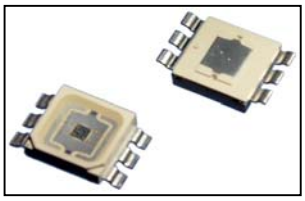
ROITHNER LASERTECHNIK GmbH
WIEDNER HAUPTSTRASSE 76 1040 VIENNA AUSTRIA
TEL. +43 1 586 52 43 -0, FAX. -44, OFFICE@ROITHNER-LASER.COM

SMB1W-870



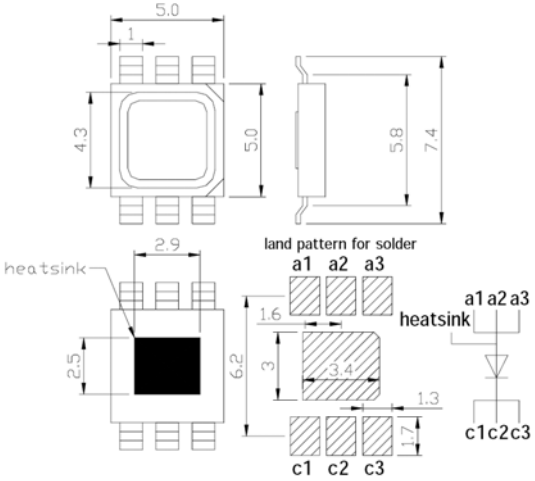
TECHNICAL DATA

High Power LED, SMD AlGaAs

SMB1W-870 are AlGaAs High Power LEDs mounted on a cooper 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



(Unit: mm)

Absolute Maximum Ratings (T_a=25°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	°C
Storage Temperature	T_{stg}	-30 … +100	°C
Soldering Temperature *[2]	T_{sol}	255	°C

*[1] duty = 1%, pulse width = 10 µs
*[2] must be completed within 5 seconds

Electro-Optical Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	V_F	I_F = 1 A	-	2.1	2.5	V
Pulsed Forward Current	V_{FP}	I_{FP} = 4 A	-	4.2	5.5	V
Total Radiated Power	P_O	I_F = 1 A	280	430	-	mW
		I_{FP} = 4 A	-	1700	-	
Radiant Intensity	I_E	I_F = 1 A	-	200	-	mW/sr
		I_{FP} = 4 A	-	800	-	
Peak Wavelength	λ_P	I_F = 100 mA	-	870	-	nm
Half Width	$\Delta\lambda$	I_F = 100 mA	-	45	-	nm
Viewing Half Angle	$\Theta_{1/2}$	I_F = 100 mA	-	±66	-	deg.
Rise Time	t_r	I_F = 100 mA	-	15	-	ns
Fall Time	t_f	I_F = 100 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.

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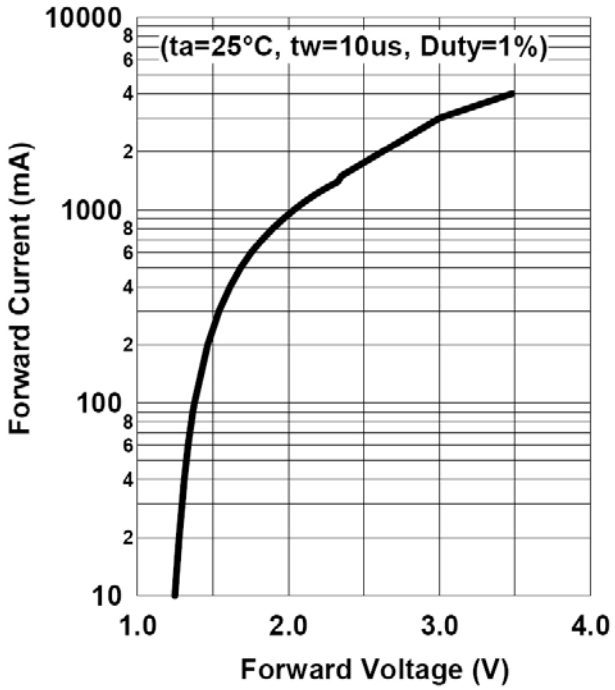
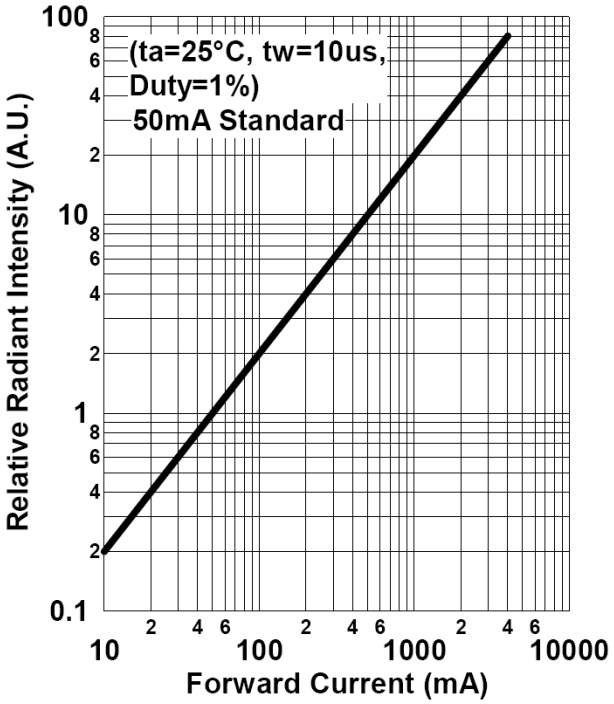
Typical Performance Curves

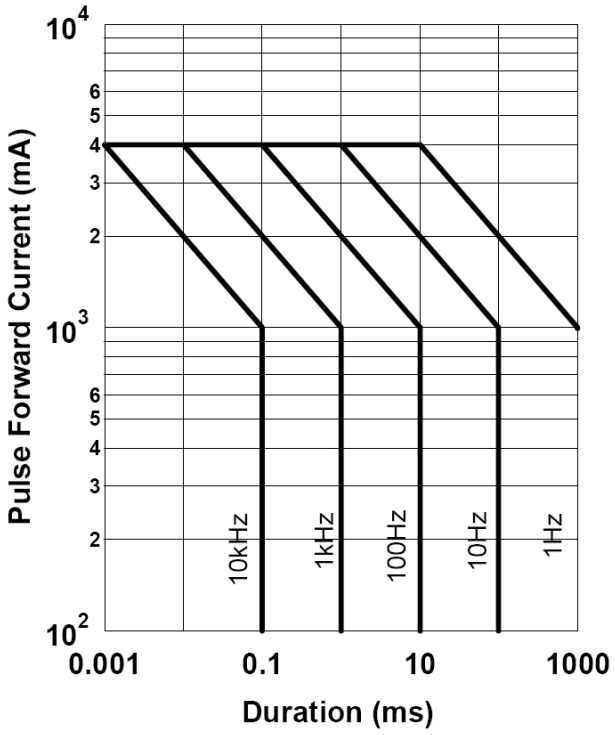
Forward Current – Forward Voltage



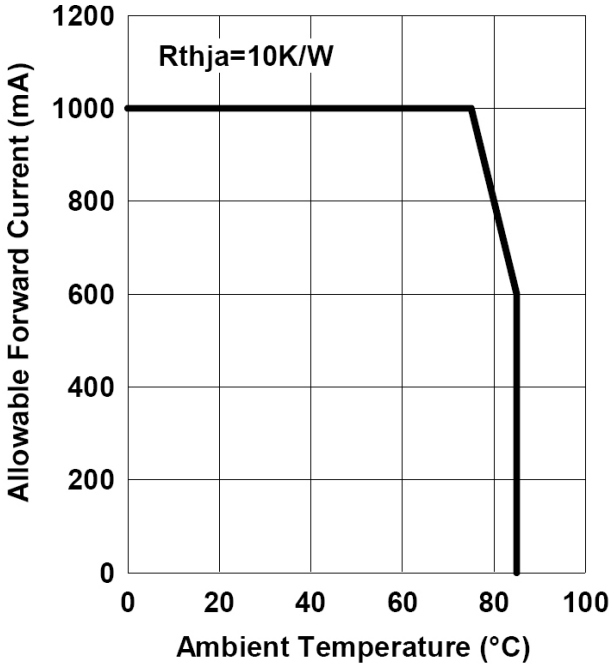
Relative Radiant Intensity –Forward Current



Forward Current – Pulse Duration



Allowed Forward Current – Ambient Temperature



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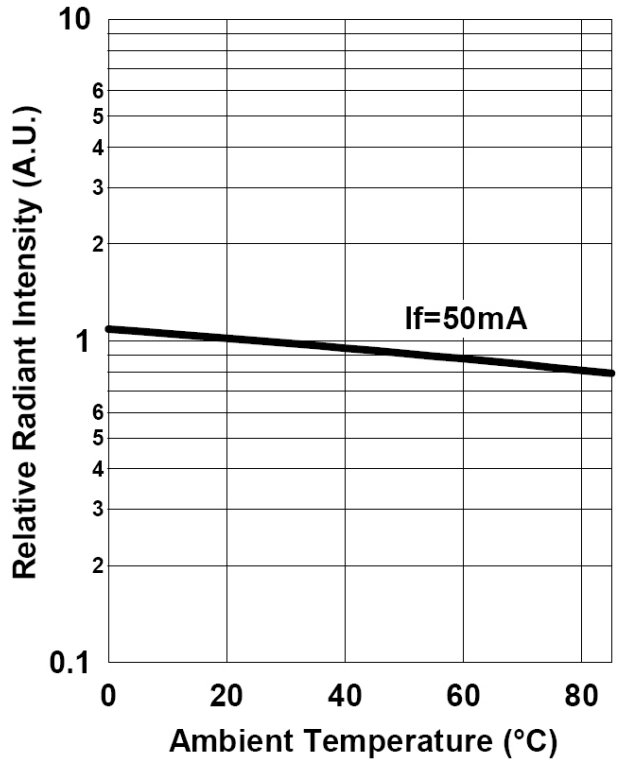
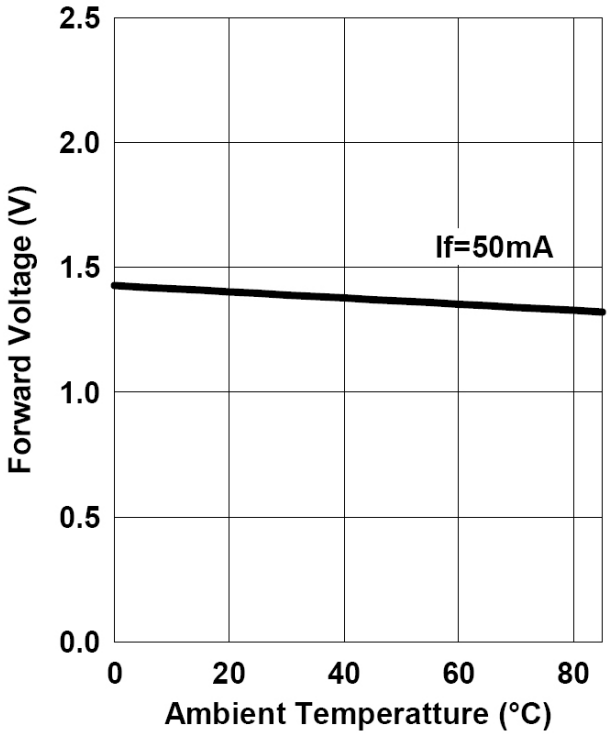
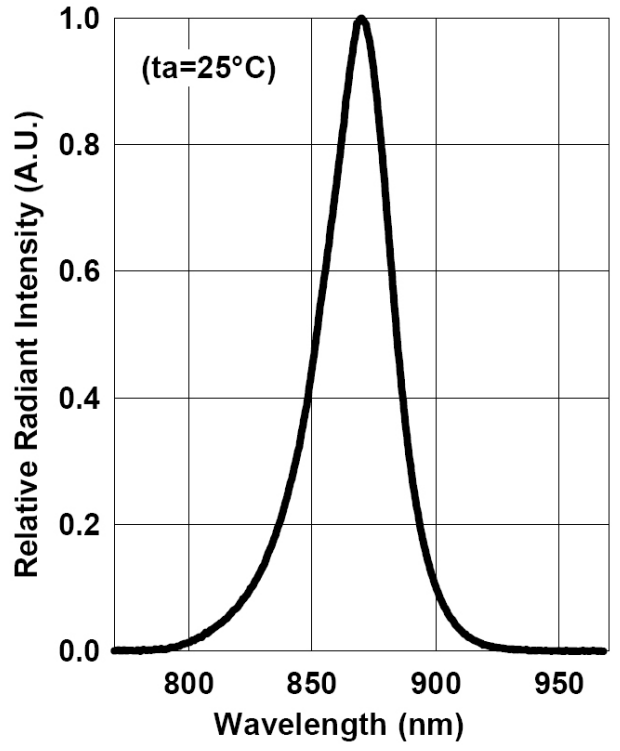
Relative Radiant Intensity – Ambient Temperature



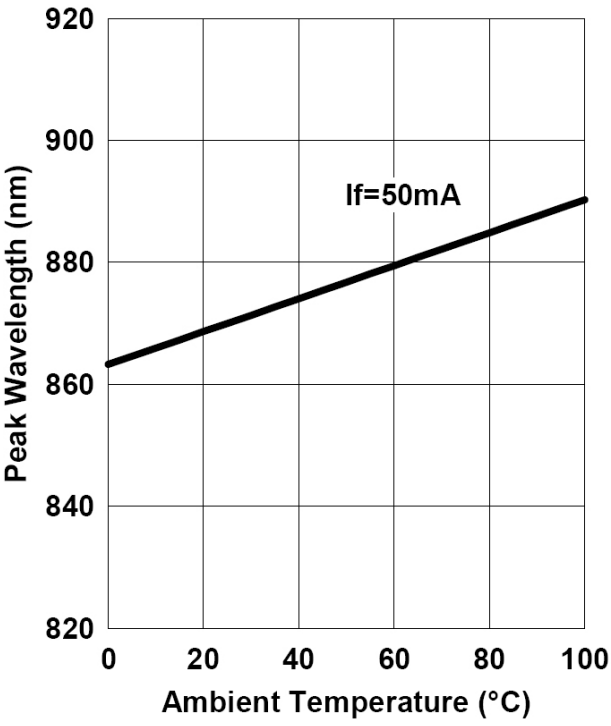
Forward Voltage – Ambient Temperature



Peak Wavelength



Peak Wavelength – Ambient Temperature



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Radiation pattern

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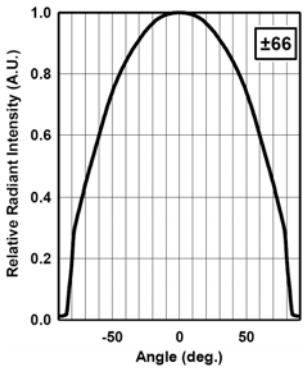
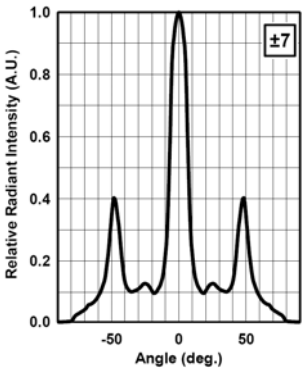
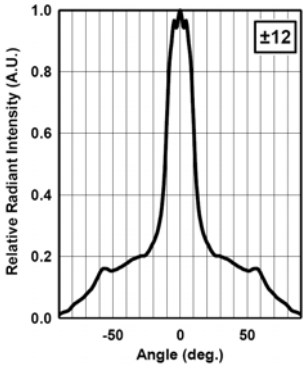


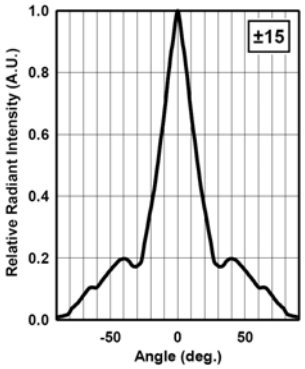
SMB1W-870-01



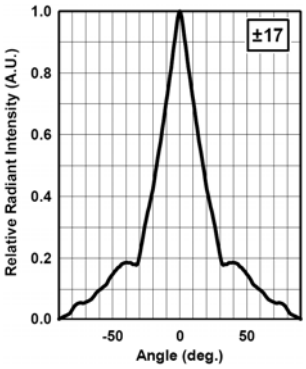
SMB1W-870-02



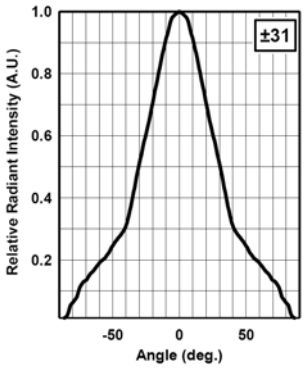
SMB1W-870-03



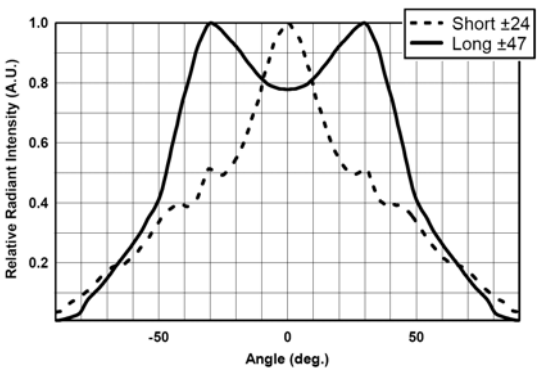
SMB1W-870-04



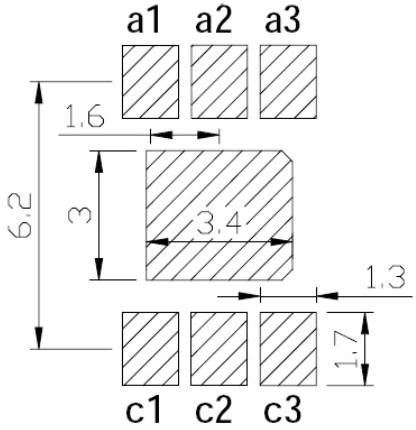
SMB1W-870-05



SMB1W-870-09



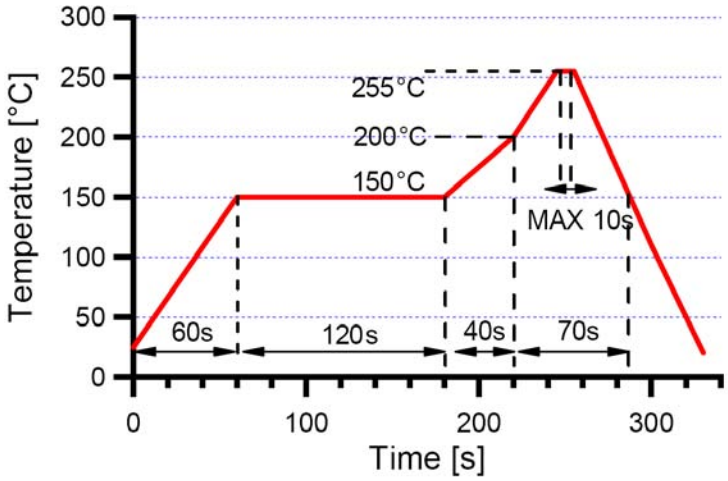
Recommended Land Layout (Unit: mm)



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.