

0.6mm Height Flat Top LED

Features

- Package in 8mm tape on 7" diameter reel
- Compatible with automatic placement equipment
- Compatible with infrared and vapor phase reflow solder process
- Mono-color type
- RoHS compliance



QSLP1WF1



Applications

- Automotive: Backlighting in dashboard and switch
- Telecommunication: indicator and backlighting in telephone and fax
- Flat backlight for LCD, switches and symbols
- General use

Descriptions

- The SMD series enables smaller board size, higher packing density, reduced storage space, and small equipment
- Besides, light weight makes them ideal for miniature applications

Device Selection Guide

Part No.	Chip		Lens Color
	Material	Emitted Color	
TSP1-WF1608H6S2T3	InGaN	Pure White	Yellow Diffused

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Value	Unit
Reverse Voltage	VR	5	V
Forward Current	IF	25	mA
Power Dissipation	Pd	110	mW
Electrostatic Discharge (HBM)	ESD	150	V
Soldering Temperature	Tsol	260 for 5 seconds	°C
Operating Temperature	Topr	-40 ~ +85	°C
Storage Temperature	Tstg	-40 ~ +90	°C
Peak Forward Current (Duty 1/10 @1KHz)	IF	100	mA

Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	IV	28.5	-----	72.0	mcd	IF =5mA
Viewing Angle	2θ1/2	-----	130	-----	deg	
Forward Voltage	VF	2.7	-----	3.15	V	
Reverse Current	IR	-----	-----	50	μA	VR=5V

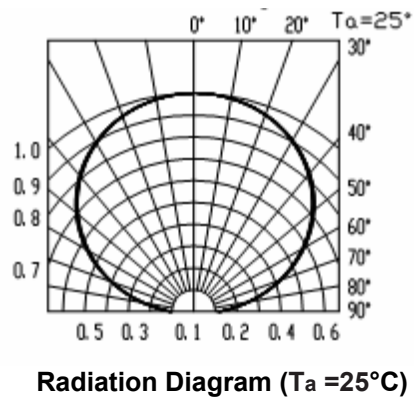
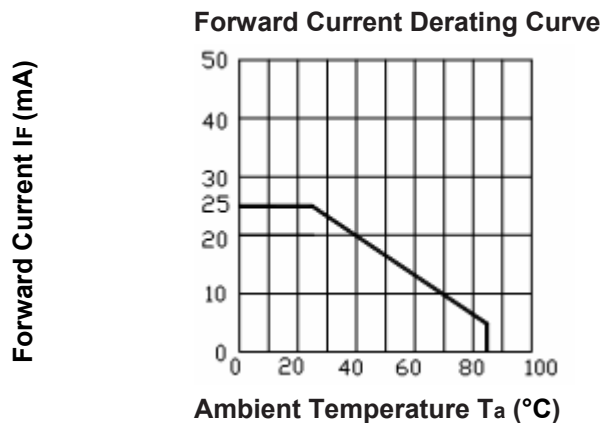
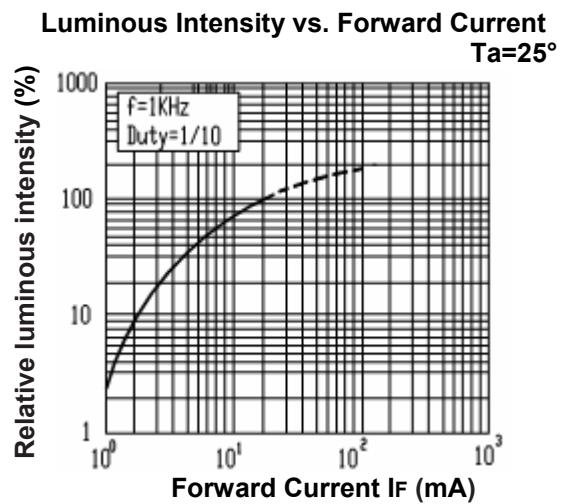
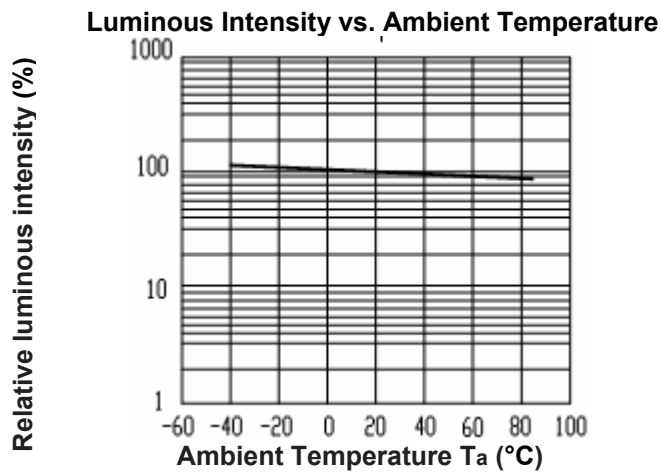
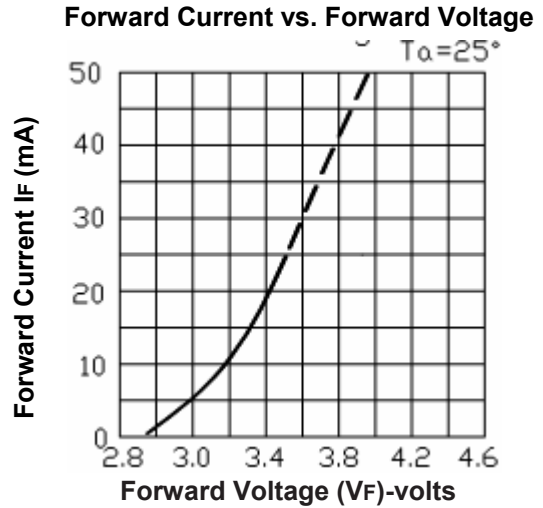
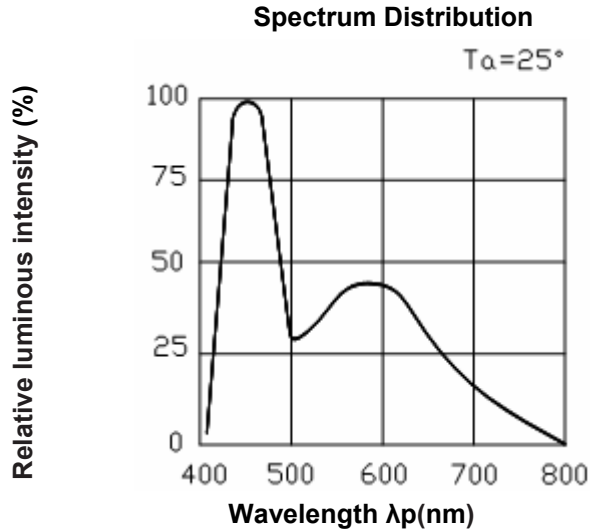
Bin Rank Of Luminous Intensity & Forward Voltage

Symbol	Bin Code	Min.	Max.	Unit	Condition
IV	N	28.5	45.0	mcd	IF =5mA
	P	45.0	72.0		
VF	15	2.70	2.85	V	
	16	2.85	3.00		
	17	3.00	3.15		IF =5mA

Notes:

1. Tolerance of Luminous Intensity ±15%
2. Tolerance of Forward Voltage ±0.1V

Typical Electro-Optical Characteristics Curves



Chromaticity Coordinates Specifications for Bin Grading

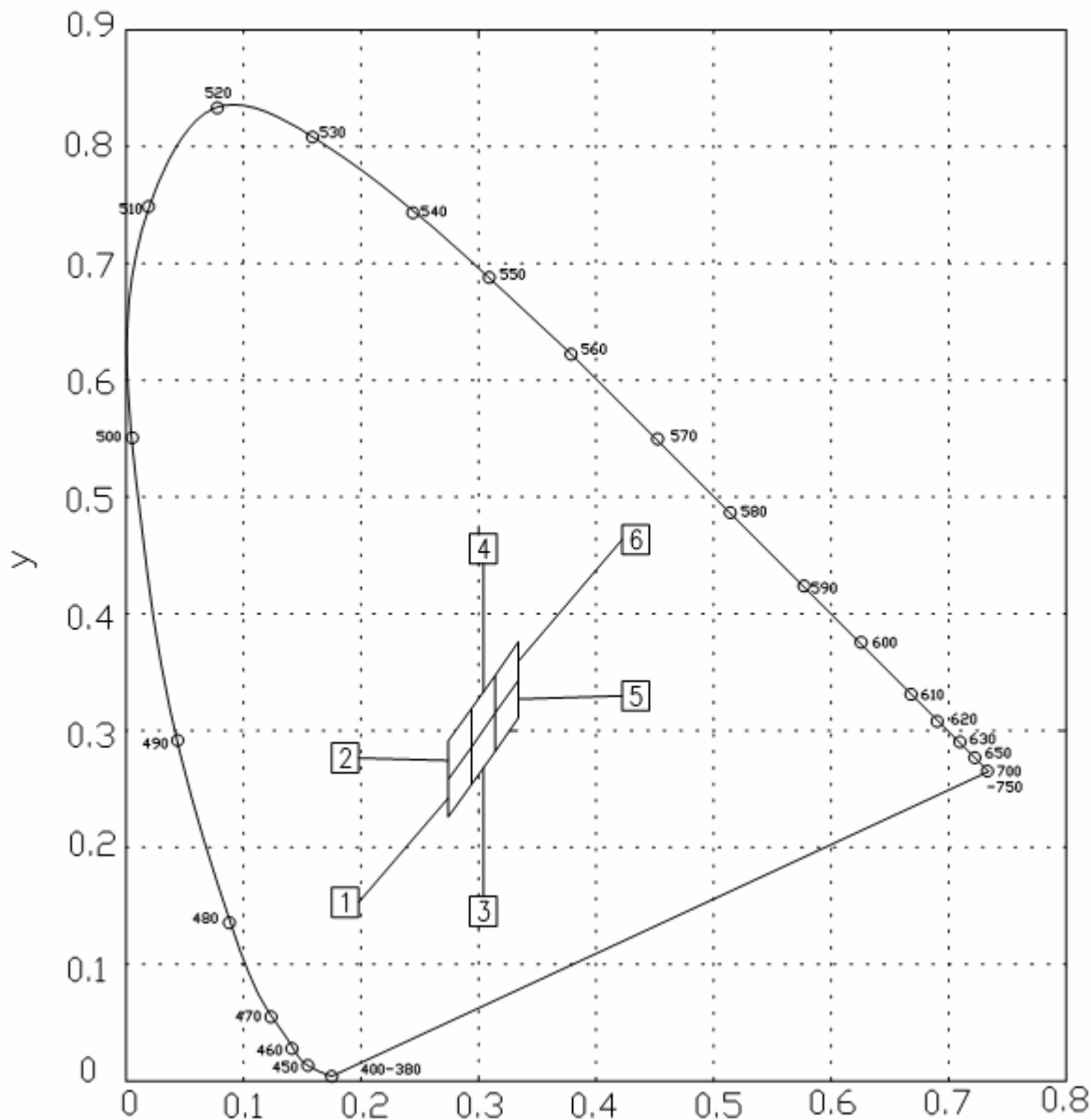
IF =5mA

Groups	Bin Code	CIE_x	CIE_y
A	1	0.274	0.226
		0.274	0.258
		0.294	0.286
		0.294	0.254
	2	0.274	0.258
		0.274	0.291
		0.294	0.319
		0.294	0.286
	3	0.294	0.254
		0.294	0.286
		0.314	0.315
		0.314	0.282
	4	0.294	0.286
		0.294	0.319
		0.314	0.347
		0.314	0.315
	5	0.314	0.282
		0.314	0.315
		0.334	0.343
		0.334	0.311
6	0.314	0.315	
	0.314	0.347	
	0.334	0.376	
	0.334	0.343	

Notes:

1. The C.I.E. 1931 chromaticity diagram (Tolerance ± 0.01).
2. The products are sensitive to static electricity and care must be fully taken when handling products.

CIE Chromaticity Diagram



Reliability Test Items and Conditions

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

Confidence level: 90%,

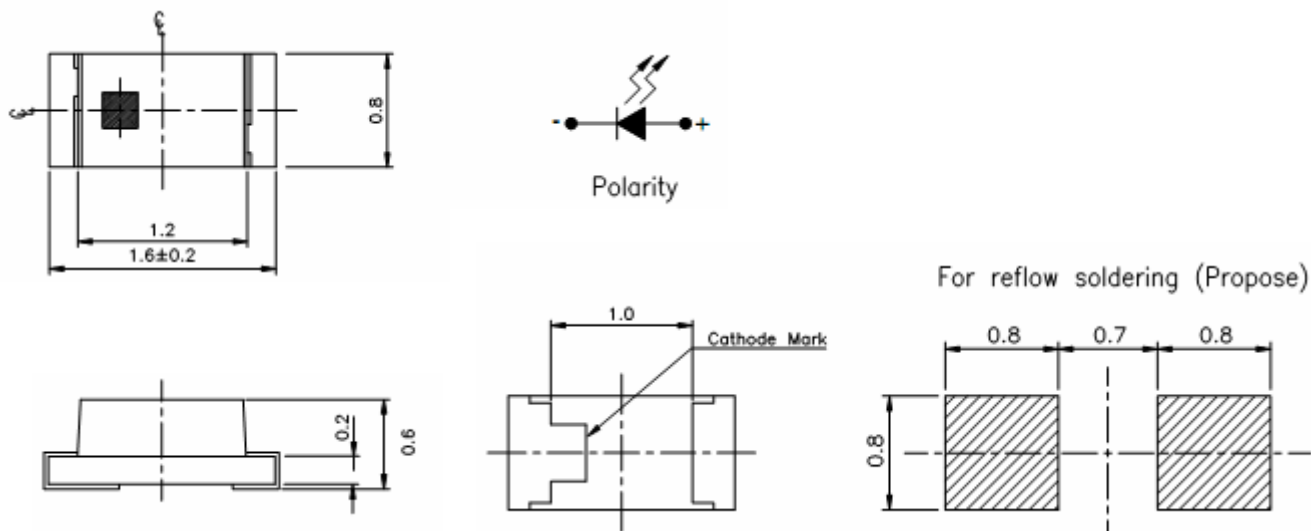
LTPD: 10%

No.	Items	Test Condition	Test Hours / Cycles	Sample Size	Ac/Re
1	Reflow Soldering	Temp.: 240°C ±5° Min. 5sec	6 Min	22 PCS.	0/1
2	Temperature Cycle	H: +100°C 15min ∫ 5 min L: -40°C 15min	300 Cycles	22 PCS.	0/1
3	Thermal Shock	H: +100°C 5min ∫ 10 sec L: -10°C 5min	300 Cycles	22 PCS.	0/1
4	High Temperature Storage	Temp: 100°C	1000 Hrs.	22 PCS.	0/1
5	Low Temperature Storage	Temp: -55°C	1000 Hrs.	22 PCS.	0/1
6	DC Operating Life	I _F = 20 mA	1000 Hrs.	22 PCS.	0/1
7	High Temperature / High Humidity	85°C / 85%RH	1000 Hrs.	22 PCS.	0/1

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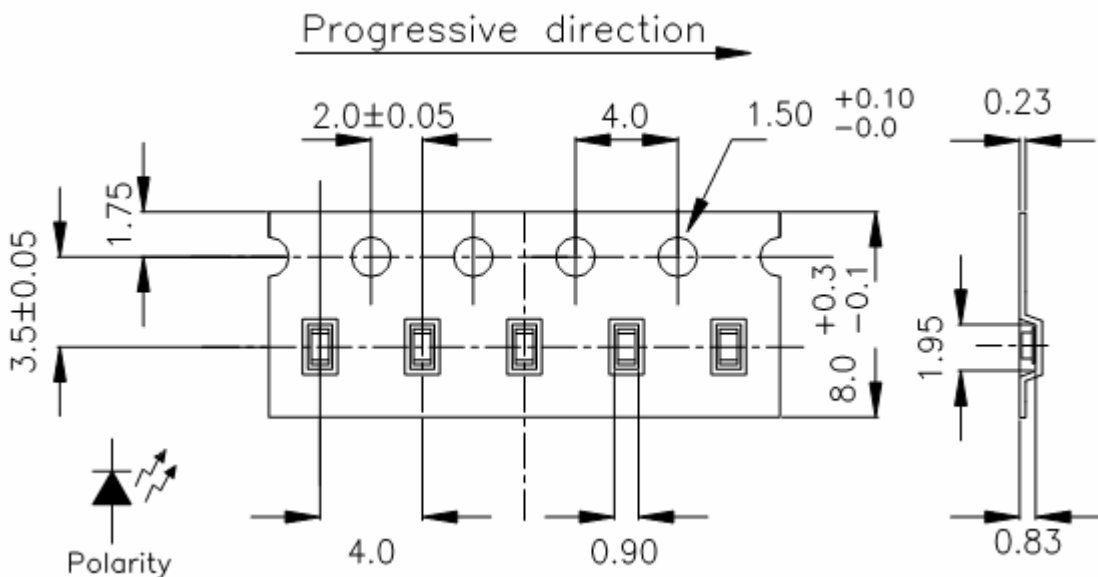
TSP1-WF1608H6S2T3

Package Dimensions (In mm)



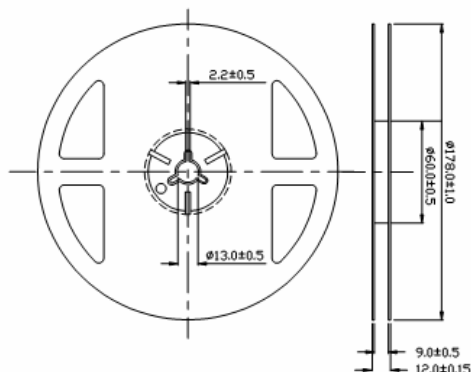
Note: The tolerances unless mentioned is ± 0.1 mm. Unit = mm

Carrier Tape Dimensions



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

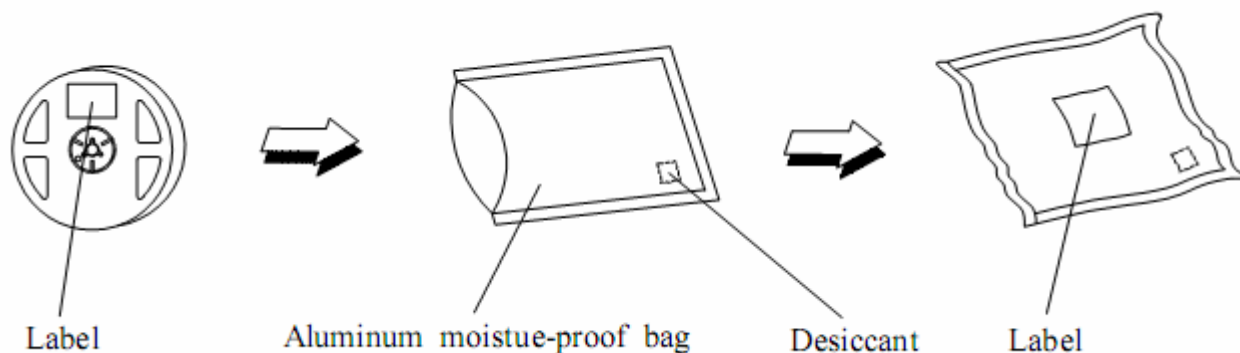
Reel Dimensions



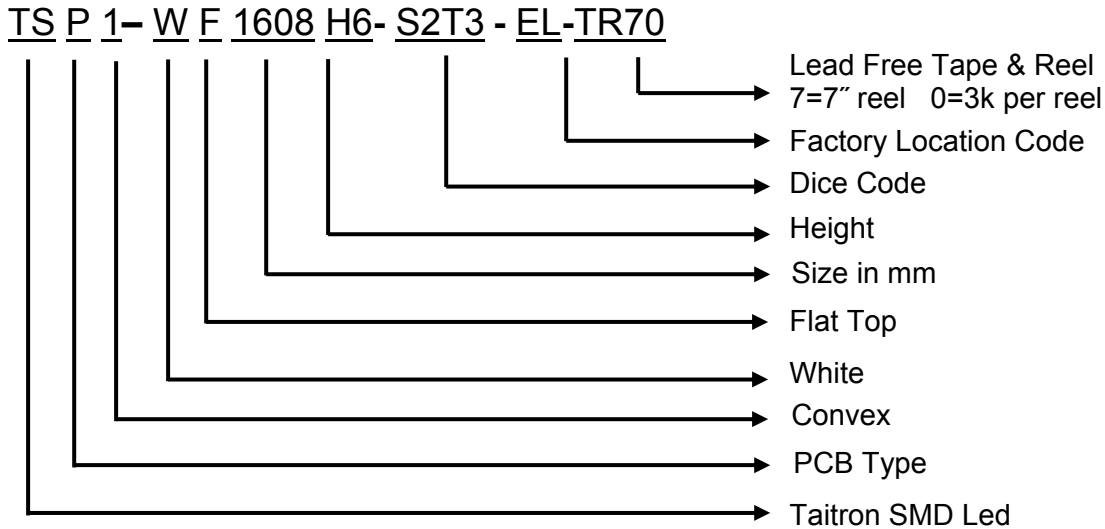
Taping Quantity: 3000pcs

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

Moisture Resistant Packaging



Ordering Information



Precautions for Use

1. Over-current-proof

Customer must apply resistor for protection, otherwise slight voltage will cause large current change (Burn will be happen).

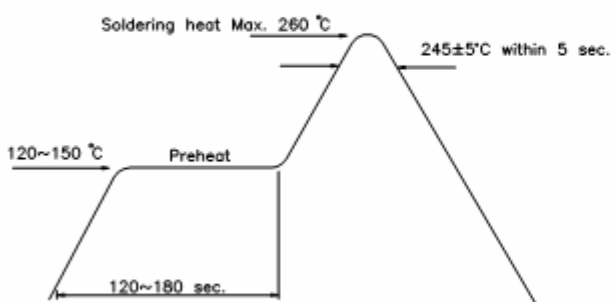
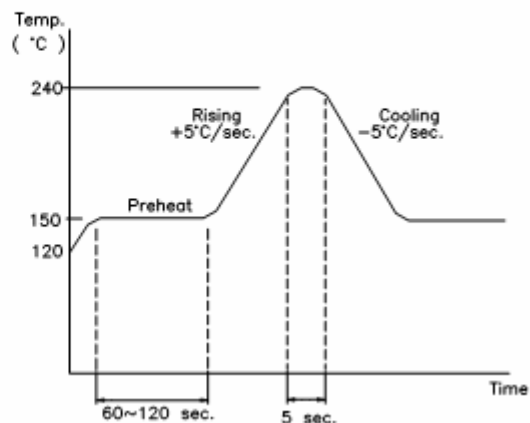
2. Storage

2.1 The operation of Temperature and RH are: 5°C~35°C, RH 60%.

2.2 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).

2.3 If opened more than one week in an atmosphere 5°C~35°C, RH 60%, they should be treated at 60°C±5°C for 15 hrs.

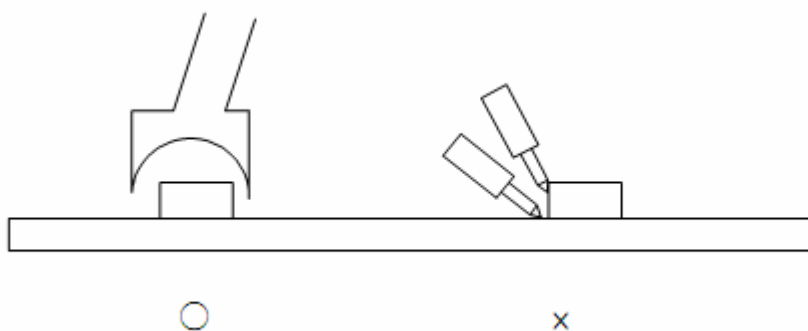
2.4 When you discover that desiccant in the package has a pink color (Normal= blue), you should treat them in the same condition as 2.3.

Soldering heat**Reflow Temp / Time****Soldering Iron:**

Basic spec is ≤ 5 sec when 260°C. If temperature is higher, time should be shorter (+10°C → -1sec). Power dissipation of Iron should be smaller than 15W, and temperature should be controllable. Surface temperature of the device should be under 230°C.

Rework

1. Customer must finish rework within 5 sec under 245°C.
2. The head of iron can not touch copper foil.
3. Twin-head type is preferred.



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