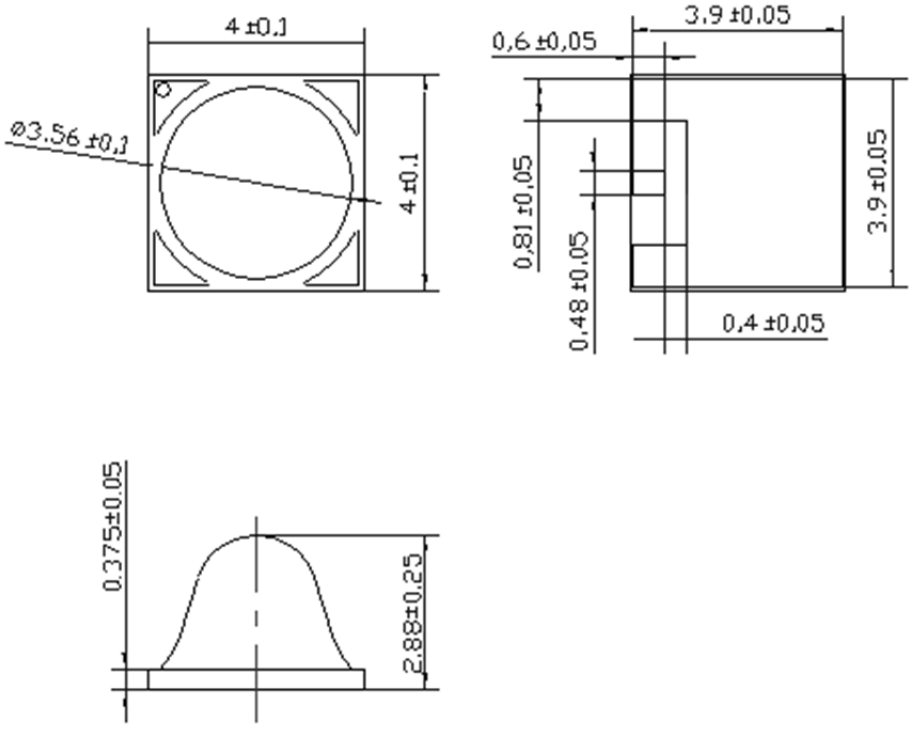
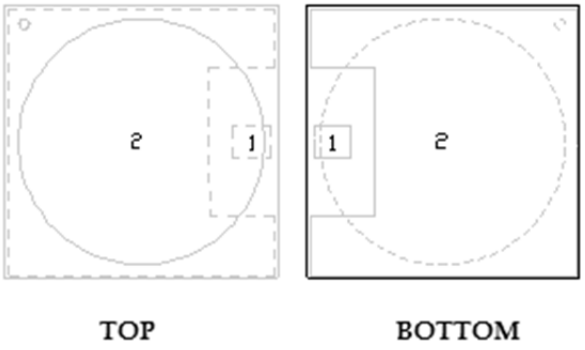
American Opto Plus LED Corp.
IRP-850C-60D
4 x 4 x 2.8 mm Dome Lens High Power IR LED

PACKAGE OUTLINES



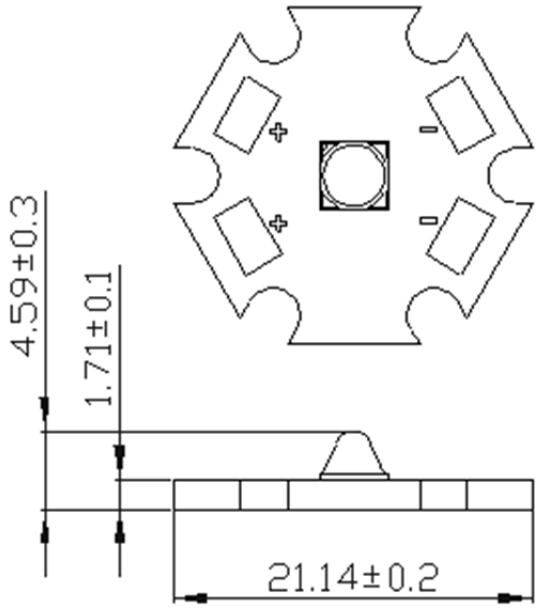
PAD CONFIGURATION

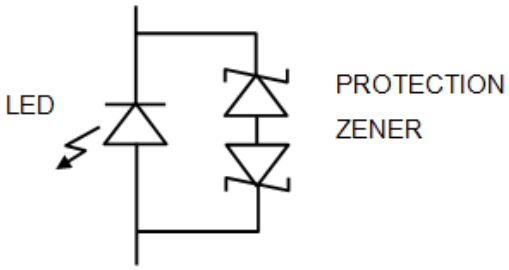


Pad	Function
1	Cathode
2	Anode, Thermal

FEATURES

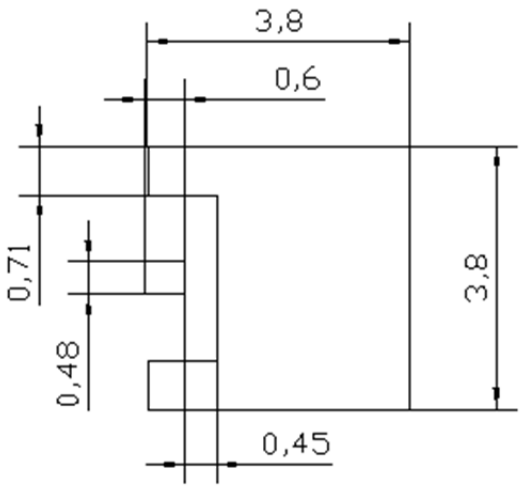
- High Radiant Flux Type
- All metal design Cu Substrate with silicone lens
- View Angle 60º
- Low Thermal Resistance
- AlGaAs / AlGaAs Chip Inside



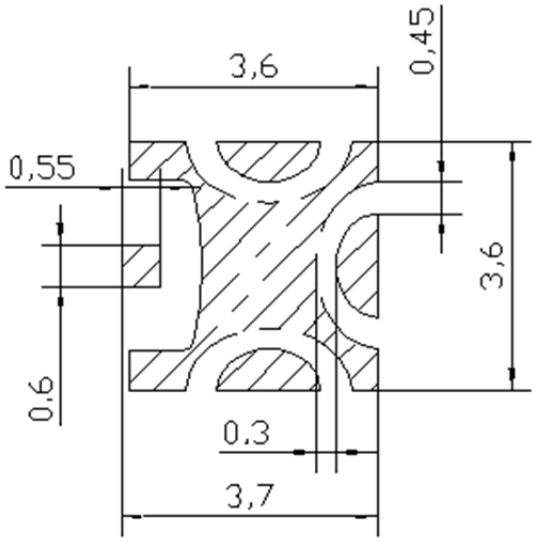


RECOMMENDED SOLDER PATTERN

MCPBC LAYOUT



SOLDER MASK



ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Parameter	Symbol	Value	Unit
Forward Current	I_F	1000	mA
Power Dissipation	P	2.5	W
Peak Pulse Current (1/10 Duty Cycle, 400msec Pulse Width	I_{FP}	1500	mA
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	

OPTICAL-ELECTRO CHARACTERISTICS (Ta=25°C)

Parameter	Test Condition	Symbol	Min	Typ	Max	Unit
Forward Voltage	I_F=1000mA	V_F	--	1.9	--	V
Reverse Current		I_R	--	--	100	μA
Radiant Flux		Φ_E	500	850	--	mW
Peak Wavelength		λ_P	840	855	870	nm
Spectra Half-Width		Δλ	--	30	--	nm

BIN CODE LIST FOR REFERENCE

Item	Bin Code	Symbol	Condition	Min	Max	Unit
Forward Voltage	B	V_F	I_F=1000mA	1.59	1.83	V
	C			1.83	2.07	
	D			2.07	2.31	
	E			2.31	2.55	
Luminous Flux	F	Φ_E	I_F=1000mA	500	600	mW
	G			600	700	
	H			700	800	
	J			800	900	

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

CHARACTERISTIC DIAGRAM

Fig. Forward Current vs. Forward Voltage

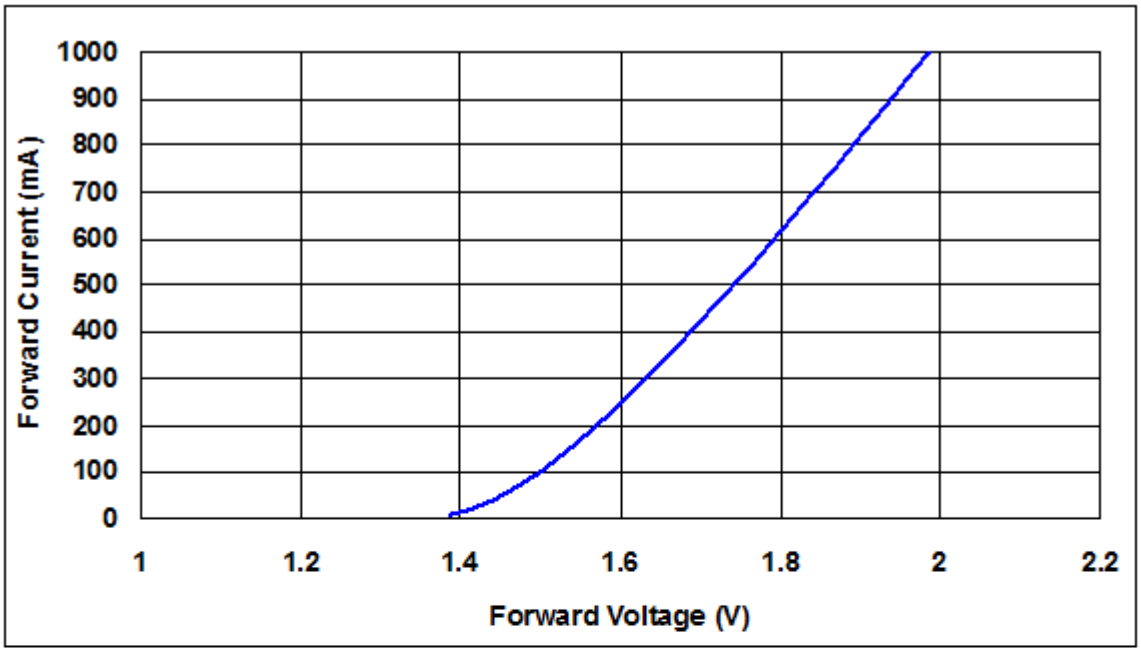


Fig. Relative Intensity vs. Forward Current.

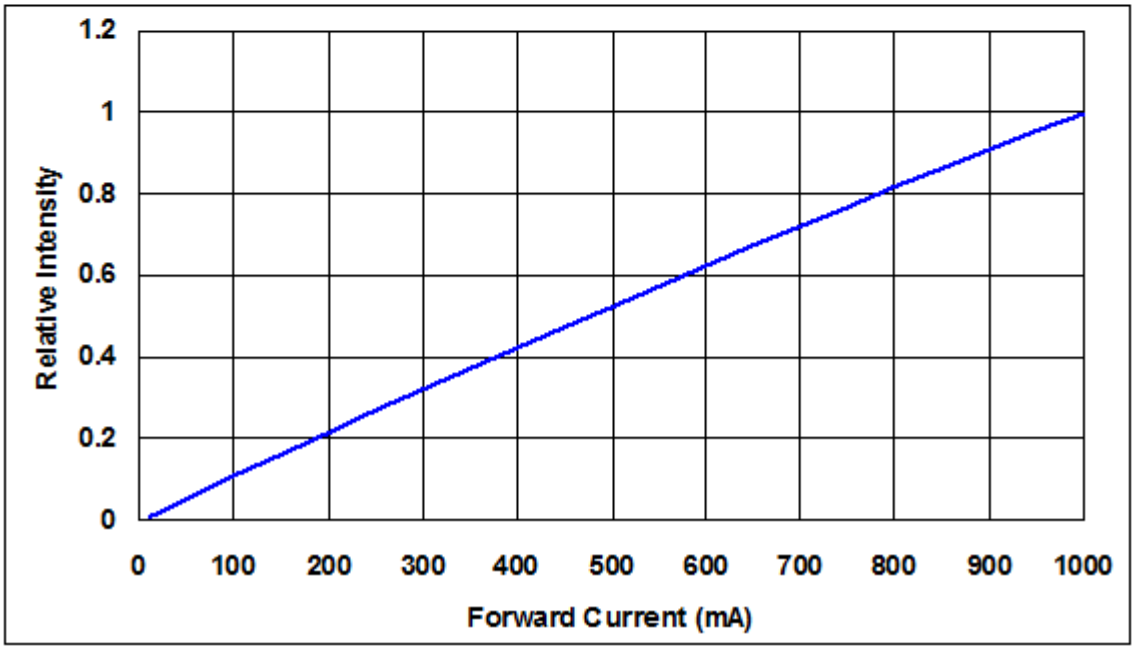


Fig. Typical Relative Intensity vs. wavelength

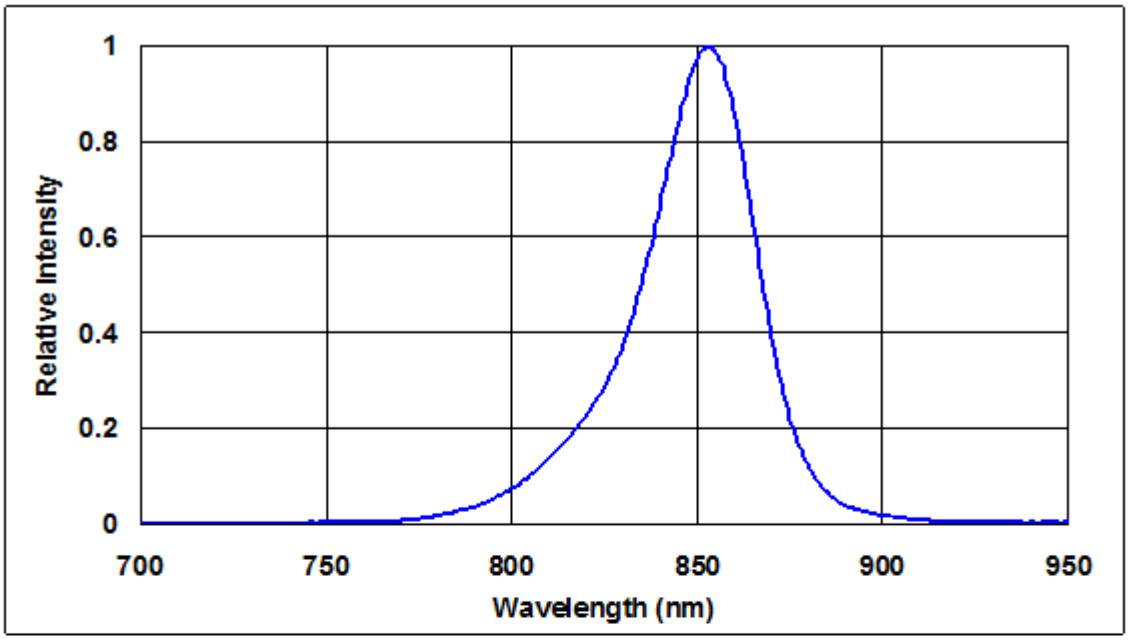


Fig. Forward Current Degrading Curve

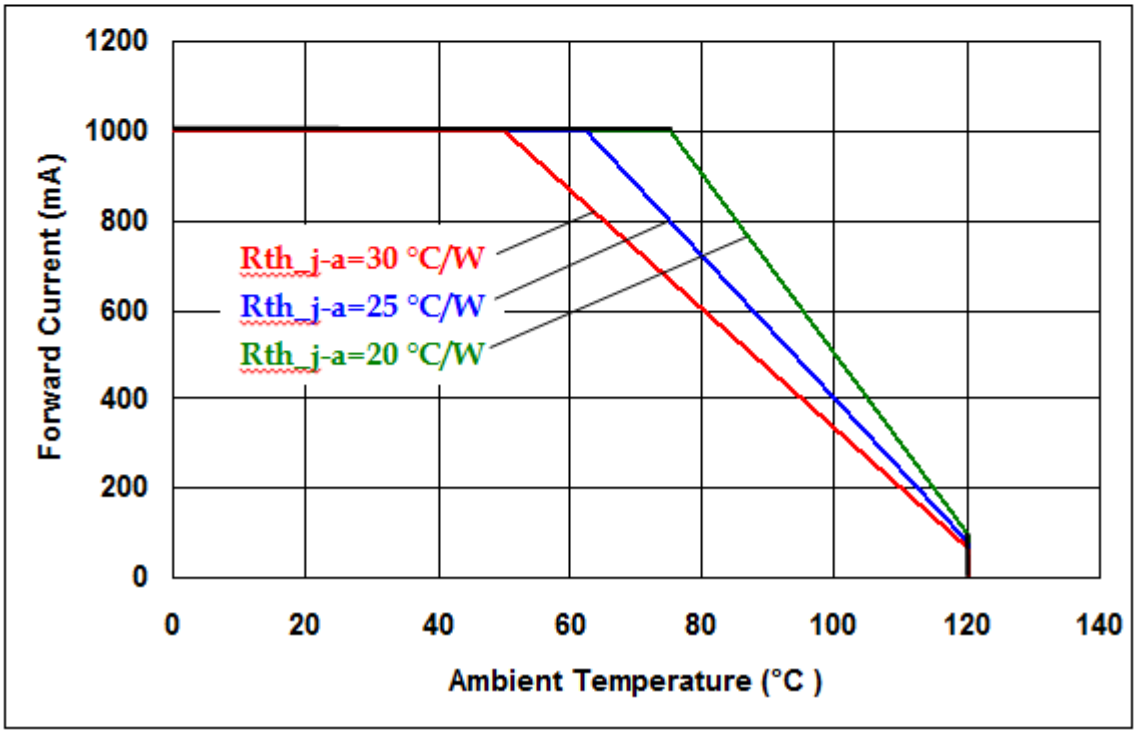
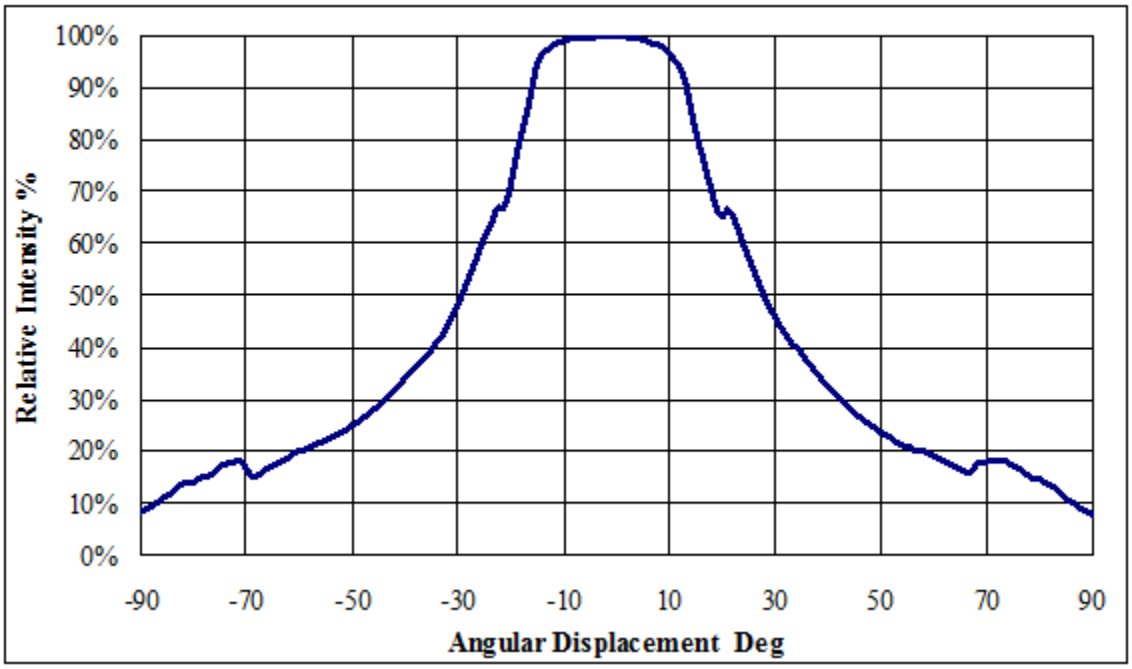


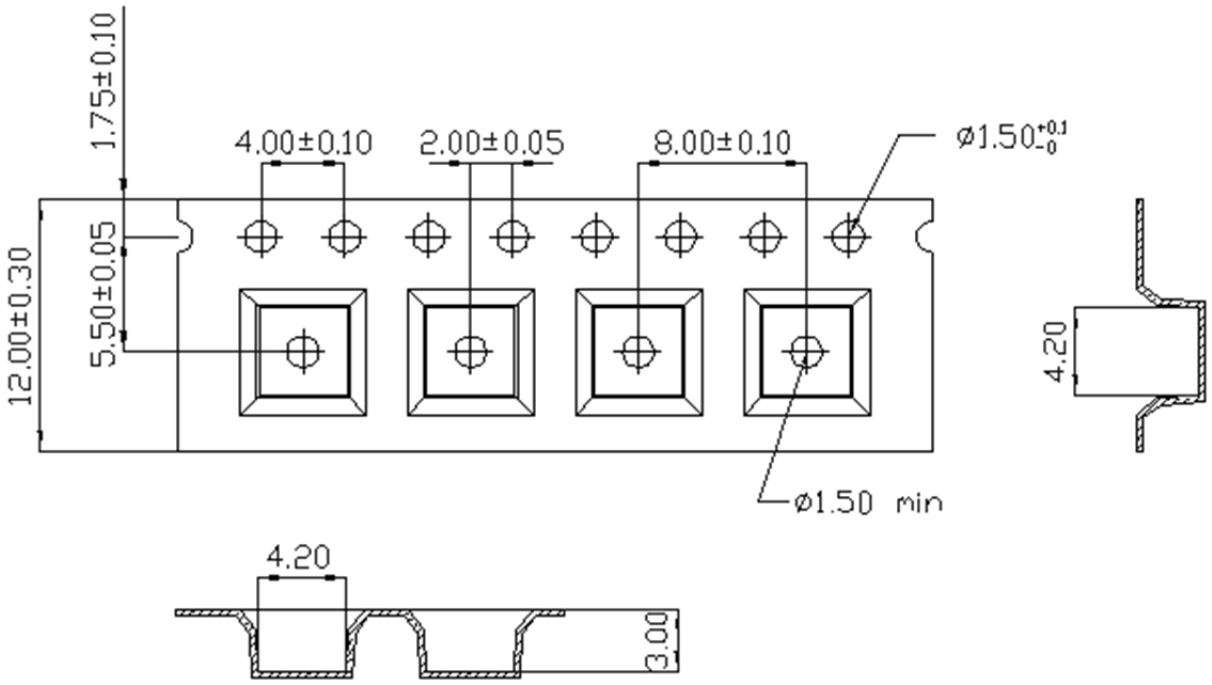
Fig. (60° Lens) Typical Representative Spatial Radiation Pattern



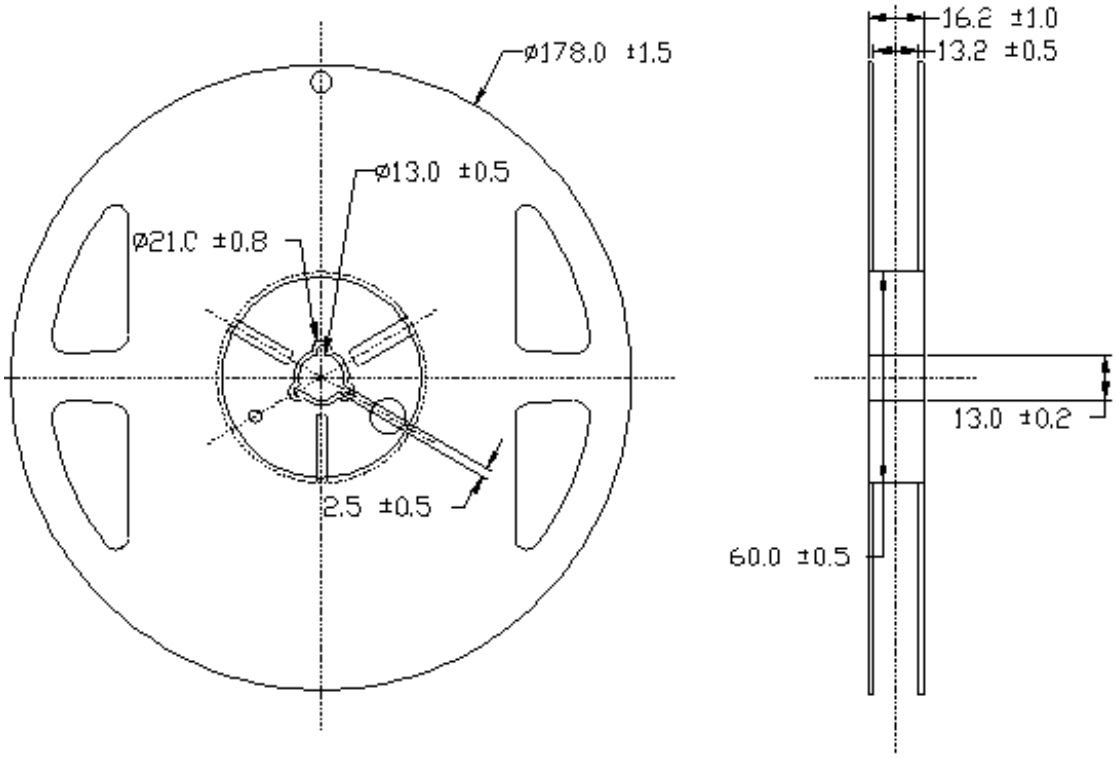
SHIPPING PACKAGE DIMENISION

Lens Type: 60 degree

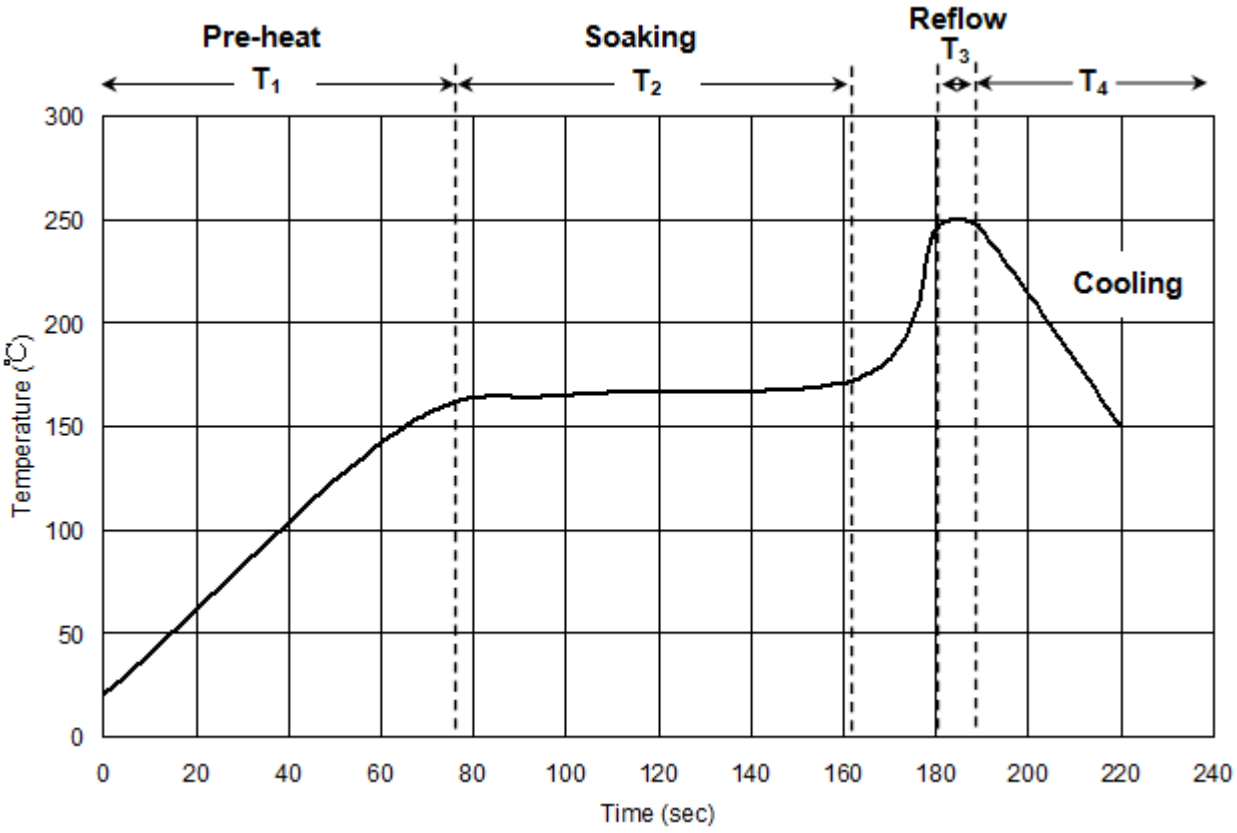
- Moisture proof bag
- 1 Reel/bag
- 700 (max)/Reel



REEL DIMENSION



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

RELIABILITY TEST

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
	High 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%