

Technical Data Sheet

MPT60363T and MPT60383T

0603 Package Top Phototransistor

Features

- 0603 package
- High photo sensitivity
- Small junction capacitance
- Pb free
- The product itself will remain within RoHS compliant version.

Descriptions

- The device is a phototransistor in miniature SMD package which is molded in a water clear with flat top view lens.
- The device is Spectrally matched to visible and infrared emitting diode.

Applications

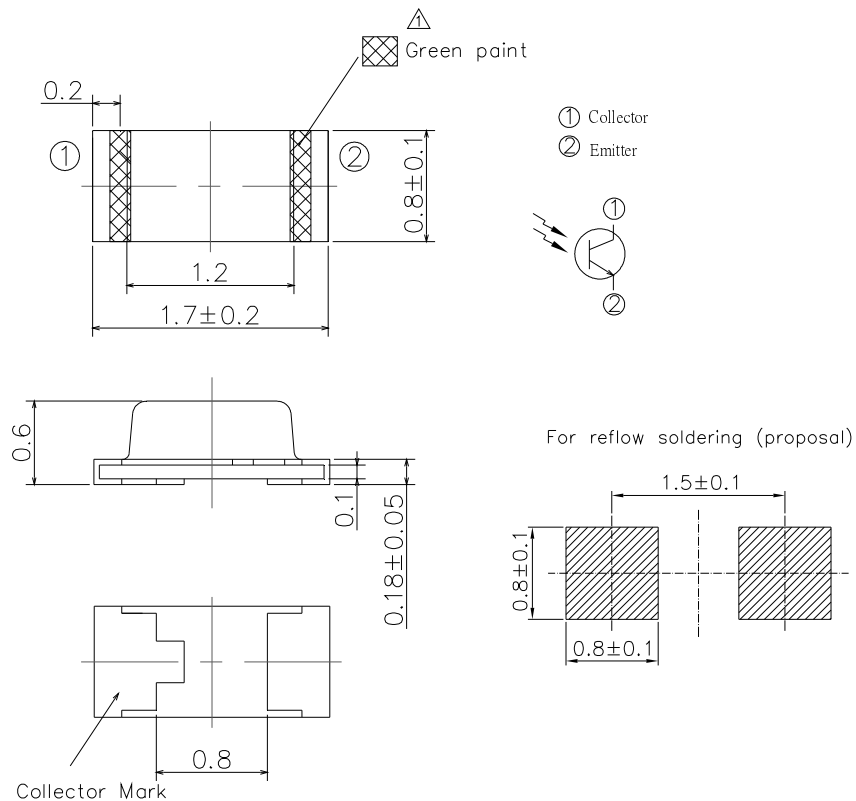
- Miniature switch
- Counters and sorter
- Position sensor
- Infrared applied system

Devices Selection Guide

LED Part No.	Thickness	Lens Color
MPT60363T	0.6mm	Black
MPT60383T	0.8mm	Black

Package Dimensions

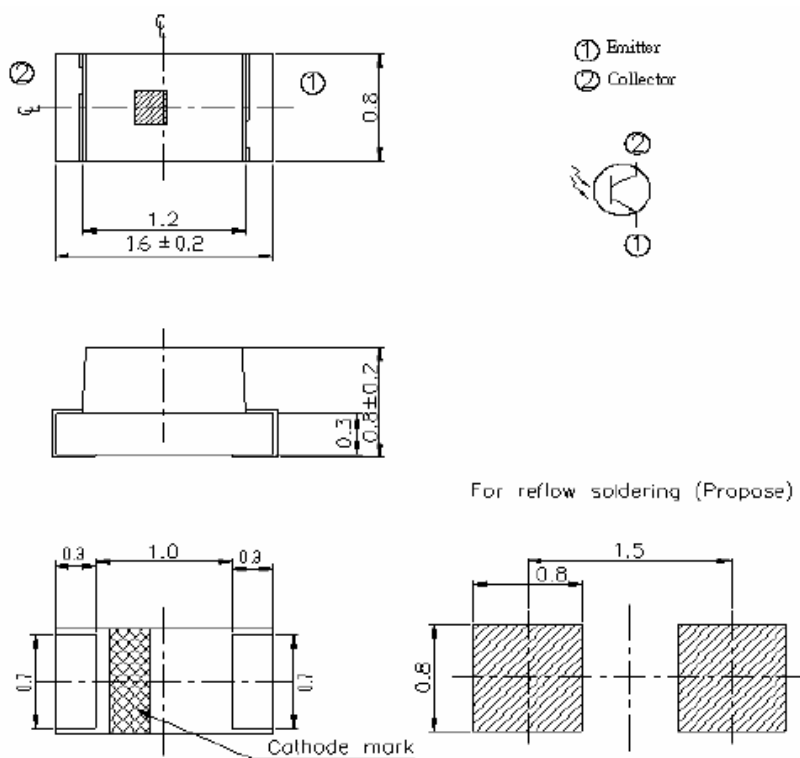
MPT60363T



- Notes:** 1.All dimensions are in millimeters
2.Tolerances unless dimensions ± 0.1 mm

Package Dimensions

MPT60383T



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Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Units
Collector-Emitter Voltage	V _{CEO}	30	V
Emitter-Collector-Voltage	V _{ECO}	5.5	V
Collector Current	I _C	20	mA
Operating Temperature	T _{opr}	-25 ~ +85	°C
Storage Temperature	T _{stg}	-40 ~ +85	°C
Soldering Temperature	T _{sol}	260	°C
Power Dissipation at(or below) 25°C Free Air Temperature	P _c	75	mW

Notes: *1:Soldering time ≤ 5 seconds.

Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Rang Of Spectral Bandwidth	$\lambda_{0.5}$	---	400	---	1100	nm
Wavelength Of Peak Sensitivity	λ_p	---	---	940	---	nm
Collector-Emitter Breakdown Voltage	BV _{CEO}	I _C =100 μ A Ee=0mW/cm ²	30	---	---	V
Emitter-Collector Breakdown Voltage	BV _{ECO}	I _E =100 μ A Ee=0mW/cm ²	5	---	---	V
Collector-Emitter Saturation Voltage	V _{CE(sat)}	I _C =2mA I _B =100 μ A	---	---	0.4	V
Collector Dark Current	I _{CEO}	V _{CE} =20V Ee=0mW/cm ²	---	---	100	nA
Rise Time	t _r	V _{CE} =5V I _C =1mA R _L =1000 Ω	---	15	---	μ S
Fall Time	t _f		---	15	---	

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Bin Range Of On State Collector Current

Bin	Min	Max	Unit	Condition
B1	0.27	0.66	mA	$V_{CE}=5V$ $E_e=1mW/cm^2$ $\lambda_p=940nm$
B2	0.54	1.00		

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Bin Range Of On State Collector Current

Bin	Min	Max	Unit	Condition
A1	0.9	1.54	mA	$V_{CE}=5V$ $E_e=1mW/cm^2$ $\lambda_p=940nm$
A2	1.26	1.87		

Precautions For Use

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 Shelf life in sealed bag from the bag seal date: 12 months at $< 40^{\circ}\text{C}$ and $< 90\% \text{ RH}$.

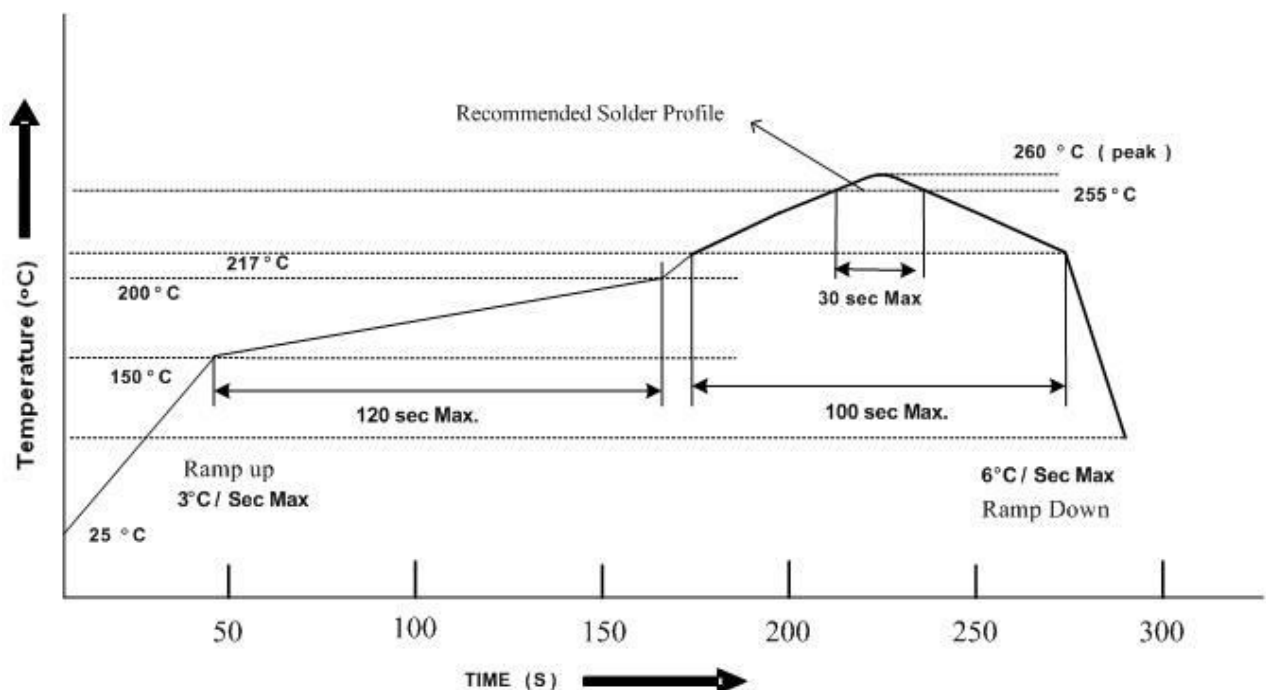
2.3 After opening the package, the LEDs must be kept at $\leq 30^{\circ}\text{C}$ and $\leq 60\% \text{ RH}$, and used within 168 hours.

2.4 If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time.

Baking treatment is required, refer to IPC/JEDEC J-STD-033 for bake procedure or recommend the conditions : $60 \pm 5^{\circ}\text{C}$ for 72 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.

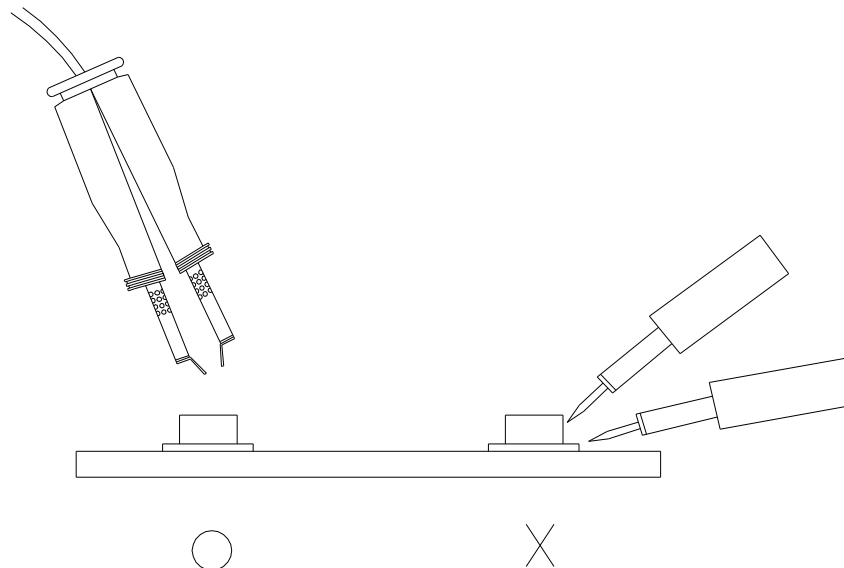
3.4 After soldering, do not warp the circuit board

4.Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 350°C for 3 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.



Reliability Test Item And Condition

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

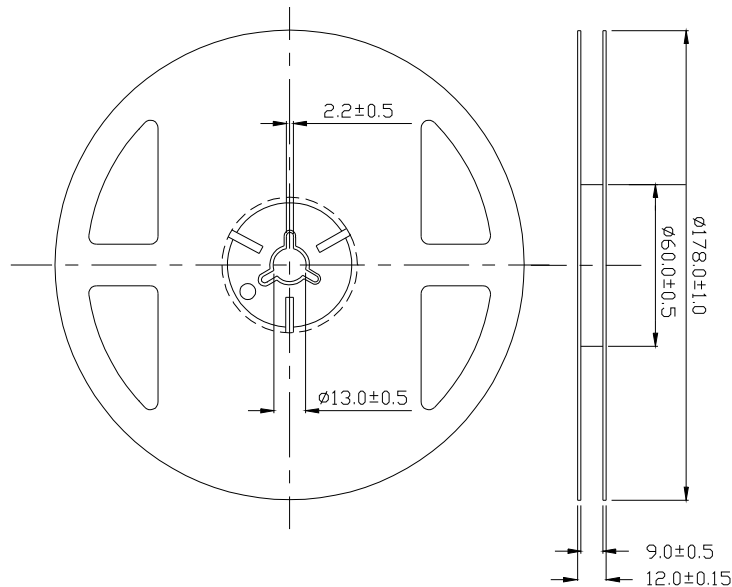
Confidence level : 90%

LTPD : 10%

NO.	Item	Test Conditions	Test Hours/ Cycles	Sample Sizes	Failure Judgment Criteria	Ac/Re
1	REFLOW Soldering	TEMP. : $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$ 10secs	6Mins	22pcs	$I_R \geq U \times 2$	0/1
2	Temperature Cycle	H : $+100^{\circ}\text{C}$ 15mins ↕ 5mins L : -40°C 15mins	50Cycles	22pcs	$I_e \leq L \times 0.8$ $V_F \geq U \times 1.2$	0/1
3	Thermal Shock	H : $+100^{\circ}\text{C}$ 5mins ↕ 10secs L : -10°C 5mins	50Cycles	22pcs	U : Upper Specification Limit	0/1
4	High Temperature Storage	TEMP. : $+100^{\circ}\text{C}$	1000hrs	22pcs	L : Lower Specification Limit	0/1
5	Low Temperature Storage	TEMP. : -40°C	1000hrs	22pcs		0/1
6	DC Operating Life	$I_F = 20\text{mA}$	1000hrs	22pcs		0/1
7	High Temperature/ High Humidity	85°C / 85% R.H	1000hrs	22pcs		0/1

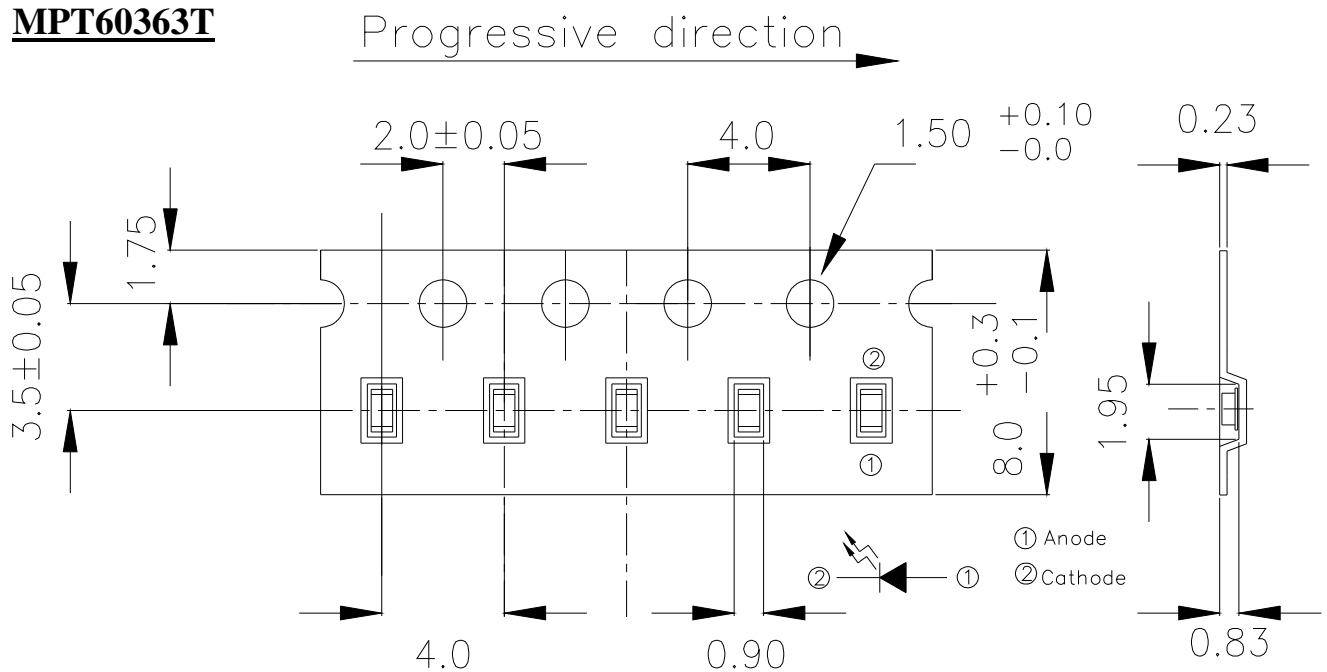
Package Dimensions

MPT60363T



Taping Dimensions

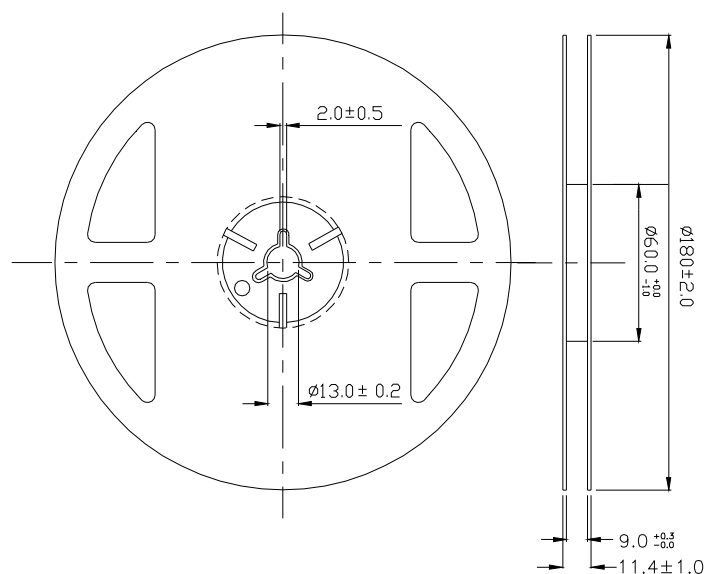
MPT60363T



Unit: mm

Package Dimensions

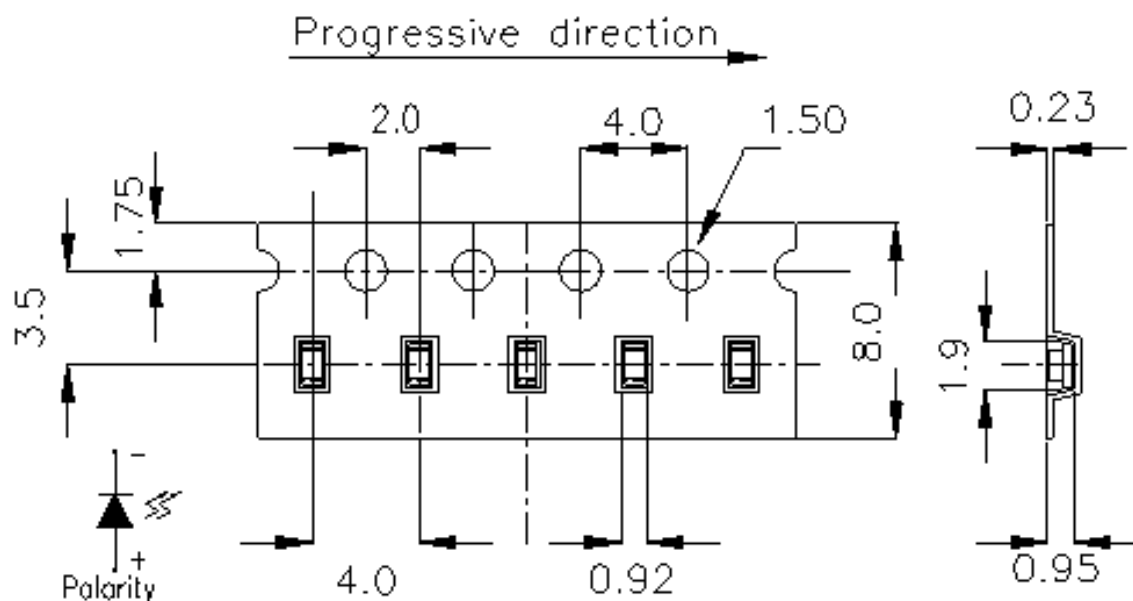
MPT60383T



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

Taping Dimensions

MPT60383T



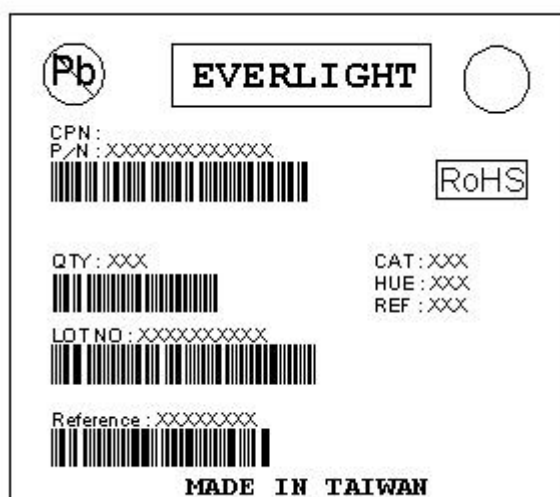
Note: The tolerances unless mentioned is $\pm 0.1\text{mm}$, Unit = mm

Packing Quantity Specification

1.3000Pcs/1Volume, 1Volume/1Bag

2.10Boxes/1Carton

Label Form Specification



CPN: Customer's Production Number

P/N : Production Number

QTY: Packing Quantity

CAT: Ranks

HUE: Peak Wavelength

REF: Reference

LOT No: Lot Number

MADE IN TAIWAN: Production Place

Notes

1. Above specification may be changed without notice. EVERLIGHT will reserve authority on

material change for above specification.

2. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
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