EVERLIGHT ELECTRONICS CO.,LTD.

DATA SHEET

PART NO. : 19-217/Y5C-AP1Q2/3T

DATE : 2003/9/27

DEPARTMENT : R&D 3

REVISION : 1.0

RECEIVED			
■ MASS PRODUCTION			
□ PRELIMINARY			
□ CUSTOMER DESIGN			
DEVICE NUMBER : DSE-197-Y01			
PAGE : 10			
CUSTOMER	DESIGNER	CHECKER	APPROVER
	Jeff Tsai	Charles Chang	

REV.	DESCRIPTION	RELEASE DATE
1.0		2003/9/27

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EVERLIGHT ELECTRONICS CO., LTD.
Website : http://www.everlight.com

19 - 21 / B H C - A N1 P2 M / 3 T

Package Type:

SMD For PCB Type

11-21	19-215
12-21	19-215A
12-215	19-217A
15-21	22-21
15-215	23-21
16-213	23-21B
17-21	24-21
17-215	25-21
19-21	27-21
19-21A	42-21

Dominant Wavelength Groups:

According to the difference wavelength to define

None:No definition

A : Standard wavelength definition.

B : Range of wavelength definition is more narrowly than group A.

C : Range of wavelength definition is more narrowly than group A,but the value is different with group B.

F : The wavelength definition in special specification.

The dominant wavelength data did not including ±1nm testing tolerance.

Test Forward Current:

None: 20 mA

Y : 5 mA

Z : 10 mA

Taping Quantity:

1: 1000 pcs (Taping)

2: 2000 pcs (Taping)

3: 3000 pcs (Taping)

5: 5000 pcs (Taping)

C : 1500 pcs (Taping)

D :10000 pcs (Taping)

Packing Method :

A: Reverse-side placement

B: Reverse-side placement (Anode toward the sprocket hole)

C: Right-side placement

D: Right-side placement (Anode toward the sprocket hole)

T: Top-side placement

R: Top-side placement (Anode toward the sprocket hole)

Emission Color:

R:Red
(λ d:640nm,630nm,625nm)

S:Sunset Orange
(λ d:615nm,605nm)

Y:Yellow
(λ d:595nm,590nm)

G:Green
(λ d:570nm,565nm,560nm, 525nm,505nm)

B:Blue
(λ d:470nm)

W:White x=0.32 y=0.31

The ordinal number that base on diffence electro-optical characteristics within chip.

1,2 …… 7,8,9, A,B……X,Y,Z

Resin Color:

C:Water Clear
W:White Diffused
D:Diffused

Luminous Intensity Groups:

	C0: 0.28 … 0.45	
	D0: 0.45 … 0.70	
	E0: 0.70 … 1.1	
	F0: 1.1 … 1.8	
	G0: 1.8 … 2.8	
	H0: 2.8 … 4.5	
	J0: 4.5 … 7.2	
	K0: 7.2 … 11.5	
L ⇨	L1: 11.5 … 14.5	
	L2: 14.5 … 18.0	
M ⇨	M1: 18.0 … 22.5	
	M2: 22.5 … 28.5	
N ⇨	N1: 28.5 … 36.0	
	N2: 36.0 … 45.0	
P ⇨	P1: 45.0 … 57.0	
	P2: 57.0 … 72.0	
Q ⇨	Q1: 72.0 … 90.0	
	Q2: 90.0 … 112	
R ⇨	R1: 112 … 140	
	R2: 140 … 180	
S ⇨	S1: 180 … 225	
	S2: 225 … 285	
T ⇨	T1: 285 … 360	
	T2: 360 … 450	
U ⇨	U1: 450 … 565	
	U2: 565 … 715	
V ⇨	V1: 715 … 900	
	V2: 900 … 1120	
W ⇨	W1:1120 … 1420	
	W2:1420 … 1800	
X ⇨	X1: 1800 … 2250	
	X2: 2250 … 2850	
Y ⇨	Y1: 2850 … 3600	
	Y2: 3600 … 4500	

Unit:mcd

The luminous intensity data did not including ±15% testing tolerance.

Forward Voltage Groups:

None: No definition

The VF definition as follows:

Unit:V

Forward Voltage Group	Bin	Min.	Max.
A	00	1.55	1.75
B	0	1.75	1.95
C	1	1.95	2.15
	2	2.15	2.35
	3	2.35	2.55
	4	2.55	2.75
D	5	2.75	3.05
E	6	3.05	3.35
M	7	3.35	3.65
	8	3.65	3.95
J	9	2.50	2.70
R	10	2.70	2.90
K	11	2.90	3.10
F	12	3.10	3.30
N	13	3.30	3.50
	14	3.50	3.70
H	15	2.70	2.85
P	16	2.85	3.00
	17	3.00	3.15
	18	3.15	3.30

The forward voltage data did not including ±0.1V testing tolerance.

ANNEX

EVERLIGHT ELECTRONICS CO., LTD.

■ Dominant Wavelength Groups:

Y1,Y2,Y5						
Dom . Wavelength Groups		Range				
		Bin	Min.	Max.	Unit	
A	C	D3	585.5	588.5	nm	
		D4	588.5	591.5	nm	
		D5	591.5	594.5	nm	

Y3				
Dom . Wavelength Group	Range			
	Bin	Min.	Max.	Unit
A	D4	588.5	591.5	nm
	D5	591.5	594.5	nm
	D6	594.5	597.5	nm
	D7	597.5	600.5	nm

■ Forward Voltage Groups:

Forward Voltage Groups	Range			
	Bin	Min.	Max.	Unit
A	00	1.55	1.75	V
B	0	1.75	1.95	V
C	1	1.95	2.15	V
	2	2.15	2.35	V
	3	2.35	2.55	V
	4	2.55	2.75	V
D	5	2.75	3.05	V
E	6	3.05	3.35	V
M	7	3.35	3.65	V
	8	3.65	3.95	V
R	9	2.50	2.70	V
J	10	2.70	2.90	V
K	11	2.90	3.10	V
	12	3.10	3.30	V
F	13	3.30	3.50	V
N	14	3.50	3.70	V
P	15	2.70	2.85	V
H	16	2.85	3.00	V
	17	3.00	3.15	V
	18	3.15	3.30	V

EVERLIGHT ELECTRONICS CO.,LTD.

Technical Data Sheet

0.4mm Height Flat Top LED

19-217/Y5C Series

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.

Descriptions

- The 19-217 SMD Taping is much smaller than lead frame type components, thus enable smaller board size, higher packing density, reduced storage space and finally smaller equipment to be obtained.
- Besides, lightweight makes them ideal for miniature applications. etc.

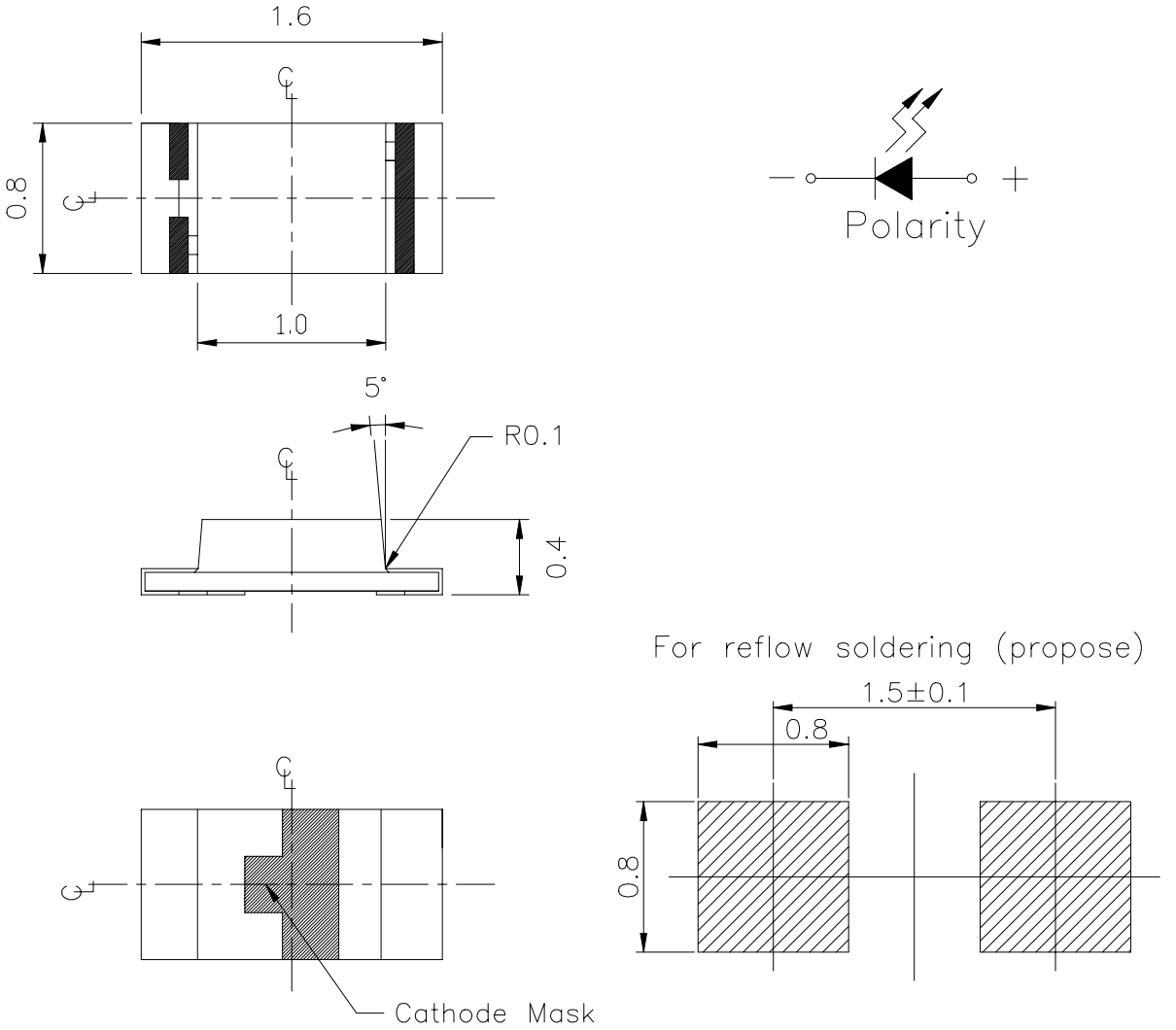
Applications

- Automotive: backlighting in dashboard and switch.
- Telecommunication: indicator and backlighting in telephone and fax.
- Flat backlight for LCD, switch and symbol.
- General use.

Device Selection Guide

Part No.	Chip		Lens Color
	Material	Emitted Color	
19-217/Y5C	AlGaInP	Brilliant Yellow	Water Clear

Package Outline Dimensions



Note: The tolerances unless mentioned is ± 0.1mm , Angle± 0.5° ,Unit = mm

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	5	V
Forward Current	I_F	25	mA
Operating Temperature	Topr	-40 ~ +85	℃
Storage Temperature	Tstg	-40 ~ +90	℃
Soldering Temperature	Tsol	260 (for 5 seconds)	℃
Electrostatic Discharge	ESD	2000	V
Power Dissipation	Pd	100	mW
Peak Forward Current (Duty 1/10 @1KHz)	I_F	60	mA

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Peak Wavelength	λ p	----	591	----	nm	I_F=20mA
Dominant Wavelength	λ d	----	589	----	nm	
Spectrum Radiation Bandwidth	△ λ	----	15	----	nm	
Viewing Angle	2 θ 1/2	----	120	----	deg	
Forward Voltage	V_F	----	2.0	2.4	V	
Reverse Current	I_R	----	----	10	μ A	V_R=5V

■19-217/Y5C Series Explain Of Luminous Intensity:

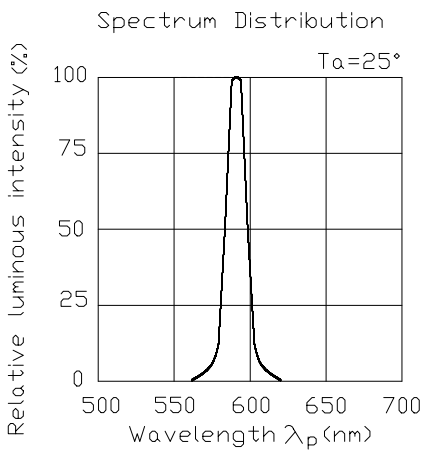
I_F=20mA

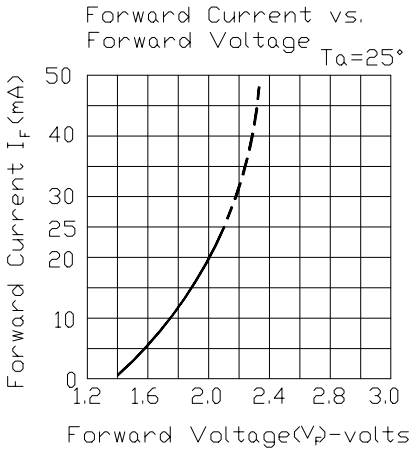
Part No.	Parameter	Symbol	Typ.	Bin	Min.	Max.	Unit
19-217/Y5C-P1Q2	Luminous Intensity	Iv	75	P1	45.0	57.0	mcd
				P2	57.0	72.0	
				Q1	72.0	90.0	
				Q2	90.0	112	
19-217/Y5C-Q1R1	Luminous Intensity	Iv	100	Q1	72.0	90.0	mcd
				Q2	90.0	112	
				R1	112	140	
19-217/Y5C-Q2R2	Luminous Intensity	Iv	135	Q2	90.0	112	mcd
				R1	112	140	
				R2	140	180	

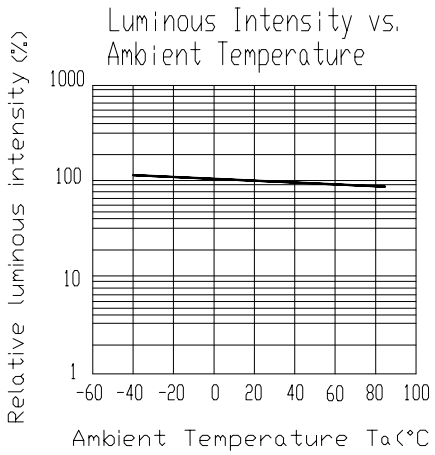
Note:

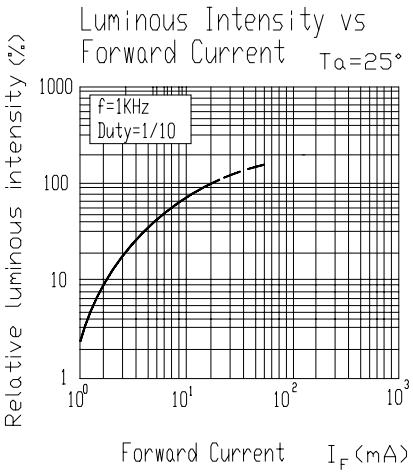
The luminous intensity data did not including ± 15% testing tolerance.

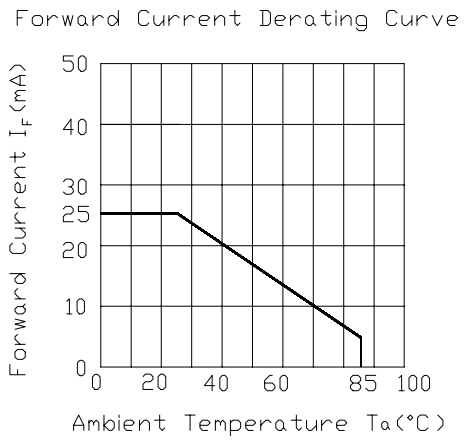
Typical Electro-Optical Characteristics Curves

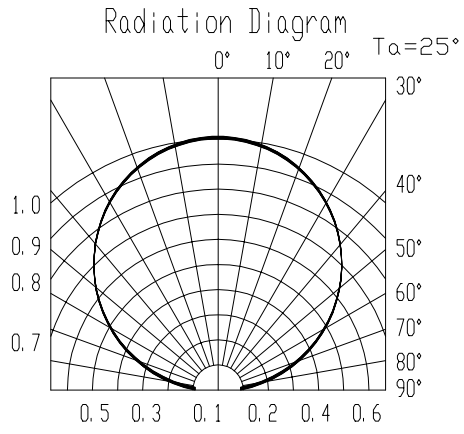












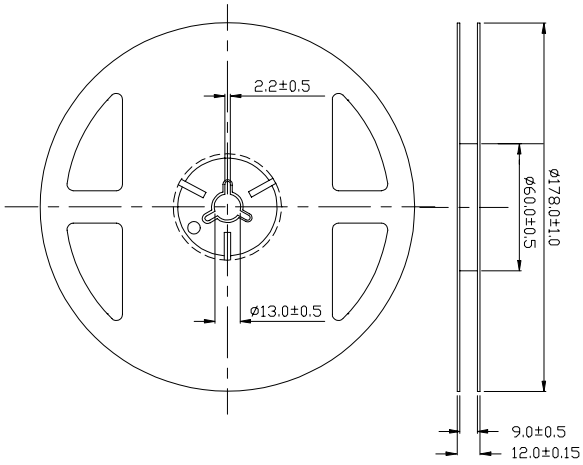
Label explanation

CAT: Luminous Intensity (mcd)

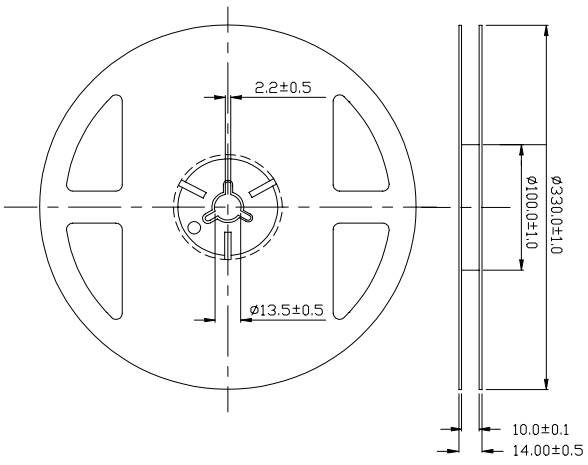
HUE: Dom. Wavelength (nm)

REF: Forward Voltage (V)

Reel Dimensions



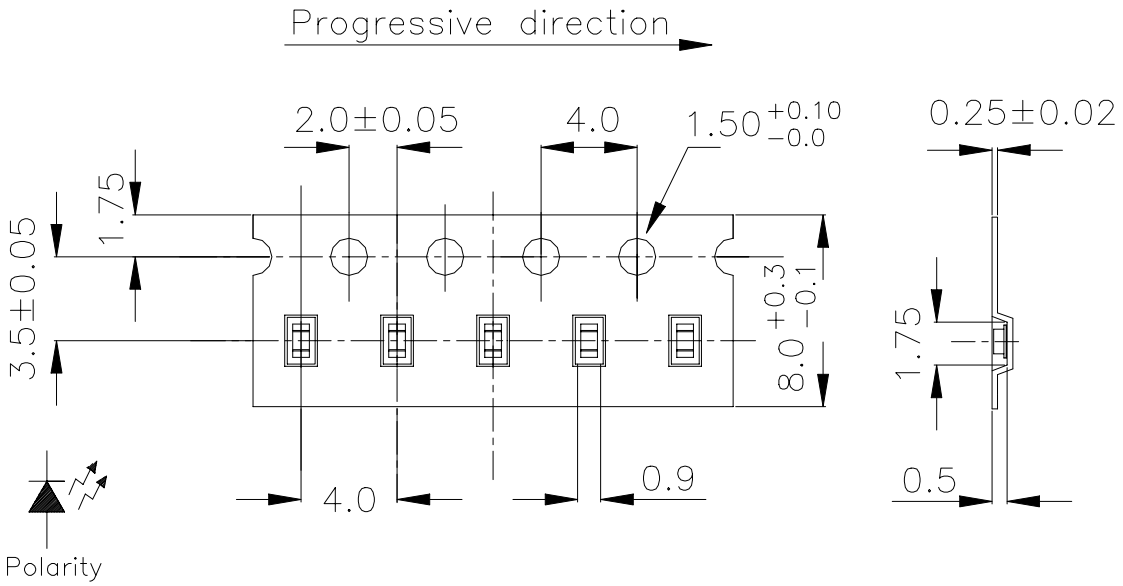
Taping Quantity: 3000pcs



Taping Quantity: 5000pcs & 10000pcs

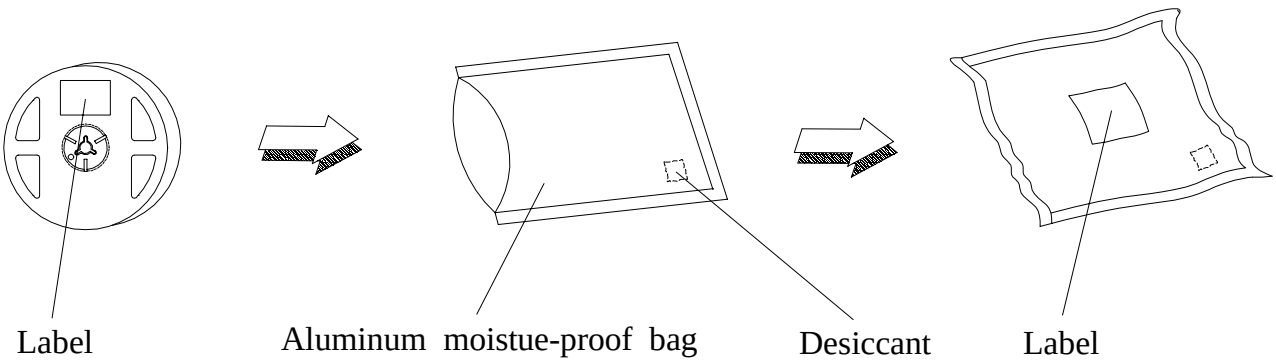
Note: The tolerances unless mentioned is ± 0.1mm , Angle± 0.5° ,Unit = mm

■ Carrier Tape Dimensions



Note: The tolerances unless mentioned is ± 0.1mm , Angle± 0.5° ,Unit = mm

■ Moisture Resistant Packaging



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	Temp. : 240℃± 5℃ Min. 5 sec.	6 min.	22 Pcs.	0/1
2	Temperature Cycle	H : +100℃ 15min. ∫ 5 min. L : -40℃ 15min.	300 Cycles	22 Pcs.	0/1
3	Thermal Shock	H : +100℃ 5min. ∫ 10 sec. L : -10℃ 5min.	300 Cycles	22 Pcs.	0/1
4	High Temperature Storage	Temp. : 100℃	1000 Hrs.	22 Pcs.	0/1
5	Low Temperature Storage	Temp. : -55℃	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℃/R.H85%	1000 Hrs.	22 Pcs.	0/1

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 time

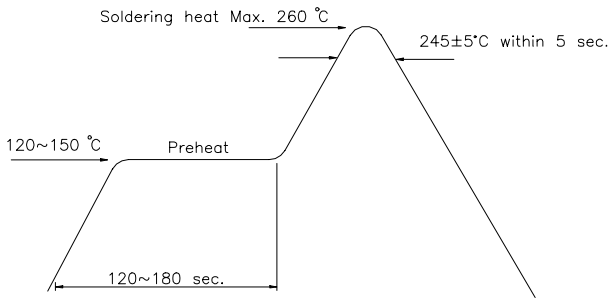
2.1 The operation of Temperature and RH are : 5℃~35℃, RH60%.

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).

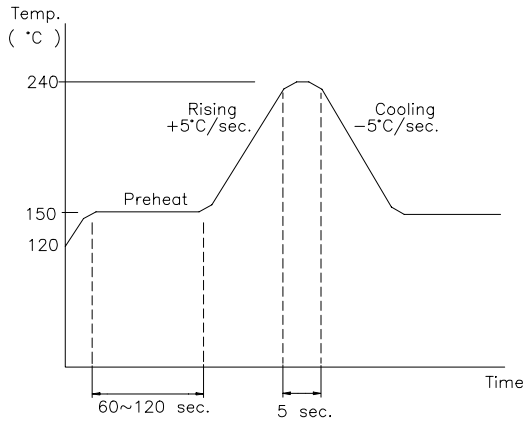
2.3 If opened more than one week in an atmosphere 5℃~35℃, RH 60%, they should be treated at 60℃± 5℃for 15hrs.

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

Soldering heat



Reflow Temp / Time

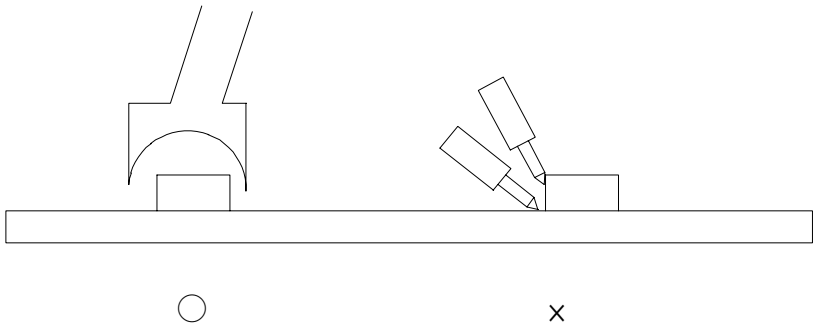


Soldering Iron

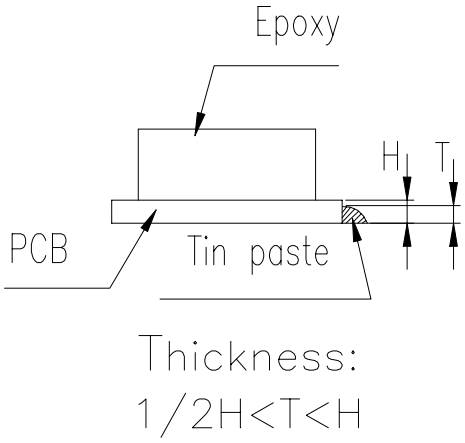
Basic spec is ≦5 sec when 260℃.If temperature is higher, time should be shorter (+10℃→ -1sec). Power dissipation of Iron should be smaller than 15 W , and temperature should be controllable. Surface temperature of the device should be under 230 ℃.

Rework

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



Thickness of tin paste



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