



LIGITEK ELECTRONICS CO.,LTD.
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LED SMD



Lead-Free Parts

LG-192HIR-CT

DATA SHEET

DOC. NO : QW0905-LG-192HIR-CT

REV. : A

DATE : 02 - Feb. - 2015



Features:

1. Package in 8.0mm carrier tape on 7" diameter reel.
2. Compatible with automatic placement equipment.
3. Compatible with reflow solder process.

Descriptions:

1. The LG-192 SMD Taping is much smaller than lead frame type components, thus enable smaller board size, higher packing density, reduced storage space and finally smaller equipment to be obtained.
2. Besides, lightweight makes them ideal for miniature applications. etc.

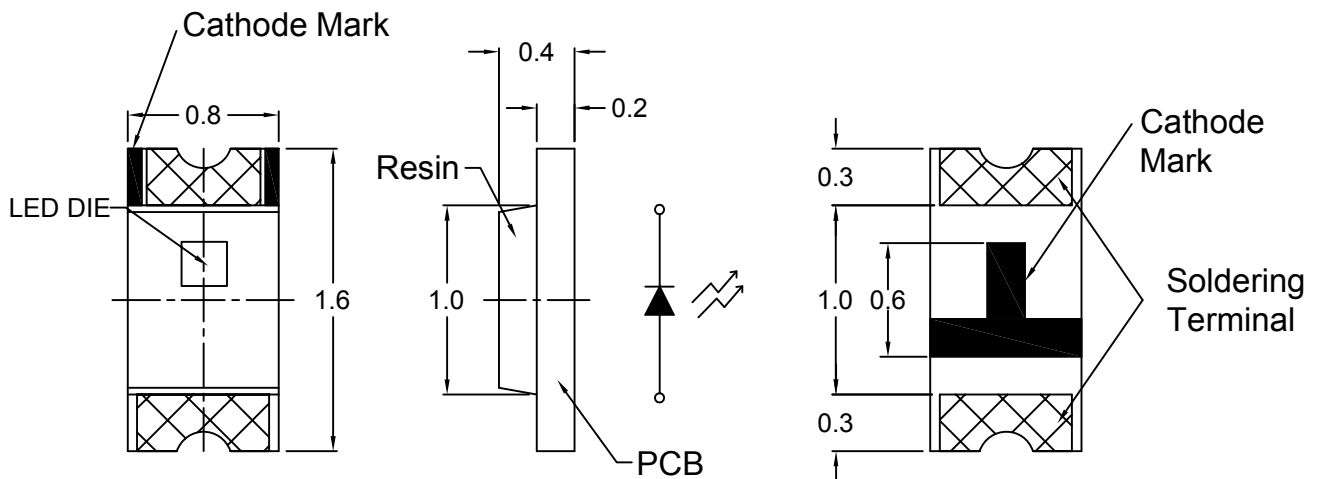
Applications:

1. PCB mounted infrared sensor
2. Infrared emitting for miniature light barrier
3. Floppy disk drive
4. Optoelectronic switch
5. Smoke detector

Device Selection Guide:

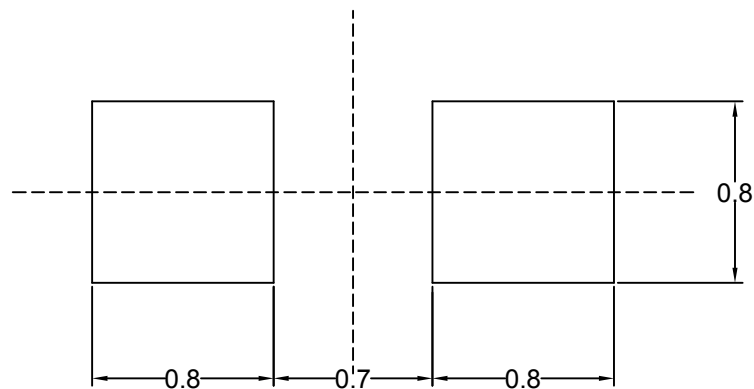
PART NO	MATERIAL	COLOR	
		Emitted	Lens
LG-192HIR-CT	GaAlAs	INFRARED	Water Clear

Package Dimensions



Note : 1.All dimension are in millimeter tolerance is ± 0.1 mm unless otherwise noted.
2.Specifications are subject to change without notice.

Recommended Soldering Pad Dimensions



Note : The tolerances unless mentioned is ± 0.1 mm, Angle ± 0.5 . Unit=mm.

Absolute Maximum Ratings at Ta=25 °C

Parameter	Symbol	Ratings	UNIT
Power Dissipation	PD	80	mW
Peak Forward Current (300pps, 10 μ s Pulse)	IFP	1	A
Forward Current	IF	50	mA
Reverse Voltage	Vr	5	V
Operating Temperature	Topr	-40 ~ +85	°C
Storage Temperature	Tstg	-40 ~ +85	°C

Typical Electrical & Optical Characteristics (Ta=25 °C)

Items	Symbol	Min.	Typ.	Max.	UNIT	CONDITION
Radiant Intensity	Po	0.65	1.2	----	mW/sr	IF=20mA
Peak Emission Wavelength	λ_{peak}	----	850	----	nm	IF=20mA
Spectral Line Half-Width	$\Delta \lambda$	----	50	----	nm	IF=20mA
Forward Voltage	V _F	----	1.2	1.6	V	IF=20mA
Reverse Current	IR	----	----	100	μ A	IF=20mA
Viewing Angle	2 θ 1/2	----	130	----	deg	IF=20mA

Note : 1.The forward voltage data did not including $\pm 0.1V$ testing tolerance.
2. The luminous intensity data did not including $\pm 15\%$ testing tolerance.

Luminous Intensity Classification

BIN CODE	Po(mw/sr) at 20mA	
	Min.	Max.
H	0.65	0.85
J	0.85	1.1
K	1.1	1.4
L	1.4	1.8

Typical Electro-Optical Characteristics Curve

HIR CHIP

Fig.1 Forward Current vs. Forward Voltage

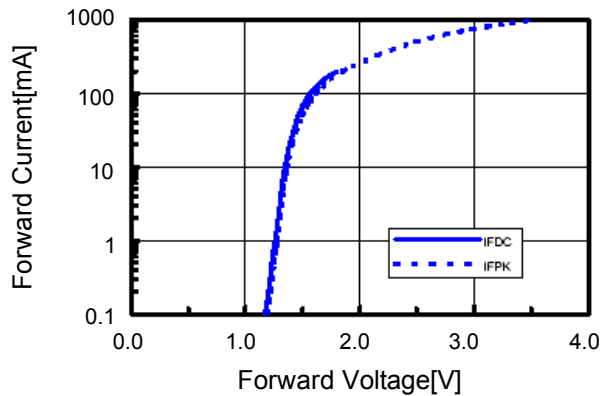


Fig.2 Relative Radiant Power vs. Wavelength

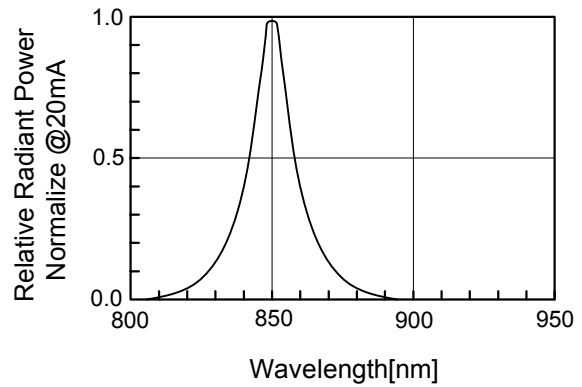


Fig.3 Relative Radiant Power vs. Forward DC Current

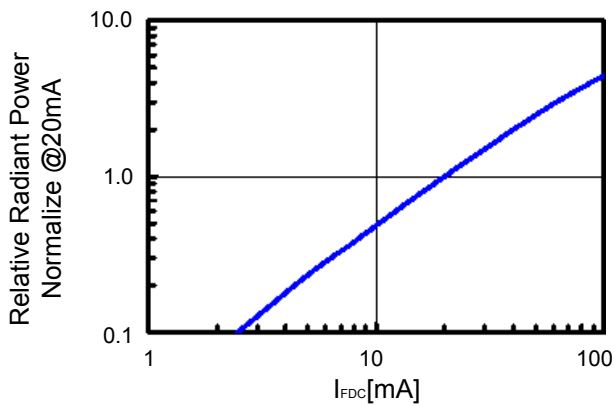


Fig.4 Relative Radiant Power vs. Forward Peak Current

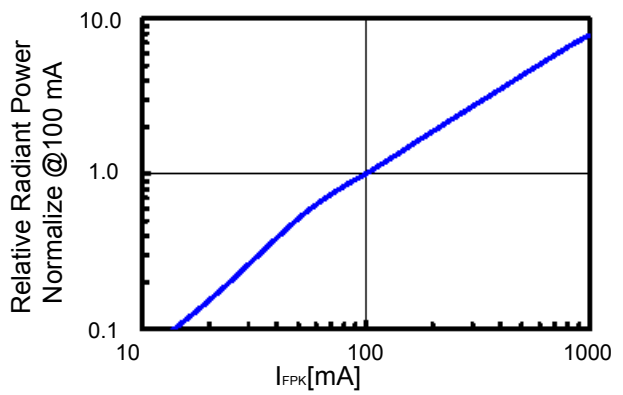


Fig.5 Forward DC Voltage vs. Temperature

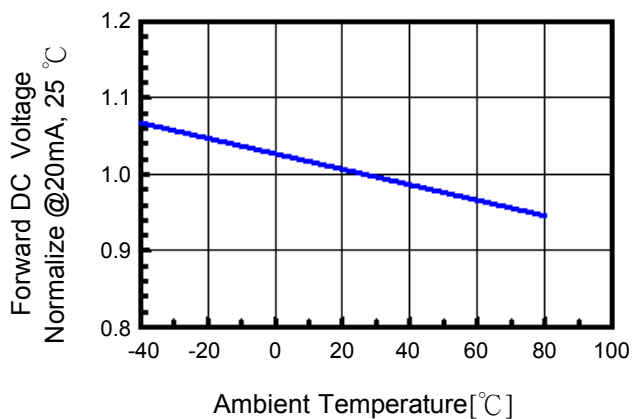
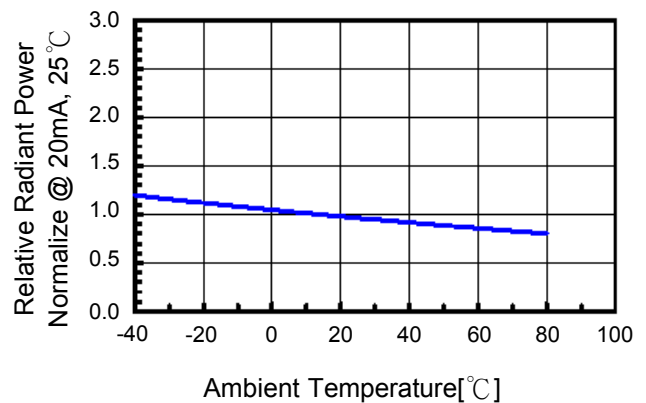
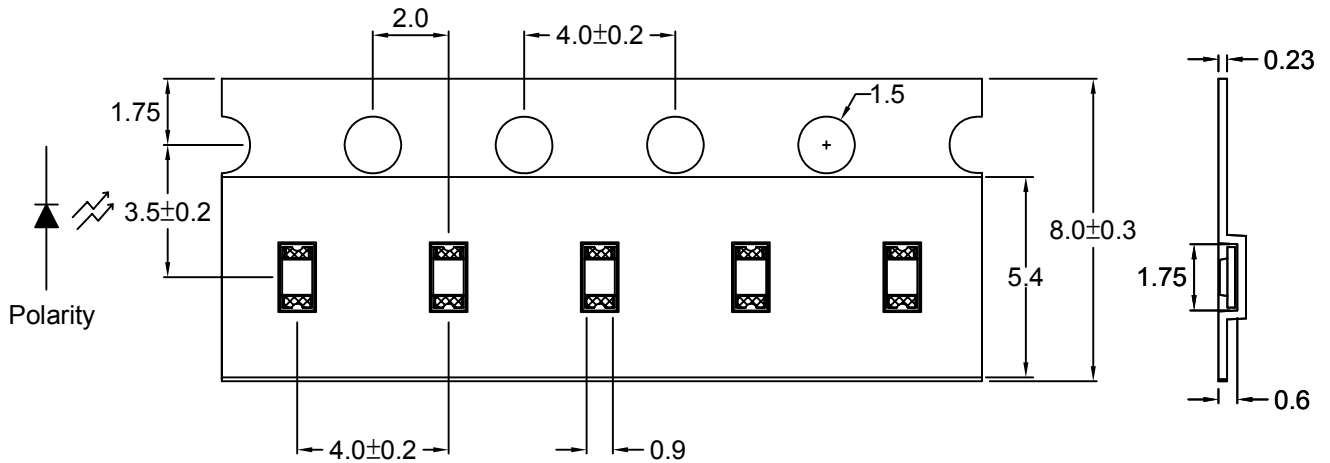


Fig.6 Relative Radiant Power vs. Temperature

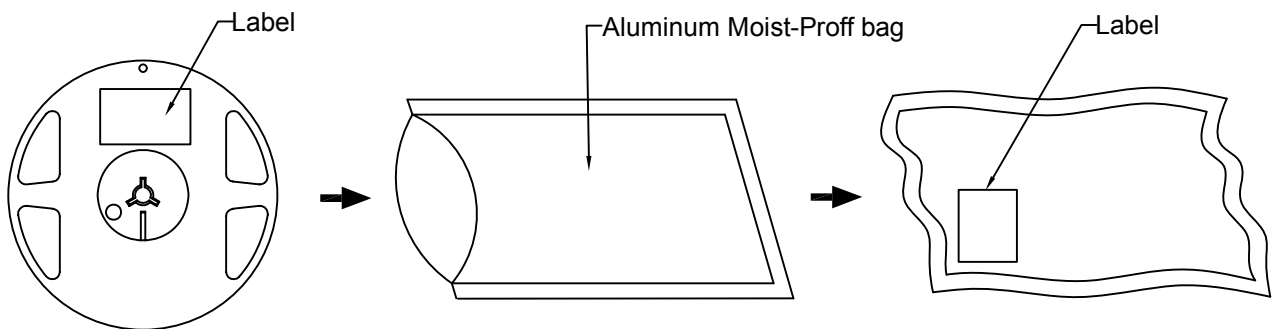


Carrier Type Dimensions



Note : The tolerances unless mentioned is $\pm 0.1\text{mm}$, Angle ± 0.5 . Unit=mm.

• Packing Specifications



Part No.	Description	Quantity/Reel
LG-192HIR-CT	8.0mm tape,7"reel	4000 devices

Label Explanation

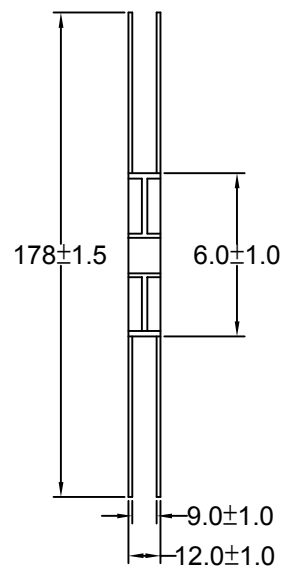
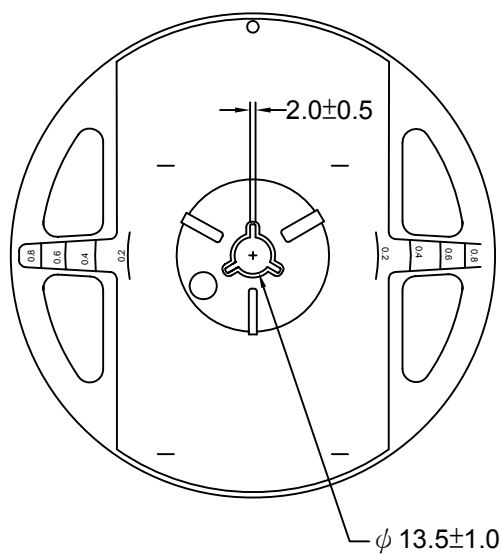
	LIGITEK ELECTRONICS CO., LTD.	
PART :	LG-192HIR-CT	
LOT :	GS11520168	
QTY(PCS):	4000	
BIN/HUE :	J	VF:1.1-1.6

BIN : Luminous Intensity

HUE : Dominant Wavelength

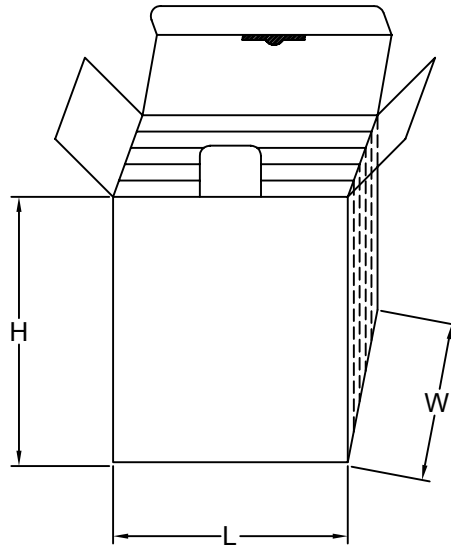
VF : Forward Voltage

Reel Dimensions

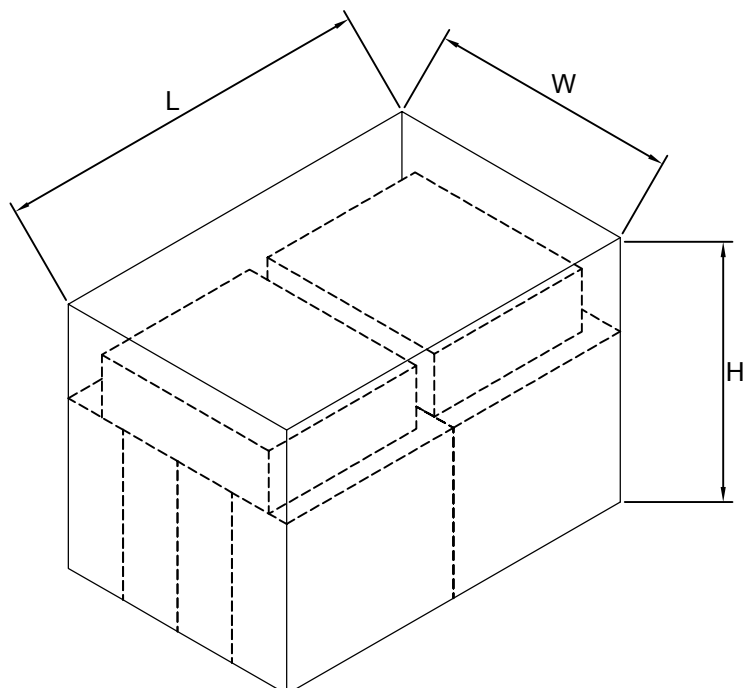


Box Explanation

1. 5 BAG / INNER BOX
2. INNER BOX SIZE : L X W X H 23cm X 8.5cm x 26cm

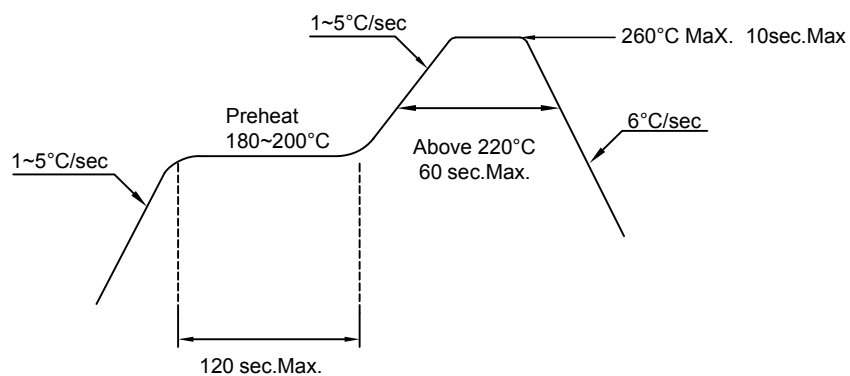


3. 10 INNER BOXES / CARTON
4. CARTON SIZE : L X W X H 58cm X 34cm x 35cm



Recommended Soldering Conditions**1. Hand Solder**

Basic spec is $\leq 280^{\circ}\text{C}$ 3 sec one time only.

2. PB-Free Reflow Solder**Note:**

- 1.Reflow soldering should not be done more than two times.
- 2.When soldering,do not put stress on the LEDs during heating.
- 3.After soldering,do not warp the circuit board.

Precautions For Use:**Storage time:**

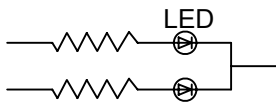
- 1.The operation of Temperatures and RH are : $5^{\circ}\text{C}\sim 35^{\circ}\text{C}$,RH60%.
- 2.Once the package is opened, the products should be used within a week.
Otherwise, they should be kept in a damp proof box with desiccating agent.
Considering the tape life, we suggest our customers to use our products within a year at $< 30^{\circ}\text{C}$ and $< 90\%$ relative humidity(RH). (from production date).
- 3.If opened more than one week in an atmosphere $5^{\circ}\text{C} \sim 35^{\circ}\text{C}$,RH60%, they should be treated at $60^{\circ}\text{C}\pm 5^{\circ}\text{C}$ for 15hrs.

Drive Method:

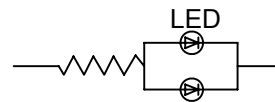
LED is a current operated device, and therefore, requires some kind of current limiting incorporated into the driver circuit. This current limiting typically takes the form of a current limiting resistor placed in series with the LED.

Consider worst case voltage variations that could occur across the current limiting resistor. The forward current should not be allowed to change by more than 40% of its desired value.

Circuit model A



Circuit model B



(A) Recommended circuit.

(B) The difference of brightness between LED could be found due to the VF-IF characteristics of LED.

Cleaning:

Use alcohol-based cleaning solvents such as isopropyl alcohol to clean the LED.

ESD(Electrostatic Discharge):

Static Electricity or power surge will damage the LED. Use of a conductive wrist band or anti-electrostatic glove is recommended when handling these LED. All devices, equipment and machinery must be properly grounded.

Reliability Test:

Classification	Test Item	Test Condition	Reference Standard
Endurance Test	Operating Life Test	1.Ta=Under Room Temperature As Per Data Sheet Maximum Rating. 2.If=20mA 3.t=1000 hrs (-24hrs, +72hrs)	MIL-STD-750D: 1026 MIL-STD-883D: 1005 JIS C 7021: B-1
	High Temperature Storage Test	1.Ta=105°C±5°C 2.t=1000 hrs (-24hrs, +72hrs)	MIL-STD-883D:1008 JIS C 7021: B-10
	Low Temperature Storage Test	1.Ta=-40°C±5°C 2.t=1000 hrs (-24hrs, +72hrs)	JIS C 7021: B-12
	High Temperature High Humidity Storage Test	1.Ta=65°C±5°C 2.RH=90%~95% 3.t=1000hrs jÖ2hrs	MIL-STD-202F:103B JIS C 7021: B-11
Environmental Test	Thermal Shock Test	1.Ta=105°C±5°C & -40°C±5°C (10min) (10min) 2.total 10 cycles	MIL-STD-202F: 107D MIL-STD-750D: 1051 MIL-STD-883D: 1011
	Solderability Test	1.T.Sol=235°C±5°C 2.Immersion time 2±0.5sec 3.Coverage ≥95% of the dipped surface	MIL-STD-202F: 208D MIL-STD-750D: 2026 MIL-STD-883D: 2003 IEC 68 Part 2-20 JIS C 7021: A-2
	Temperature Cycling	1.105°C ~ 25°C ~ -55°C ~ 25°C 30mins 5mins 30mins 5mins 2.10 Cyeles	MIL-STD-202F: 107D MIL-STD-750D: 1051 MIL-STD-883D: 1010 JIS C 7021: A-4
	IR Reflow	1.T=260°C Max. 10sec.Max. 2. 6 Min	MIL-STD-750D:2031.2 J-STD-020