

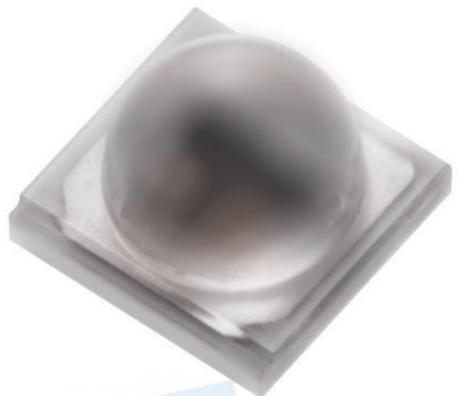
# Technical Data Sheet

## High Power Infrared LED

### HIR-C19D-1N90/L649-P03/TR

#### Features

- Small package with high efficiency
- Peak wavelength  $\lambda_p = 850$  nm
- Soldering methods: SMT
- Thermal resistance (junction to lead): 18K/W.
- Pb free
- Compliance with EU REACH
- Compliance Halogen Free( $Br < 900$ ppm,  $Cl < 900$ ppm,  $Br+Cl < 1500$ ppm)
- The product itself will remain within RoHS compliant version.



#### Description

- HIR-C19D-1N90/L649-P03/TR series is an infrared emitting diode in miniature SMD package which is molded in a water clear silicone with spherical top view lens.
- The device is spectrally matched with silicon photo diode, Phototransistor.

#### Applications

- CCD Camera
- Infrared applied system

#### Device Selection Guide

LED Part No.	Chip Material	Lens Color
HIR-C19D-1N90/L649-P03/TR	GaAlAs	Water clear

## Absolute Maximum Ratings ( $T_A=25^\circ C$ )

Parameter	Symbol	Rating	Unit
Continuous Forward Current	$I_F$	1500	mA
Peak Forward Current *1	$I_{FP}$	5000	mA
Reverse Voltage	$V_R$	5	V
Operating Temperature	$T_{opr}$	-40 ~ +100	°C
Storage Temperature	$T_{stg}$	-40 ~ +100	°C
Junction temperature	$T_j$	125	°C
Thermal resistance (junction to lead frame)	$R_{th(j-L)}$	18	K /W
Power Dissipation @ $I_F=700$ mA	$P_d$	3	W

Notes:

\*1.  $I_{FP}$  Conditions--Pulse Width  $\leq 100\mu s$  and Duty  $\leq 1\%$

\*2. Note: We suggest that customer should add the heat sink with HIR-C19D-1N90/L649-P03/TR to exclude the heat.

## Electro-Optical Characteristics ( $T_A=25^\circ C$ )

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Total Radiated Power	$P_o$	--	500	--		$I_F=350$ mA
		--	900	--	mW	$I_F=700$ mA
		--	1300	--		$I_F=1$ A
Radiant Intensity	$I_E$	--	200	--		$I_F=350$ mA
		--	400	--	mW/sr	$I_F=700$ mA
		--	560	--		$I_F=1$ A
Peak Wavelength	$\lambda_P$	--	850	--	nm	$I_F=350$ mA
Spectral Bandwidth	$\Delta\lambda$	--	25	--	nm	$I_F=350$ mA
Forward Voltage	$V_F$	--	3.0	--		$I_F=350$ mA
		--	3.3	--	V	$I_F=700$ mA
		--	3.5	--		$I_F=1$ A
		--	3.8	--		$I_F=5$ A *3
Reverse Current	$I_R$	--	--	10	µA	$V_R=5$ V
View Angle	$2\theta_{1/2}$	--	90	--	deg	$I_F=20$ mA

Notes:

\*3.  $I_{FP}$  Conditions--Pulse Width  $\leq 100\mu s$  and Duty  $\leq 1\%$

# Typical Electro-Optical Characteristics Curves

Fig.1

Forward Current vs. Forward Voltage

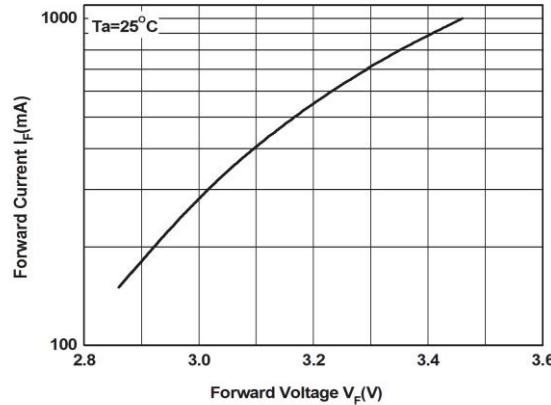


Fig.2

Forward Current vs. Intensity

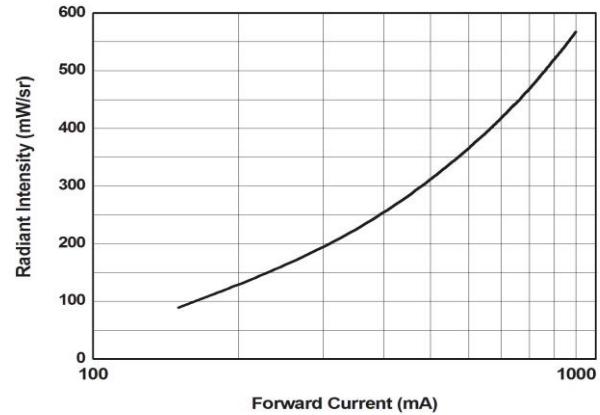


Fig.3

Forward Current vs. Total Power

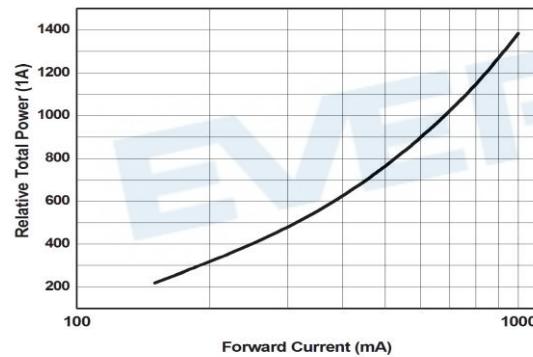


Fig.4

Relative Radiant Intensity vs. Angular Displacement

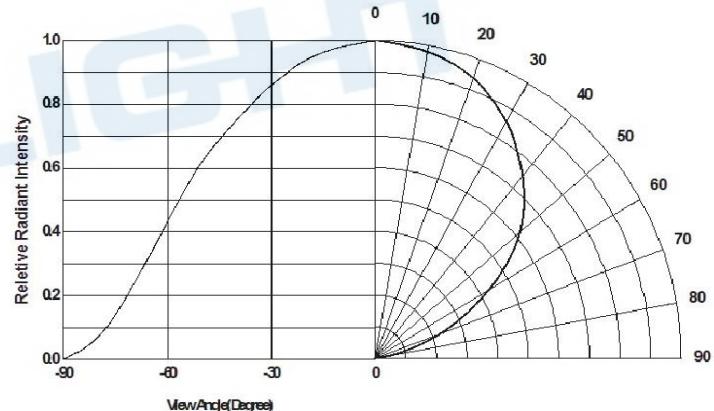
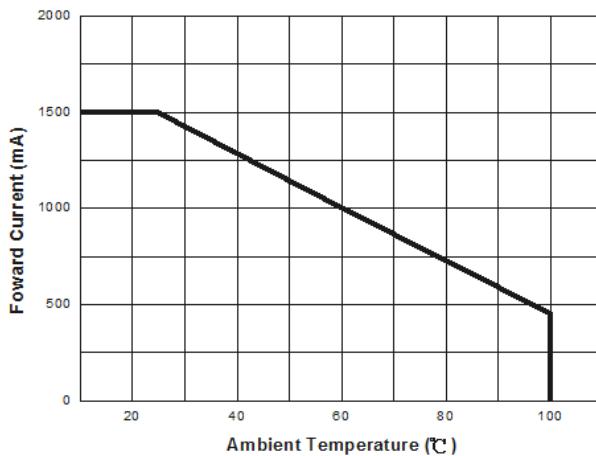


Fig.5

Forward Current vs. Ambient Temperature



# Bin Code List

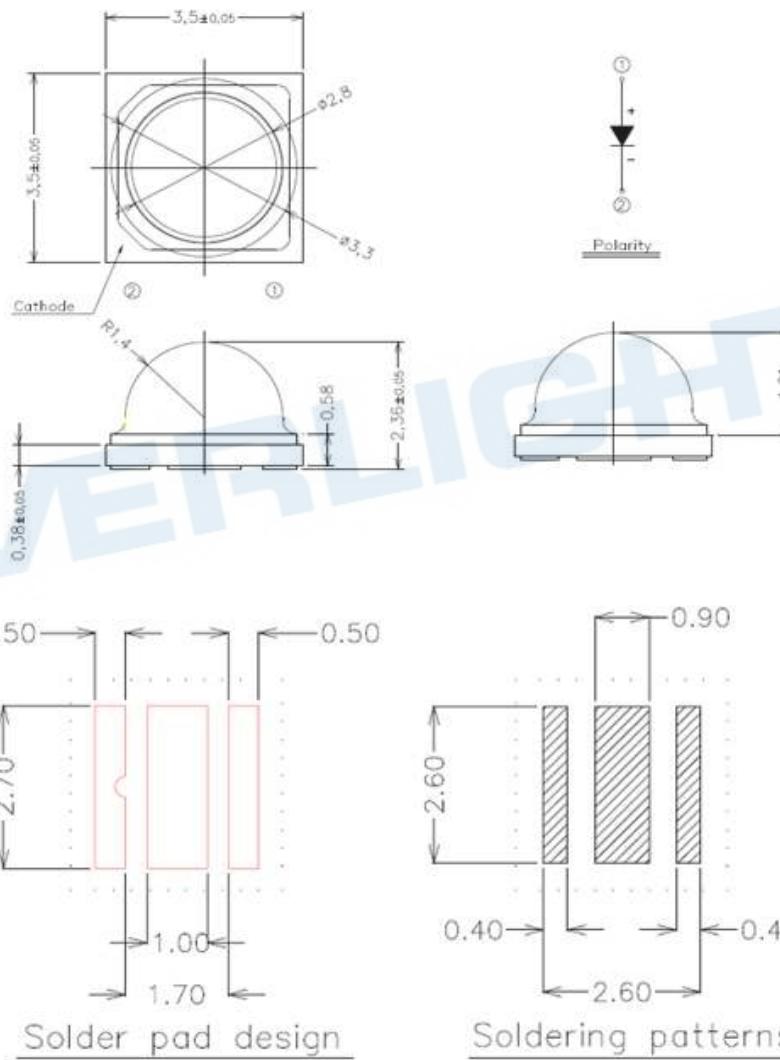
Radiated Power Condition:  $I_F=1000\text{mA}$

Unit : mW

Bin Number	G	H	I
Min	800	1000	1260
Max	1260	1600	2000

Including test tolerance  $\pm 10\%$

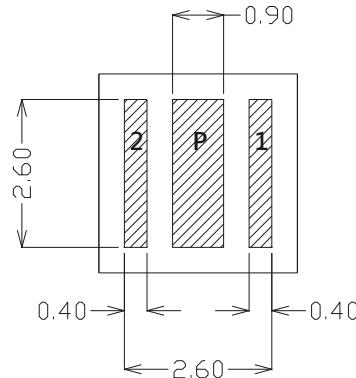
## Package Dimension



1. Dimensions are in millimeters.
2. Tolerances unless mentioned are  $\pm 0,1\text{mm}$ .
3. Do not handle the device by the lens. Incorrect force applied to the lens may lead to the failure of devices.

# Pad Configuration

Pad	1	2	P
Function	Anode	Cathode	Thermal Pad



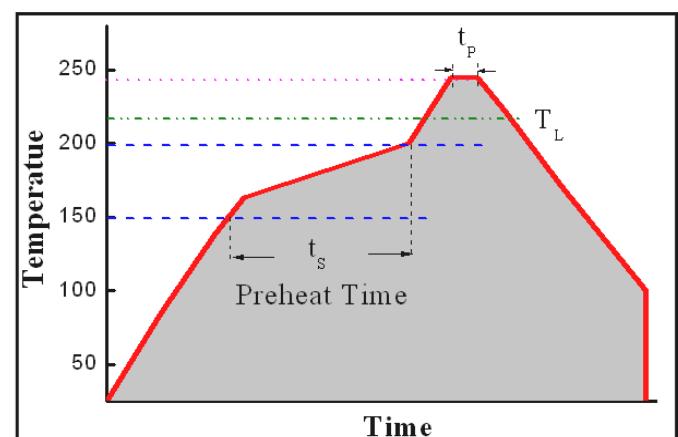
Recommend Soldering patterns

## Reflow Soldering Characteristics

### For Reflow Process

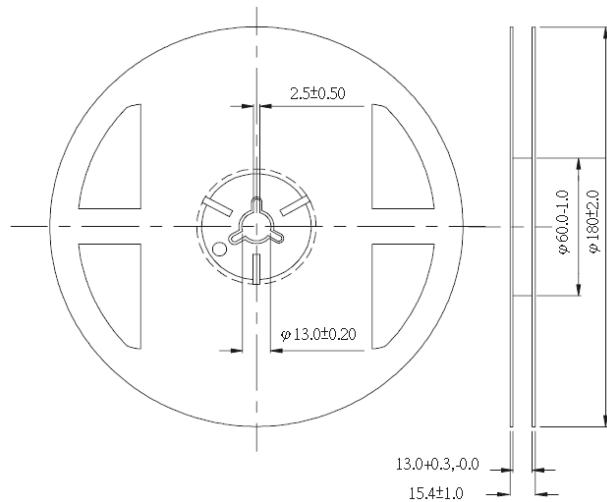
1. C19 series are suitable for SMT processes.
2. Curing of glue in oven must be according to standard operation flow processes.

Profile Feature	Lead Free Assembly	Unit
Ramp-Up Rate	2~3	°C/S
Preheat Temperature	150~200	°C
Preheat Time( $t_s$ )	60~120	S
Liquid Temperature( $T_L$ )	217	°C
Time maintained above $T_L$	60~90	S
Peak Temperature( $T_p$ )	240+5	°C
Peak Time ( $t_p$ )	Max 20	S
Ramp-Down Rate	3~5	°C/S



3. Reflow soldering should not be done more than twice.
4. In soldering process, stress on the LEDs during heating should be avoided.
5. After soldering, do not bend the circuit board.

## Package Dimensions

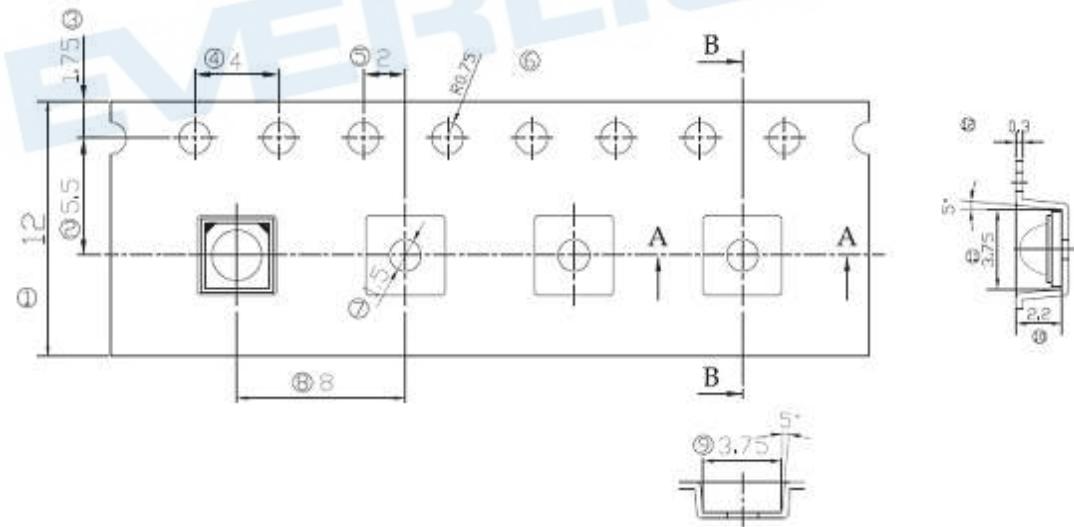


Note:

1. Dimensions are in millimeters
2. The tolerances unless mentioned is  $\pm 0.1\text{mm}$

## Carrier Tape Dimensions:

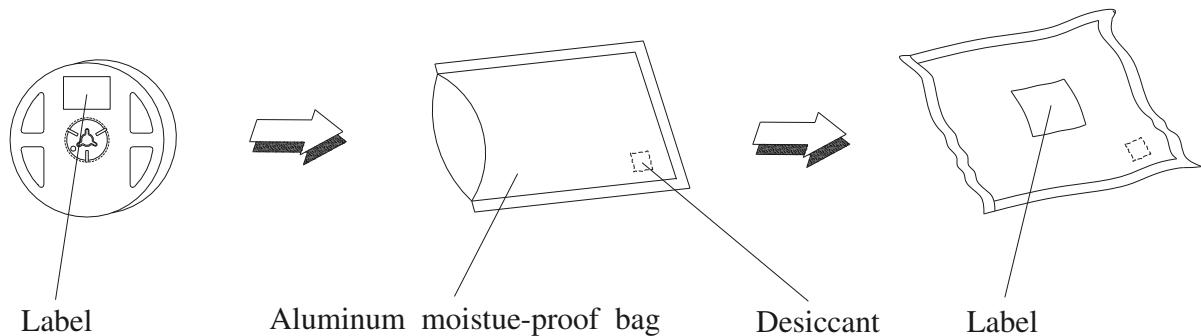
**Loaded quantity 400 pcs per reel.**



Note:

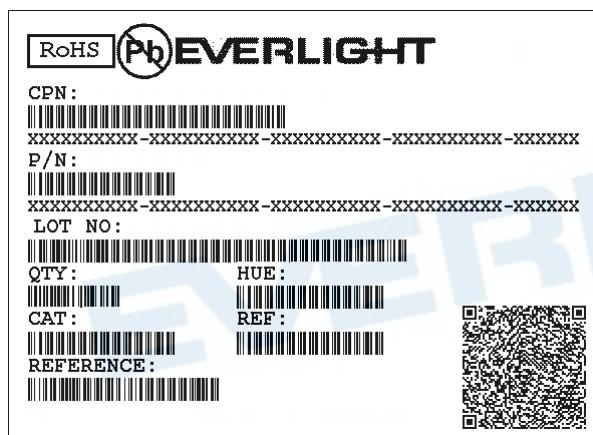
1. Dimensions are in millimeters
2. The tolerances unless mentioned is  $\pm 0.1\text{mm}$

# Moisture Resistant Packaging



## Moisture Resistant Packing Materials

### Label Form Specification



- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number
- X: Month
- Reference: Identify Label Number

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## DISCLAIMER

1. EVERLIGHT reserves the right(s) on the adjustment of product material mix for the specification.
2. The product meets EVERLIGHT published specification for a period of twelve (12) months from date of shipment.
3. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
4. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from the use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
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