QUELIGHTING

Sustainable Lighting Solution

QLIR01DXGD1

Product Outline:

QLIR01DXGD1 is an infrared SMD lamp LED, package dimension is ∅5mm lamp ,940nm emitting diode in AlGaAs/Si with high speed and high radiant power. Lens color is water clear. This IR emitter pairs well with QLPD01DXLB photo diode

Features:

- Infrared 940nm led
- Water clear
- Through hole (no lead bend)
- Infrared 5mm round lamp
- 20° Viewing angle (± 10°)
- RoHS compliant
- Custom Bin available upon special request

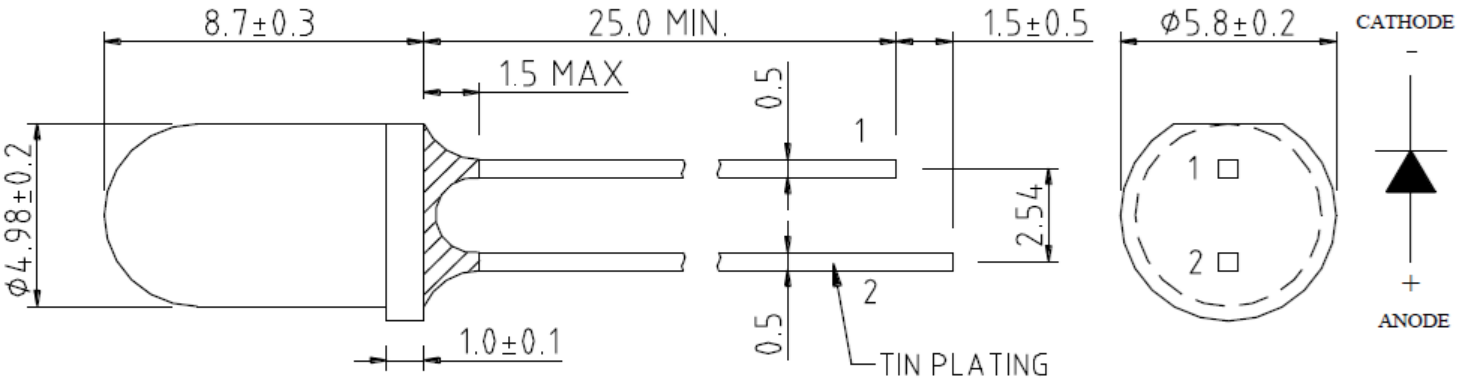
Application:

- General purpose indicator application
- Light curtain
- Elevator and Industrial application

Compliance and Certification:

■ Mechanical Property:

(Dimension)



SING: 1. CATHODE
2. ANODE

Tolerance is ±0.25mm unless otherwise specified

■ General APPEARANCE

Model No.	Material	Lighting Color	Resin Color
QLIR01DXGD1	AlGaAs/GaAs	Non-Visible	water clear

■ ABSOLUTE MAXIMUM RATINGS AT Ta=25℃

Characteristic	Symbol	Rating	Unit
Forward direct current	IFM	100	mA
Ta=25℃, pulsed operation T < 10us	I_{FSM}	1	A
Reverse voltage	VRM	5	V
Operating temperature	Topr	-40 to +85	℃
Storage temperature	Tstg	-40 to +85	℃
Power dissipation	Pd	170	mW

■ ELECTRO-OPTICAL CHARACTERISTICS AT Ta=25℃

Characteristic	Symbol	Condition	Min.	Typ.	Max.	Unit
Radiant Intensity	Ie	IF=50mA	60	85		mW/sr
Forward Voltage	Vf	IF=50mA		1.3	1.7	V
Reverse current	Ir	Vr=5V			10	μA
Peak emission wavelength	λp	IF=50mA		940		nm
Spectral band width @ 50%	▲λ	IF=50mA		50		nm
Rise Time / Fall Time	T_R / T_F	IF = 50mA		2000/1000		ns
Viewing angle	2θ 1/2	IF=50mA		20		Deg

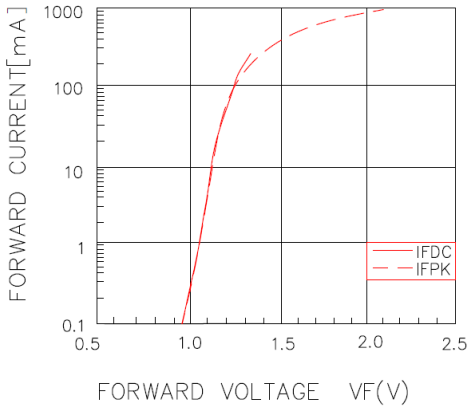
*Radiant Intensity Measurement allowance is ±15%
** Forward voltage Measurement allowance is ±0.05V
*** Peak emission wavelength Measurement allowance is ±1nm

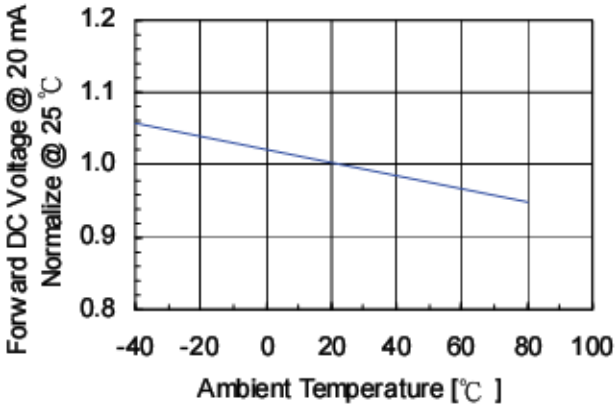
Radiant Intensity Bin:

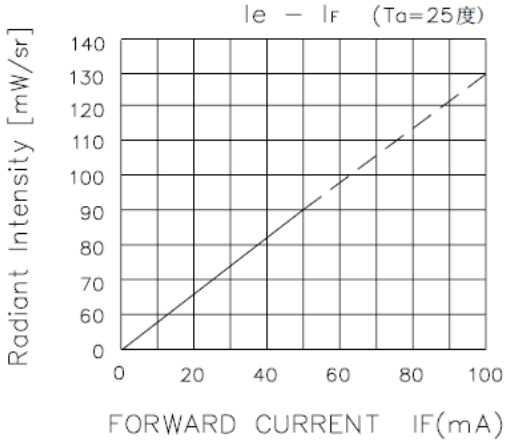
Rank @ 50mA (mW/sr)			
Color	**Code name**	**Low**	**High**
IR	Bin 2	60	75
	Bin 3	75	90
	Bin 4	90	105
	Bin 5	105	-

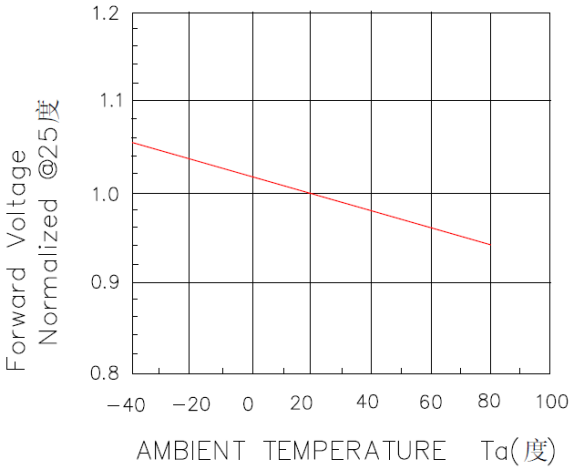
Radiant Intensity tolerance is ± 15%

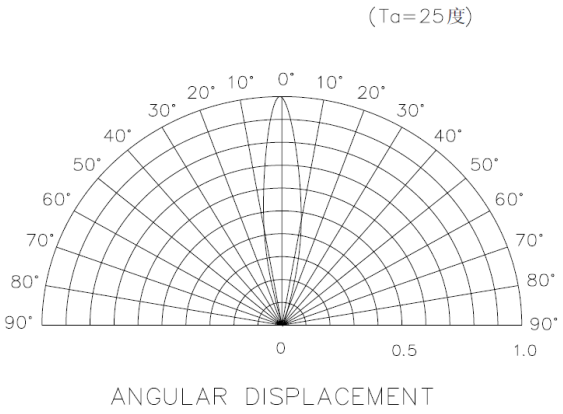
■ Characteristic Curves

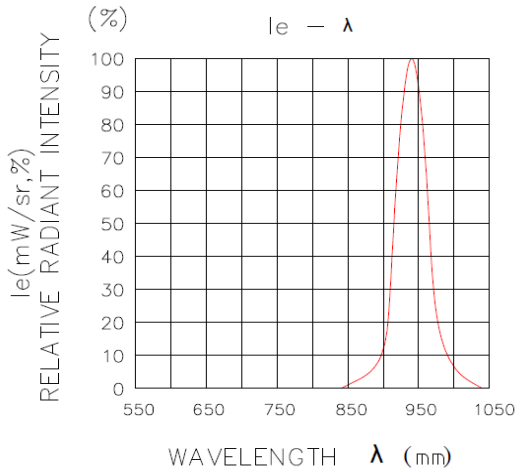












■ Reliability test:

No	Item	Condition	Time/Cycle	Criteria	Ac / Re	Sample size
1	Soldering Heat Test	260℃	5 sec	Open / Short	0 / 1	60 pcs
2	Thermal Shock	0 (5min) ℃ ~100 (5min) ℃	20 cycle	Open / Short	0 / 1	60 pcs
3	High Temp. Storage	100℃	1000 Hrs	Open / Short	0 / 1	60 pcs
4	Low Temp. Storage	-40℃	1000 Hrs	Open / Short	0 / 1	60 pcs
5	Temperature Cycle Test	-40 ~85 ℃	100 Cycles , 200Hrs	Open / Short	0 / 1	60 pcs
6	High Temp. High Humidity Test	85 , 85% RH ℃	1000 Hrs	Open / Short	0 / 1	60 pcs
7	DC Operation Life Test	IF=100mA	1000 Hrs	Power decay	≦30%	60 pcs

■ Judgment Criteria:

Item	Symbol	Test Condition	Judgment Criteria
Forward Voltage	Vf	50 mA	△Vf< 10%
Luminous Flux	Iv	50 mA	△Iv< 30%

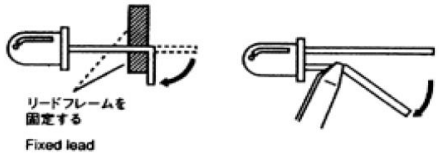
■ APPLICATION NOTES：

Static Electricity and Surge

Static electricity and surge damage LEDs. It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs. All devices, equipment and machinery must be electrically grounded.

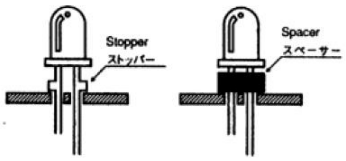
Lead Forming

The leads should be bent at a point at least 3mm from the epoxy resin of the LEDs.
Bending should be performed with the base firmly fixed by means of a jig or radio pliers.

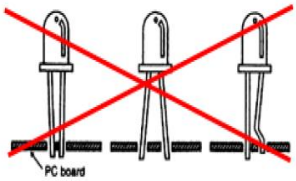


Mounting Method

The leads should be formed so they are aligned exactly with the holes on the PC board.
This will eliminate any stress on the LEDs.
Use LEDs with stoppers or resin spacer to accurately position the LEDs.
The epoxy resin base should not be touching the PC board when mounting the LEDs.



Mechanical stress to the resin may be caused by the warping of the PC board when soldering.
The LEDs must not be designed into a product or system where the epoxy lens is pressed into a plastic or metal board. The lens part of the LED must not be glued onto plastic or metal. The mechanical stress to the lead-frame must be minimized.



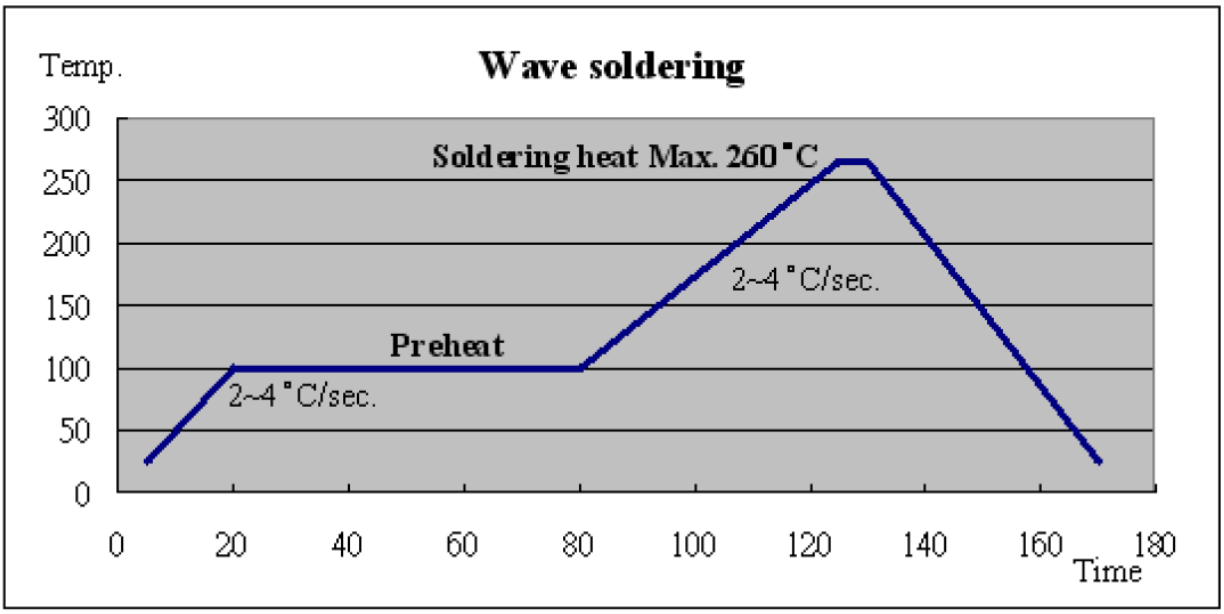
Soldering

Solder the LEDs no closer than 3mm from the base of the epoxy resin.
For solder dipping, it may be necessary to fix the LEDs for correct positioning.
When doing this, any mechanical stress to the LEDs must be avoided.
When soldering, do not apply any mechanical force to the leadframe while heating.
Repositioning after soldering must be avoided.

■ Solder Profile:

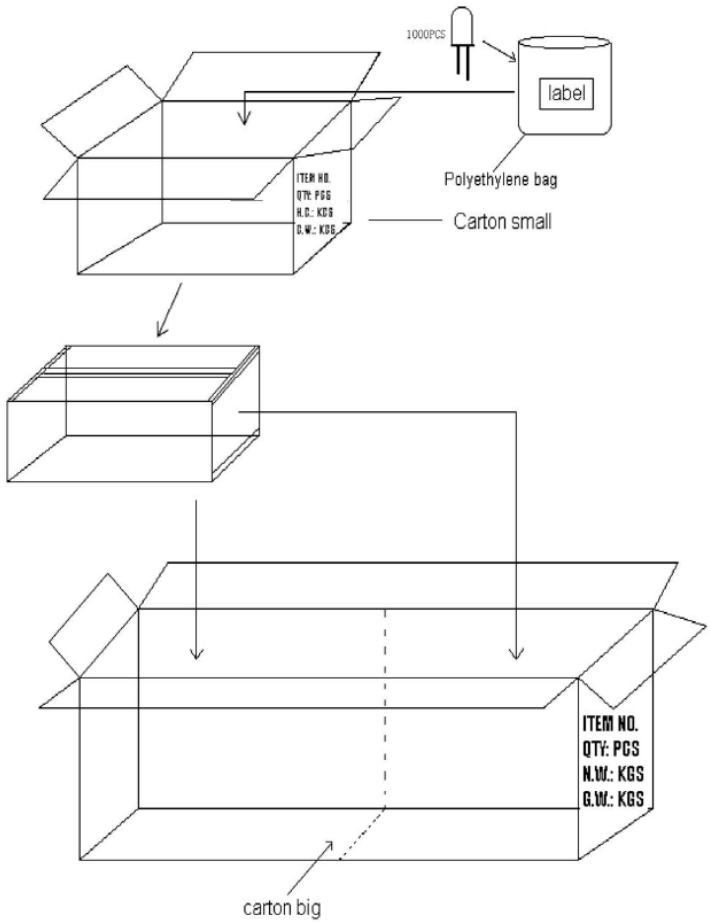
-The recommended reflow soldering profile is as follows (temperatures indicated are as measured on the surface of the LED resin):

Shape	Lead Frame Type / Holder Type
Hand soldering	1.Temp.at tip of iron : 300 °C MAX. 2.Soldering time : 3 sec MAX. 3.Distance : 3 mm MIN (from solder joint to case)
DIP soldering	1.Preheat temp : 100 °C MAX , 60 sec MAX. 2.Bath temp : 260 °C MAX. 3.Bath time : 5 sec MAX. 4.Distance : 3 mm MIN (From solder joint to case).
Reflow soldering	NO
Shape	**SMD Type**
Hand soldering	1.Temp.at tip of iron : 300 °C MAX. 2.Soldering time : 3 sec MAX.
DIP soldering	1.Preheat temp. : 120-150 °C , 60-120 sec. 2.Bath temp. : 260 °C MAX. 3.Bath time : 5 sec
Reflow soldering	1.Preheat temp. : 150-180 °C , 120 sec MAX. 2.Peak temp. : 260 °C MAX. 3.Peak time : 10 sec MAX.

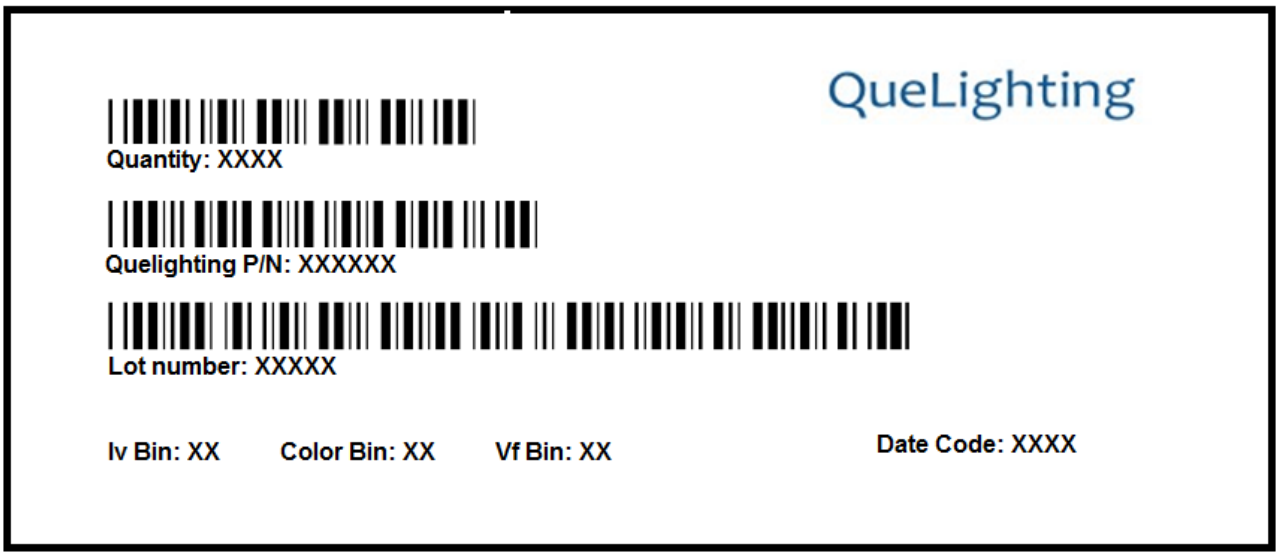


Taping & Packing:

The boxes are not water resistant and they must be kept away from water and moisture. The LEDs are packed in cardboard boxes after packaging in normal or anti-electrostatic bags. Cardboard boxes will be used to protect the LEDs from mechanical shocks during transportation.



Labeling



Ordering Information:

Part #	Multiple Quantities	Quantity per Bag
QLIR01DXGD1		1000pcs

Revision History:

Revision Date:	Changes:	Version #:
10-08-2023	Initial release	1.0