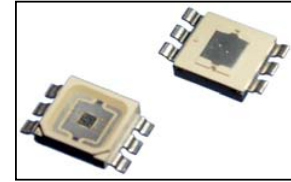




SMB1W-870



TECHNICAL DATA

High Power LED, SMD AlGaAs

SMB1W-870 are AlGaAs High Power LEDs mounted on a copper heat sink with a 5x5 mm SMD package and molded with epoxy resin. On forward bias, it emits a radiation of typical 430 mW at a peak wavelength of 870 nm.

Specifications

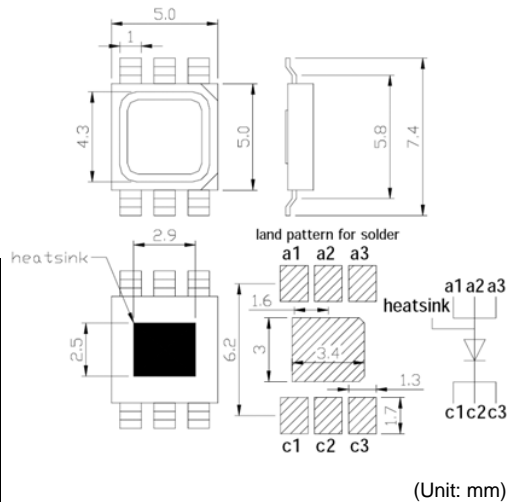
- Structure: AlGaAs, 1W high power chip
- Peak Wavelength: typ. 870 nm
- Optical Output Power: typ. 430 mW
- Package
 - SMD, PPA resin
 - Lead frame die: silver plated on copper
 - Lens: epoxy resin

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

Item	Symbol	Value	Unit
Power Dissipation	P_D	2500	mW
Forward Current	I_F	1000	mA
Pulse Forward Current *1	I_{FP}	4000	mA
Reverse Voltage	V_R	5	V
Thermal Resistance	R_{th}	10	K/W
Operating Temperature	T_{opr}	-30 ... +85	$^\circ\text{C}$
Storage Temperature	T_{stg}	-30 ... +100	$^\circ\text{C}$
Soldering Temperature *2	T_{sol}	255	$^\circ\text{C}$

*1 duty = 1%, pulse width = 10 μs

*2 must be completed within 5 seconds



(Unit: mm)

Electro-Optical Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	V_F	$I_F = 1 \text{ A}$	-	2.1	2.5	V
Pulsed Forward Current	V_{FP}	$I_{FP} = 4 \text{ A}$	-	4.2	5.5	V
Total Radiated Power	P_O	$I_F = 1 \text{ A}$	280	430	-	mW
		$I_{FP} = 4 \text{ A}$	-	170	-	
Radiant Intensity	I_E	$I_F = 1 \text{ A}$	-	200	-	mW/sr
		$I_{FP} = 4 \text{ A}$	-	800	-	
Peak Wavelength	λ_P	$I_F = 100 \text{ mA}$	-	870	-	nm
Half Width	$\Delta\lambda$	$I_F = 100 \text{ mA}$	-	45	-	nm
Viewing Half Angle	$\Theta_{1/2}$	$I_F = 100 \text{ mA}$	-	± 66	-	deg.
Rise Time	t_r	$I_F = 100 \text{ mA}$	-	15	-	ns
Fall Time	t_f	$I_F = 100 \text{ mA}$	-	10	-	ns

Total Radiated Power is measured by S3584-08

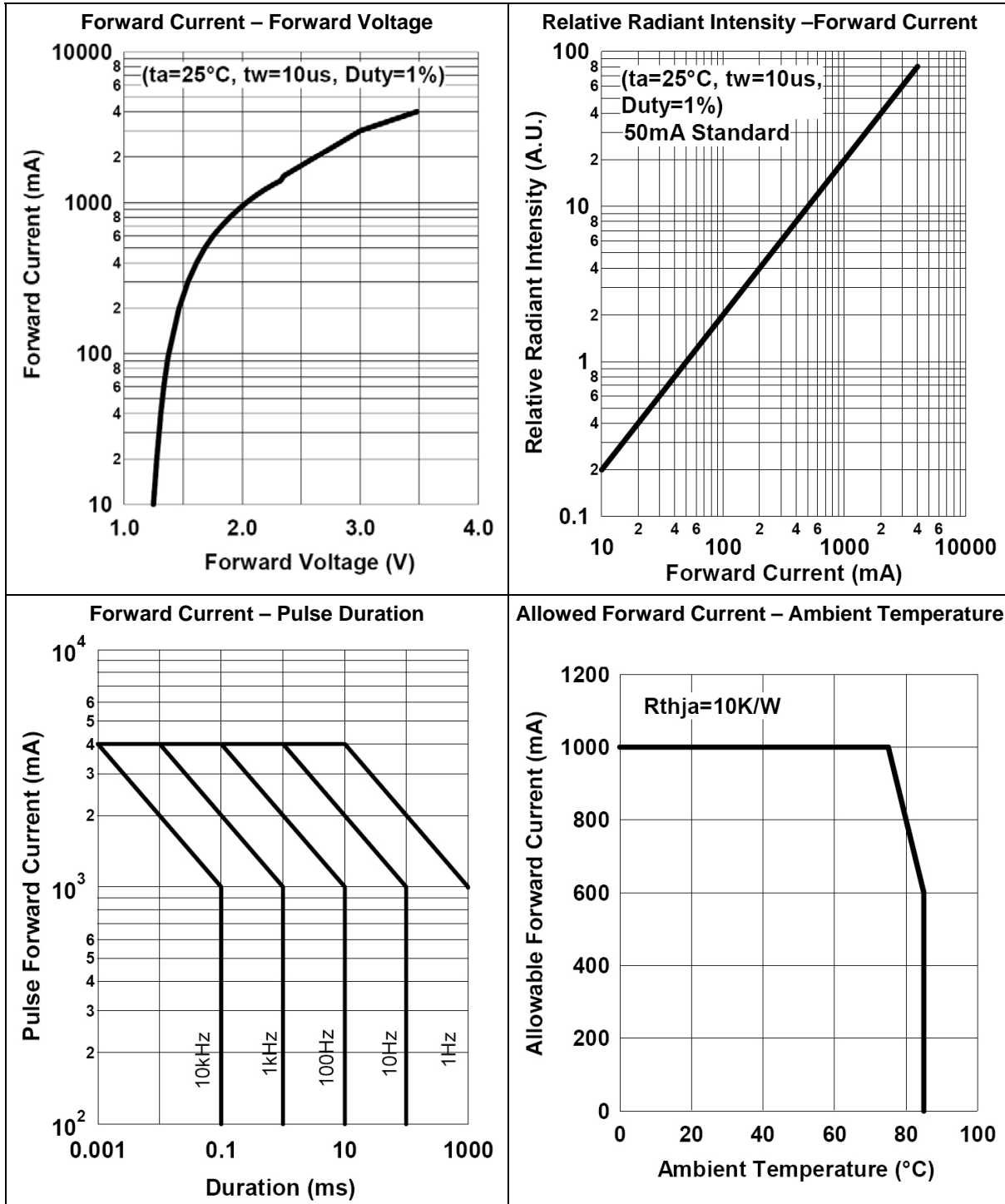
Radiant Intensity is measured by Tektronix J-6512

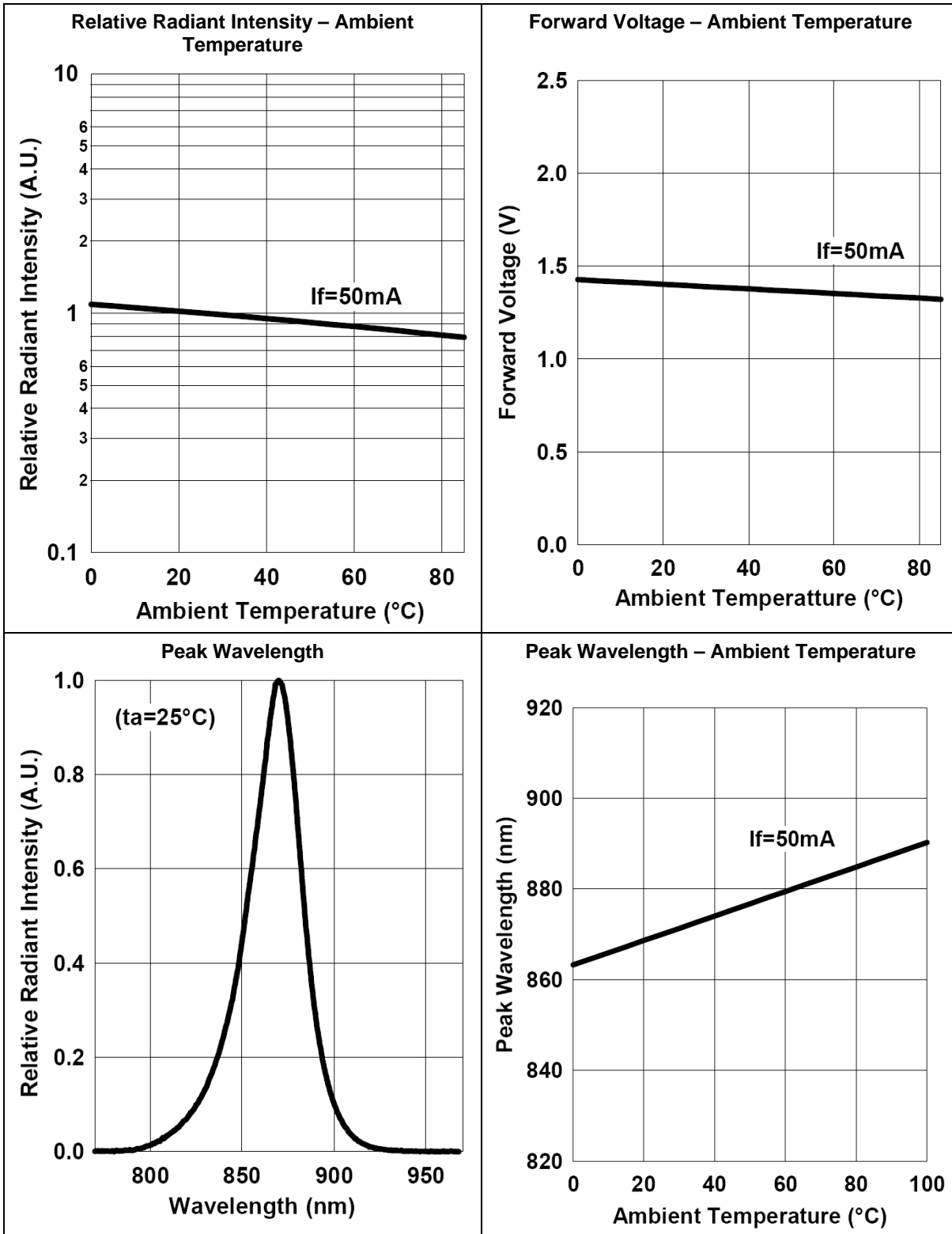
Notes: Do not view directly into the emitting area of the LED during operation!

The above specifications are for reference purpose only and subjected to change without prior notice.



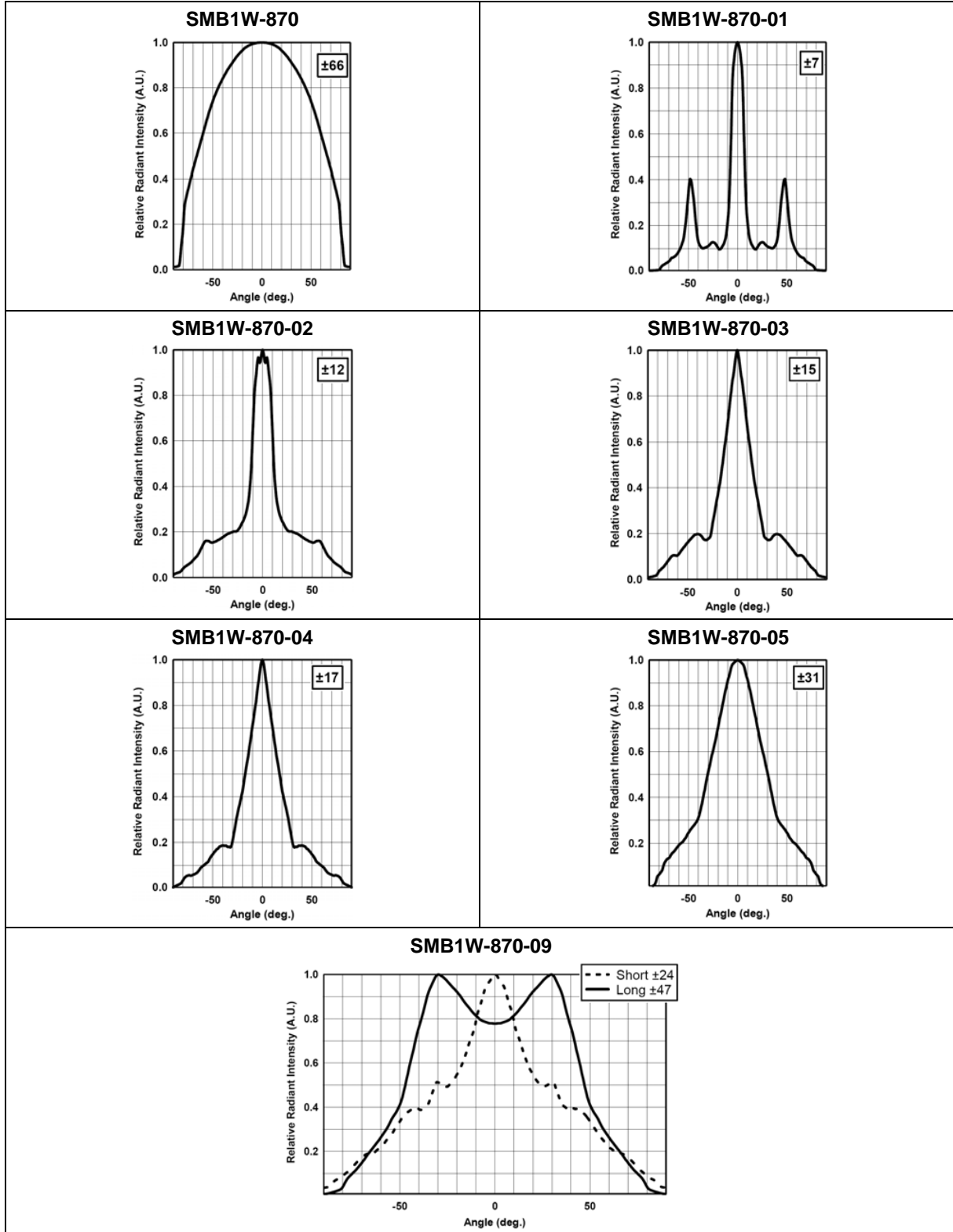
Typical Performance Curves





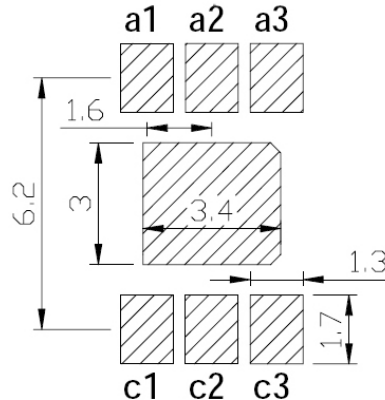


Viewing half angle





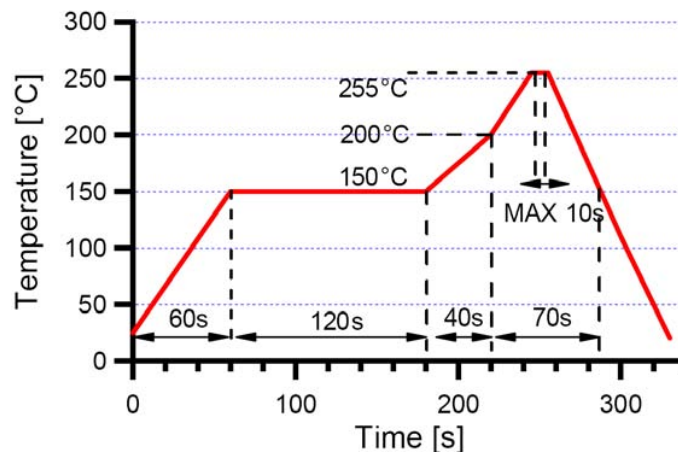
Recommended Land Layout (Unit: mm)



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.

