



LIGITEK

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LED SMD



LG-150PT-CT

DATA SHEET

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

REV. : B

DATE : 20-Feb-2009





Features:

- 1. Fast response time.
- 2. High photo sensitivity.
- 3. Small junction capacitance.

Descriptions:

- 1. The LG-150PT is a phototransistor in miniature SMD package which is molded in water clear plastic with flat top view lens. the device is spectrally matched to emitting diode.

Applications:

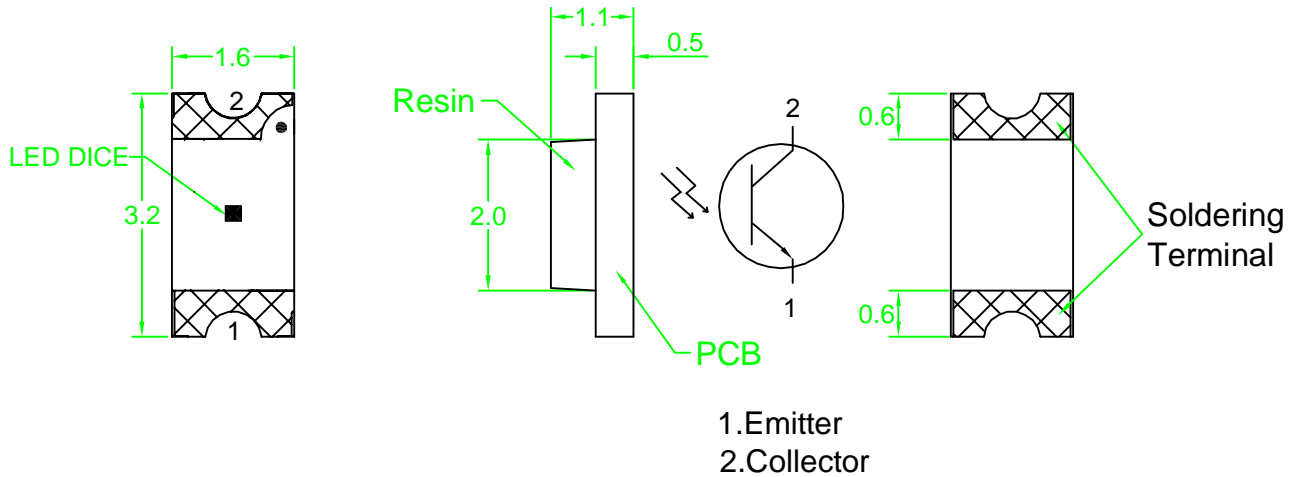
- 1. Miniature switch
- 2. Counters and sorter
- 3. Position sensor
- 4. Infrared applied system.

Device Selection Guide:

PART NO	MATERIAL	Lens Color
LG-150PT-CT	Silicon	Water Clear

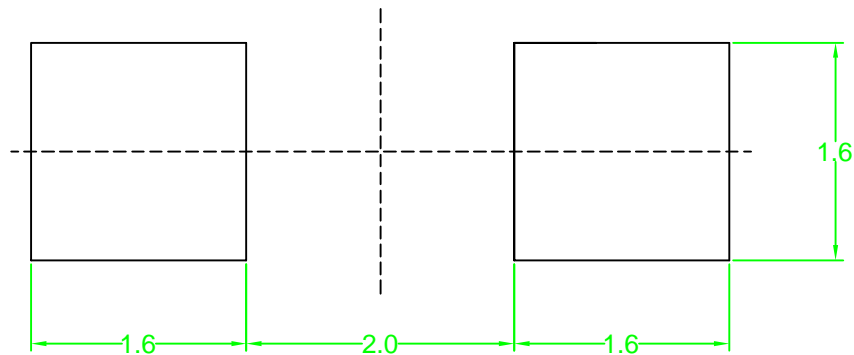


Package Dimensions



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

Parameter	Symbol	Ratings	UNIT
Collector-Emitter Voltage	V_{CEO}	30	V
Emitter-Collector Voltage	V_{ECO}	5	V
Collector Current	I_C	20	mA
Power Dissipation at(or below 25± Free Air Temperature	P_c	75	mW
Operating Temperature	T_{opr}	-25 ~ +85	
Storage Temperature	T_{stg}	-40 ~ +85	
Soldering Temperature	T_{sol}	Max 260 for 5 sec Max	

Typical Electrical & Optical Characteristics (Ta=25)

Items	Symbol	Min.	Typ.	Max.	UNIT	CONDITION
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	30	----	----	V	$I_C=1mA$ $E_e=0mw/cm^2$
Emitter-Collector Breakdown Voltage	$V_{(BR)ECO}$	5.0	----	----	V	$I_E=100\mu A$ $E_e=0mw/cm^2$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	----	----	0.4	V	$I_C=0.5mA$ $E_e=1mw/cm^2$
Rise Time	T_r	----	5.0	----	μs	$V_{CE}=30V$ $I_C=800\mu A$ $RL=1K$
Fall Time	T_f	----	5.0	----	μs	
Collector Dark Current	I_{CEO}	----	----	100	nA	$V_{CE}=10V$ $E_e=0mw/cm^2$
On State Collector Current	$I_p(on)$	0.25	----	0.5	mA	$V_{CE}=5V$ $E_e=1mw/cm^2$ $P=940nm$
		0.5	----	0.9		
		0.9	----	1.3		
		1.3	----	1.5		



Typical Electro-Optical Characteristics Curve PT CHIP

Fig.1 Collector Power Dissipation vs. Ambient Temperature

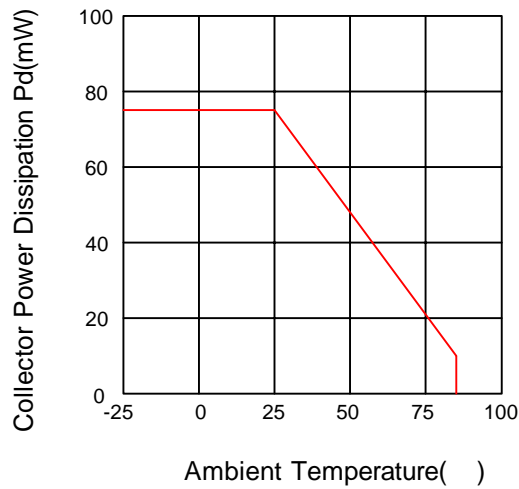


Fig.2 Spectral Sensitivity

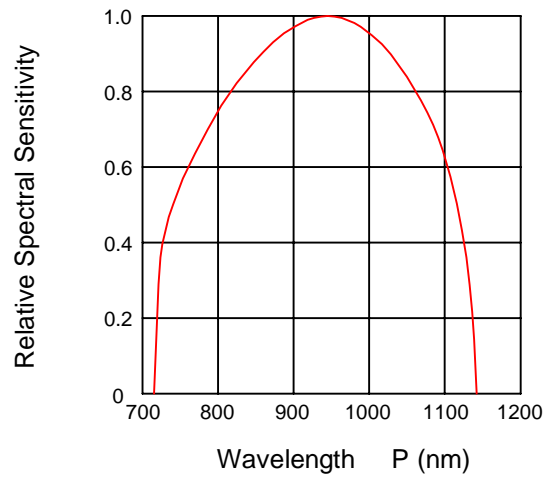
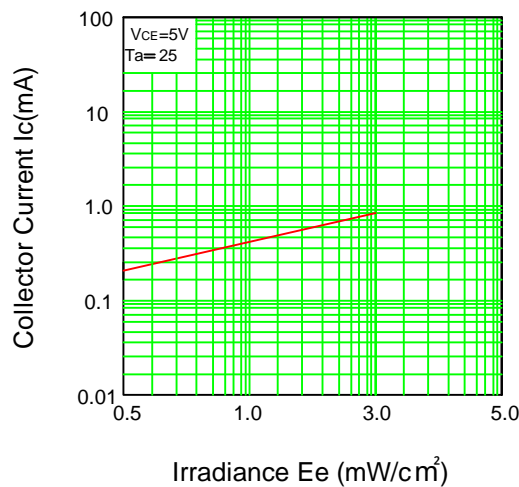
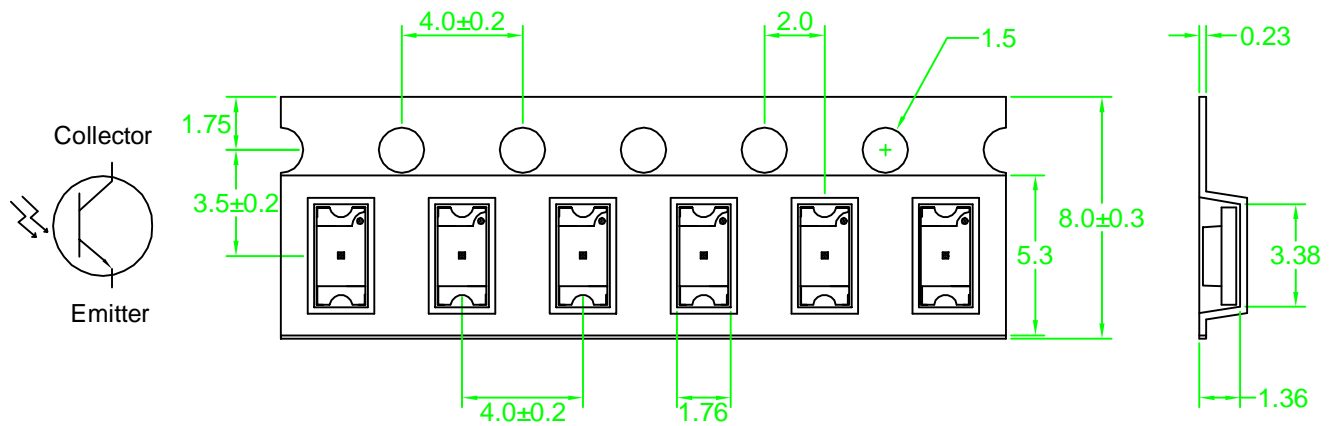


Fig.3 Collector Current vs. Irradiance

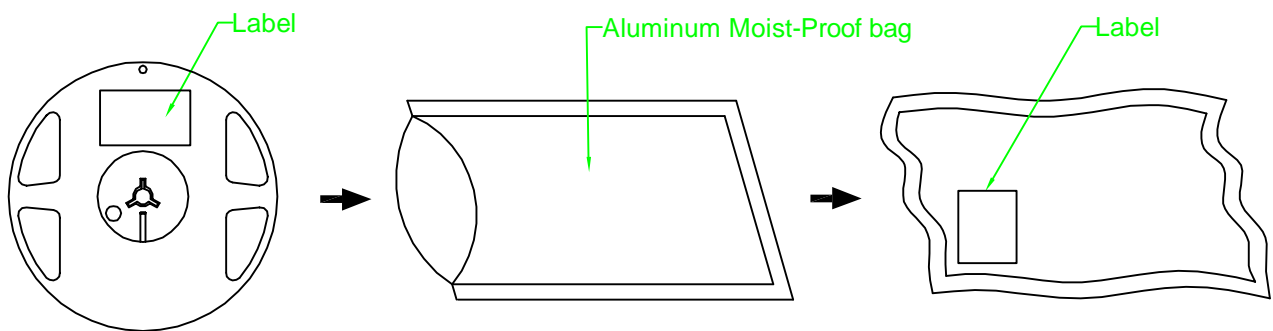


Carrier Type Dimensions



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


Packing Specifications



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

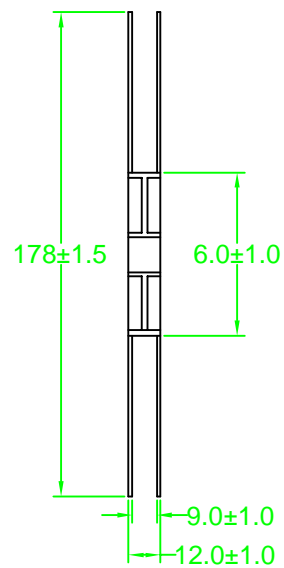
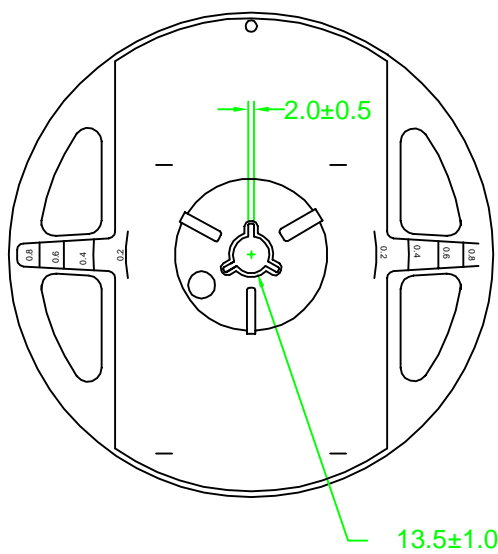


Label Explanation

 立碁電子工業股份有限公司 LIGITEK ELECTRONICS CO., LTD.	
PART NO. : LG-150PT-CT	
LOT NO. : GS1-920016	
Q'TY(PCS) : 3000 PCS	
BIN/HUE : I4	

I4 : On State Collector Current

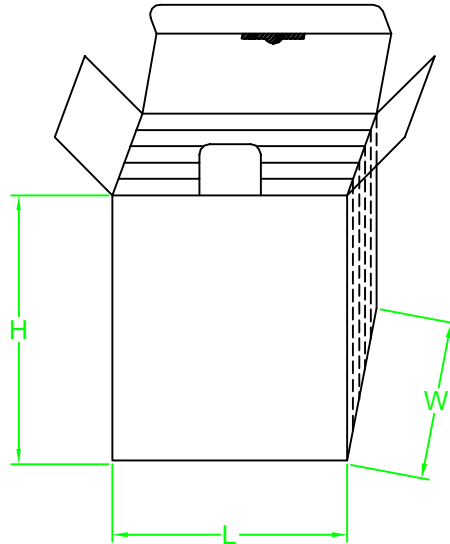
Reel Dimensions



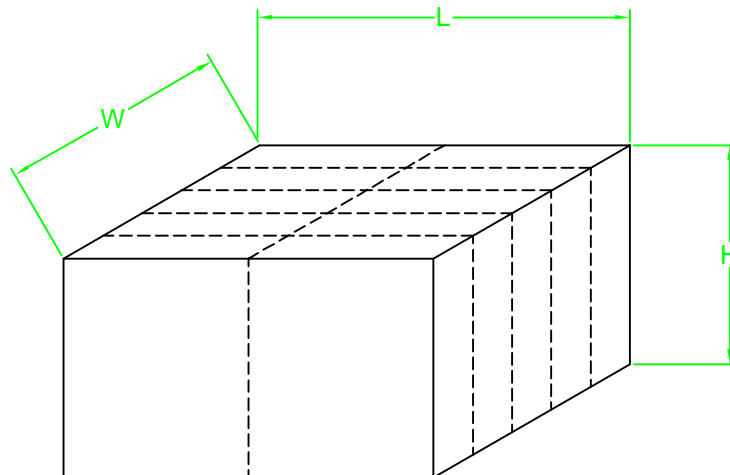


Box Explanation

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 49cm X 46cm x 29cm



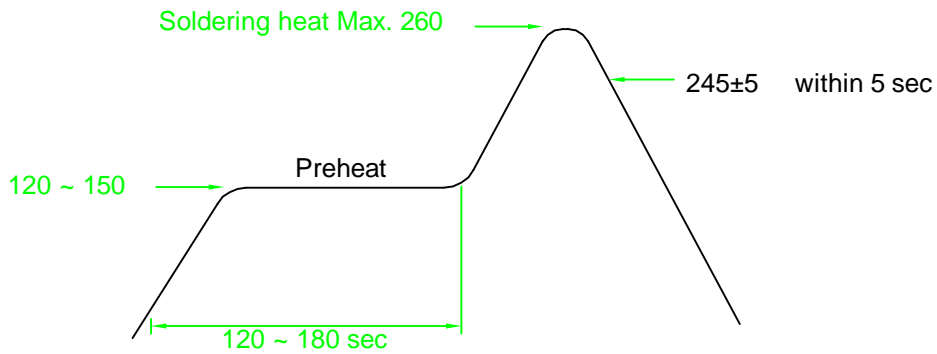


Recommended Soldering Conditions

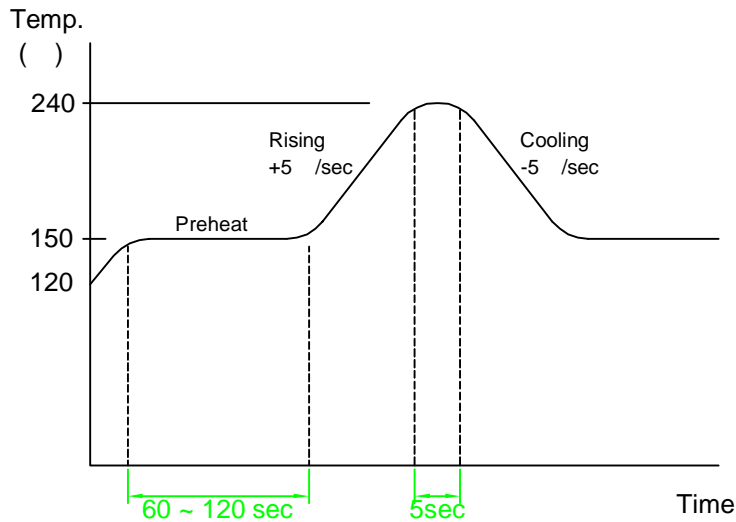
1. Hand Solder

Basic spec is 280 3 sec one time only.

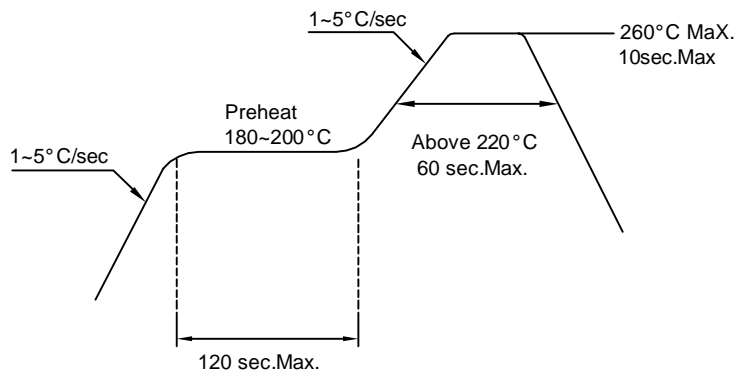
2. Wave Solder



3-1. LEAD Reflow Solder



3-2 PB-Free Reflow Solder



Reflow Soldering should not be done more than two times.



Precautions For Use:

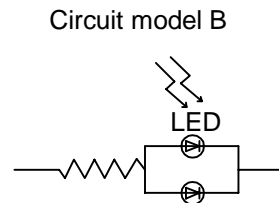
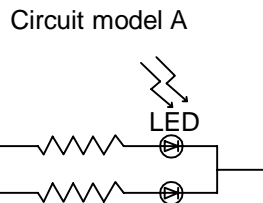
Storage time:

- 1.The operation of Temperatures and RH are : 5 ~35 ,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 descanting 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 ~ 35 ,RH60%, they should be treated at 60 ±5 fo r 15hrs.

Drive Method:

LED is a current operated device, and therefore, requirer 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 forwrd current should not be allowed to change by more than 40 % of its desired value.



- (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-electrosatic glove is recommended when handing 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 ±5 2.t=1000 hrs (-24hrs, +72hrs)	MIL-STD-883D:1008 JIS C 7021: B-10
	Low Temperature Storage Test	1.Ta=-40 ±5 2.t=1000 hrs (-24hrs, +72hrs)	JIS C 7021: B-12
	High Temperature High Humidity Storage Test	1.Ta=65 ±5 2.RH=90%~95% 3.t=1000hrs ±2hrs	MIL-STD-202F:103B JIS C 7021: B-11
Environmental Test	Thermal Shock Test	1.Ta=105 ±5 & -40 ±5 (10min) (10min) 2.total 10 cycles	MIL-STD-202F: 107D MIL-STD-750D: 1051 MIL-STD-883D: 1011
	Solderability Test	1.T.Sol=235 ±5 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 ~ 25 ~ -55 ~ 25 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