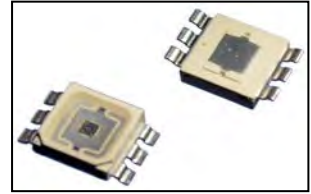




SMB1W-770R



TECHNICAL DATA

High Power LED, SMD

AlGaAs

SMB1W-770R are AlGaAs High Power LEDs mounted on a copper heat sink with a 5x5 mm SMD package and molded with silicone resin. On forward bias, it emits a radiation of typical 330 mW at a peak wavelength of 770 nm.

Specifications

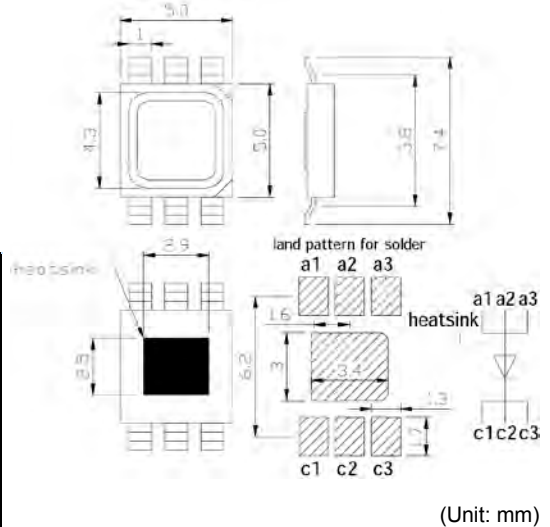
- Structure: AlGaAs, 1W high power chip
- Peak Wavelength: typ. 770 nm
- Optical Output Power: typ. 330 mW
- Package
 - SMD, PPA resin
 - Lead frame die: silver plated on copper
 - Lens: silicone resin

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

Item	Symbol	Value	Unit
Power Dissipation	P_D	2500	mW
Forward Current	I_F	800	mA
Pulse Forward Current * ¹	I_{FP}	3000	mA
Reverse Voltage	V_R	5	V
Thermal Resistance	R_{th}	10	K/W
Junction Temperature	T_J	135	$^\circ\text{C}$
Operating Temperature	T_{opr}	-40 ... +125	$^\circ\text{C}$
Storage Temperature	T_{stg}	-40 ... +125	$^\circ\text{C}$
Soldering Temperature * ²	T_{sol}	255	$^\circ\text{C}$

*¹ duty = 1%, pulse width = 10 μs

*² must be completed within 5 seconds



Electro-Optical Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	V_F	$I_F = 800 \text{ mA}$	-	2.0	2.5	V
Pulsed Forward Current	V_{FP}	$I_{FP} = 3 \text{ A}$	-	3.5	5.5	V
Total Radiated Power	P_O	$I_F = 800 \text{ mA}$	-	330	-	mW
		$I_{FP} = 3 \text{ A}$	-	1250	-	
Radiant Intensity	I_E	$I_F = 800 \text{ mA}$	-	145	-	mW/sr
		$I_{FP} = 3 \text{ A}$	-	550	-	
Peak Wavelength	λ_P	$I_F = 100 \text{ mA}$	-	770	-	nm
Half Width	$\Delta\lambda$	$I_F = 100 \text{ mA}$	-	25	-	nm
Viewing Half Angle	$\Theta_{1/2}$	$I_F = 100 \text{ mA}$	-	± 62	-	deg.
Rise Time	t_r	$I_F = 100 \text{ mA}$	-	80	-	ns
Fall Time	t_f	$I_F = 100 \text{ mA}$	-	80	-	ns

Total Radiated Power is measured by S3584-08

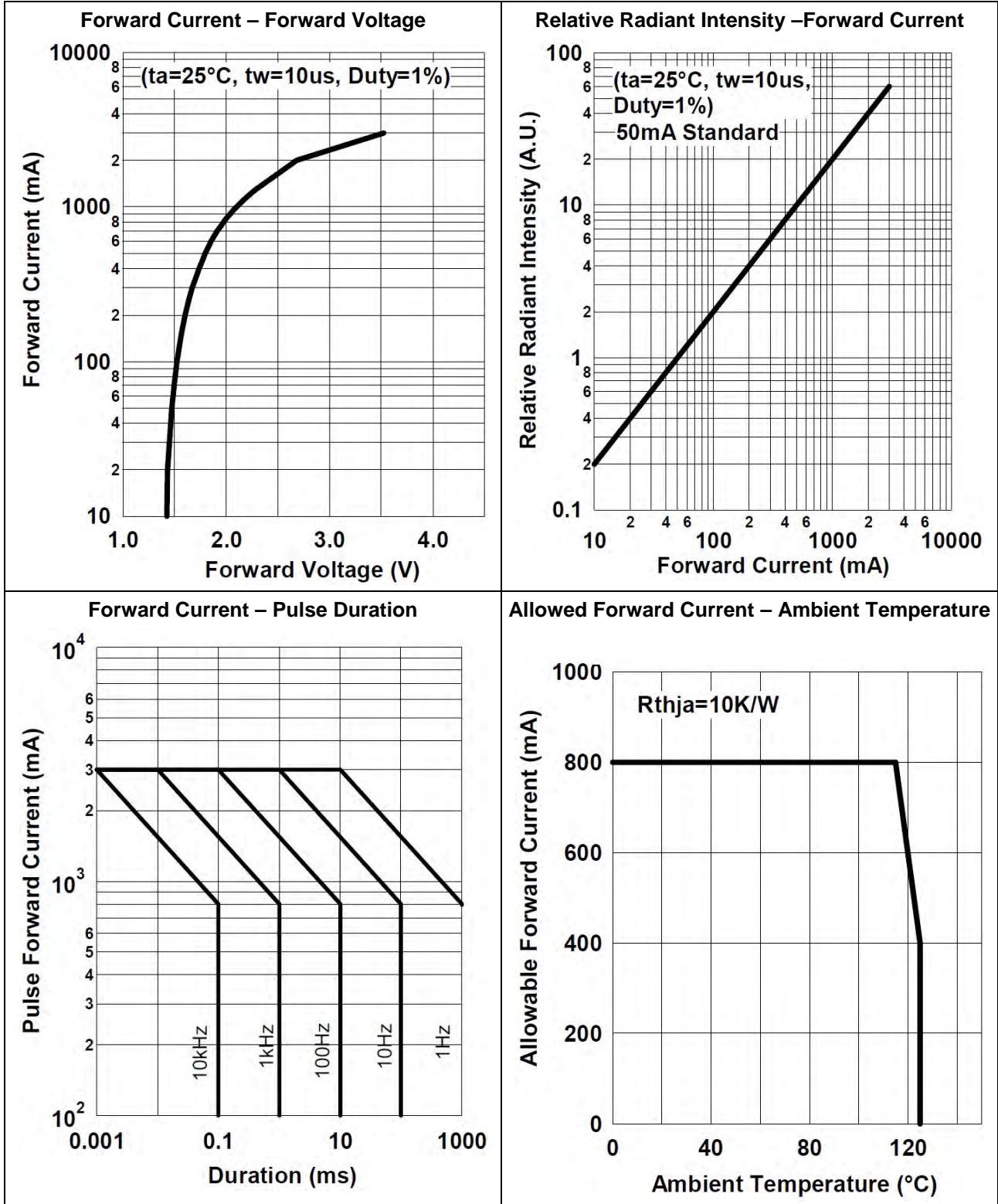
Radiant Intensity is measured by Tektronix J-6512

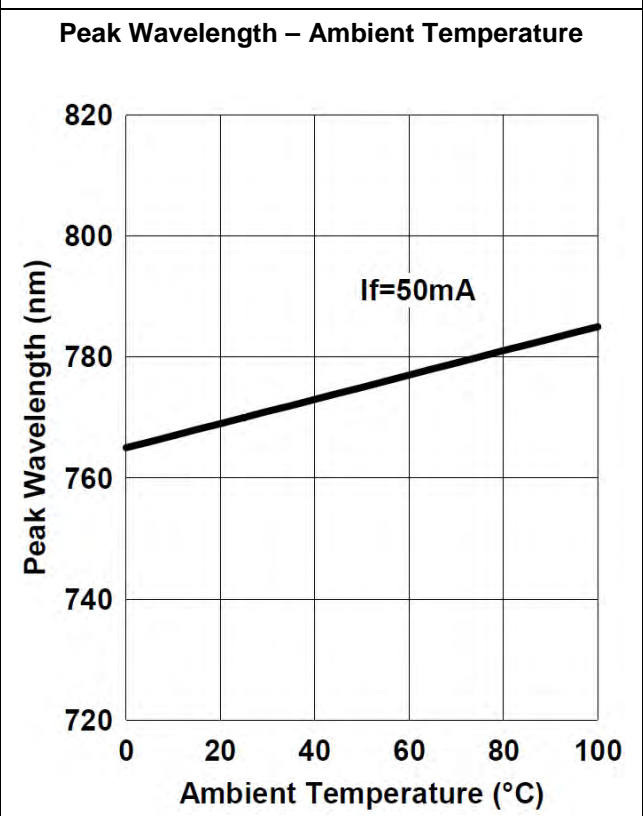
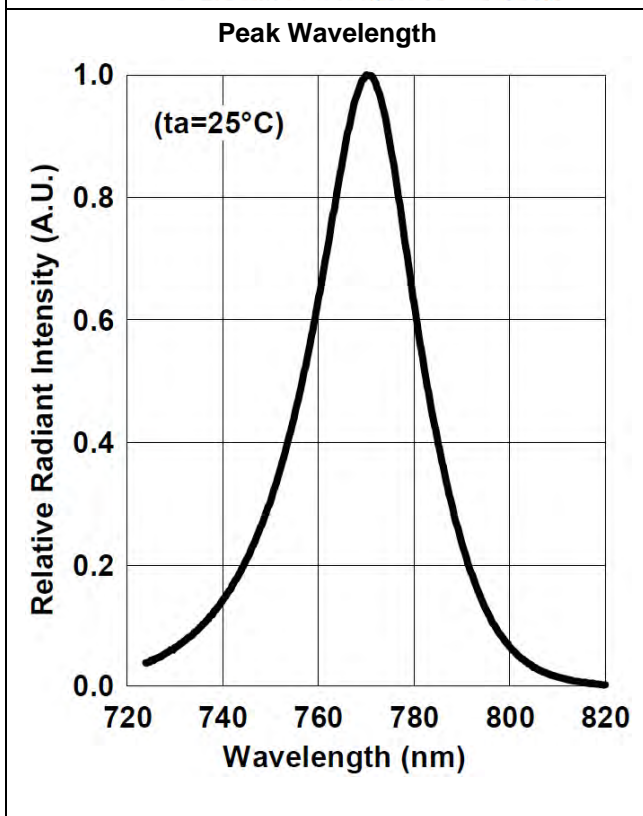
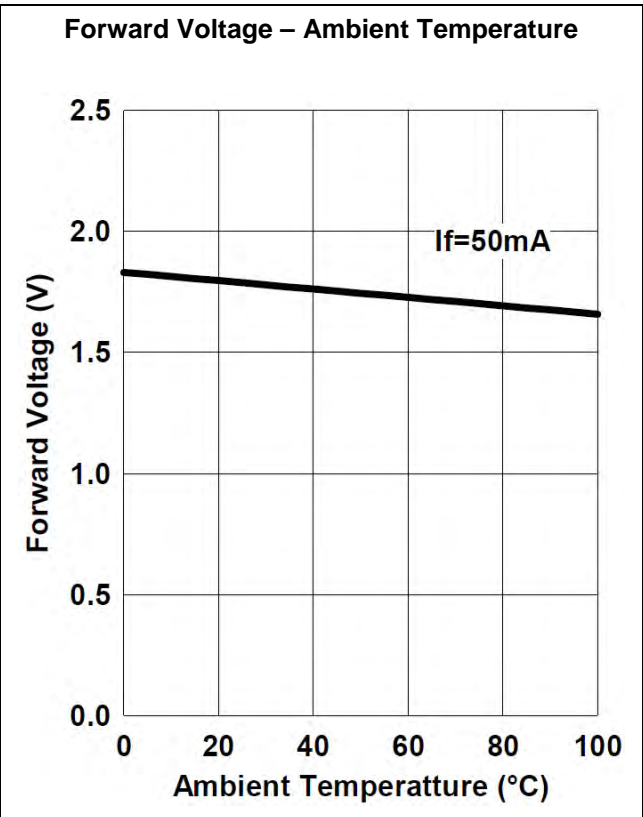
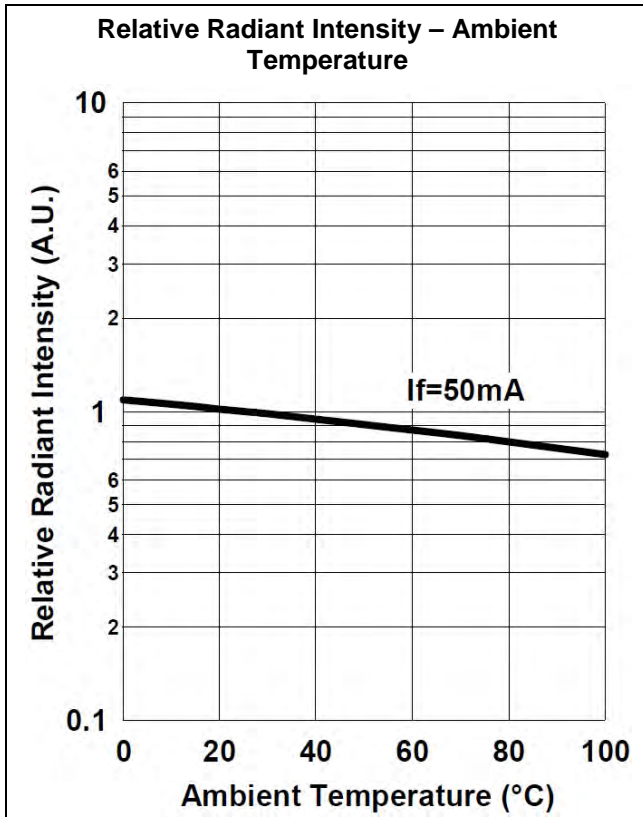
Notes: Do not view directly into the emitting area of the LED during operation!

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



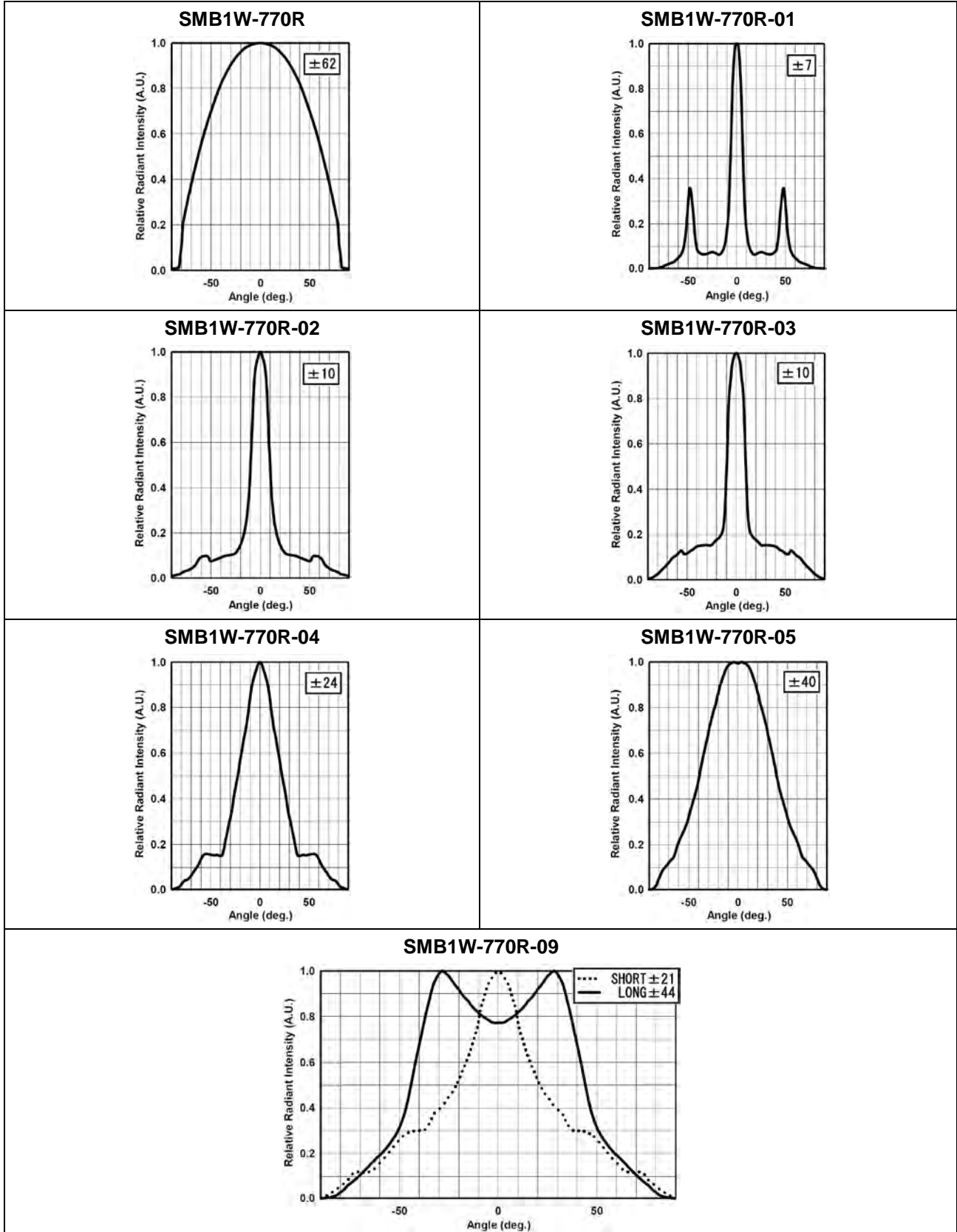
Typical Performance Curves





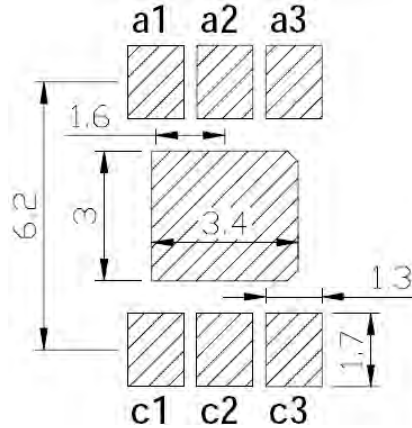


Radiation pattern





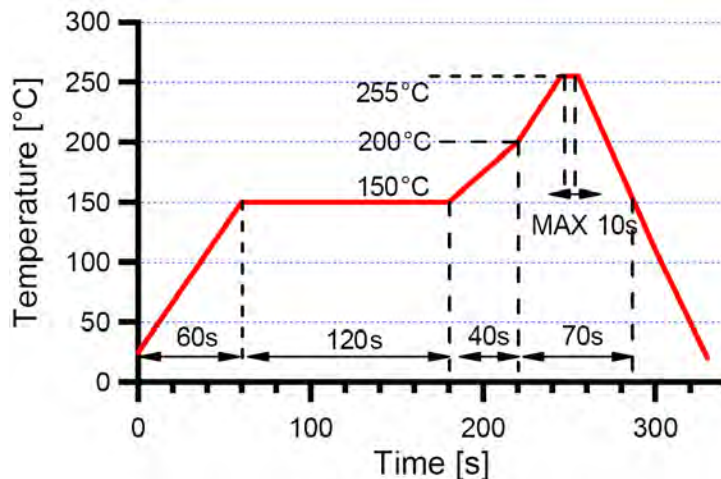
Recommended Land Layout (Unit: mm)



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.

