



SMC680

- Red LED
- 680 nm, 3 mW
- SMD package, Ceramics
- Dimension: 3.0 x 2.0 x 1.1 mm
- Viewing Angle: 130°



Description

SMC680 is a surface mount AlGaAs LED with a typical peak wavelength of **680 nm** and radiation of **3 mW**. It comes in SMD package (ceramics) and is sealed with silicone or epoxy resin.

Maximum Ratings ($T_{CASE}=25^{\circ}C$)

Parameter	Symbol	Values		Unit
		Min.	Max.	
Power Dissipation	P_D		110	mW
Forward Current	I_F		50	mA
Pulse Forward Current * ¹	I_{FP}		200	mA
Reverse Voltage	V_F		5	V
Operating Temperature	T_{CASE}	- 20	+ 80	°C
Storage Temperature	T_{STG}	- 30	+ 80	°C
Lead Solder Temperature * ²	T_{SLD}		+ 240	°C

*¹ duty=1%, pulse width = 10 μ s

*² must be completed within 3 seconds

Electro-Optical Characteristics ($T_{CASE}=25^{\circ}C$)

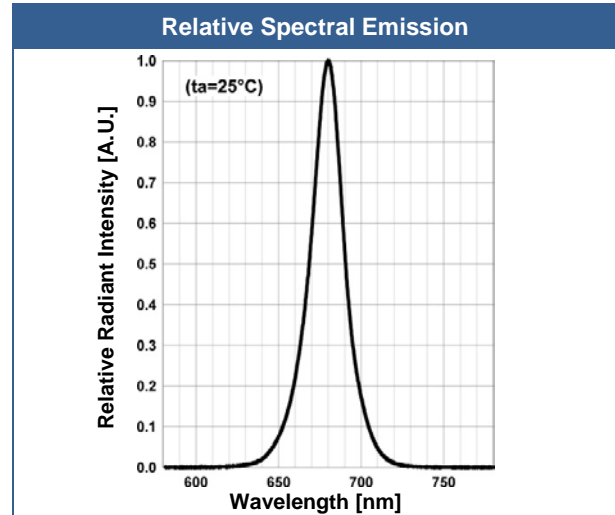
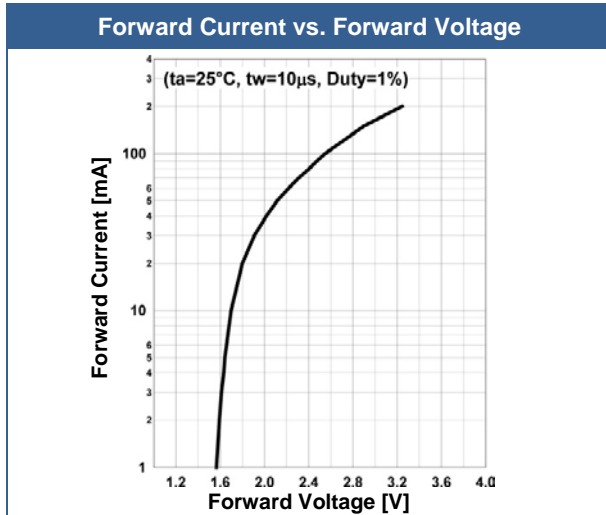
Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Peak Wavelength	λ_P	$I_F=20mA$		680		nm
Half Width	$\Delta\lambda$	$I_F=20mA$		20		nm
Forward Voltage	V_F	$I_F=20mA$		1.9	2.3	V
Reverse Current	I_R	$V_R=5V$			10	μ A
Radiated Power * ¹	P_O	$I_F=20mA$	1.5	3.0		mW
Radiant Intensity * ²	I_E	$I_F=20mA$	1.0	2.0		mW/sr
Viewing Angle	φ	$I_F=20mA$		130		deg.
Rise Time	t_R	$I_F=20mA$		80		ns
Fall Time	t_F	$I_F=20mA$		80		ns

*¹ measured by Photodyne #500

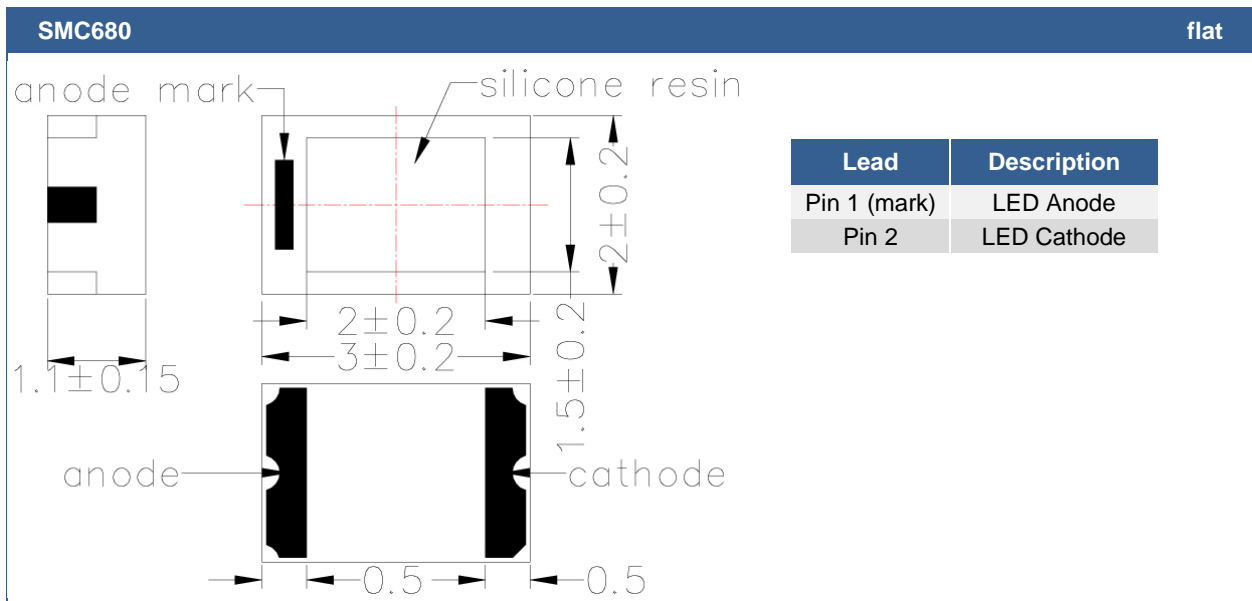
*² measured Tektronix J-6512



Typical Performance Curves



Outline Dimensions



All Dimensions in mm



Precautions

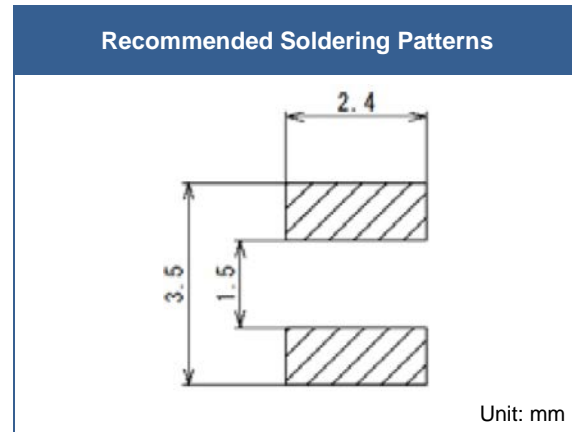
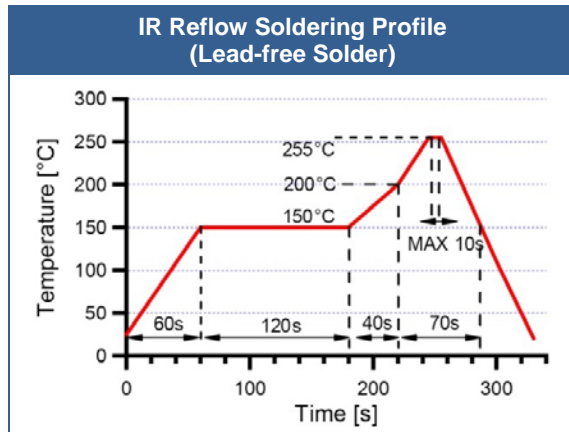
Soldering:

- Do avoid overheating of the LED
- Do avoid electrostatic discharge (ESD)
- Do avoid mechanical stress, shock, and vibration
- Do only use non-corrosive flux
- Do not apply current to the LED until it has cooled down to room temperature after soldering

Recommended soldering conditions:

This LED is designed to be reflow soldered on to a PCB. If dip soldered or hand soldered, its reliability cannot be guaranteed.

Nitrogen reflow soldering is recommended. Air flow soldering conditions can cause optical degradation, caused by heat and/or atmosphere.



Above table specifies the maximum allowed duration and temperature during soldering. It is strongly advised to perform soldering at the shortest time and lowest temperature possible.

Cleaning:

Cleaning with isopropyl alcohol, propanol, or ethyl alcohol is recommended

DO NOT USE acetone, chloroform, trichloroethylene, or MKS

DO NOT USE ultrasonic cleaners

Static Electricity:

LEDs are sensitive to electrostatic discharge (ESD). Precautions against ESD must be taken when handling or operating these LEDs. Surge voltage or electrostatic discharge can result in complete failure of the device.

Radiation:

Those LEDs do emit **invisible light**, which is invisible and may cause cancer. Do avoid exposure to the emitted light. It is further advised to attach a warning label on products/systems.

Operation:

Do only operate LEDs with a current source.

Running these LEDs from a voltage source will result in complete failure of the device.

Current of a LED is an exponential function of the voltage across it. Usage of current regulated drive circuits is mandatory.