Light in Motion

QEB651
Surface Mount Infrared AlGaAs LED

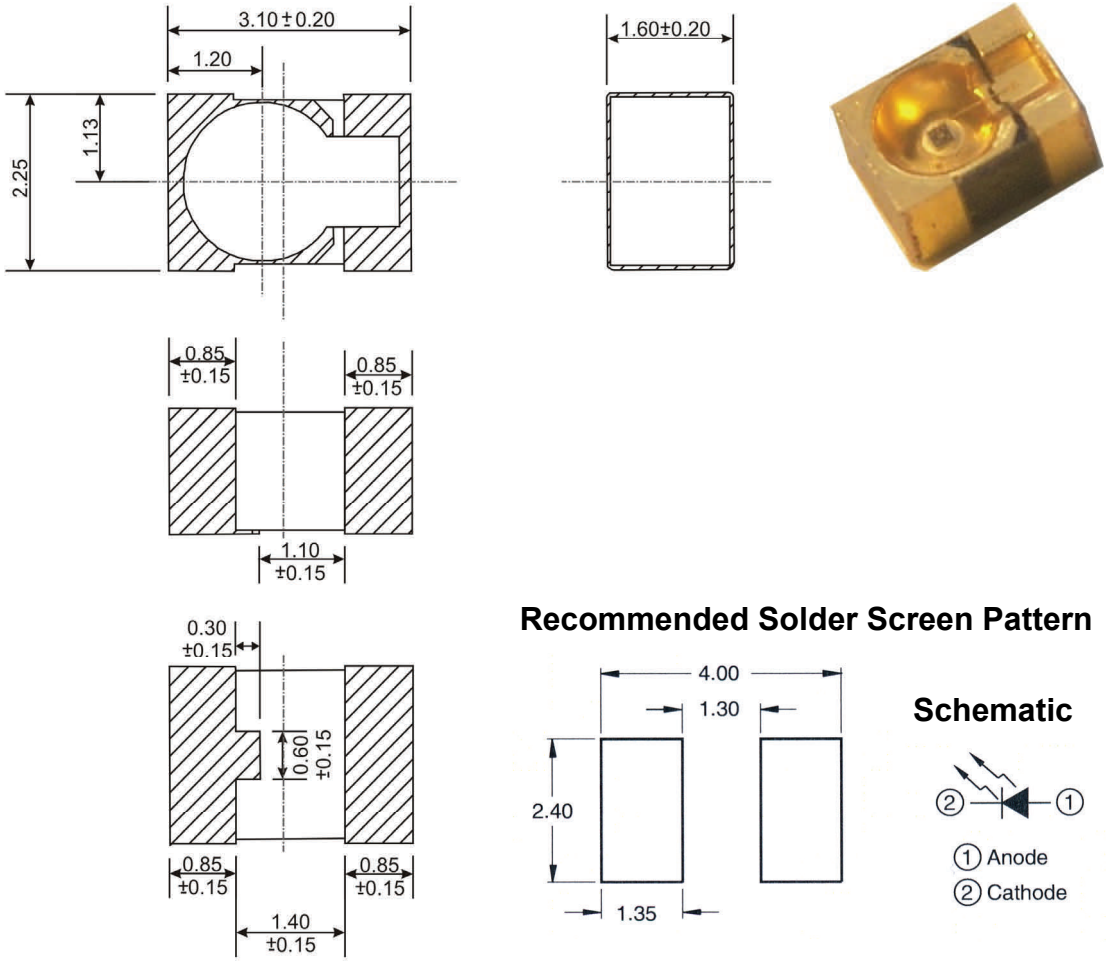
Features

- Wavelength 850nm
- High output
- Emission angle 30°
- Surface mount miniature package
- Fast switching
- RoHS Compliant

Description

The QEB651 is a miniature Surface Mount LED incorporating a high efficiency AlGaAs LED Chip encapsulated on a substrate designed to form a gold plated parabolic reflector for maximum projection of on axis photons

Package Dimensions



Recommended Solder Screen Pattern

Schematic

Notes:

1. Dimensions for all drawings are in mm.
2. Tolerances of + or - 0.10mm, unless otherwise specified.

Absolute Maximum Ratings (T_A = 25°C unless otherwise specified)

Stresses exceeding the absolute ratings may damage the devices. The devices may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect reliability. The absolute maximum ratings are stress ratings only.

Symbol	Parameter	Ratings	Unit
T_{OPR}	Operating Temperature	-40 to +85	°C
T_{STG}	Storage Temperature	-40 to +100	°C
T_{SOL}	Soldering Temperature (Iron) (1,2)	260 for 5 sec	°C
I_F	Continuous Forward Current	65	mA
I_{FP}	Peak Forward Current (3)	200	mA
V_R	Reverse Voltage	5	V
P_D	Power Dissipation (4)	100	mW

Notes:

1 RMA flux is recommended.
2 Methanol or Isopropyl alcohols are recommended as cleaning agents.
3 Pulse conditions: tp ≤ 500μs; D.C. ≤ 5%.
4 Derate power dissipation linearly 1.55mW/°C above 40°C.

Electrical/Optical Characteristics (T_A = 25°C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
λ_P	Peak Emission Wavelength	I_F = 100mA	840	850	870	nm
$\Delta\lambda$	Spectral Bandwidth	I_F = 100mA		30		nm
$T_{C\lambda}$	Temperature Coefficient of λ	I_F = 100mA		0.2		nm/K
$2\Theta_{1/2}$	Emission Angle	I_F = 20mA		30		deg
V_F	Forward Voltage	I_F = 20mA		1.4	1.7	V
		I_F = 70mA; t_P = 20ms		1.55	1.9	V
I_R	Reverse Current	V_R = 5V			10	μA
I_e	Radiant Intensity	IF = 70mA; t_P = 20ms	25		125	mW/sr
T_{CIE}	Temperature Coefficient of I_E			-0.3		%/K
t_r	Rise Time	I_F = 20mA		16		ns
t_f	Fall Time			30		ns

Typical Performance Characteristics

Fig. 1 Normalized Intensity vs. Wavelength

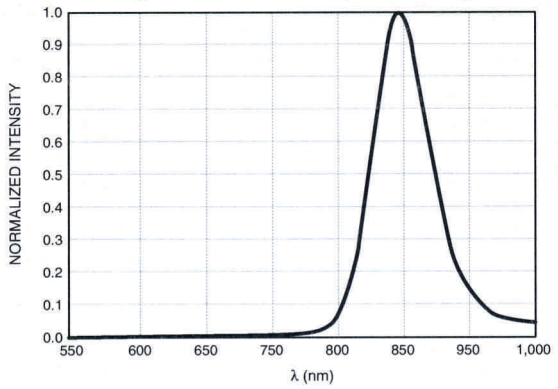


Fig. 2 Normalized Radiant Intensity vs. Forward Current

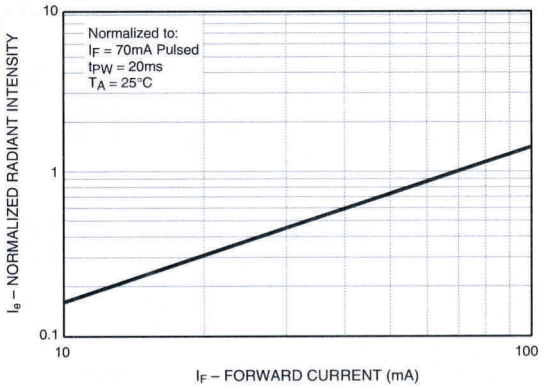


Fig. 3 Forward Current vs. Forward Voltage

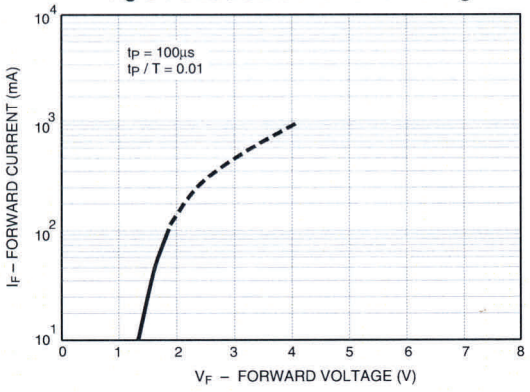
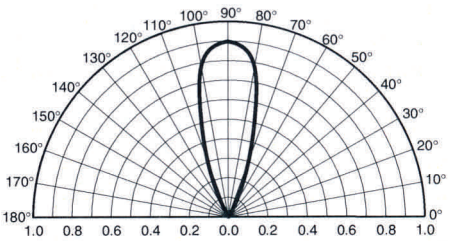
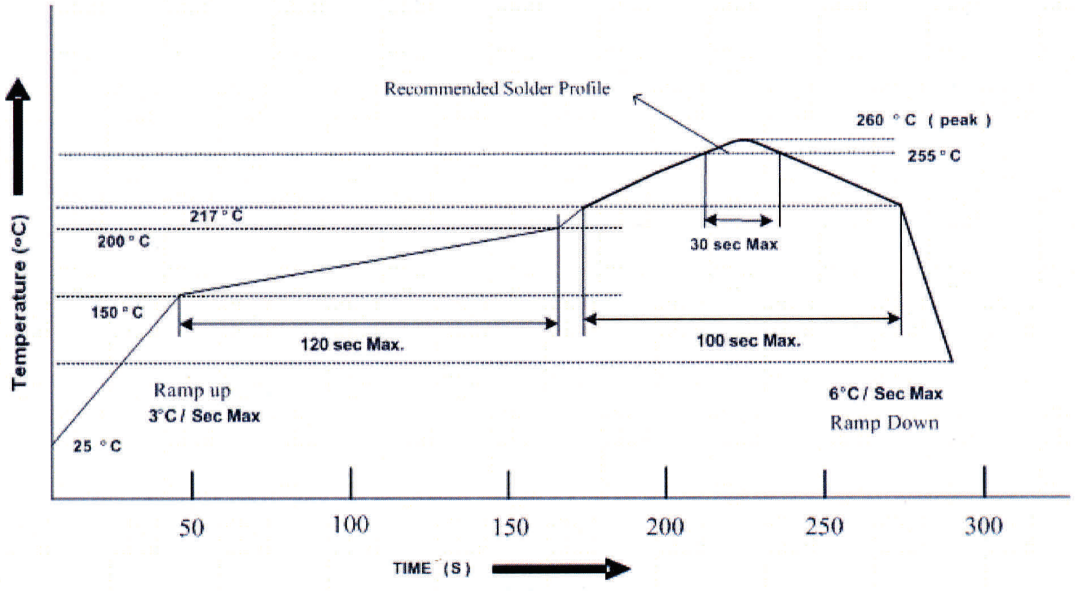


Fig. 4 Radiation Diagram



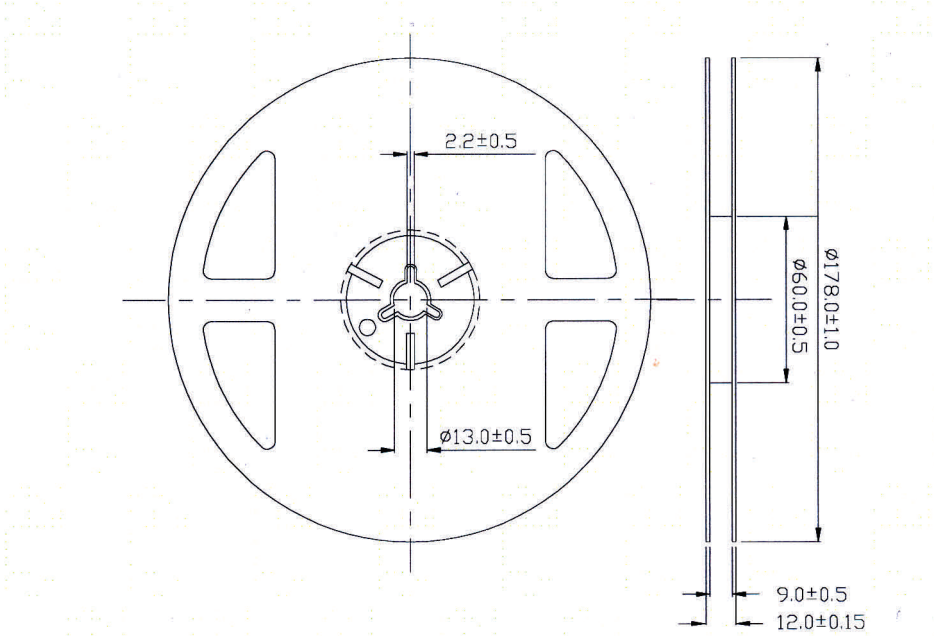
Reflow Soldering Profile

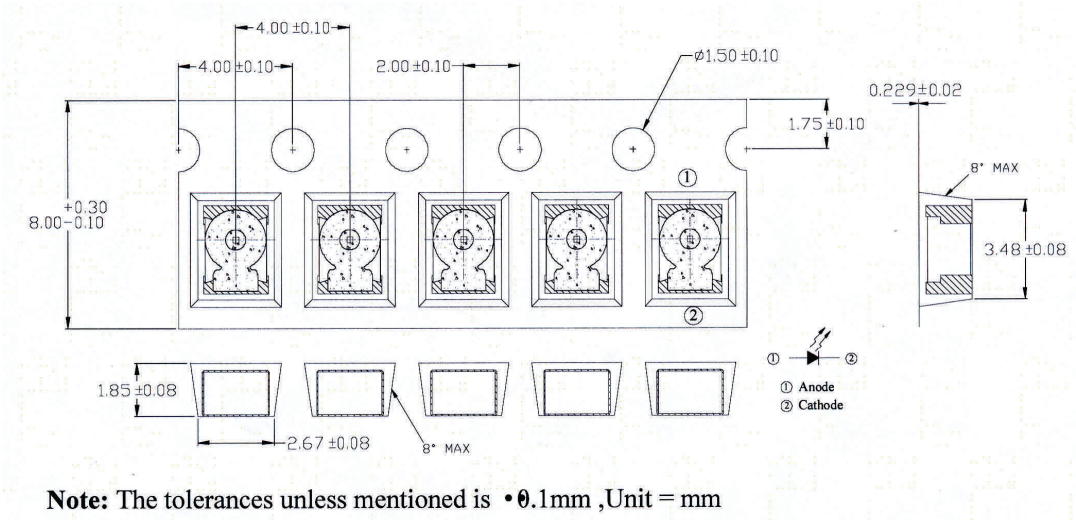


Solder process parameters

1. Reflow Soldering should not be conducted more than twice
2. When soldering, ensure no stress is exerted on the assembly during heating

Tape and Reel details;





Note: The tolerances unless mentioned is •θ.1mm ,Unit = mm

Quantity per reel = 2000

Storage

1 Do not open moisture proof bag before devices are ready to use.
2 Shelf life in sealed bag from the bag seal date 18 months at 10'C-30"C and < 90% RH.
3 After opening the package, the devices must be stored at l0°C-30°C and ≤ 60%RH, and used within 72 hours (floor life).
4 If the moisture absorbent material (desiccant material) has faded or unopened bag has exceeded the shelf life or devices (out of bag) have exceeded the floor life, baking treatment is required.
5 If baking is required, refer to IPC/JEDEC J-STD-O33 for bake procedure or recommend the following conditions :
192 hours at 40°C +5/-0°C and < 5 % RH (reels/tubes/loose units) or
96 hours at 60°C ± 5°C and < 5 % RH (reels/tubes/loose units) or
24 hours at 125°C ± 5°C. not suitable for reel or tubes.

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2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expects to cause the failure of the life support device or system, or to affect its safety or effectiveness