



## SMC870



### TECHNICAL DATA

### Invisible LED, SMD

### AlGaAs

SMC870 are AlGaAs LEDs mounted on a ceramic SMD package and sealed with silicone resin for damp proof. On forward bias, it emits a radiation of typical 19 mW at a peak wavelength of 870 nm.

#### Specifications

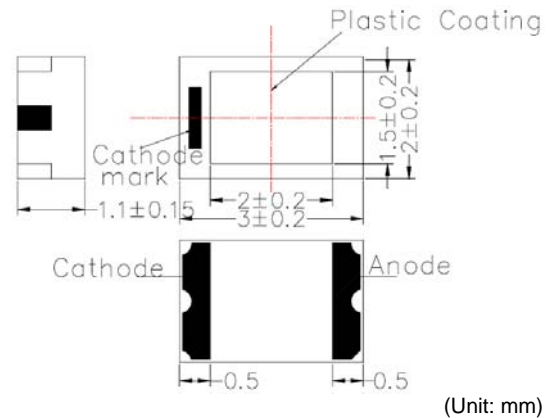
- Structure: AlGaAs
- Peak Wavelength: typ. 870 nm
- Optical Output Power: typ. 19 mW
- Package: Ceramic SMD, silicon or epoxy resin

#### Absolute Maximum Ratings ( $T_a=25^\circ\text{C}$ )

Item	Symbol	Value	Unit
Power Dissipation	$P_D$	160	mW
Forward Current	$I_F$	100	mA
Pulse Forward Current *1	$I_{FP}$	1000	mA
Reverse Voltage	$V_R$	5	V
Junction Temperatur	$T_J$	100	$^\circ\text{C}$
Thermal Resistance	$R_{th}$	190	K/W
Operating Temperature	$T_{opr}$	-30 ... +80	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-30 ... +80	$^\circ\text{C}$
Soldering Temperature *2	$T_{sol}$	255	$^\circ\text{C}$

\*1 duty = 1%, pulse width = 10  $\mu\text{s}$

\*2 must be completed within 5 seconds



(Unit: mm)

#### Electro-Optical Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	$V_F$	$I_F = 50 \text{ mA}$	-	1.45	1.6	V
		$I_F=100\text{mA}, t_p=20\text{ms}$	-	1.5	1.8	
Reverse Current	$I_R$	$V_R = 5 \text{ V}$	-	-	10	$\mu\text{A}$
Total Radiated Power	$P_O$	$I_F = 50 \text{ mA}$	15	19	-	mW
		$I_F=100\text{mA}, t_p=20\text{ms}$	-	38	-	
Radiation Intensity	$I_E$	$I_F = 50 \text{ mA}$	-	10	-	mW/sr
		$I_F=100\text{mA}, t_p=20\text{ms}$	-	20	-	
Peak Wavelength	$\lambda_P$	$I_F = 50 \text{ mA}$	860	870	880	nm
Half Width	$\Delta\lambda$	$I_F = 50 \text{ mA}$	-	40	-	nm
Viewing Half Angle	$\Theta_{1/2}$	$I_F = 50 \text{ mA}$	-	±55	-	deg.
Rise Time	$t_r$	$I_F = 50 \text{ mA}$	-	15	-	ns
Fall Time	$t_f$	$I_F = 50 \text{ mA}$	-	10	-	ns

Brightness is measured by Tektronix J-16

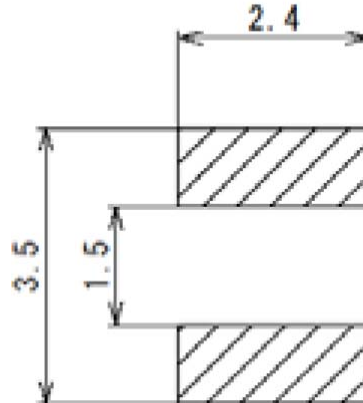
Total Radiated Power is measured by Photodyne #500

#### Notes

- Do not view directly into the emitting area of the LED during operation!
- The above specifications are for reference purpose only and subjected to change without prior notice.



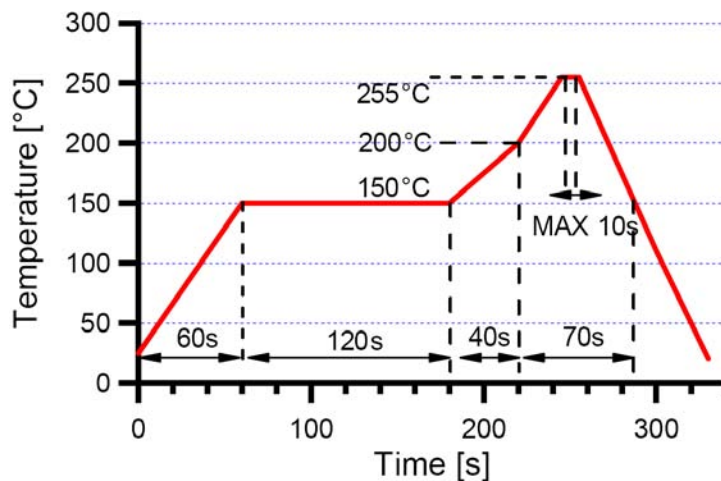
## Recommended Land Layout (Unit: mm)



### 1. Soldering Conditions

- DO NOT apply any stress to the lead particularly when heat.
- After soldering the LEDs should be protected from mechanical shock or vibration until the LEDs return to room temperature.
- When it is necessary to clamp the LEDs to prevent soldering failure, it is important to minimize the mechanical stress on the LEDs.

### Soldering Conditions



### 2. Static Electricity

- The LEDs are very sensitive to Static Electricity and surge voltage. So it is recommended that a wrist band or an anti-electrostatic glove be used when handling the LEDs.
- All devices, equipment and machinery must be grounded properly. It is recommended that precautions should be taken against surge voltage to the equipment that mounts the LEDs.

