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LED SMD



Lead-Free Parts

LG-192HIRR-M3-CT

DATA SHEET

DOC. NO : QW0905-LG-192HIRR-M3-CT

REV : A

DATE : 03 - Mar. - 2016



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.

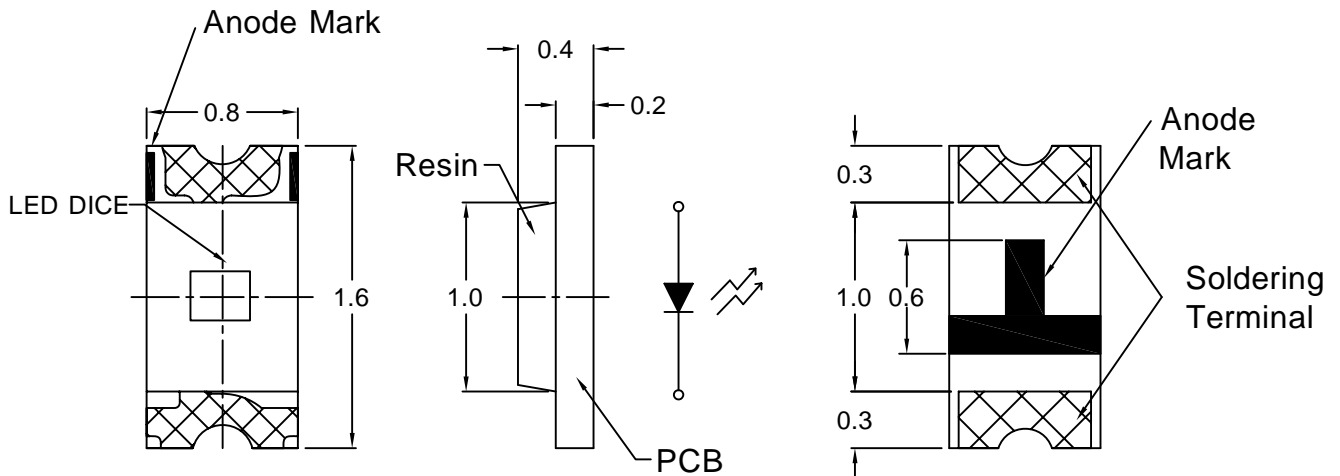
Applications:

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:

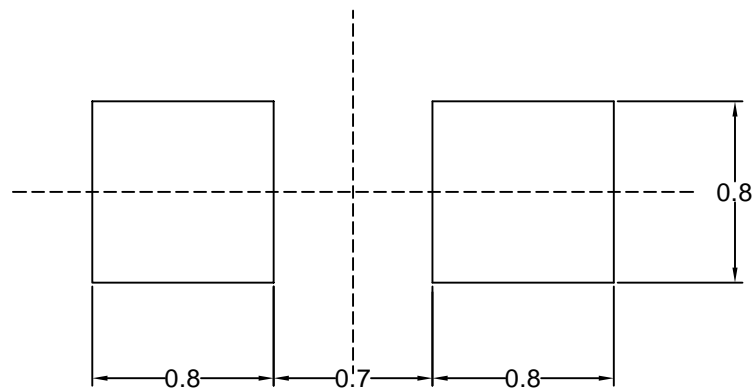
PART NO	MATERIAL	COLOR	
		Emitted	Lens
LG-192HIRR-M3-CT	GaAlAs	Infrared	Water Clear

Package Dimensions



Note : 1.All dimension are in millimeter tolerance is $\pm 0.1\text{mm}$ unless otherwise noted.
2.Specifications are subject to change without notice.

Recommended Soldering Pad Dimensions



Note : The tolerances unless mentioned is $\pm 0.1\text{mm}$, 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
Electrostatic Discharge	ESD	2000	V
LED junction Temperature	Tj	115	°C
Thermal Resistance	R _{th j-c}	430	°K/W

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

PARAMETER	SYMBOL	Min.	Typ.	Max.	UNIT	TEST CONDITION
Radiant Intensity	Po	1.4	2.0	----	mW/sr	IF=20mA
Peak Emission Wavelength	λ peak	----	855	----	nm	IF=20mA
Spectral Line Half Width	$\Delta \lambda$	----	30	----	nm	IF=20mA
Forward Voltage	VF	----	1.2	1.6	V	IF=20mA
Viewing Angle	2 θ 1/2	----	130	----	deg	IF=20mA
Reverse Current	IR	----	----	100	μ A	VR=5V

Note : 1.The Radiant intensity data did not including $\pm 15\%$ testing tolerance.
2. Chip use ES-SASFPN14

Luminous Intensity Classification

BIN CODE	Po(mw/sr) at 20mA	
	Min.	Max.
L	1.4	1.8
M	1.8	2.4
N	2.4	3.2
P	3.2	4.2

Typical Electro-Optical Characteristics Curve

HIRR CHIP

Fig.1 Forward Current vs. Forward Voltage

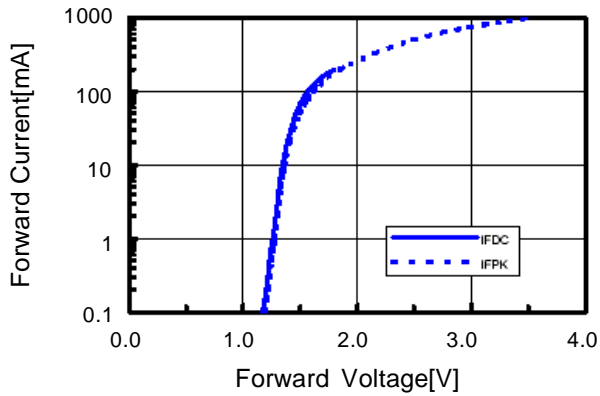


Fig.2 Relative Radiant Power vs. Wavelength

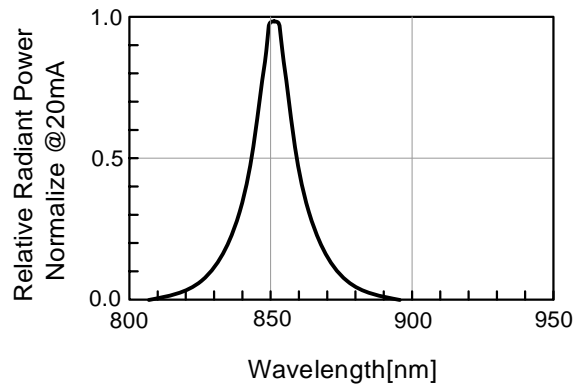


Fig.3 Relative Radiant Power vs. Forward DC Current

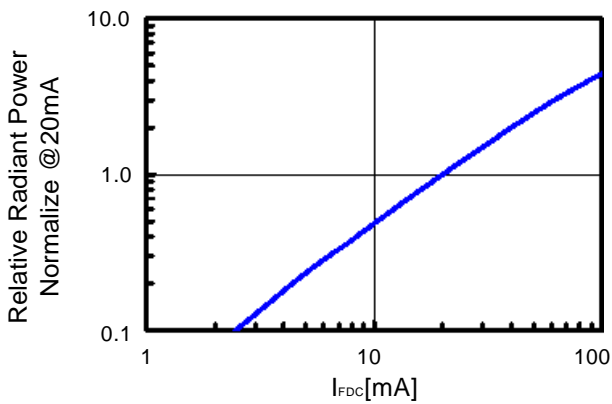


Fig.4 Relative Radiant Power vs. Forward Peak Current

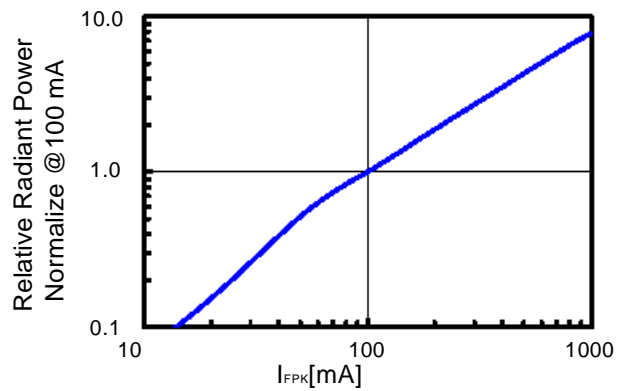


Fig.5 Forward DC Voltage vs. Temperature

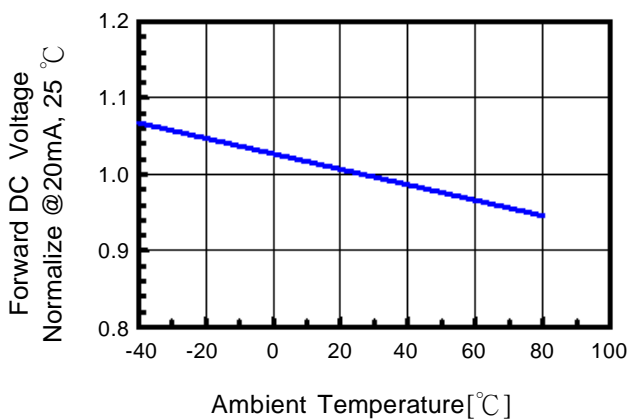
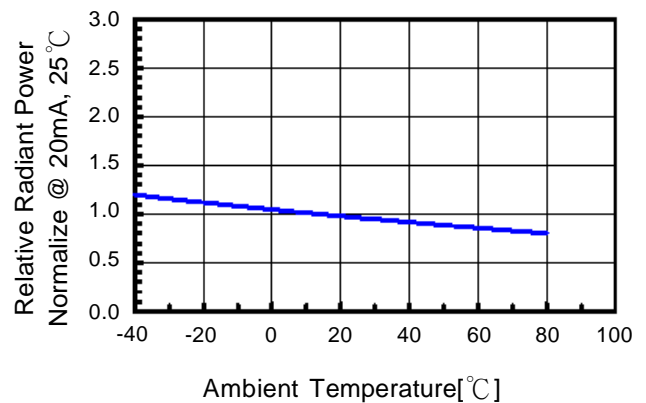
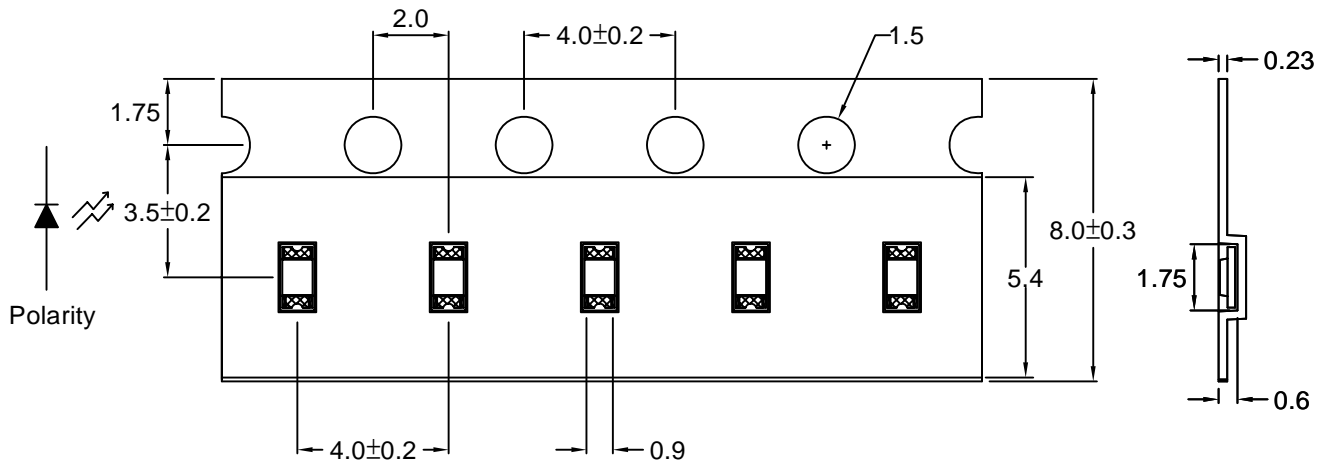


Fig.6 Relative Radiant Power vs. Temperature

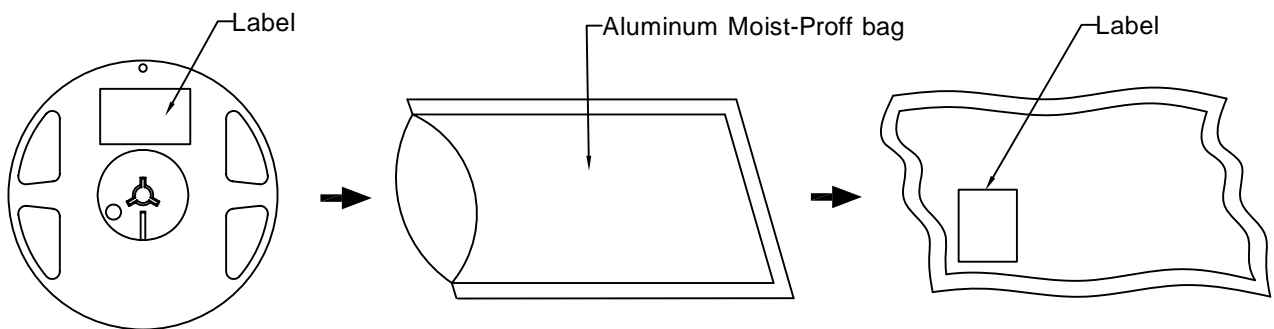


Carrier Type Dimensions









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

• Packing Specifications



Part No.	Description	Quantity/Reel
LG-192HIRR-M3-CT	8.0mm tape,7"reel	4000 devices

Label Explanation

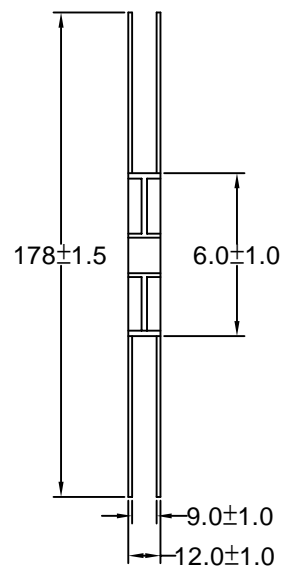
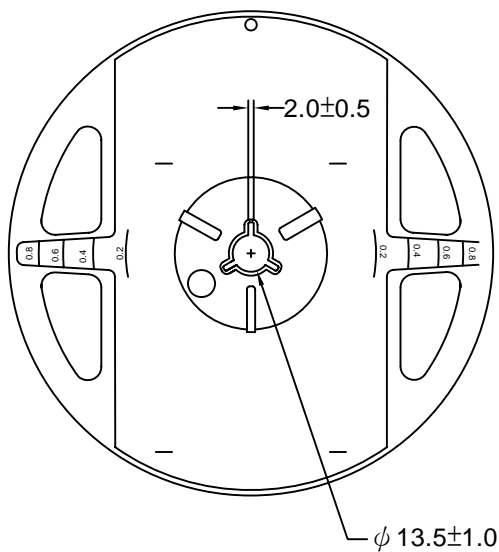
 LIGITEK ELECTRONICS CO., LTD.	
PART :	 LG-192HIRR-M3-CT
LOT :	 GS11570168
QTY(PCS):	 4000
BIN/HUE :	 M  VF:1.1-1.6

BIN : Luminous Intensity

HUE : Peak Wavelength

VF : Forward Voltage

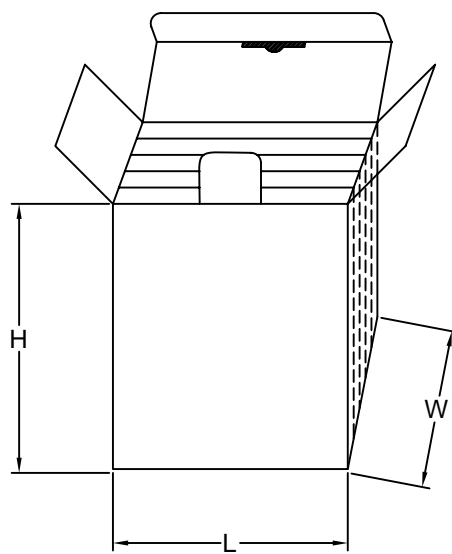
Reel Dimensions



Box Explanation

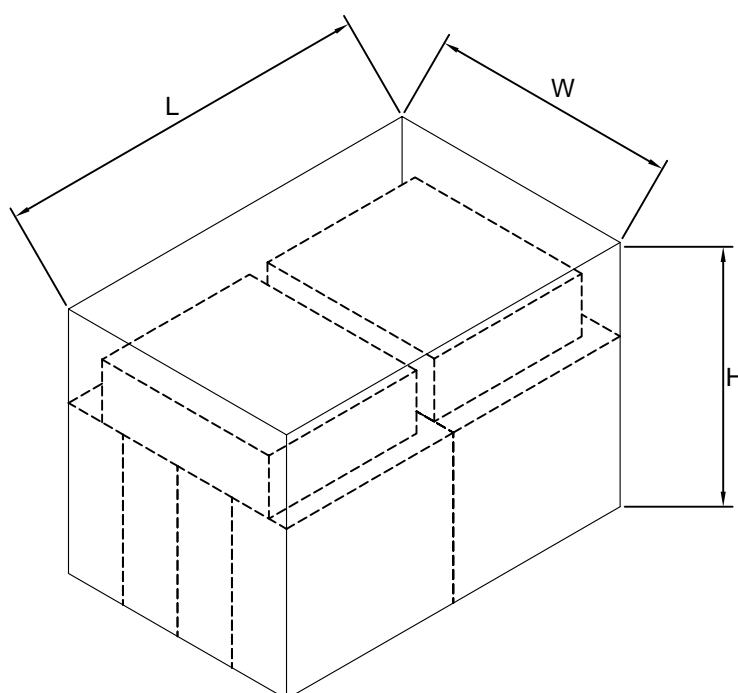
1. 5 BAG / INNER BOX

2. INNER BOX SIZE : L X W X H 23cm X 8.5cm x 26cm



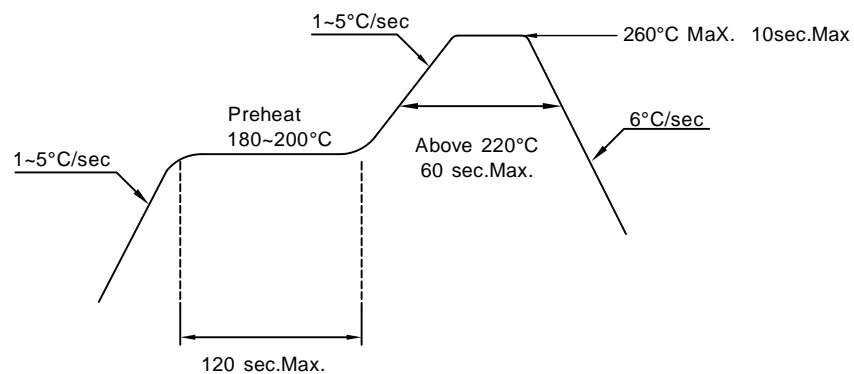
3. 10 INNER BOXES / CARTON

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:**

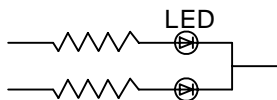
1. Calculated shelf life before opening is 18 months at $< 30^{\circ}\text{C}$ and $< 90\%$ relative humidity (RH)
2. After bag is opened, devices which will be subjected to reflow soldering or other high temperature processes must be
 - a) Assembled within one years in an environment of $\leq 30^{\circ}\text{C} / 60\%$ RH, or
 - b) Stored at ambient of 10% RH or less
3. Devices are required baking before assembly if:
 - a) Humidity Indicator Card reads $>10\%$ (for level 2a -5a) or $>60\%$ (for level 2) at ambient temperature $23\pm 5^{\circ}\text{C}$
 - b) 2.a) or 2.b) doesn't meet
4. If baking is required, devices should be baked for >24 hours at $60\pm 5^{\circ}\text{C}$. Performing baking only once, and using the baked devices within 72 hours..

Drive Method:

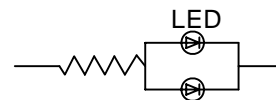
LED is a current operated device, and therefore, requires some kind of current limiting incorporated into the driver circuit. This current limiting typically takes the form of a current limiting resistor placed in series with the LED.

Consider worst case voltage variations than 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	Sample Size
Endurance Test	Operating Life Test	1.Ta=25°C 2.If=20mA 3.t=1000 hrs (-24hrs,+72hrs)	22
	High Temperature Storage Test	1.Ta=100°C±5°C 2.t=1000 hrs (-24hrs,+72hrs)	22
	Low Temperature Storage Test	1.Ta=-40°C±5°C 2.t=1000 hrs (-24hrs,+72hrs)	22
	High Temperature High Humidity Storage Test	1.Ta=85°C 2.RH=85% 3.t=1000hrs(-24hrs,+72hrs)	22
Environmental Test	Thermal Shock Test	1.Ta=100°C±5°C ~ -40°C±5°C 20min/ 10sec / 20min 2.total 100 cycles	22
	Temperature Cycling	1.100°C±5°C ~ -40°C±5°C 30mins / 5mins / 30mins 2.100 Cyeles	22
	IR Reflow	1.T=260°C Max. 10sec.Max. 2. 6 Min	22