MAGIC LED PLB124050 Series
Advanced Datasheet

Description

Plessey MAGIC Blue PLB124050 PLCC-2 SMT LEDs are designed for ambient decorative lighting and automotive interior applications. The light is emitted close to a Lambertian distribution and hence this SMT package is naturally suitable for backlighting symbols. The LEDs are packed in reels containing 2000 pieces; every reel will be shipped in single intensity and colour bin, to provide close uniformity.

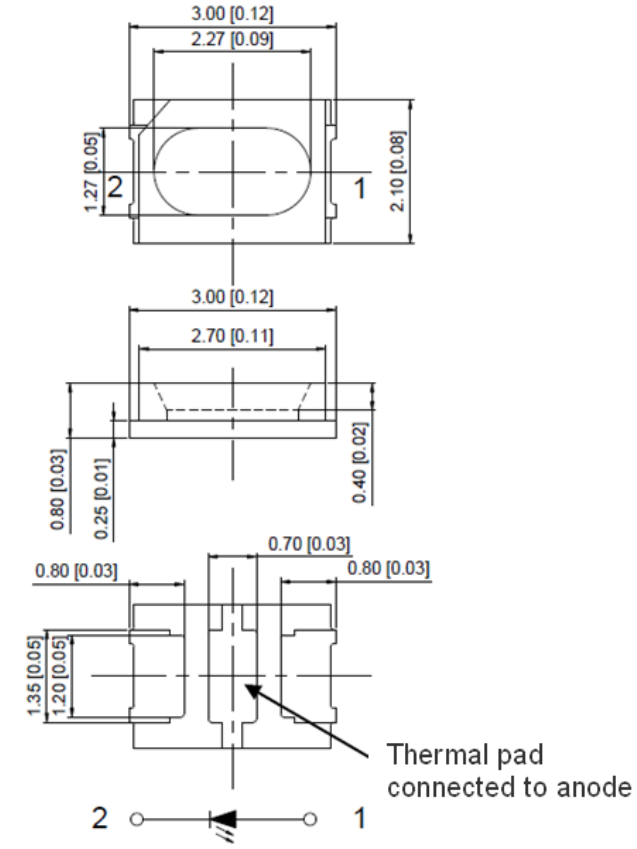
Features

- Industry standard 3020 in PLCC-2
- Dominant wavelength between 460nm and 472nm
- High reliability LED package
- High brightness using GaN-on-Silicon technology
- Wide viewing angle at 120° (half maximum)
- JEDEC MSL 4

Applications

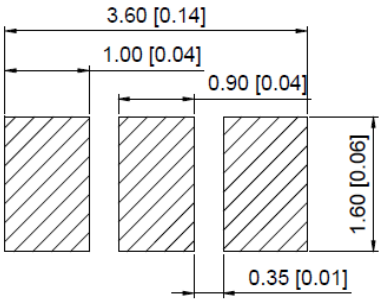
- Decoration lighting
- Instrument panel backlighting
- Illumination symbols
- Navigation and audio system backlighting

Package Outline and Recommended Solder Pad

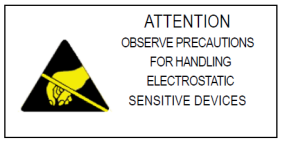


All dimensions are in millimetres with an accuracy of +/-0.15 millimetres

Encapsulation material: Clear silicone resin



Recommended Soldering Pad Pattern



Note:

1- Plessey LEDs are not designed to operate with reverse bias. Precautions are required to prevent reverse bias in applications and during handling.

2- Additional copper area on the PCB may be required to limit the junction temperature from exceeding its maximum recommended value.

Electro-optical Characteristics (Ta = +25ºC)

Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Forward Voltage	Vf	If=60mA	2.8	3.2	3.4	V
Reverse Current	Ir	Vr=5V	--	--	10	µA
Dominant Wavelength	λ_d	If=60mA	460	--	472	nm
Thermal Resistance (Junction to solder point)	R_{thj-s}	--	--	30	--	K/W
Half Intensity Angle	$2\Theta_{1/2}$	If=60mA	--	120	--	deg

Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
DC Forward Current (Ta = +25ºC)	If	90	mA
Peak Pulse Forward Current [1]	Ifp	90	mA
Reverse Voltage (Ta = +25ºC)	Vr	5	V
Operating Temperature	Topr	-30 to +85	°C
Junction Temperature	Tj	+120	°C
Storage Temperature	Tstr	-40 to +100	°C

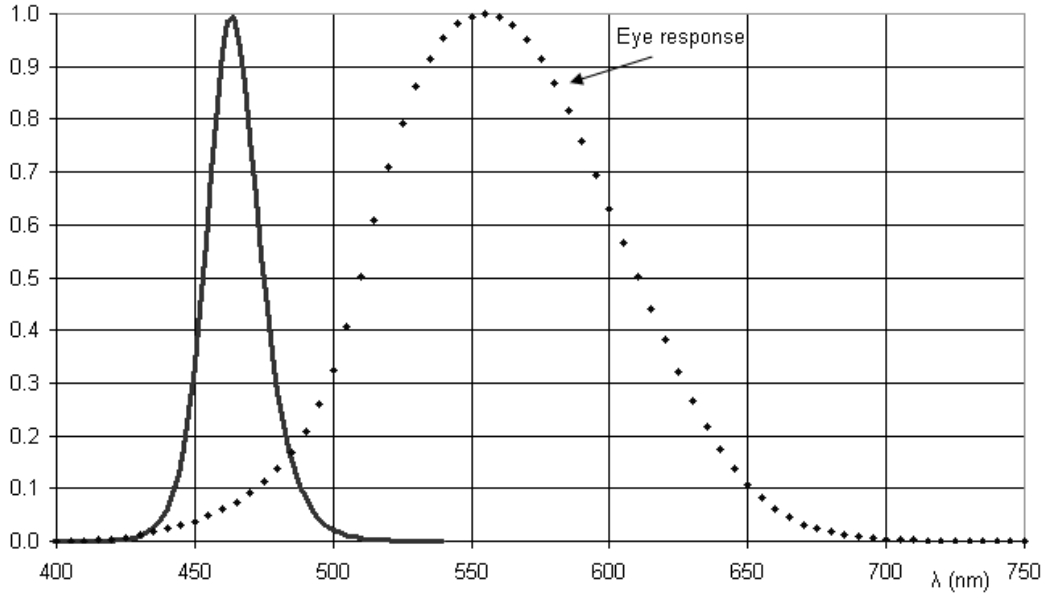
[1] Pulse width ≤10msec and duty ≤1/10 at Ta = +25ºC.

Intensity Bin Groups (Ta = +25ºC)

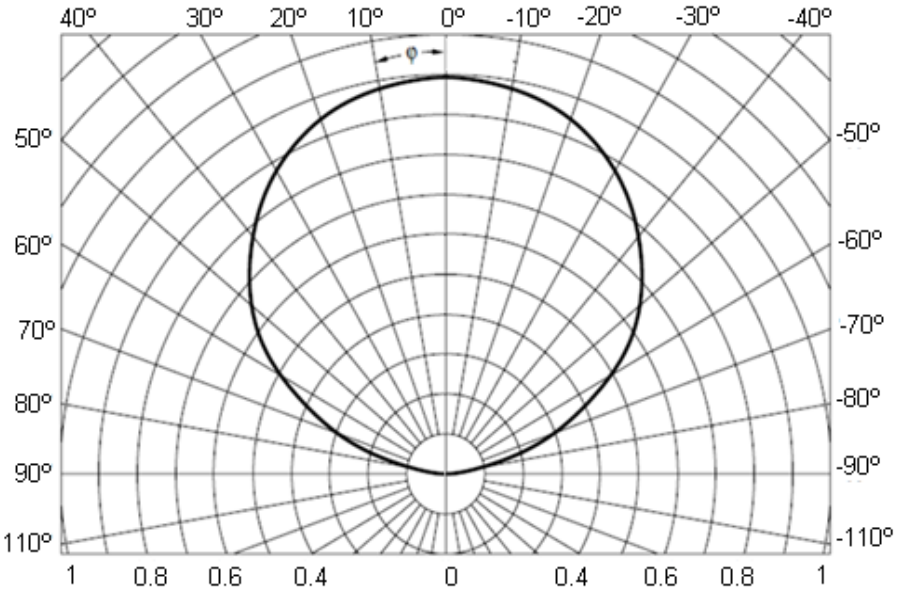
Group (If=60mA)	Luminous Intensity Iv [mcd]		Luminous Flux (typ.) ΦV [mlm]
	Min.	Max.	
1B	440	550	1550
2B	550	670	1900
3B	670	840	2400

The above luminous intensities are given with +/- 11% tolerance.

Relative Spectral Emission (Typical)



Angular light distribution



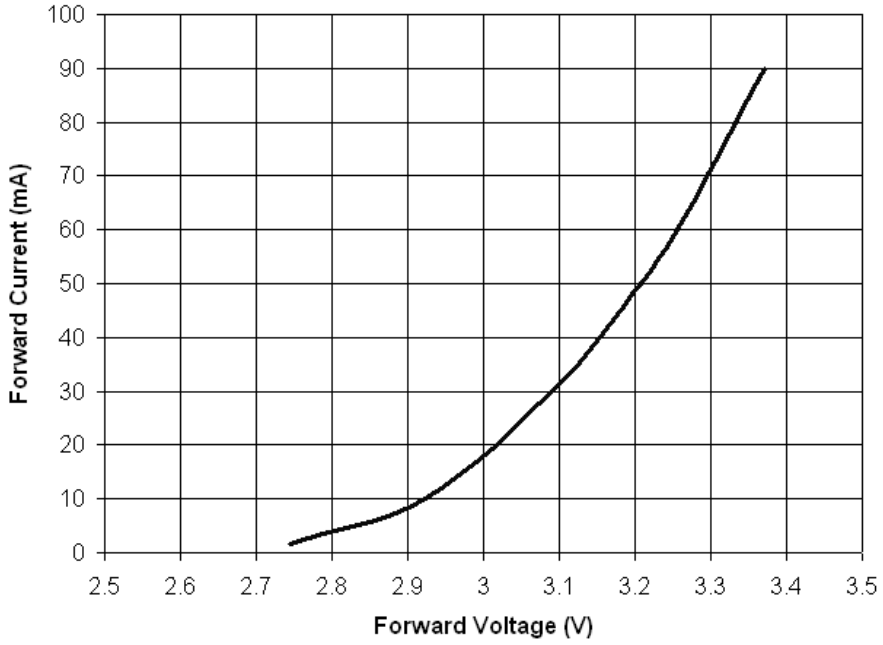
Dominant Wavelength Groups

Group (If=60mA)	$\lambda_{dominant}$ [nm]	
	Min.	Max.
AA	460	463
AB	463	466
AC	466	469
AD	469	472

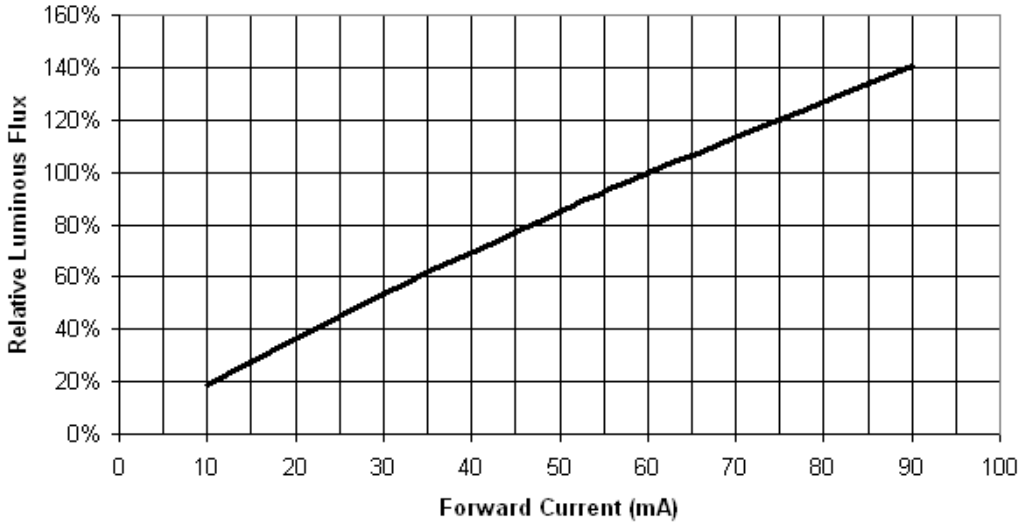
Dominant wavelengths are measured with +/-1.0 nm accuracy

Forward Current Characteristics (Ta = +25ºC)

Typical forward current versus forward voltage

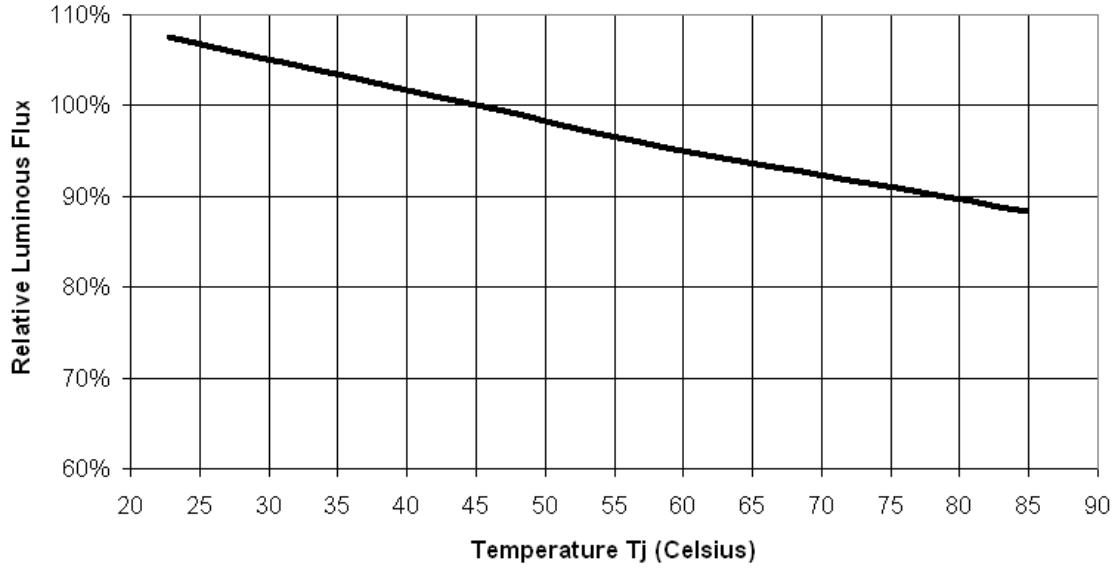


Relative luminous flux versus forward current

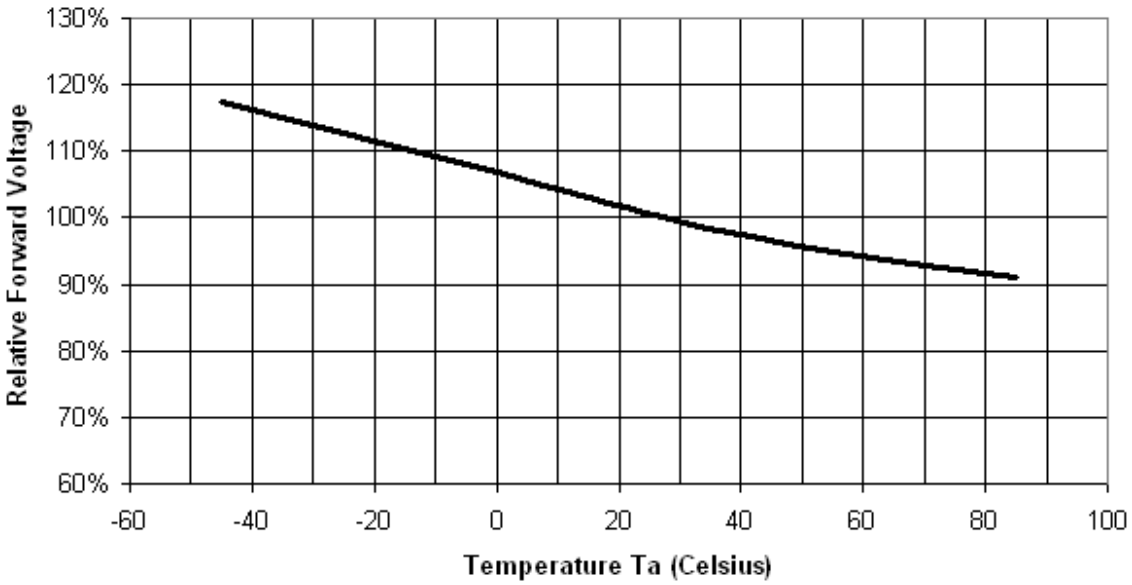


Temperature Characteristics (If = 60mA)

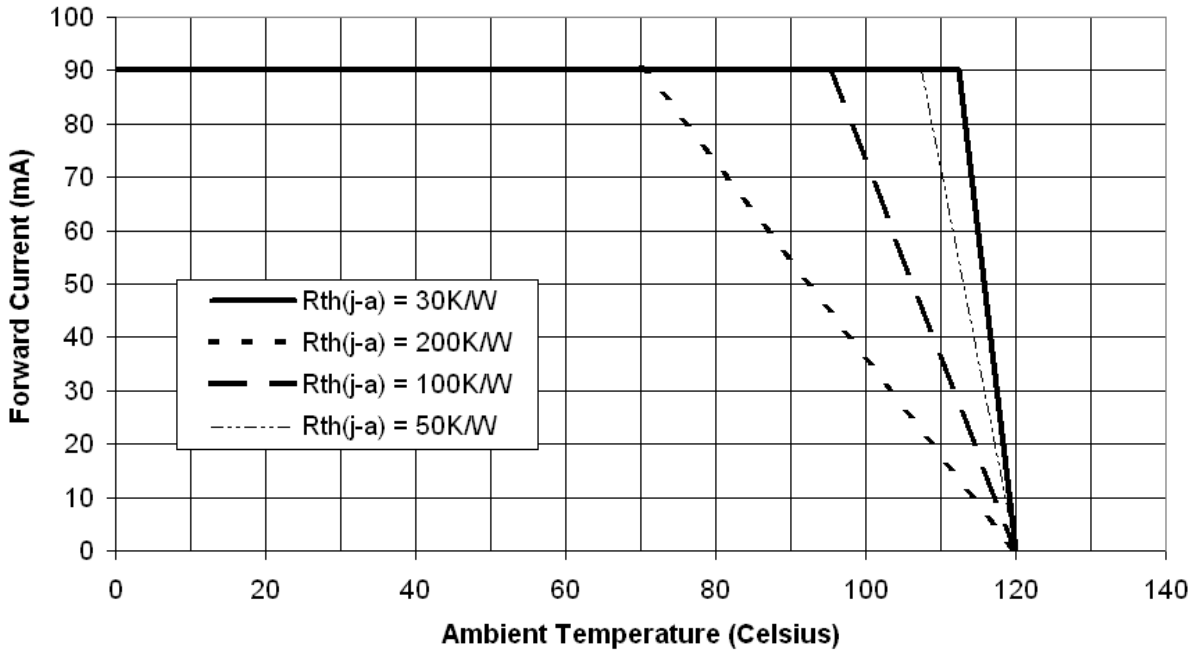
Relative luminous flux versus junction temperature Tj



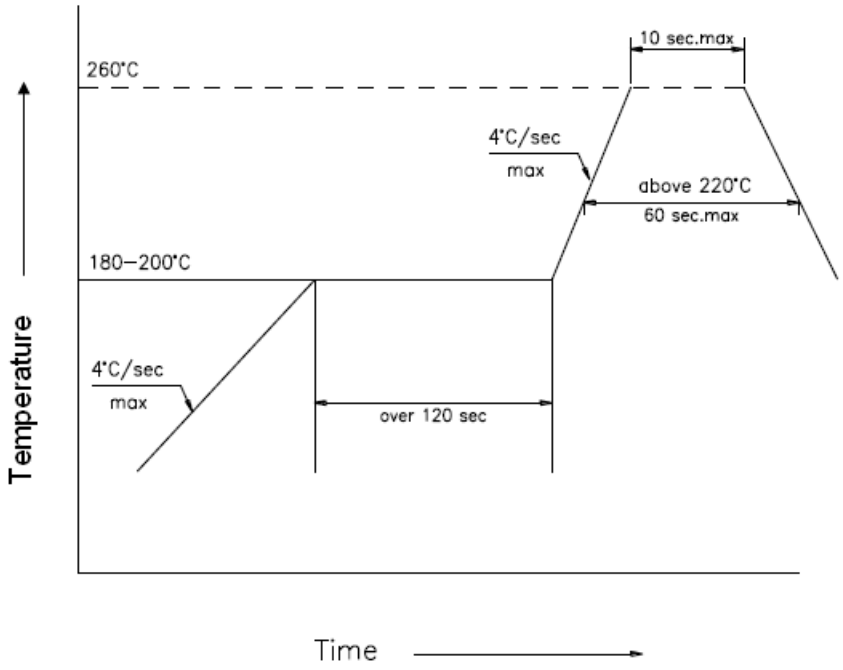
Relative forward voltage versus ambient temperature Ta



Derating Curve



Reflow Soldering Profile



1. Reflow soldering should not be done more than twice
2. When soldering, do not put stress on the LEDs during heating

Soldering iron

1. When hand soldering, the temperature of the iron must less than +300ºC for 3 seconds

2. Hand soldering should be performed only once.

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