



LIGITEK ELECTRONICS CO.,LTD.
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LED SMD



Lead-Free Parts

LG-150VIR-CT

DATA SHEET

DOC. NO : QW0905-LG-150VIR-CT

REV. : A

DATE : 15 - Jan. - 2014



Features:

1. Package in 8.0mm carrier tape on 7" diameter reel.
2. Low forward voltage
3. Good spectral matching to Si photo detector

Descriptions:

1. The LG-150VIR is an infrared emitting diode in miniature SMD package which is molded in a water clear plastic with flat top view lens.
2. The device is spectrally matched with silicon photodiode and phototransistor.

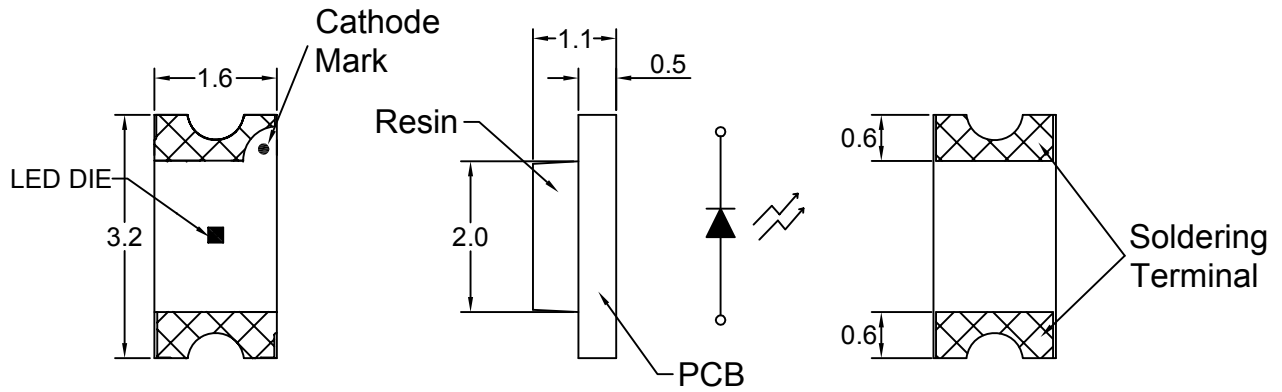
Applications:

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:

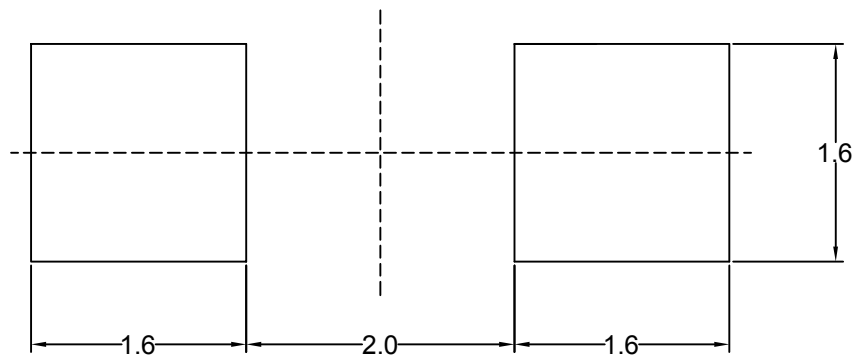
PART NO	MATERIAL	Lens Color
LG-150VIR-CT	GaAIAs	Water Clear

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 Duty 1/11@10KHz	IFP	1	mA
Forward Current	IF	50	mA
Reverse Current @5V	Ir	5	μA
Electrostatic Discharge	ESD	2000	V
Operating Temperature	Topr	-40 ~ + 85	°C
Storage Temperature	Tstg	-40 ~ + 85	°C

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

PARAMETER	SYMBOL	Min.	Typ.	Max.	UNIT	TEST CONDITION
Radiant Intensity	Le	0.85	1.4	----	mW/sr	IF=20mA
Peak Emission Wavelength	λ peak	----	940	----	nm	IF=20mA
Spectral Line Half Width	Δλ	----	50	----	nm	IF=20mA
Forward Voltage	VF	1.2	----	1.6	V	IF=20mA
Reverse Current	IR	----	----	100	μA	VR=5V
Viewing Angle	2θ 1/2	----	140	----	deg	IF=20mA

Note : 1.The forward voltage data did not including ±0.1V testing tolerance.
2. The Radiant intensity data did not including ±15% testing tolerance.

Radiant Intensity Classification

BIN CODE	Po(mw/sr) at 20mA	
	Min.	Max.
J	0.85	1.1
K	1.1	1.4
L	1.4	1.8
M	1.8	2.4
N	2.4	3.2

Typical Electro-Optical Characteristics Curve

VIR CHIP

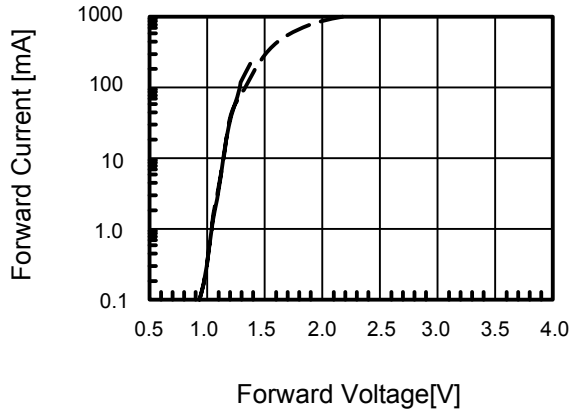


Fig.3. Relative Radiant Power vs. Forward Peak Current

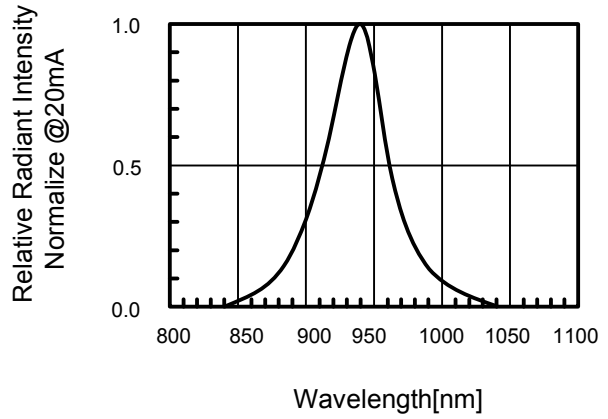


Fig.4 Relative Radiant Power vs. Forward Peak Current

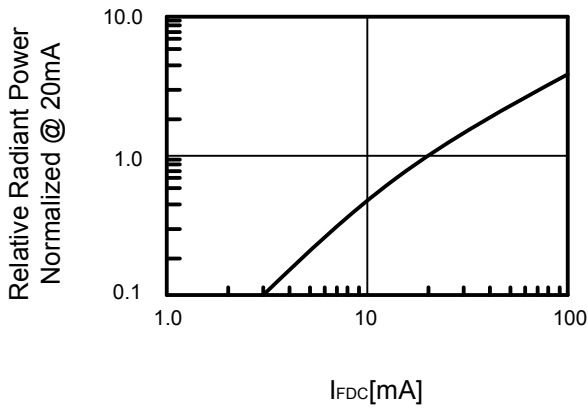


Fig.5 Forward DC Voltage vs. Temperature

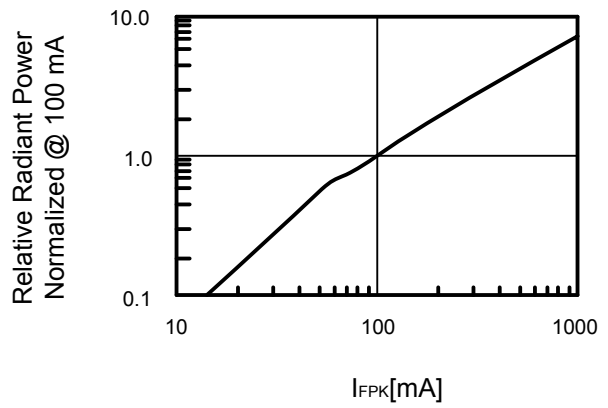
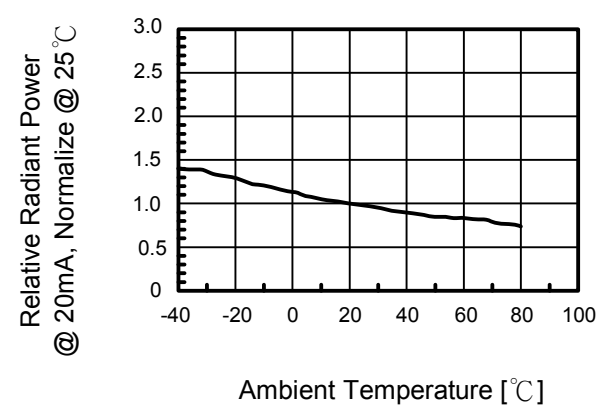
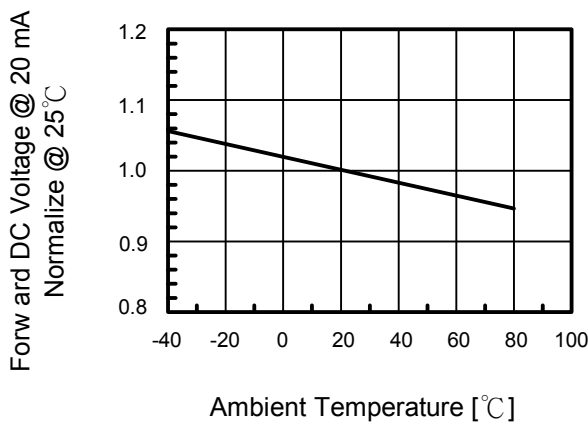
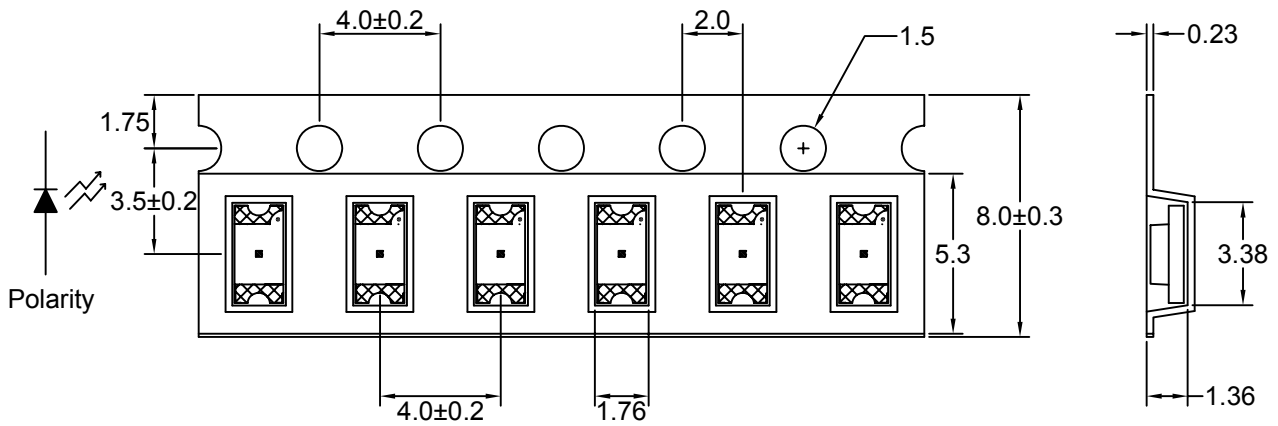


Fig.6 Relative Radiant Power vs. Temperature

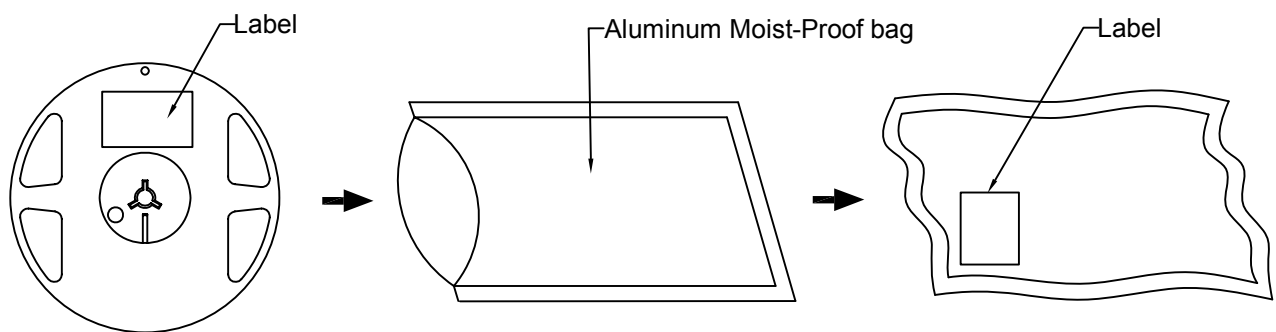


Carrier Type Dimensions



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

• Packing Specifications



Part No.	Description	Quantity/Reel
LG-150VIR-CT	8.0mm tape,7"reel	3000 devices

Label Explanation

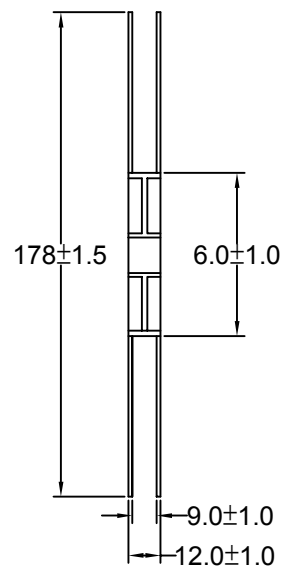
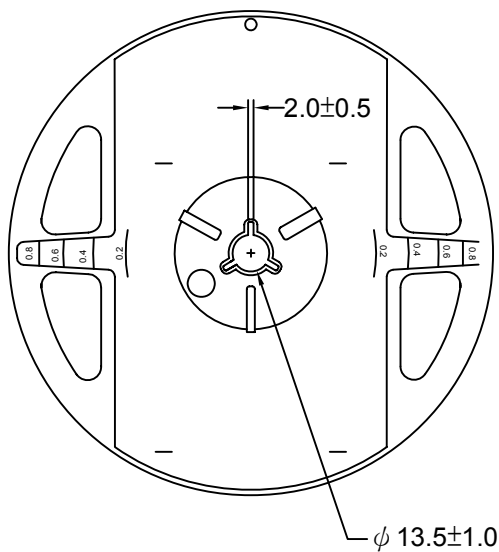
	LIGITEK ELECTRONICS CO., LTD.	
PART :	LG-150VIR-CT	
LOT :	GS11380168	
QTY(PCS):	3000	
BIN/HUE :	J	VF:1.2-1.6

BIN : Luminous Intensity

HUE : Dominant Wavelength

VF : Forward Voltage

Reel Dimensions



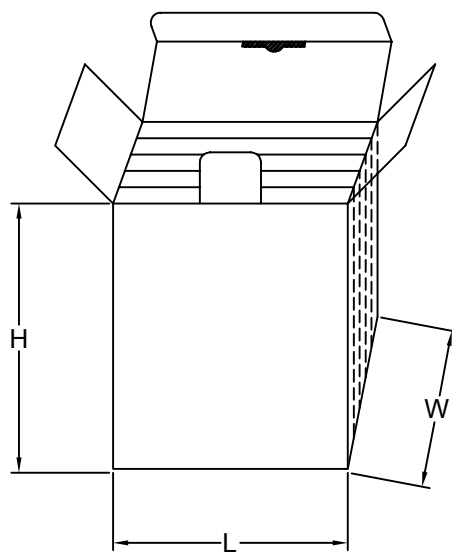
PART NO. LG-150VIR-CT

Page 8/11

Box Explanation

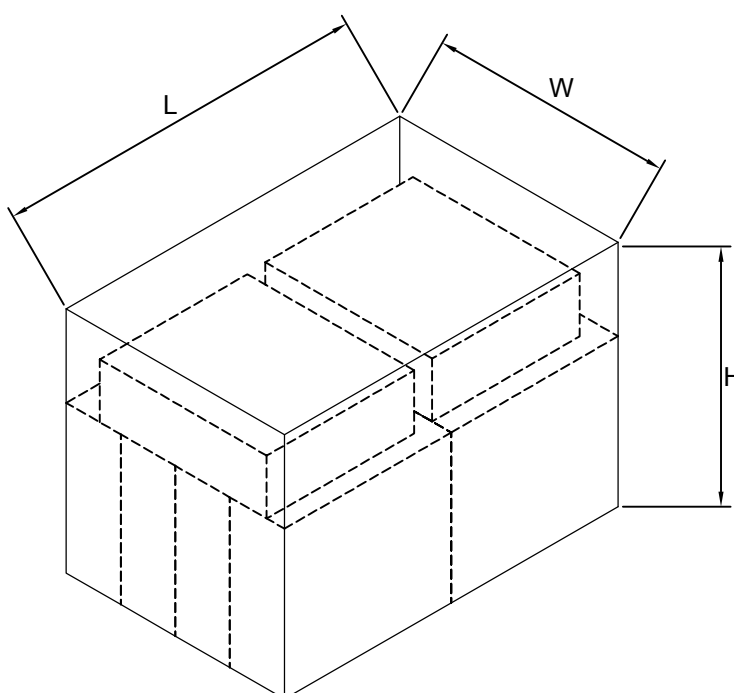
1. 5 BAG / INNER BOX

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



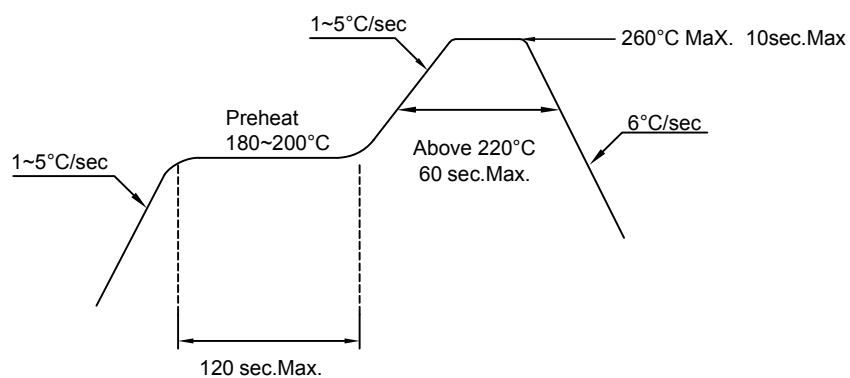
3. 10 INNER BOXES / CARTON

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:**

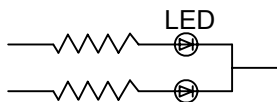
- 1.The operation of Temperatures and RH are : $5^{\circ}\text{C}\sim 35^{\circ}\text{C}$,RH60%.
- 2.Once the package is opened, the products should be used within a week.
Otherwise, they should be kept in a damp proof box with desiccating agent.
Considering the tape life, we suggest our customers to use our products within a year(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:

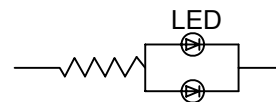
LED is a current operated device, and therefore, requires some kind of current limiting incorporated into the driver circuit. This current limiting typically takes the form of a current limiting resistor placed in series with the LED.

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