0.75mm Height 0605 Package
Hyper Red & Infrared Chip Chip LEDs
Technical Data Sheet

Part No.: DL-PCB0605RIR

◆ **Features:**

1. Package in 8mm tape on 7" diameter reel.
2. 1.60mm×1.50mm SMT LED, 0.75mm thickness.
3. Low power consumption.
4. Compatible with automatic placement equipment.
5. Compatible with infrared and vapor phase reflow solder process.
6. Bi-color (Multi-color) type.
7. Colors: Hyper Red & Infrared
8. The product itself will remain within RoHS compliant Version.

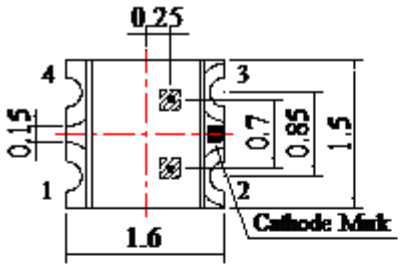
◆ **Descriptions:**

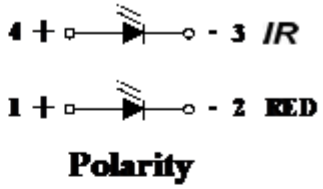
1. The 0605 SMD LED is much smaller than lead frame type components, thus enable smaller higher packing density, reduced storage space and finally smaller equipment to be obtained.
2. Besides, light Weight makes them ideal for miniature applications, etc.
3. The series is specially designed for applications requiring higher brightness.
4. The SMD LEDs are available with different colors, intensities.

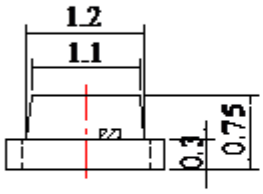
◆ **Applications:**

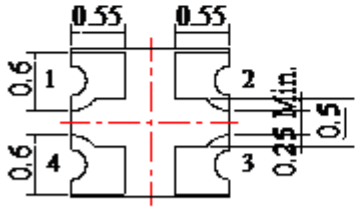
1. Red & Infrared signal Indicators
2. SPO2 pulse Oximeter
3. Optical Switch or Data link
4. Dual Channel Free Space Optical Communications
5. Security Sensor

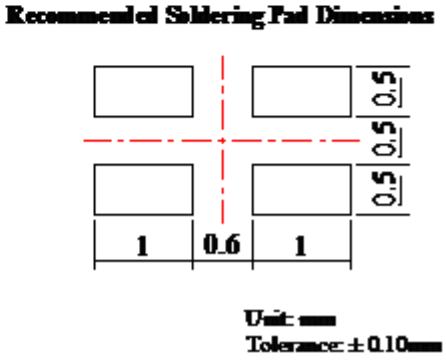
◆ **Package Dimension:**











Part No.	Chip Material	Lens Color	Source Color
DL-PCB0605RIR	AlGaAs	Water Clear	Hyper Red
	GaAlAs		Infrared

Notes:

1. All dimensions are in millimeters.
2. Tolerance is ± 0.10mm (.004”) unless otherwise specified.
3. Specifications are subject to change without notice.

◆ **Absolute Maximum Ratings at Ta=25℃**

Parameters	Symbol	Emitting Color	Max.	Unit
Power Dissipation	PD	Hyper Red	60	mW
		Infrared	130	
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	IFP	Hyper Red	100	mA
		Infrared	1000	
Continuous Forward Current	IF	Hyper Red	25	mA
		Infrared	50	
Reverse Voltage	VR		5	V
Operating Temperature Range	Topr		-40℃ to +80℃	
Storage Temperature Range	Tstg		-40℃ to +85℃	
Soldering Temperature	Tsld		260℃ for 5 Seconds	

◆ **Electrical Optical Characteristics at Ta=25℃**

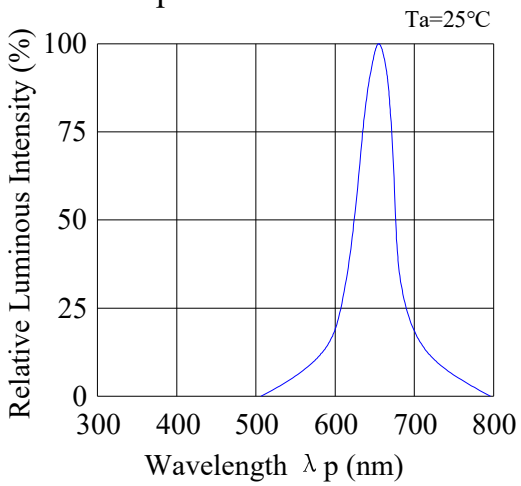
Parameters	Symbol	Emitting Color	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity	IV	Hyper Red	50	80	---	mcd	IF=20mA
Radiant Intensity	Ee	Hyper Red		1.8		mW/sr	IF=20mA
		Infrared	---	5.0	---		IF=50mA
Viewing Angle	$2\theta_{1/2}$	Hyper Red	---	140	---	Deg	IF=20mA
		Infrared	---	140	---		
Peak Emission Wavelength	λp	Hyper Red	---	660	---	nm	IF=20mA
		Infrared	---	940	---		
Dominant Wavelength	λd	Hyper Red	---	650	---	nm	IF=20mA
		Infrared	---	930	---		
Spectral Line Half-Width	Δλ	Hyper Red	---	20	---	nm	IF=20mA
		Infrared	---	20	---		
Forward Voltage	VF	Hyper Red	---	1.80	---	V	IF=20mA
		Infrared	---	1.00	---		
Reverse Current	IR	Hyper Red	---	---	10	μA	V_R=5V
		Infrared			10		

◆ **Typical Electrical / Optical Characteristics Curves**

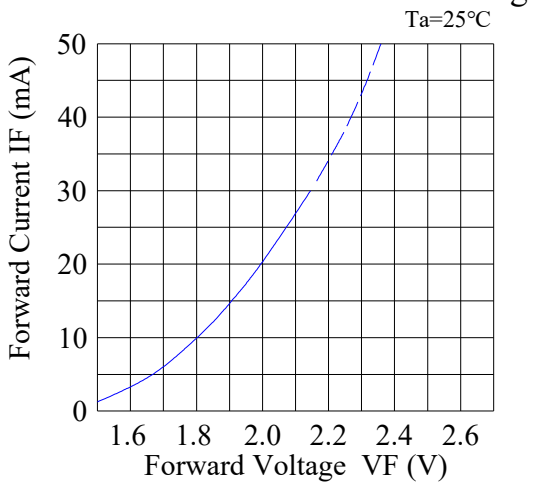
(25℃ Ambient Temperature Unless Otherwise Noted)

Hyper Red:

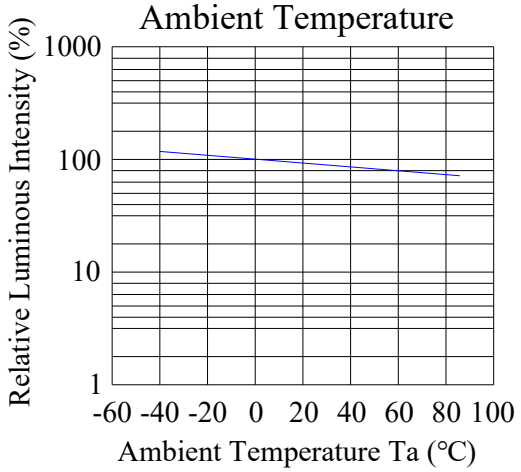
Spectrum Distribution



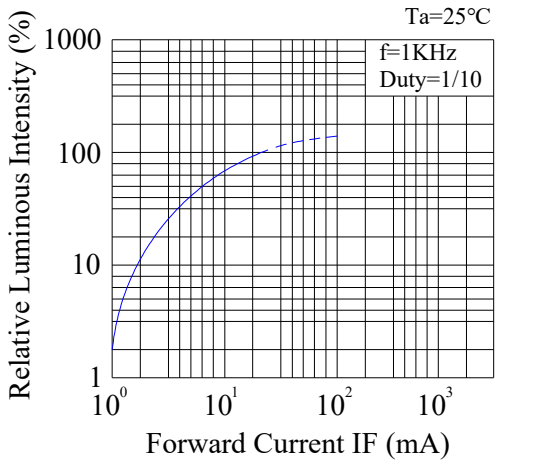
Forward Current & Forward Voltage



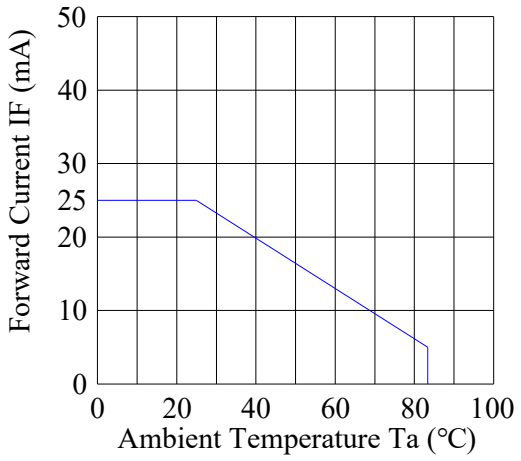
Luminous Intensity & Ambient Temperature



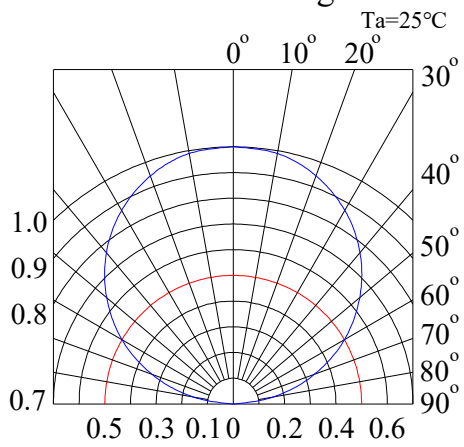
Luminous Intensity & Forward Current



Forward Current Derating Curve

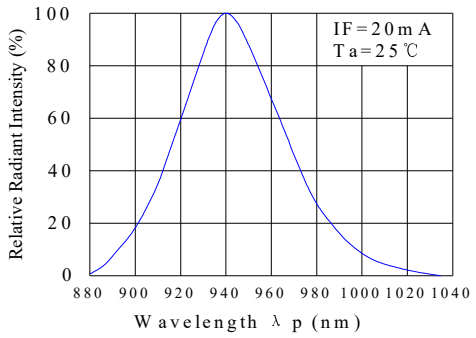


Radiation Diagram

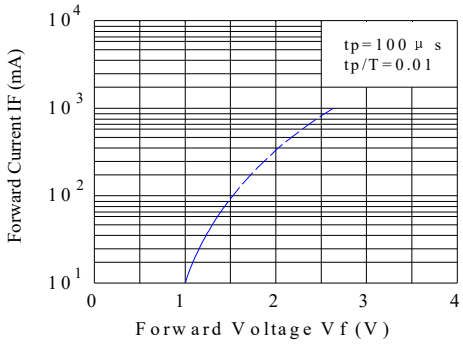


Infrared：

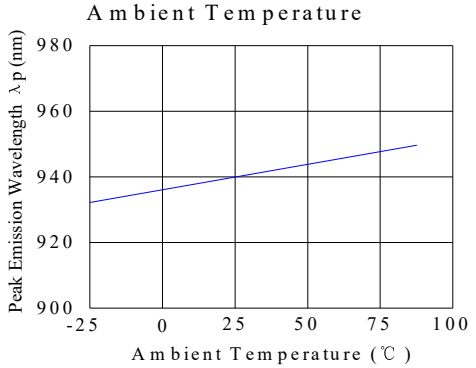
Spectral Distribution



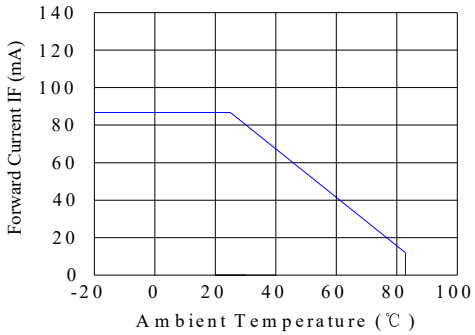
Forward Current & Forward Voltage



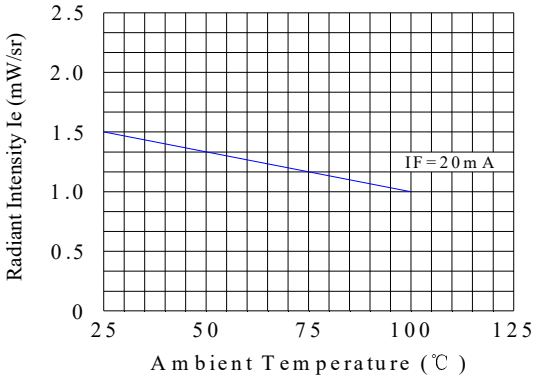
Peak Emission Wavelength & Ambient Temperature



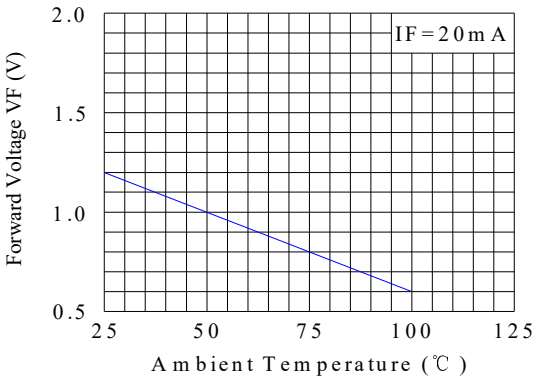
Forward Current & Ambient Temperature



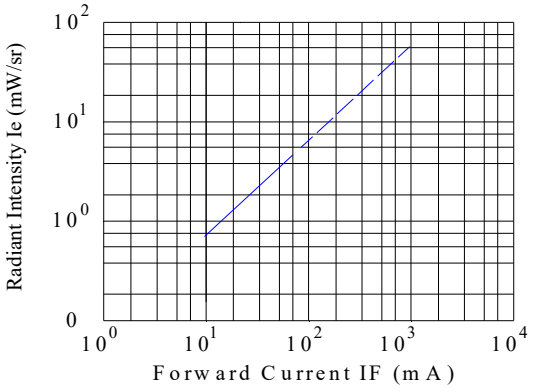
Relative Intensity & Ambient Temperature



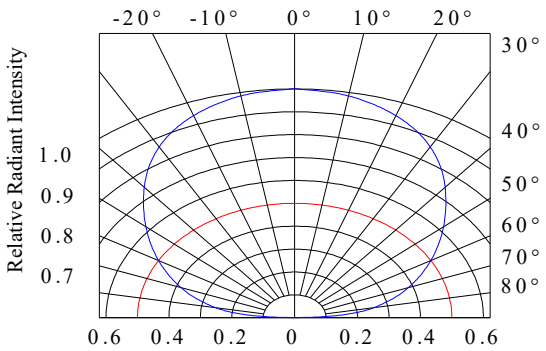
Forward Voltage & Ambient Temperature



Relative Intensity & Forward Current



Relative Radiant Intensity & Angular Displacement



◆ **Reliability Test Items And Conditions:**

The reliability of products shall be satisfied with items listed below:

Confidence level: 90%.

LTPD: 10%.

1) Test Items and Results:

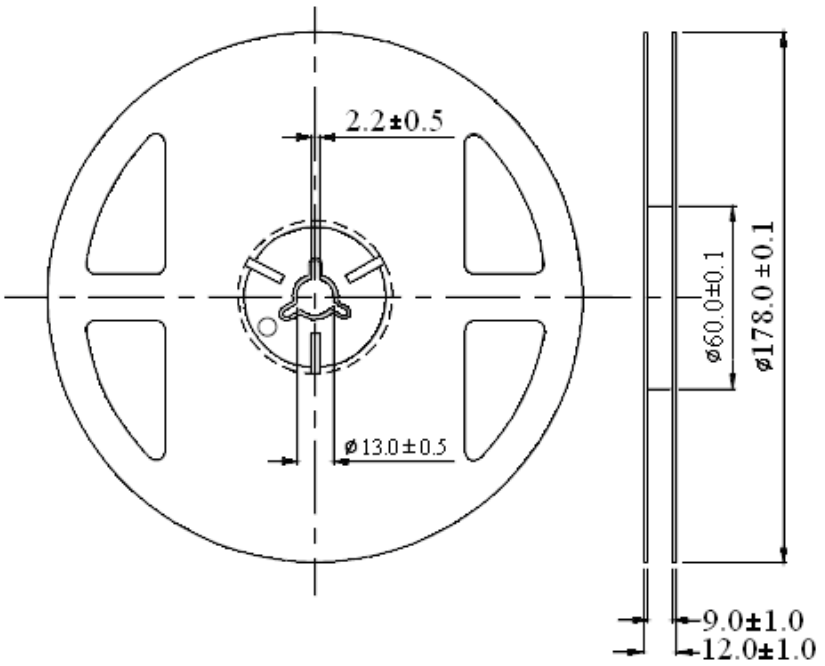
No.	Test Item	Test Hours/Cycles	Test Conditions	Sample Size	Ac/Re
1	Resistance to Soldering Heat	6 Min	Tsld=260±5℃, Min. 5sec	25pcs	0/1
2	Thermal Shock	300 Cycles	H: +100℃ 5min ∫ 10 sec L: -10℃ 5min	25pcs	0/1
3	Temperature Cycle	300 Cycles	H: +100℃ 15min ∫ 5min L: -40℃ 15min	25pcs	0/1
4	High Temperature Storage	1000Hrs.	Temp: 100℃	25pcs	0/1
5	DC Operating Life	1000Hrs.	IF=20mA	25pcs	0/1
6	Low Temperature Storage	1000Hrs.	Temp: -40℃	25pcs	0/1
7	High Temperature/ High Humidity	1000Hrs.	85℃/85%RH	25pcs	0/1

2) Criteria for Judging the Damage:

Item	Symbol	Test Conditions	Criteria for Judgment	
			Min	Max
Forward Voltage	VF	IF=20mA	---	F.V.*)×1.1
Reverse Current	IR	VR=5V	---	F.V.*)×2.0
Luminous Intensity	IV	IF=20mA	F.V.*)×0.7	---

*) F.V.: First Value.

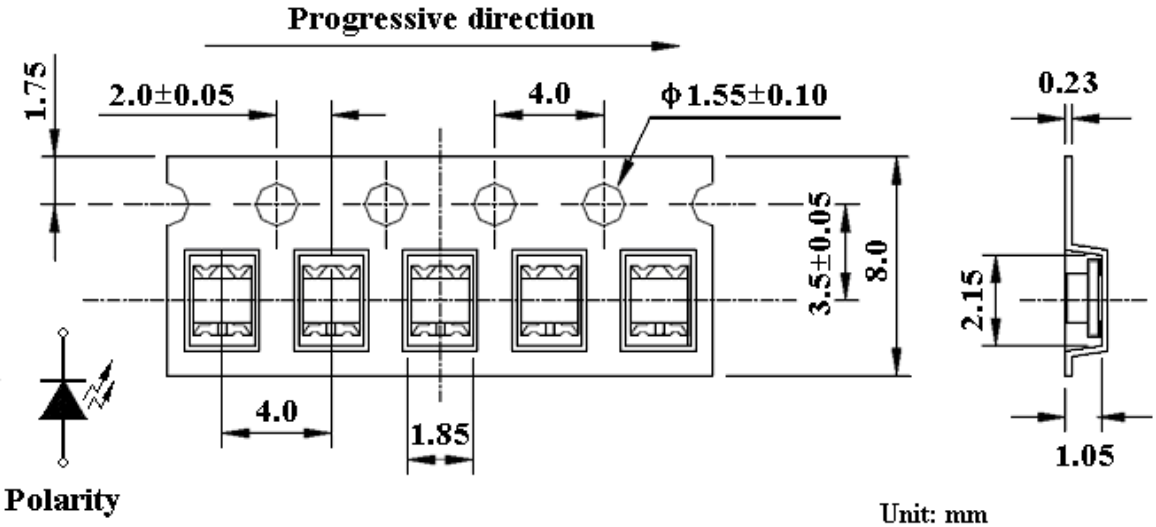
◆ **Reel Dimensions:**



Unit: mm
Tolerance: ±0.25mm

Carrier Tape Dimensions:

Loaded quantity 4000PCS per reel.



Unit: mm
Tolerance: ±0.10mm

◆ **Please read the following notes before using the datasheets:**

1. Over-current-proof

Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (Burn out will happen).

2. Storage

2.1 Do not open moisture proof bag before the products are ready to use.

2.2 Before opening the package, the LEDs should be kept at 30℃ or less and 90%RH or less.

2.3 The LEDs should be used within a year.

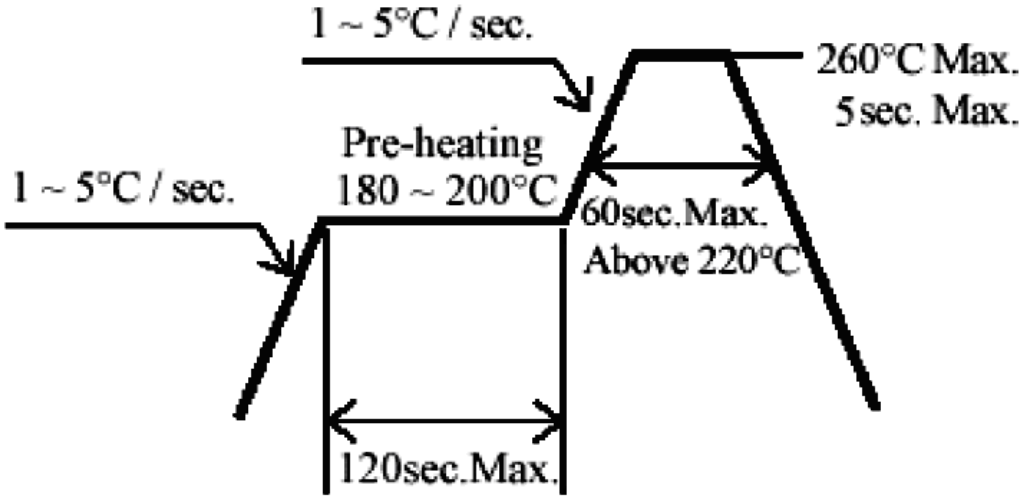
2.4 After opening the package, the LEDs should be kept at 30℃ or less and 70%RH or less.

2.5 The LEDs should be used within 168 hours (7 days) after opening the package.

2.6 If the moisture adsorbent material (silica gel) has fabled away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions. Baking treatment: 60±5℃ for 24 hours.

3. Soldering Condition

3.1 Pb-free solder temperature profile.



3.2 Reflow soldering should not be done more than two times.

3.3 When soldering, do not put stress on the LEDs during heating.

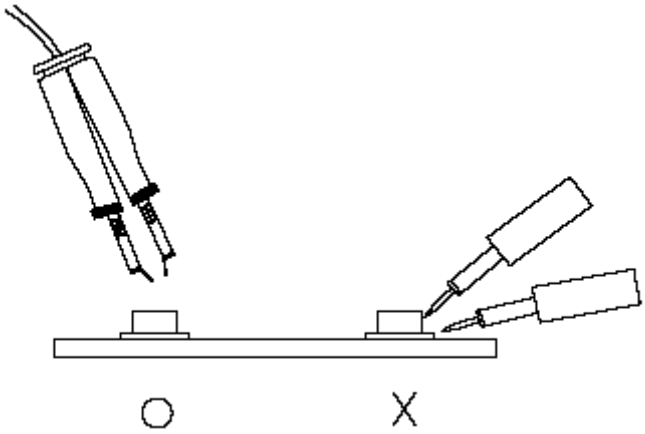
3.4 After soldering, do not warp the circuit board.

4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 260℃ for 5 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

5. Repairing

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.



6. Caution in ESD

Static Electricity and surge damages the LED. It is recommended to use a wrist band or anti-electrostatic glove when handling the LED. All devices, equipment and machinery must be properly grounded.