Phototransistor
Technical Data Sheet

Part No.: DL-PTC730C-B

◆ Features:

1. Fast response time
2. High photo sensitivity
3. Small junction capacitance
4. Pb free
5. The product itself will remain with in RoHS compliant version.

◆ Descriptions:

1. The PTC730C-B is a photo transistor in miniature package which is molded in a water clear plastic with spherical top view lens.The device is spectrally to infrared emitting diode.

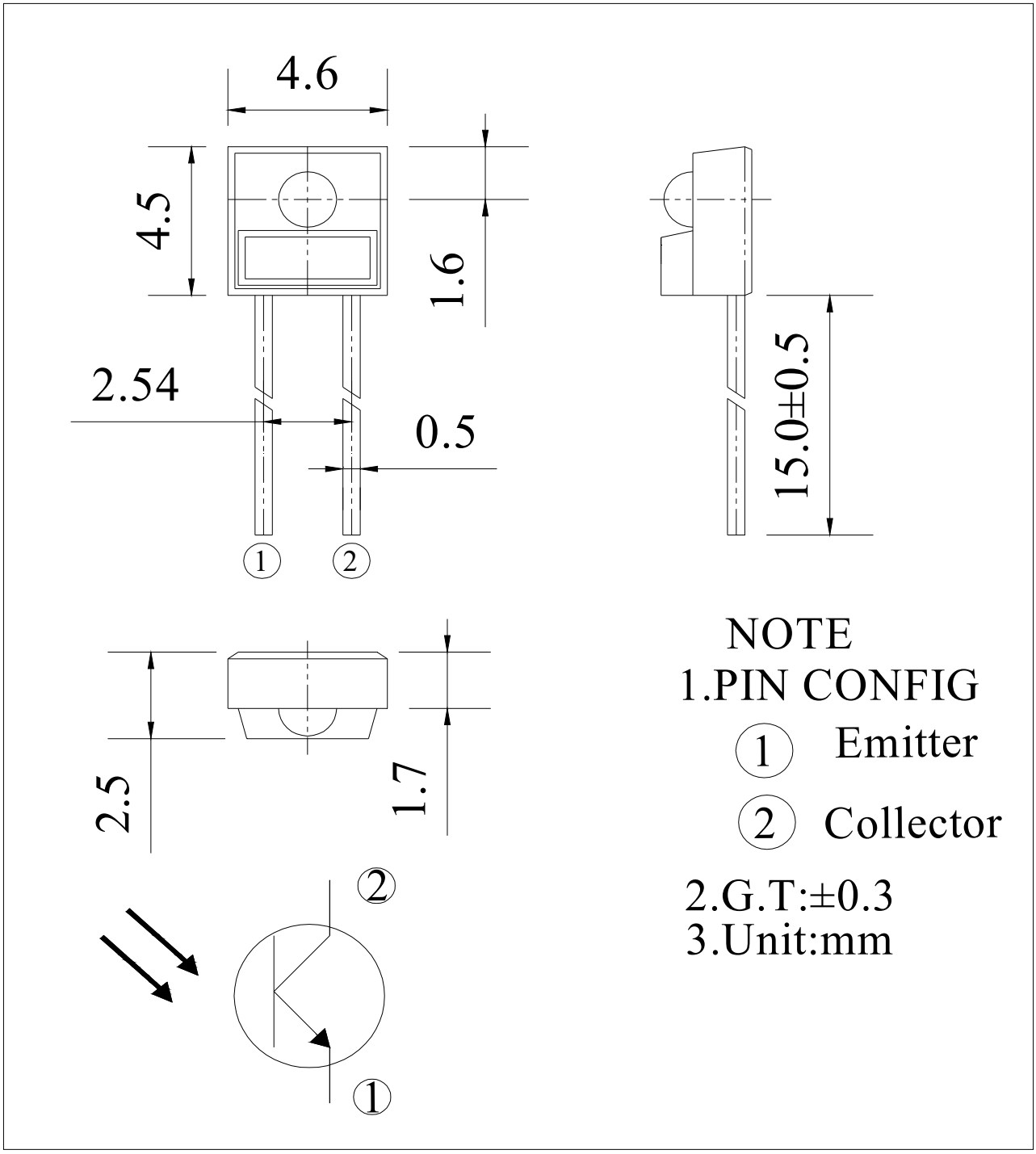
◆ Applications:

6. Automatic door sensor.
7. Infrared applied system.
8. Counters and sorters.
9. Encoders.
10. Optoelectronic switch.
11. Video camera, tape and card readers.
12. Position sensors.
13. Copier.
14. Game machine.
15. Optical counters
16. Optical detectors
17. Flywheel counters

◆ Rankings

Parameter	Symbol	Min	Max	Unit	Test condition
7-3	$Ic_{(on)}$	0.53	1.19	mA	V_{CE}=5V Ee=0.555mW/cm^2
7-2		0.88	1.70		
7-1		1.24	2.21		
6-2		1.59	2.98		
6-1		1.77	3.41		

◆ Package Dimension



Part No.	Chip Material	Lens Color	Source Color
DL-PTC730C-B	Silicon	Water Clear	Phototransistor

Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is ± 0.25mm (0.01”) unless otherwise specified.
3. Specifications are subject to change without notice.

◆ Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Ratings	Unit
Collector-Emitter Voltage	V_{CEO}	30	V
Emitter-Collector Voltage	V_{ECO}	5	V
Collector Power Dissipation	P_D	75	mW
Collector Current	I_C	40	mA
Operating Temperature	T_{opr}	-25 ~ +65	°C
Storage Temperature	T_{stg}	-40 ~ +85	°C
Soldering Temperature *2	T_{sol}	260	°C

◆ Electrical Optical Characteristics at Ta=25℃

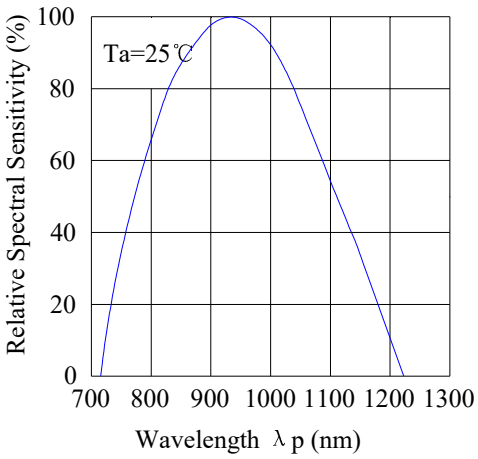
Parameters	Symbol	Min.	Typ.	Max.	Unit	Condition
Collector-Emitter Breakdown Voltage	BV_{CEO}	30	---	---	V	I_C=100μA, Ee=0mW/cm²
Emitter-Collector Breakdown Voltage	BV_{ECO}	5	---	---	V	I_E=100μA, Ee=0mW/cm²
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	---	---	0.40	V	I_C=0.70mA, Ee=1mW/cm²
Collector Dark Current	I_{CEO}	---	---	100	nA	Ee=0mW/cm², V_{CE}=20V
On-State Collector Current	$I_{C(ON)}$	0.53	----	3.41	mA	V_{CE}=5V Ee=0.555mW/cm²
Optical Rise Time (10% to 90%)	T_R	---	15	---	μs	V_{CE}=5V, I_C=1mA, R_L=1000Ω
Optical Fall Time (90% to 10%)	T_F	---	15	---		
Reception Angle	$2\theta_{1/2}$	---	30	---	Deg	
Wavelength Of Peak Sensitivity	λP	---	940	---	nm	
Rang Of Spectral Bandwidth	λ0.5	400	---	1200	nm	

*2. At the position of 2mm from the bottom face of resin package within 5 second.

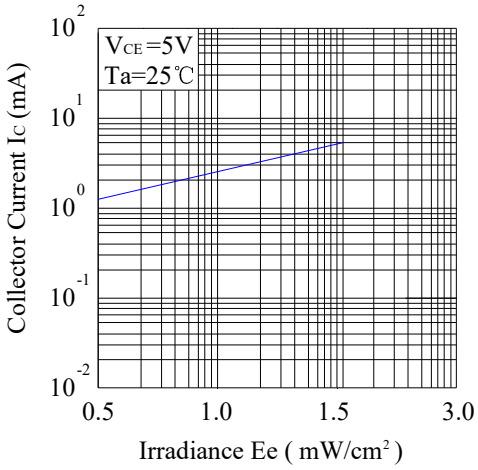
◆ Typical Electrical / Optical Characteristics Curves

(25℃ Ambient Temperature Unless Otherwise Noted)

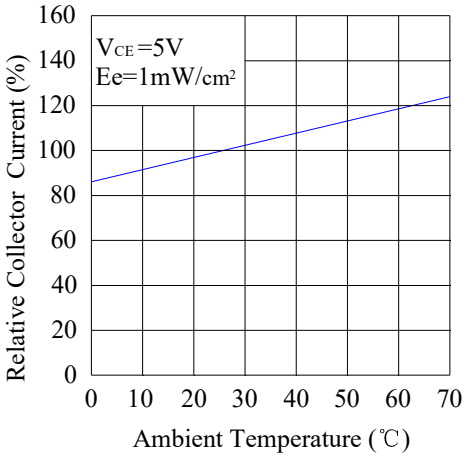
Spectral Sensitivity



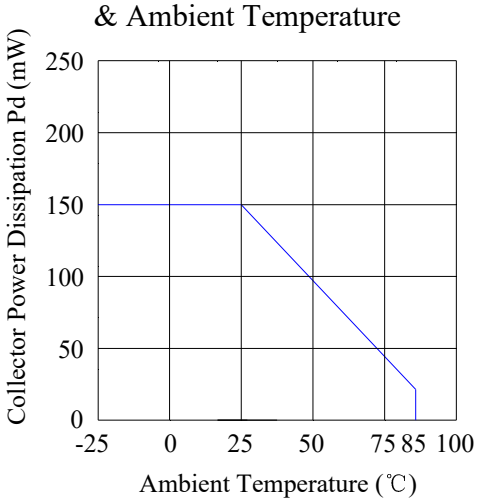
Collector Current & Irradiance



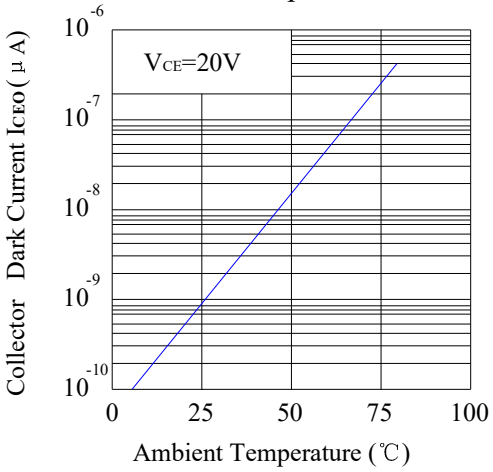
Relative Collector Current & Ambient Temperature



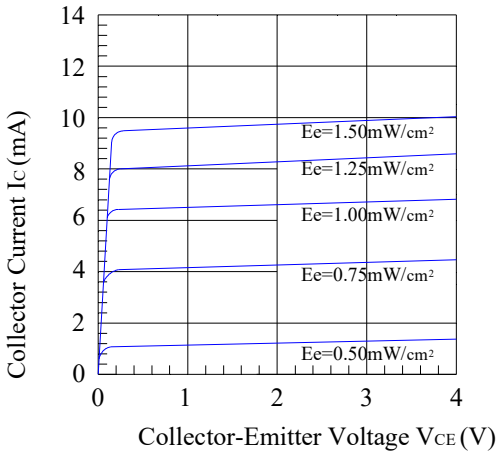
Collector Power Dissipation & Ambient Temperature



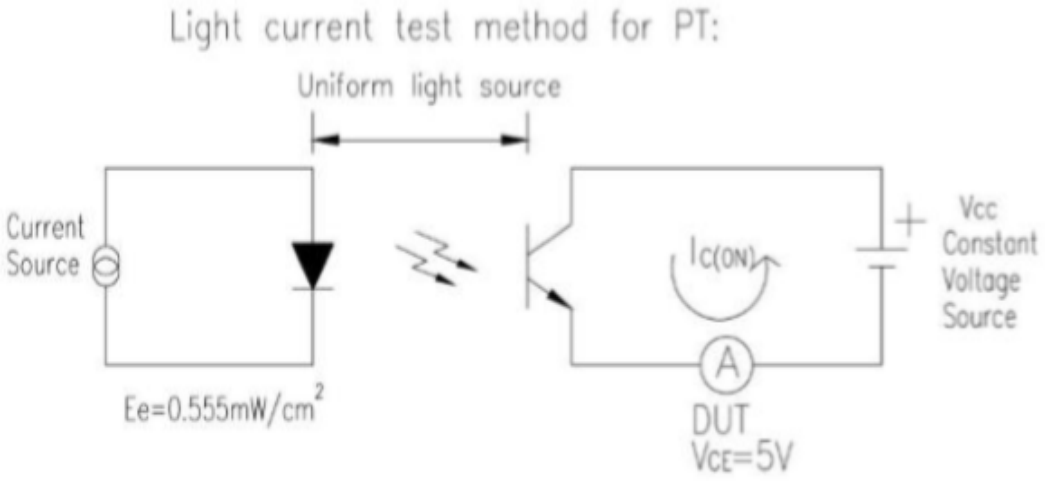
Collector Dark Current & Ambient Temperature



Collector Current & Collector-Emitter Voltage



◆ TestMethod



◆ Reliability Test Item And Condition:

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

Confidence level: 90%.

LTPD: 10%.

No.	Item	Test Conditions	Test Hours/ Cycles	Sample Sizes	Failure Judgment Criteria	Ac/ Re
1	Reflow Soldering	TEMP.: 260℃±5℃ 5secs	6mins	22pcs	$I_{c(ON)} \leqq L \times 0.8$ L: Lower Specification Limit	0/1
2	Temperature Cycle	H: +100℃ 15mins 5 mins L: -40℃ 15mins	50Cycles	22pcs		0/1
3	Thermal Shock	H: +100℃ 15mins 10mins L: -10℃ 5mins	50Cycles	22pcs		0/1
4	High Temperature Storage	TEMP.: +100℃	1000hrs	22pcs		0/1
5	Lower Temperature Storage	TEMP.: -40℃	1000hrs	22pcs		0/1
6	DC Operating Life	V_{CE}=5V	1000hrs	22pcs		0/1
7	High Temperature/ High Humidity	85℃ / 85% R.H	1000hrs	22pcs		0/1

◆ Please read the following notes before using the product:

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.

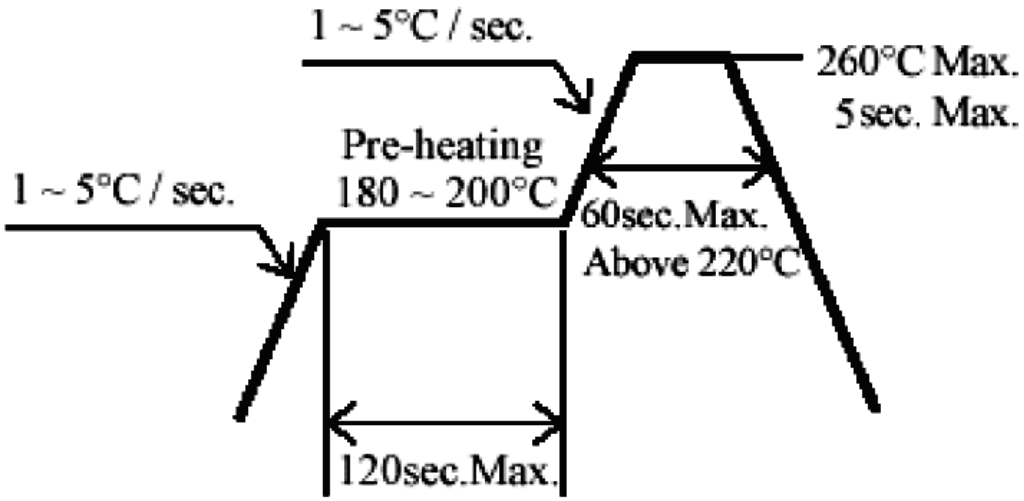
2.4 After opening the package, the LEDs should be kept at 30℃ or less and 70%RH or less.

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.

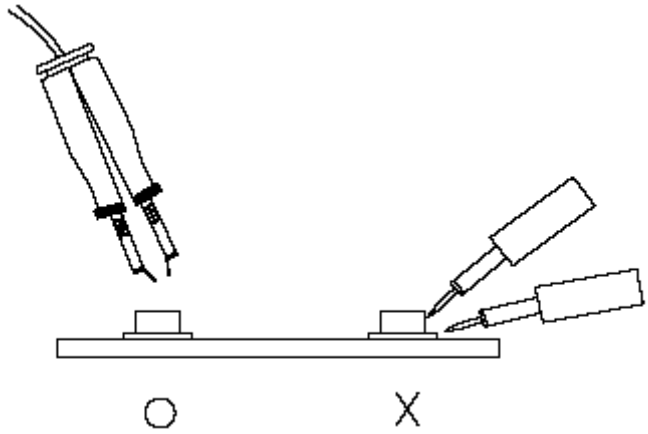
4. Soldering Iron

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.