solder

SHIPPING PACKAGE DIMENSIONS





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

RELIABILITY TESTING

Classification	Test Item	Test conditions	Referance Standard
Endurance Test	Operation Life	I_F = 60mA/120mA(H28), 350mA/700mA(H40/H44/H99) Ta = 25℃ Test Duration = 1000hrs	MIL-STD-750: 1026 MIL-STD-883: 1005 JIS C 7021: B-1
	High Temperature High Humidity Storage	IF = 60mA/120mA(H28), 350mA/700mA(H40/H44/H99) Ta = 85±5℃ RH = 85±5% Test Duration = 1000hrs	MIL-STD-202: 103B JIS C 7021: B-11
	Hihg Temperature Storage	Ta = 105±5℃ Test Duration = 1000hrs	MIL-STD-202: 1008 JIS C 7021: B10
	Low Temperature Storage	'Ta = -40±5℃ Test Duration = 1000hrs	JISC 7021: B-12
Environmental Test	Temperature Cycling	-40℃ ~ 25℃ ~ 105℃ ~ 25℃ 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±5℃ ~ 105±5℃ 30min 30min Test Duration = 10 cycle	MIL-STD-202: 107D MIL-STD-750: 1051 MIL-STD-883: 1011
	Solder Resistance	Tsol = 260±5℃ 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	IF = 60mA/120mA(H28), 350mA/700mA(H40/H44/H99)	V_F shift > 10%
Luminous	Iv%	IF = 60mA/120mA(H28), 350mA/700mA(H40/H44/H99)	I_v% shift > 10%