



LIGHTING FOREVER

Technical Data Sheet

0603 Package Top Phototransistor

MPT603Series

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 flat top view lens.
- The device is Spectrally matched to visible and infrared emitting diode.

Applications

- Infrared applied system

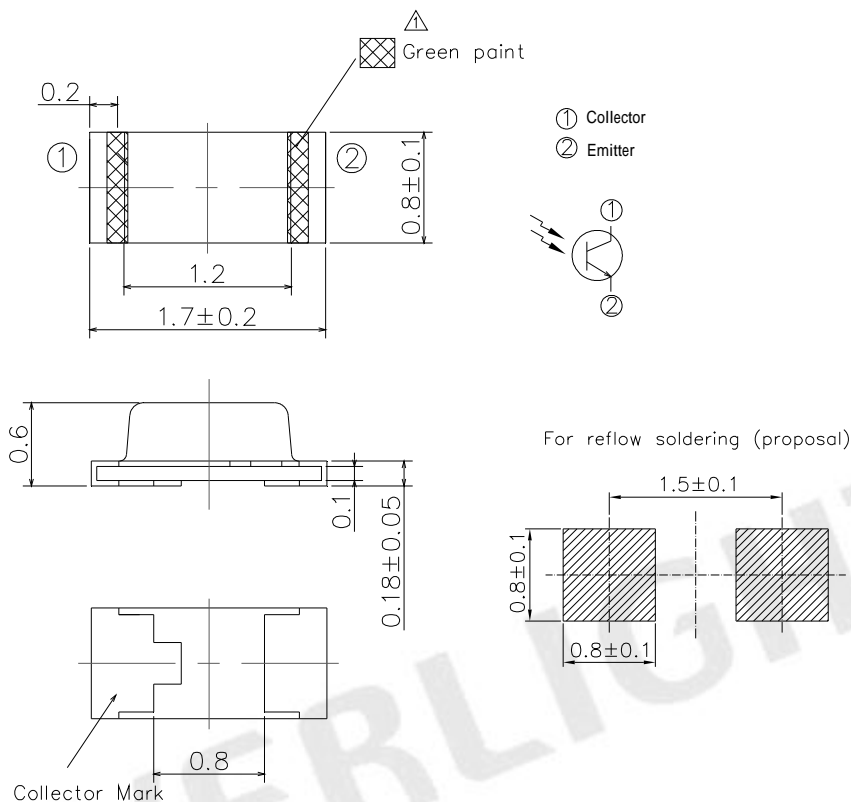
Devices Selection Guide

LED Part No.	Thickness	Lens Color
MPT6036C/3T	0.6mm	Clear
MPT6038C/3T	0.8mm	Clear
MPT60363T	0.6mm	Black
MPT60383T	0.8mm	Black

Package Dimensions

MPT603Series

MPT6036C/3T & MPT60363T

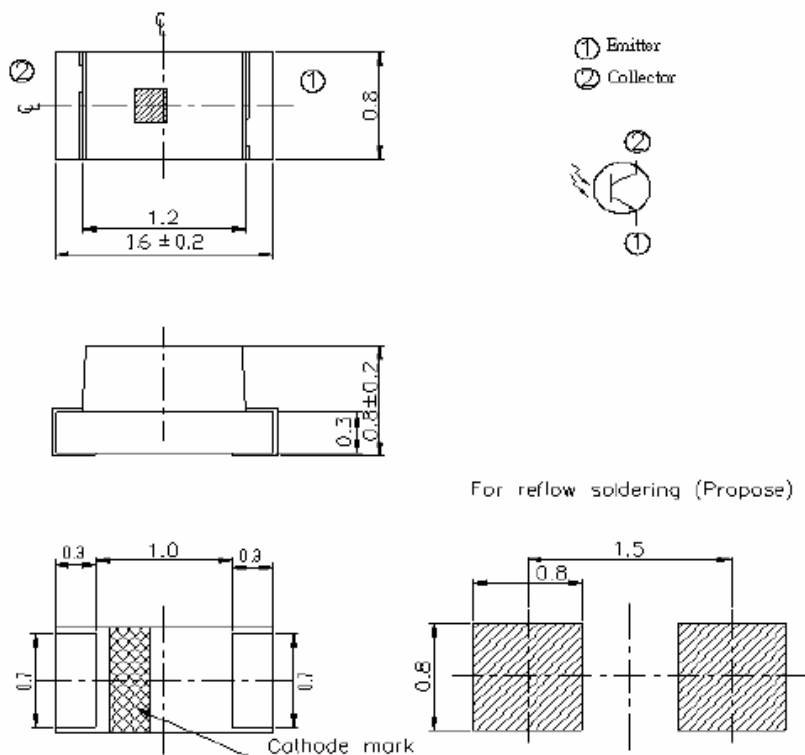


- Notes:** 1.All dimensions are in millimeters
2.Tolerances unless dimensions ± 0.1 mm

Package Dimensions

MPT603Series

MPT6038C/3T & MPT60383T



- Notes:** 1.All dimensions are in millimeters
2.Tolerances unless dimensions $\pm 0.1\text{mm}$

Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)

Parameter	Symbol	Rating	Units
Collector-Emitter Voltage	V_{CEO}	30	V
Emitter-Collector-Voltage	V_{ECO}	5	V
Collector Current	I_C	20	mA
Operating Temperature	T_{opr}	-40 ~ +85	
Storage Temperature	T_{stg}	-40 ~ +100	
Soldering Temperature *1	T_{sol}	260	
Power Dissipation at(or below) 25 Free Air Temperature	P_c	75	mW

Notes: *1:Soldering time 5 seconds.

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Electro-Optical Characteristics (Ta=25) is for clear type

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Rang Of Spectral Bandwidth	0.1	---	400	---	1100	nm
Wavelength Of Peak Sensitivity	P	---	---	940	---	nm
Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C=100\ \mu A$ $E_e=0mW/cm^2$	30	---	---	V
Emitter-Collector Breakdown Voltage	BV_{ECO}	$I_E=100\ \mu A$ $E_e=0mW/cm^2$	5	---	---	V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=2mA$ $I_B=100\ \mu A$	---	---	0.4	V
Collector Dark Current	I_{CEO}	$V_{CE}=20V$ $E_e=0mW/cm^2$	---	---	100	nA
Rise Time	t_r	$V_{CE}=5V$ $I_C=1mA$ $R_L=1000$	---	15	---	μS
Fall Time	t_f		---	15	---	

Electro-Optical Characteristics (Ta=25) is for black type

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Rang Of Spectral Bandwidth	0.1	---	730	---	1100	nm
Wavelength Of Peak Sensitivity	P	---	---	940	---	nm
Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C=100\ \mu A$ $E_e=0mW/cm^2$	30	---	---	V
Emitter-Collector Breakdown Voltage	BV_{ECO}	$I_E=100\ \mu A$ $E_e=0mW/cm^2$	5	---	---	V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=2mA$ $I_B=100\ \mu A$	---	---	0.4	V
Collector Dark Current	I_{CEO}	$V_{CE}=20V$ $E_e=0mW/cm^2$	---	---	100	nA
Rise Time	t_r	$V_{CE}=5V$ $I_C=1mA$ $R_L=1000$	---	15	---	μS
Fall Time	t_f		---	15	---	

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Bin Range of on state collector current

MPT6036C/3T

Bin	Min	Max	Unit	Condition
A1	0.27	0.66	mA	$V_{CE}=5V$ $E_e=1mW/cm^2$ $p=940nm$
A2	0.54	1.00		
A3	0.81	1.32		

MPT6038C/3T

Bin	Min	Max	Unit	Condition
B1	0.90	1.54	mA	$V_{CE}=5V$ $E_e=1mW/cm^2$ $p=940nm$
B2	1.26	1.87		
B3	1.51	2.42		

MPT60363T

Bin	Min	Max	Unit	Condition
A1	0.27	0.66	mA	$V_{CE}=5V$ $E_e=1mW/cm^2$ $p=940nm$
A2	0.54	1.00		

MPT60383T

Bin	Min	Max	Unit	Condition
B1	0.90	1.54	mA	$V_{CE}=5V$ $E_e=1mW/cm^2$ $p=940nm$
B2	1.26	1.87		

Precautions For Use

MPT603Series

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 devices are ready to use.

2.2 Shelf life in sealed bag from the bag seal date:

18 months at 10°C~30°C and < 90% RH.

2.3 After opening the package, the devices must be stored at 10°C~30°C and ≤ 60%RH, and used within 168 hours(floor life).

2.4 If the moisture absorbent material(desiccant material) has faded or unopened bag has exceeded the shelf life or devices(out of bag) have exceeded the floor life, baking treatment is required.

2.5 If baking is required, refer to IPC/JEDEC J-STD-033 for bake procedure or recommend the following conditions :

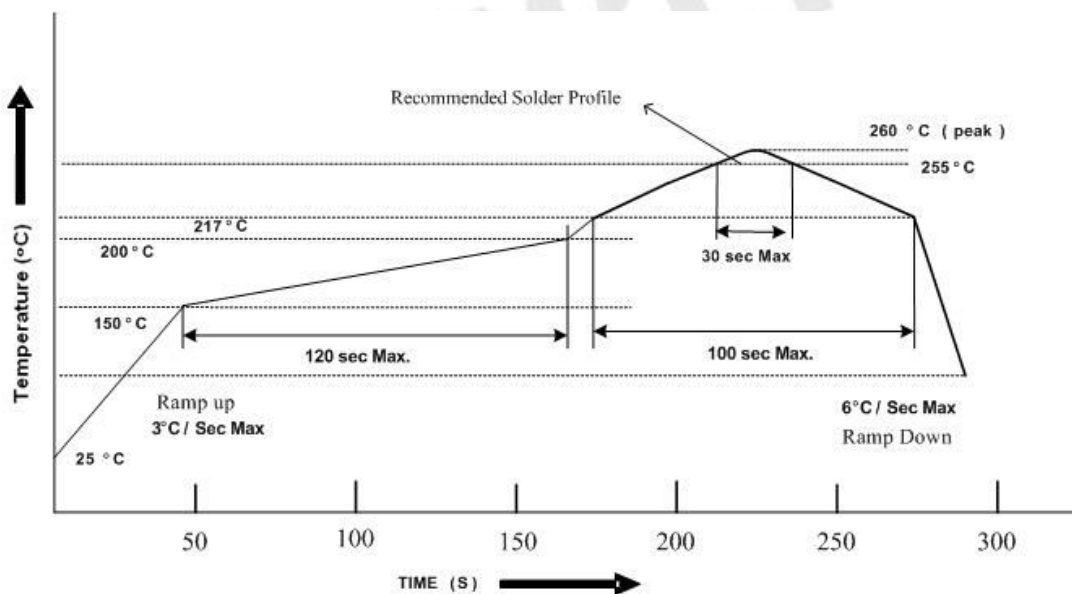
192 hours at 40°C +5/-0°C and < 5 % RH (reeled/tubed/loose units) or

96 hours at 60°C ± 5°C and < 5 % RH (reeled/tubed/loose units) or

24 hours at 125°C ± 5°C, not suitable for reel or tubes.

3. Soldering Condition

3.1 Pb-free solder temperature profile



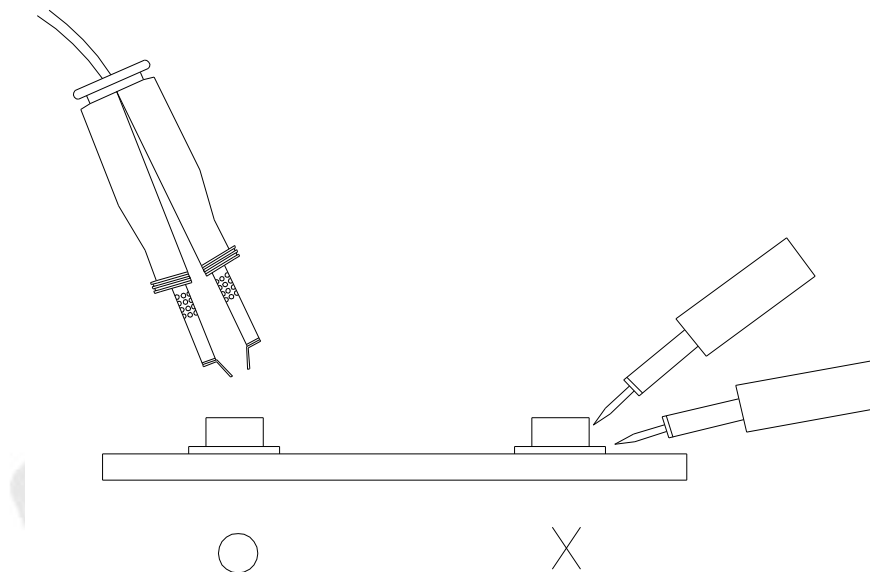
- 3.2 Reflow soldering should not be done more than two times.
- 3.3 When soldering, do not put stress on the LEDs during heating.
- 3.4 After soldering, do not warp the circuit board.

4.Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 350 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.

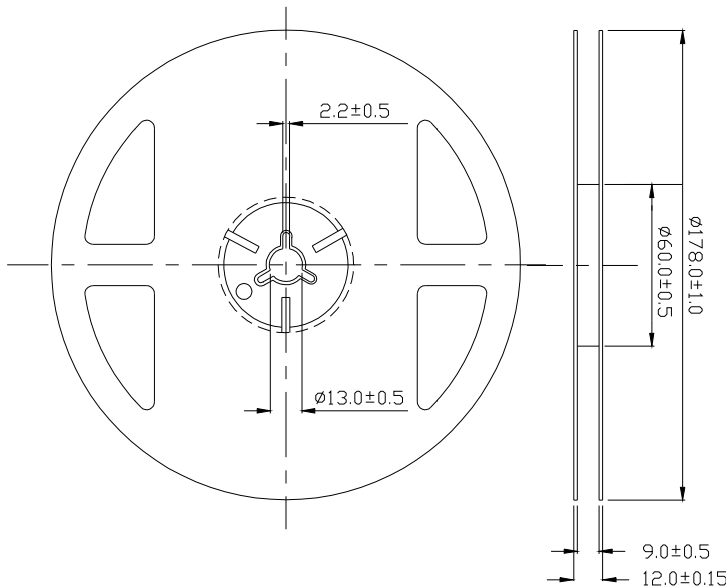
5.Repairing

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.



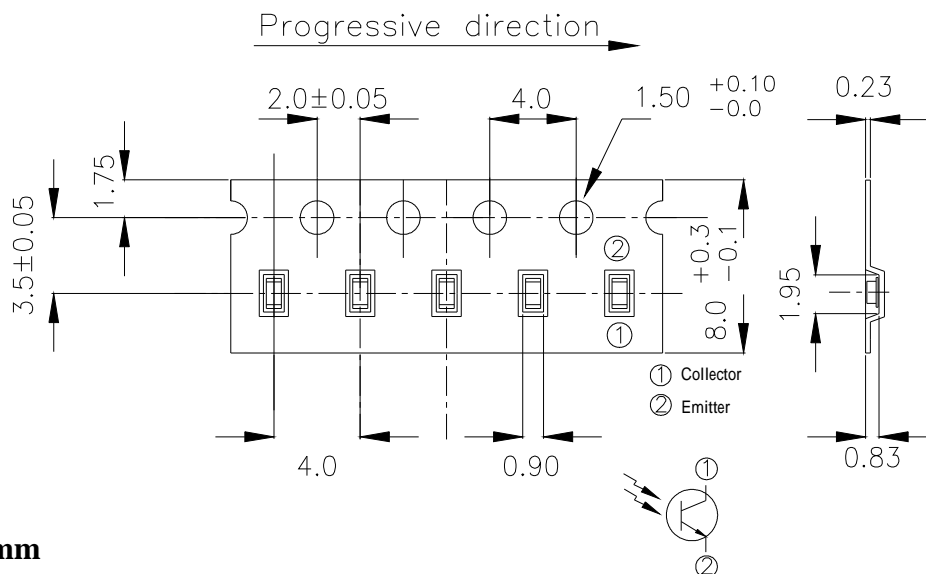
Package Dimensions
MPT6036C/3T & MPT60363T

MPT603Series



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

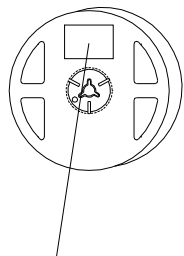
Carrier Tape Dimensions:(Quantity: 3000pcs/reel)



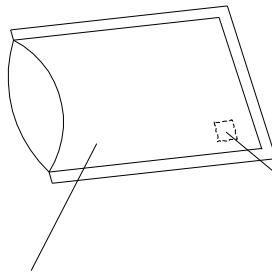
Unit: mm

Packing Procedure

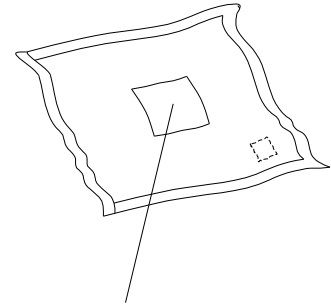
MPT603Series



Label



Aluminum moisture-proof bag



Desiccant

Label

Label Form Specification

	EVERLIGHT	
CPN : P/N :XXXXXXXXXXXX		RoHS
QTY : XXX		CAT : XXX
LOT NO : XXXXXXXXXX		HUE : XXX
Reference : XXXXXXXX		REF : XXX
MADE IN TAIWAN		

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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