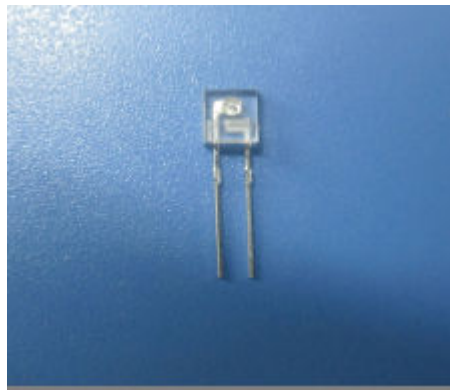


**Phototransistor
Technical Data Sheet**



Part No.: DL-PTC730C

Double Light

◆ Features:

1. Wide range of collector current.
2. High photo sensitivity.
3. Low cost plastic package.
4. Lens appearance: Water Clear.
5. The product itself will remain within RoHS compliant Version.
6. High sensitivity
7. Side-facing detector
8. Wide beam angle ($\pm 30^\circ$)
9. Low cost

◆ Descriptions:

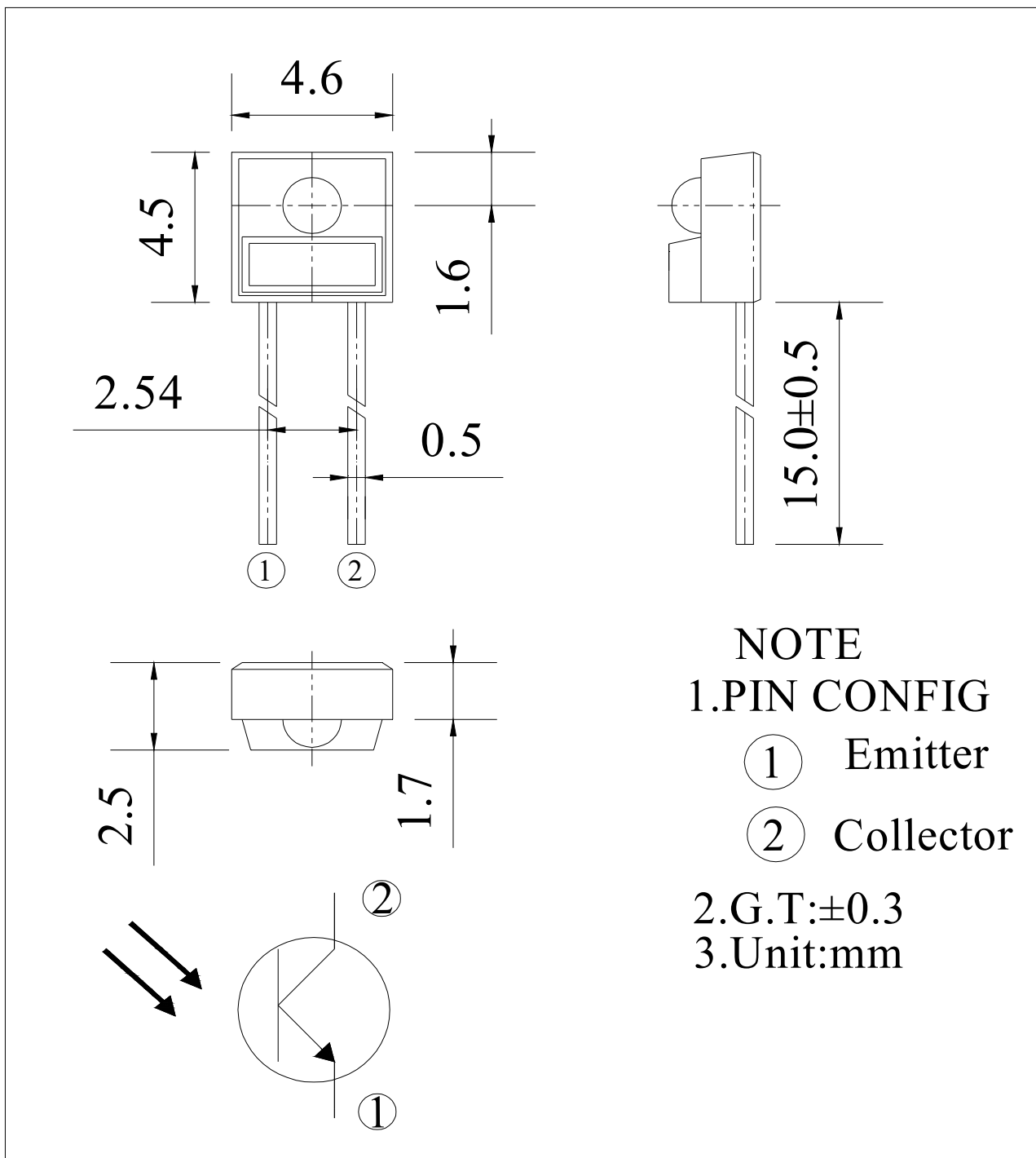
1. The PTC730C is a NPN silicon phototransistor mounted in a lensed,water clear plastic package. The lensing effect of the package allows an acceptance half view angle of 50° that is measured from the optical axis to the half power point.
2. The PTC730C is a high sensitivity NPN silicon phototransistor mounted in a clear epoxy encapsulation . With daylight filter, this phototransistor is only sensitive to infrared rays. It is compact, low profile and easy to mount.

◆ Applications:

1. Automatic door sensor.
2. Infrared applied system.
3. Counters and sorters.
4. Encoders.
5. Optoelectronic switch.
6. Video camera, tape and card readers.
7. Position sensors.
8. Copier.
9. Game machine.
10. Optical counters
11. Optical detectors
12. Flywheel counters

Double Light

◆ Package Dimension



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

Notes:

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

Double Light

◆ Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Collector-Emitter Voltage	V_{CEO}	30	V
Emitter-Collector Voltage	V_{ECO}	5	V
Collector Power Dissipation	P_D	100	mW
Collector Current	I_C	20	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°C

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Collector Light Current	I_C	$V_{CE}=5V, E_v=1000\text{Lux}, (E_e=5\text{mW/cm}^2) *1$	1	5		mA
Collector Dark Current	I_{CEO}	$V_{CE}=10V, E_e=0 *1$		1	100	nA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=0.5\text{mA}, E_v=2000\text{Lux}, E_e=10\text{mW/cm}^2 *1$		0.2	0.4	V
Peak Sensitivity Wavelength	λ_p			880		nm
Spectral Sensitivity	$\Delta\lambda$		450~1050			nm
Angular Response	$\Delta\theta$			±30		deg.
Rising Response Time	t_r	$V_{CC}=10V, I_C=5\text{mA}, R_L=100\Omega$		3.2		μs
Falling Response Time	t_f			4.8		μs

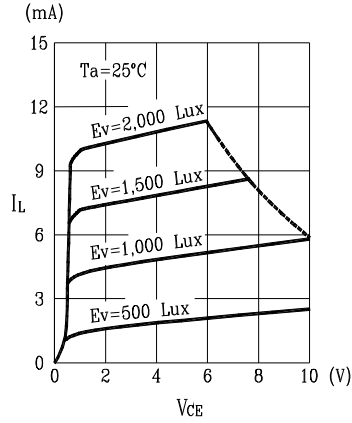
*2. At the position of 2mm from the bottom face of resin package within 5 second.

Double Light

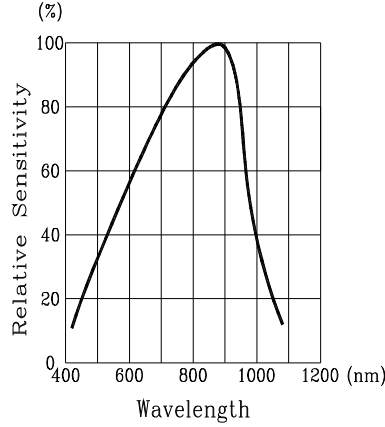
◆ Typical Electrical / Optical Characteristics Curves

(25°C Ambient Temperature Unless Otherwise Noted)

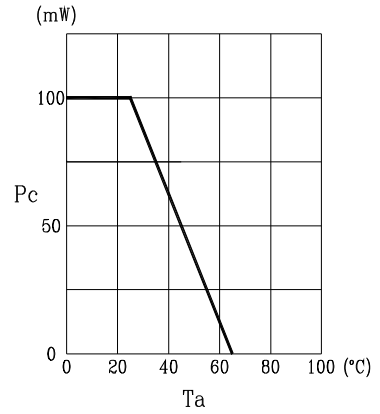
Light Current vs Collector-Emitter Voltage



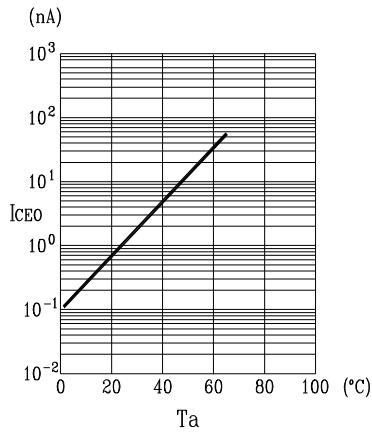
Spectral Sensitivity



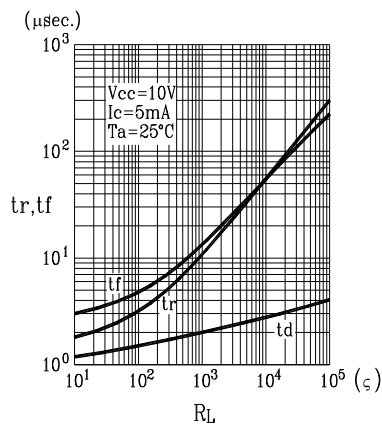
Power Dissipation vs Ambient Temperature



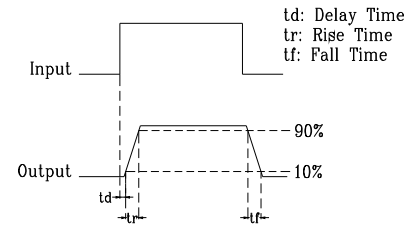
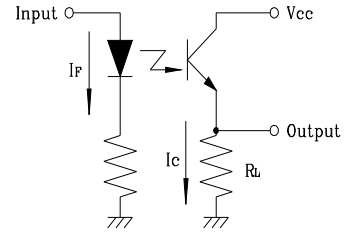
Dark Current vs Ambient Temperature



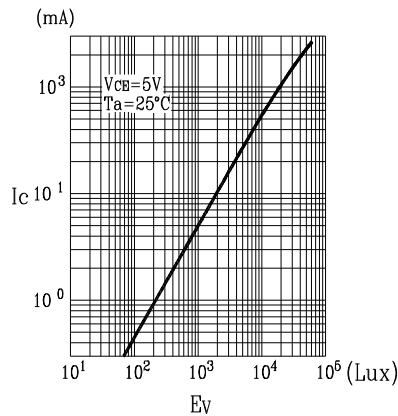
Response Time vs Load Resistance



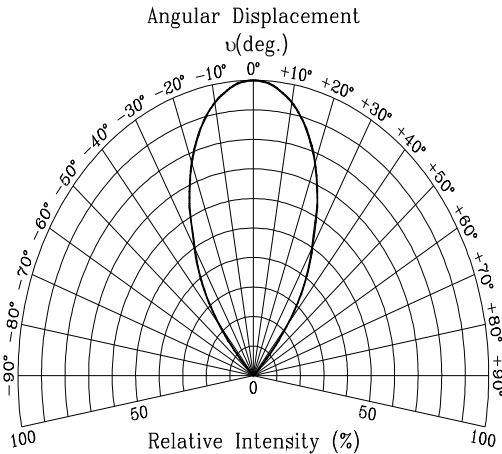
Response Time Test Conditions



Collector Current vs Luminous Incidence



Radiation Diagram



Double Light

◆ 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°C±5°C 5secs	6mins	22pcs	$I_{c(ON)} \leq L \times 0.8$ L: Lower Specification Limit	0/1
2	Temperature Cycle	H: +100°C 15mins ↑ 5 mins ↓ L: -40°C 15mins	50Cycles	22pcs		0/1
3	Thermal Shock	H: +100°C 15mins ↑ 10mins ↓ L: -10°C 5mins	50Cycles	22pcs		0/1
4	High Temperature Storage	TEMP.: +100°C	1000hrs	22pcs		0/1
5	Lower Temperature Storage	TEMP.: -40°C	1000hrs	22pcs		0/1
6	DC Operating Life	$V_{CE}=5V$	1000hrs	22pcs		0/1
7	High Temperature/ High Humidity	85°C / 85% R.H	1000hrs	22pcs		0/1

Double Light

◆ 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°C or less and 90%RH or less.

2.3 The LEDs should be used within a year.

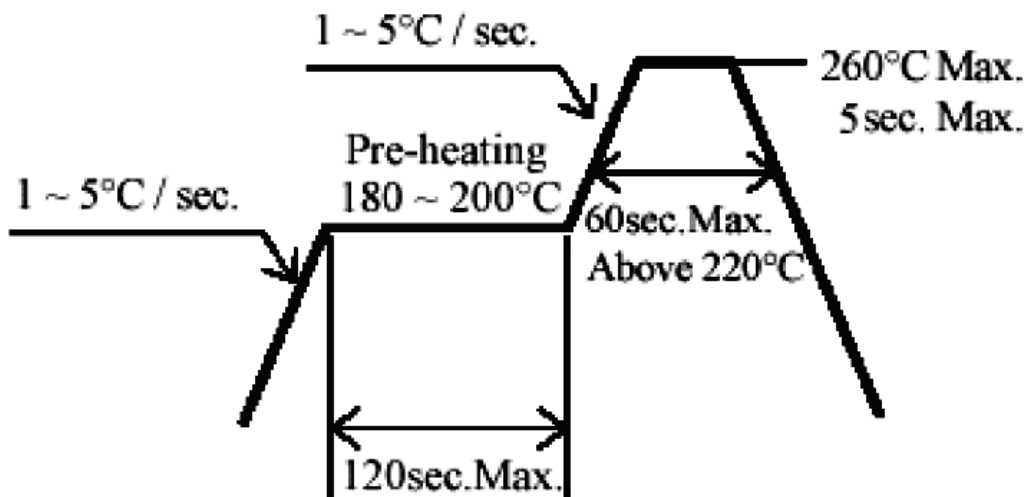
2.4 After opening the package, the LEDs should be kept at 30°C or less and 70%RH or less.

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°C 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

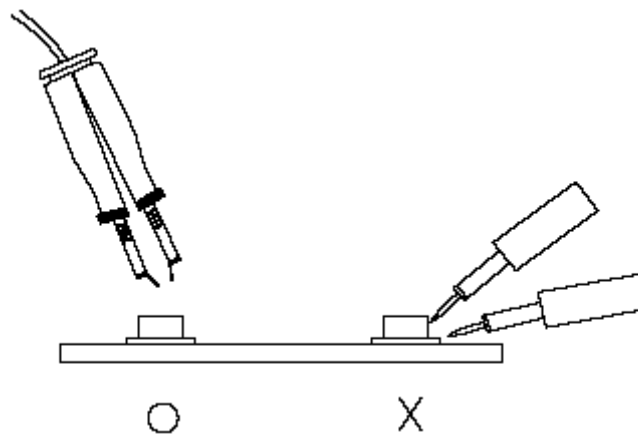
Each terminal is to go to the tip of soldering iron temperature less than 260°C for 5 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of 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

Double Light

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.