

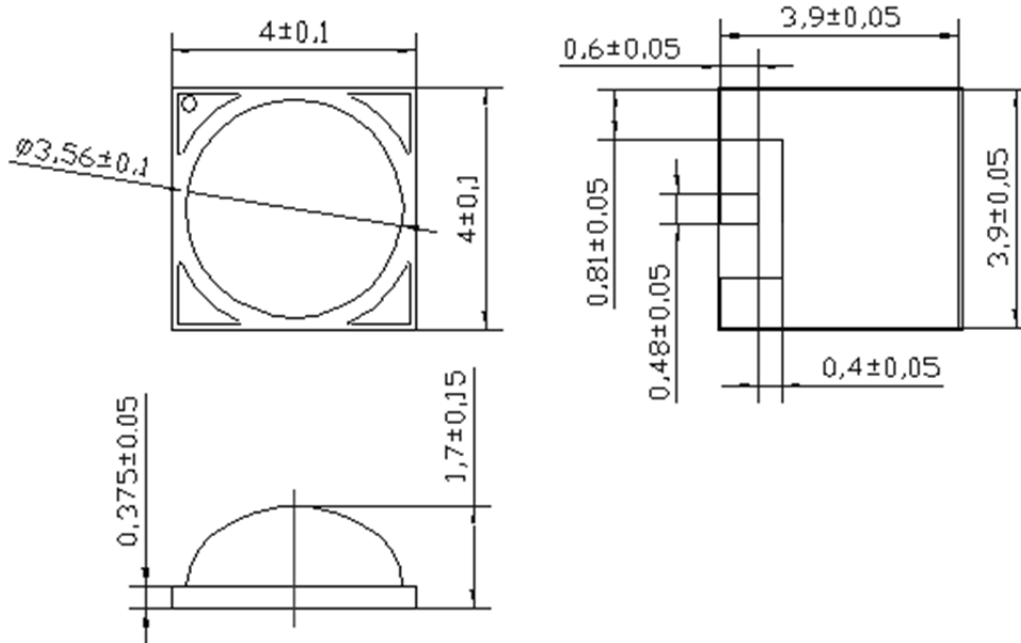


# American Opto Plus LED Corp.

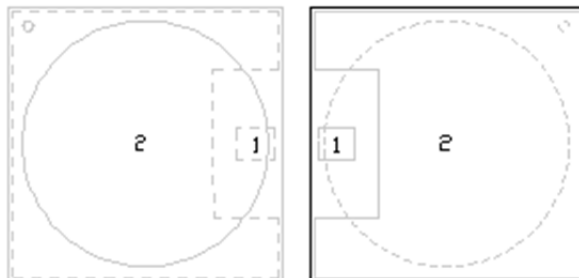
## IRP-850C-140D

4 x 4 x 2.8 mm Dome Lens High Power IR LED

### PACKAGE OUTLINES



### PAD CONFIGURATION



TOP

BOTTOM

Pad	Function
1	Cathode
2	Anode, Thermal

### FEATURES

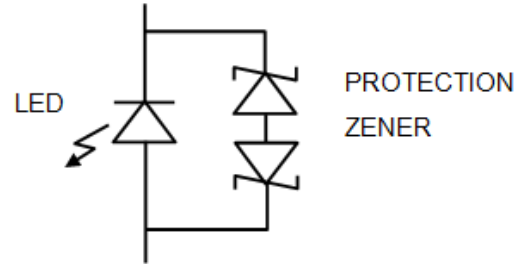
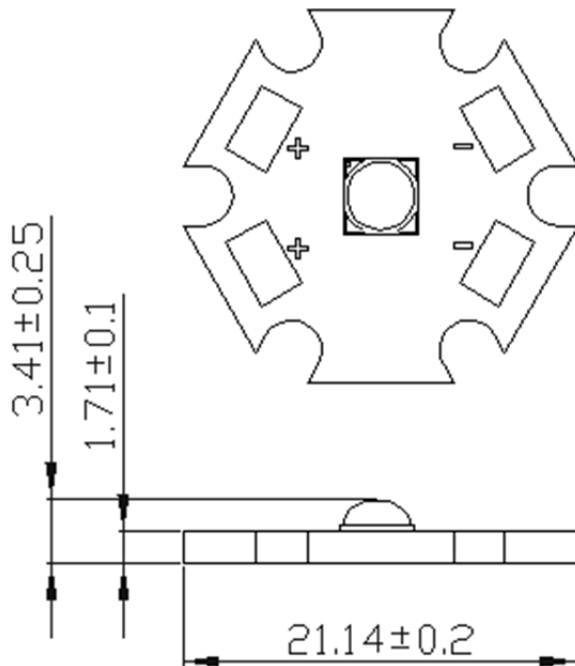
- High Radiant Flux Type
- All metal design Cu Substrate with silicone lens
- View Angle 140°
- Low Thermal Resistance
- AlGaAs / AlGaAs Chip Inside



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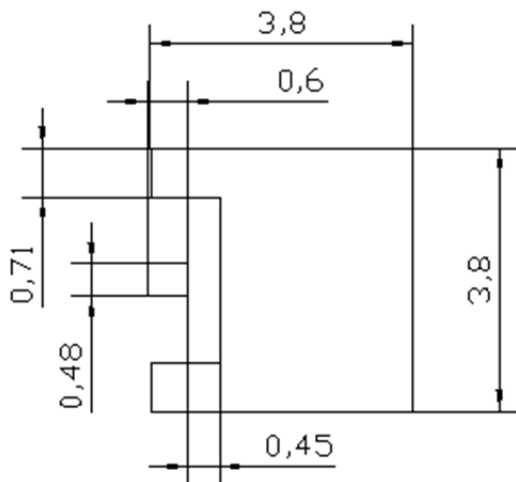
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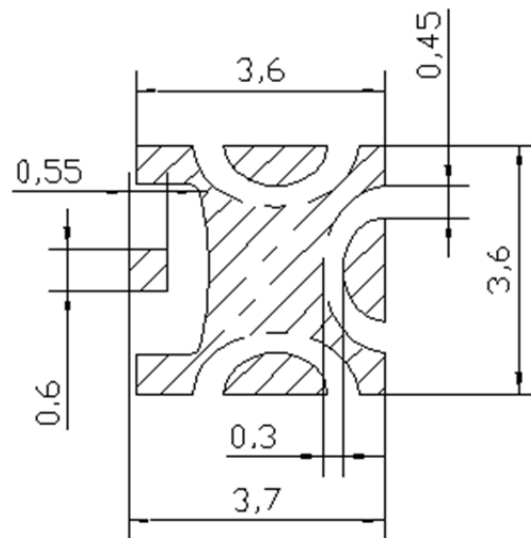


### RECOMMENDED SOLDER PATTERN

MCPBC LAYOUT



SOLDER MASK





# American Opto Plus LED Corp.

## IRP-850C-140D

4 x 4 x 2.8 mm Dome Lens High Power IR LED

### ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

Parameter	Symbol	Value	Unit
Forward Current	I <sub>F</sub>	1000	mA
Power Dissipation	P	2.5	W
Peak Pulse Current (1/10 Duty Cycle, 400msec Pulse Width)	I <sub>FP</sub>	1500	mA
Thermal Resistance, Junction-Case	R <sub>th, J-C1</sub>	5	°C/W
Reverse Voltage	V <sub>R</sub>	5	V
LED Junction Temperature	T <sub>J</sub>	125	°C
Operating Temperature Range	T <sub>OPR</sub>	-40~+80	°C
Storage Temperature Range	T <sub>STG</sub>	-40~+120	°C
Soldering Condition	T <sub>SOL</sub>	260°C for 5 seconds	

### OPTICAL-ELECTRO CHARACTERISTICS

(Ta=25°C)

Parameter	Test Condition	Symbol	Min	Typ	Max	Unit
Forward Voltage	I <sub>F</sub> =1000mA	V <sub>F</sub>	--	1.9	--	V
Reverse Current		I <sub>R</sub>	--	--	100	μA
Radiant Flux		Φ <sub>E</sub>	500	850	--	mW
Peak Wavelength		λ <sub>P</sub>	840	855	870	nm
Spectra Half-Width		Δλ	--	70	--	nm



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### BIN CODE LIST FOR REFERENCE

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

Notes:

1. Forward Voltage measurement allowance is  $\pm 0.1\text{V}$ .
2. Radiant Flux measurement allowance is  $\pm 10\%$ .



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### CHARACTERISTIC DIAGRAM

Fig. Forward Current vs. Forward Voltage

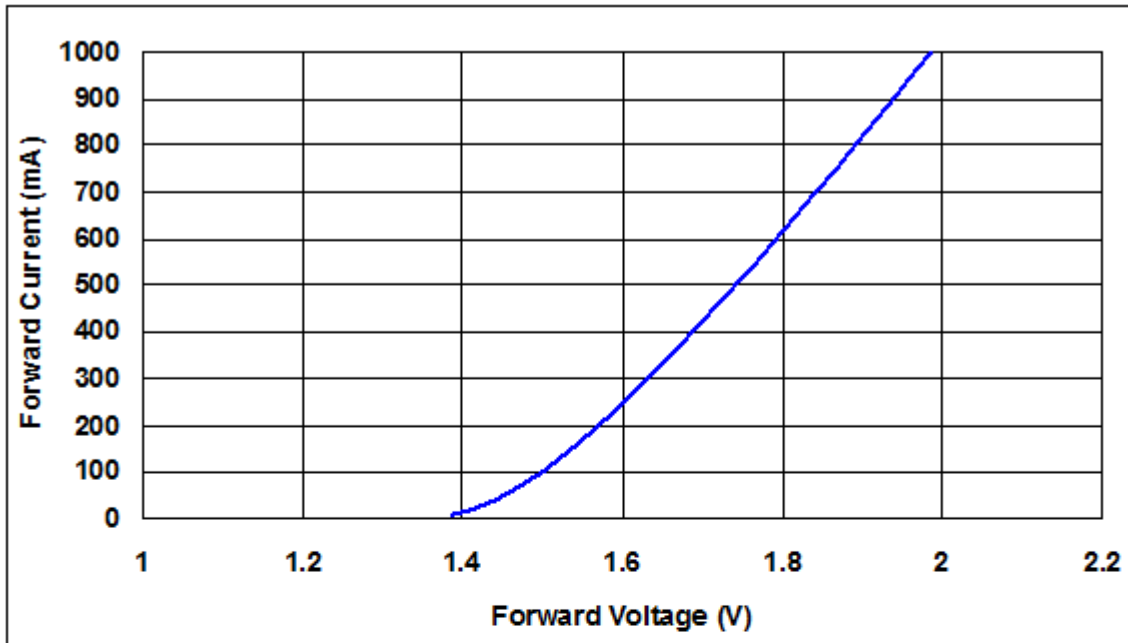
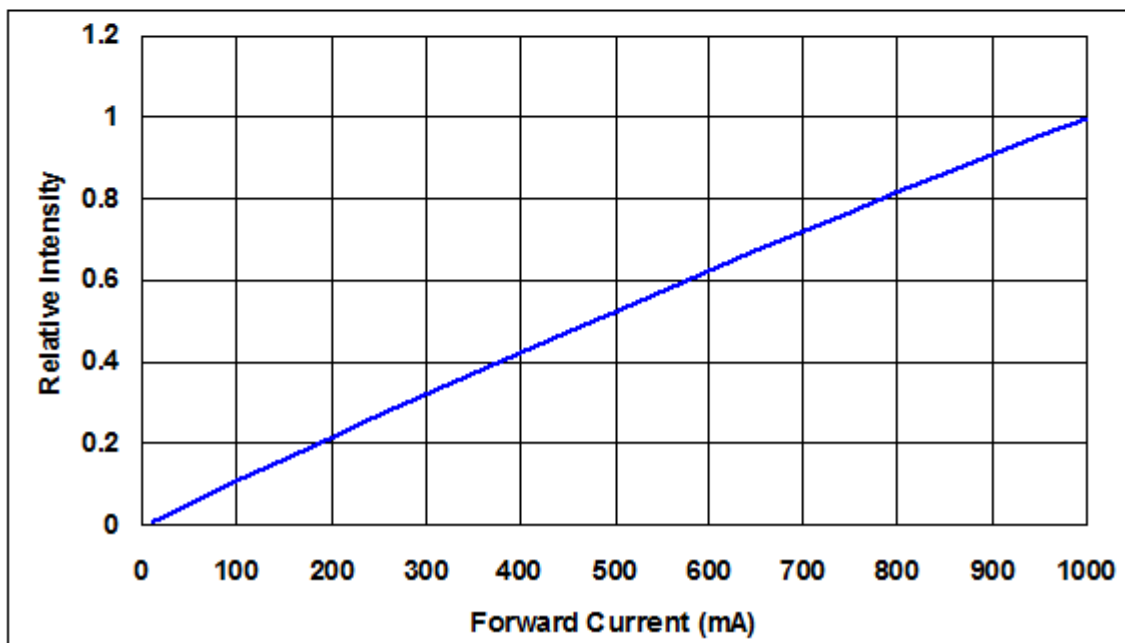


Fig. Relative Intensity vs. Forward Current.





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Fig. Typical Relative Intensity vs. wavelength

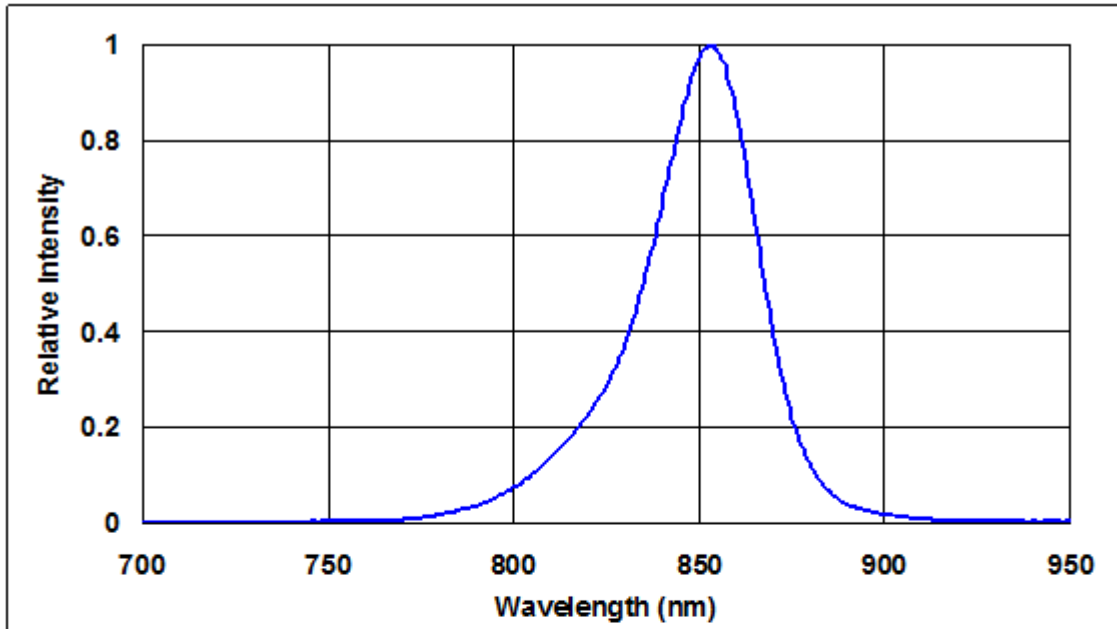
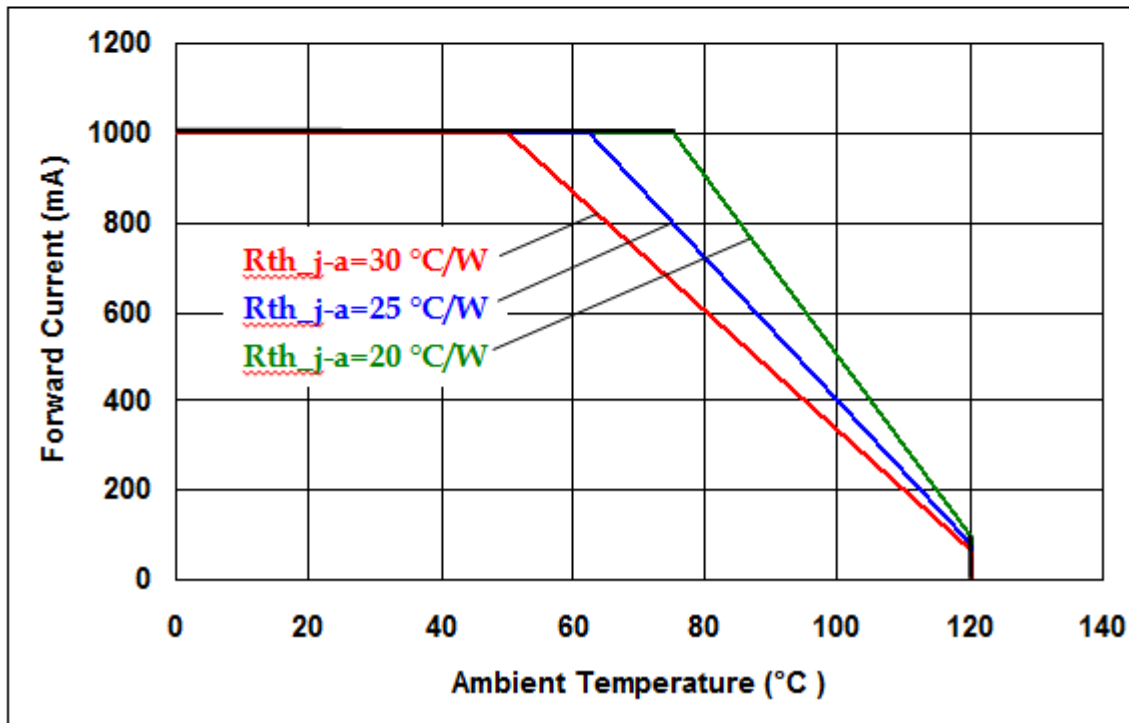


Fig. Forward Current Degrading Curve



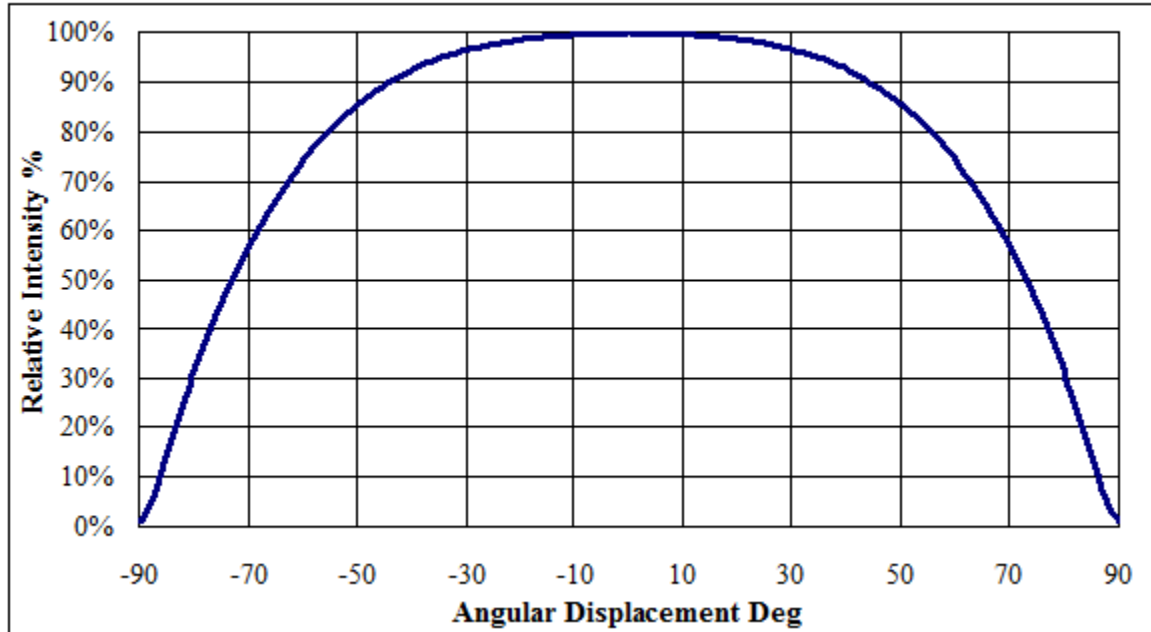


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Fig. (140° Lens) Typical Representative Spatial Radiation Pattern





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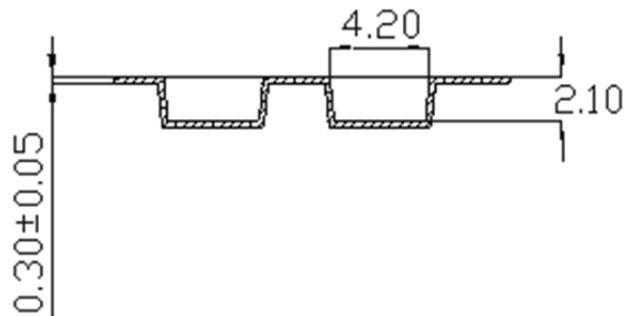
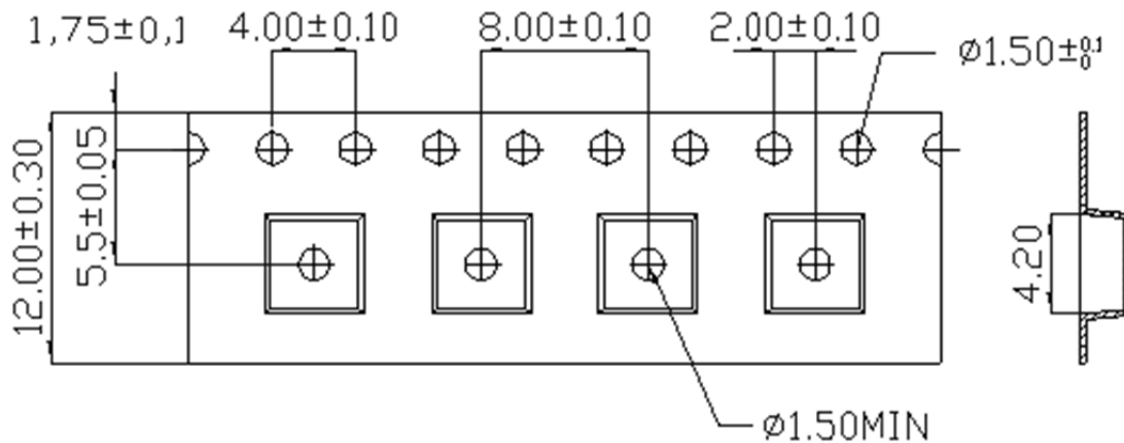
**IRP-850C-140D**

**4 x 4 x 2.8 mm Dome Lens High Power IR LED**

## SHIPPING PACKAGE DIMENSION

Lens Type: 140 degree

- Moisture proof bag
- 1 Reel/bag
- 1000 (max)/Reel





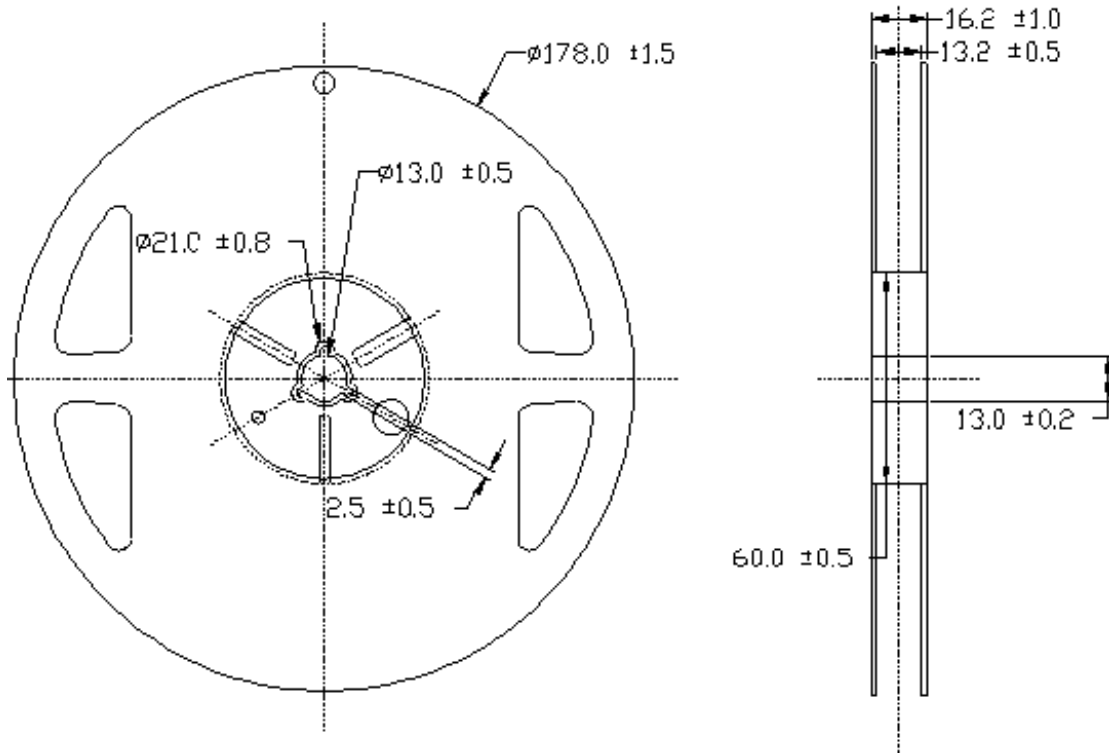


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**IRP-850C-140D**

**4 x 4 x 2.8 mm Dome Lens High Power IR LED**

**REEL DIMENSION**



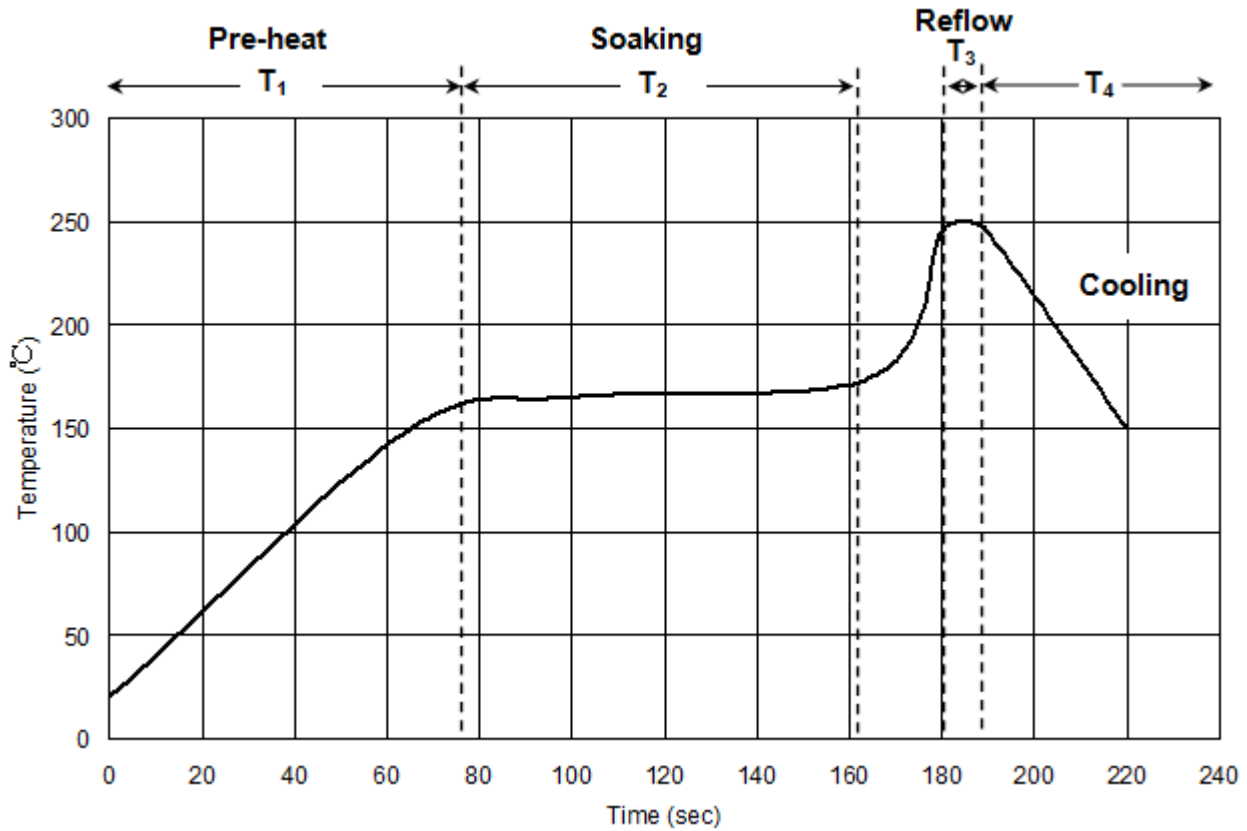


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## IRP-850C-140D

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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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### RELIABILITY TEST

Classification	Test Item	Test conditions	Reference Standard
Endurance Test	Operation Life	$I_f = 60\text{mA}/120\text{mA}(\text{H28}), 350\text{mA}/700\text{mA}(\text{H40}/\text{H44}/\text{H99})$ $T_a = 25^\circ\text{C}$ Test Duration = 1000hrs	MIL-STD-750: 1026 MIL-STD-883: 1005 JIS C 7021: B-1
	High Temperature High Humidity Storage	$I_f = 60\text{mA}/120\text{mA}(\text{H28}), 350\text{mA}/700\text{mA}(\text{H40}/\text{H44}/\text{H99})$ $T_a = 85 \pm 5^\circ\text{C}$ RH = 85 $\pm$ 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	$V_f$	$I_f = 60\text{mA}/120\text{mA}(\text{H28}), 350\text{mA}/700\text{mA}(\text{H40}/\text{H44}/\text{H99})$	$V_f$ shift > 10%
Luminous	$I_v\%$	$I_f = 60\text{mA}/120\text{mA}(\text{H28}), 350\text{mA}/700\text{mA}(\text{H40}/\text{H44}/\text{H99})$	$I_v\%$ shift > 10%