

# High Power UV LED Product Specification

Updated on 2018/01/05

Approval Sheet

PU88S11 UV Emitter  
Product Specification

RoHS

<b>Product</b>	UV 3535 Emitter
<b>Part Number</b>	PU88S11
<b>Customer</b>	
<b>Issue Date</b>	2016/10/5



### ■ Feature

- ✓ 1W UV LED Emitter
- ✓ Compact dimensions: 3.45 mm × 3.45 mm × 2.10 mm
- ✓ Dice Technology : AlGaIn
- ✓ View angle:  $\theta = 125^\circ$
- ✓ Low thermal resistance
- ✓ Environmental friendly ; RoHS compliance

### ■ Applications

- ✓ Nail lamp
- ✓ UV curing
- ✓ Counterfeit banknote detection
- ✓ Photo catalytic purification

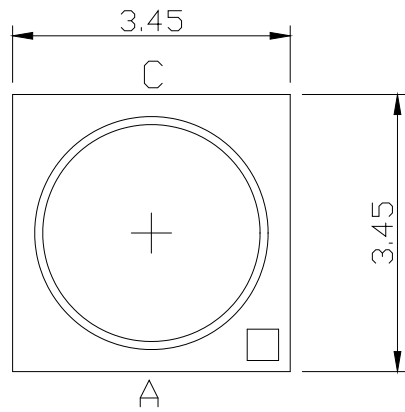
MAKER			CUSTOMER
Prepared	Checked	Approved	Approver
Taichi Wang	Vincent Chuang	KH Shen	

## Outline Dimension

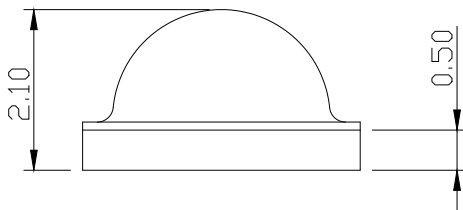
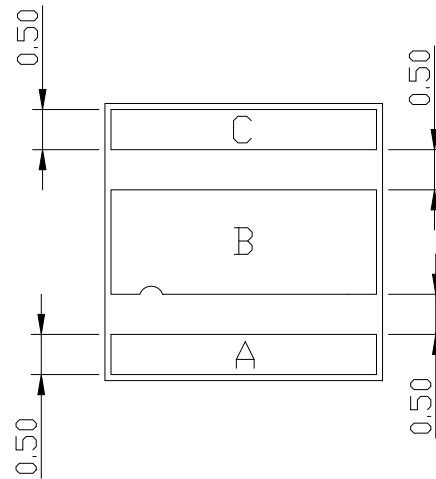
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### Outline Dimension

Top view



Bottom view



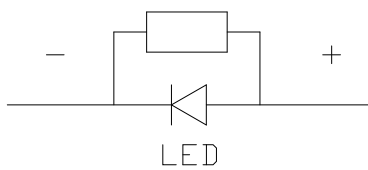
Unit:mm

A:Anode

B:Thermal

C:Cathode

Protection Device



\*. Tolerance:±0.15mm

## Performance

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### Opto-Electrical Characteristics

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage <sup>*(1)</sup>	$V_F$	$I_F = 350\text{mA}$	3.4	3.6	3.8	V
Wavelength <sup>*(2)</sup>	$W_P$	$I_F = 350\text{mA}$	365	--	370	nm
Thermal Resistance <sup>*(3)</sup>	$R_{th}$	$I_F = 350\text{mA}$	--	6	--	$^{\circ}\text{C}/\text{W}$
View Angle	$\theta$	$I_F = 350\text{mA}$	--	125	--	deg
Reverse Current	$I_R$	$V_R = 5\text{V}$			10	$\mu\text{A}$
Radiant Power <sup>*(4)</sup>	$P_O$	$I_F = 350\text{mA}$	440	480	585	mW

(1).The Forward Voltage tolerance is  $\pm 0.1\text{V}$

(2).Peak Wavelength tolerance is  $\pm 3\text{nm}$

(3).Thermal resistance is calculated from junction to solder

(4).The Radiant Power tolerance  $\pm 10\%$

### Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
DC Forward Current	$I_F$	350	mA
Surge Forward Current <sup>*(1)</sup>	$I_{FS}$	350	mA
ESD	$V_{ESD}$	8000	V
Power Dissipation	$P_d$	2.20	W
Soldering Temperature <sup>*(2)</sup>	$T_S$	260	$^{\circ}\text{C}$
Junction Temperature	$T_J$	120	$^{\circ}\text{C}$
Storage Temperature	$T_{Stg}$	-40~+100	$^{\circ}\text{C}$
Operation Temperature	$T_{Op}$	-30~+85	$^{\circ}\text{C}$

(1) Frequency Duty $<10\%$ ,  $t_p=100\mu\text{s}$ .

(2) JEDEC STD-020 latest version compliant.

(3) Proper current rating must be observed to maintain junction temperature below  $T_J$  max.

**Binning**

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**Wavelength Rank (Ta=25°C)**

W <sub>P</sub> Rank	Min.	Max.	Unit	Condition
U0365	365	370	nm	I <sub>F</sub> =350mA

**Radiant Power Rank (Ta=25°C)**

P <sub>O</sub> Rank	Min.	Max.	Unit	Condition
01	440	480	mW	I <sub>F</sub> =350mA
02	480	520	mW	I <sub>F</sub> =350mA
03	520	560	mW	I <sub>F</sub> =350mA
04	560	600	mW	I <sub>F</sub> =350mA

**Forward Voltage Rank (Ta=25°C)**

V <sub>F</sub> Rank	Min.	Max.	Unit	Condition
A	3.4	3.5	V	I <sub>F</sub> =350mA
B	3.5	3.6	V	I <sub>F</sub> =350mA
C	3.6	3.7	V	I <sub>F</sub> =350mA
D	3.7	3.8	V	I <sub>F</sub> =350mA

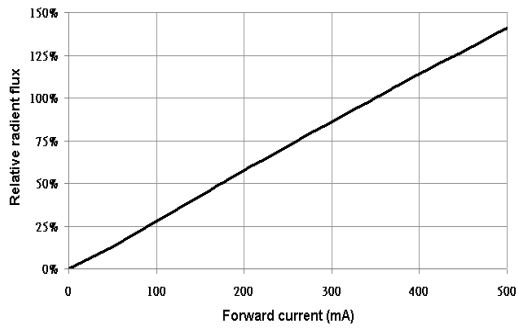
**Bin code definition (for example)**

W <sub>P</sub> Rank	P <sub>O</sub> Rank	V <sub>F</sub> Rank
U0365	02	D

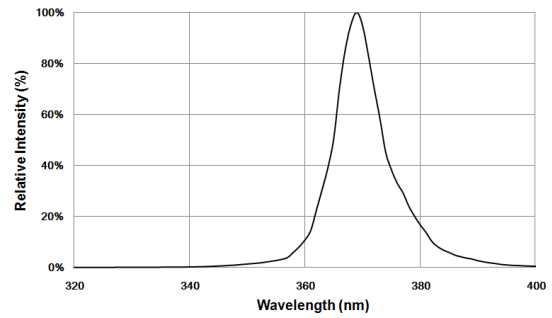
## Characteristics

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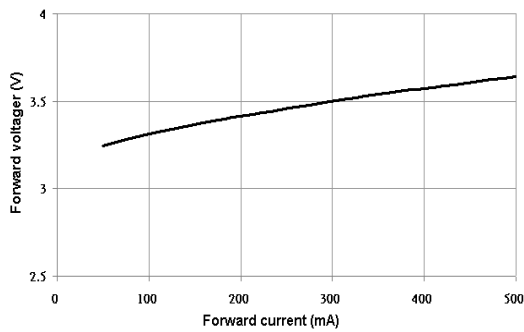
### Relative Radiant Flux vs. Forward Current



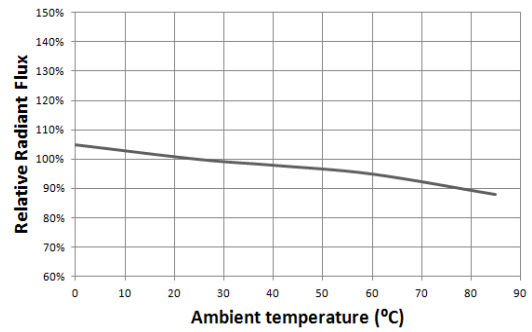
### Relative Spectral Distribution vs. Wavelength at 25°C, I<sub>F</sub>=350mA



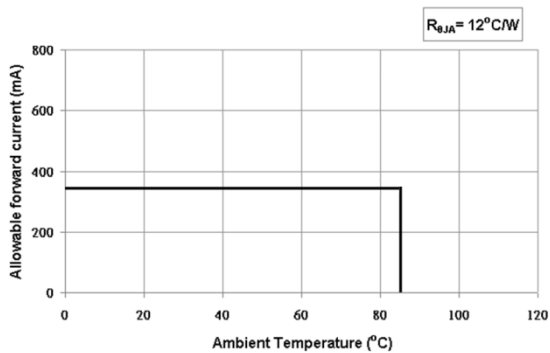
### Forward Current vs. Forward Voltage at 25°C



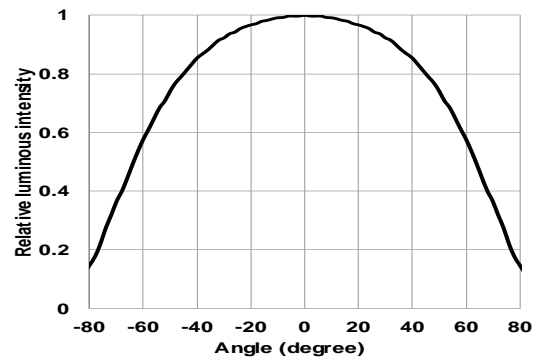
### Relative radiant flux vs. Ambient Temperature



### Ambient Temperature vs. Allowable forward current



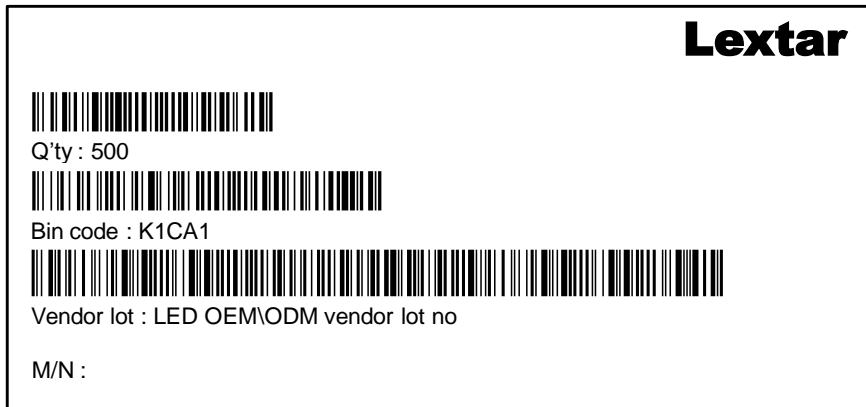
### Directivity



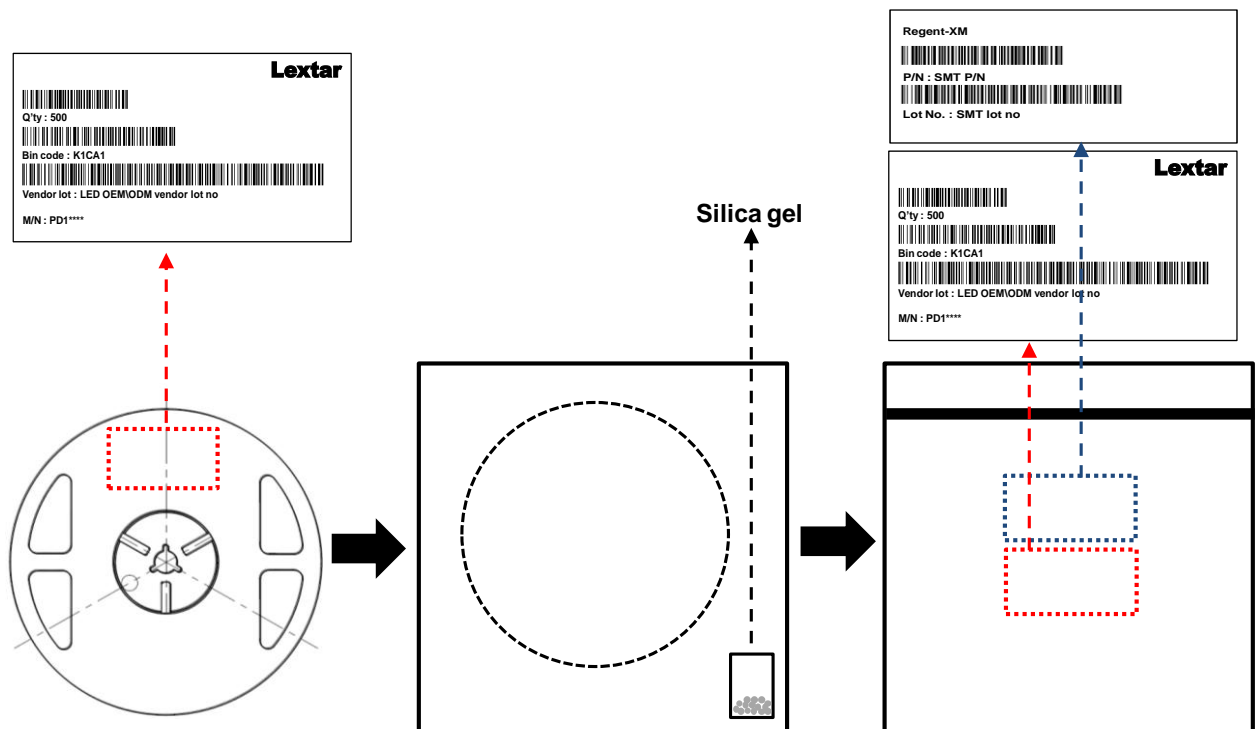
## Packing

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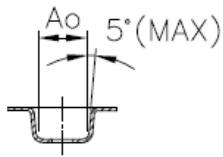
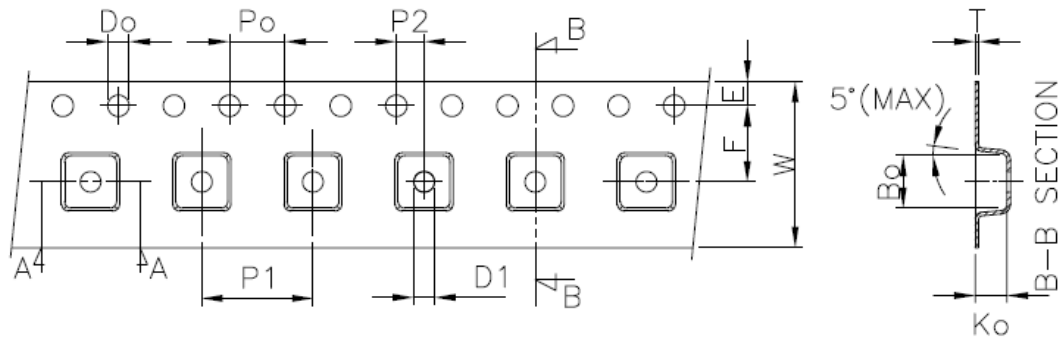
### Label



### Packing process

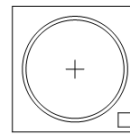


### Carrier dimensions



A-A SECTION

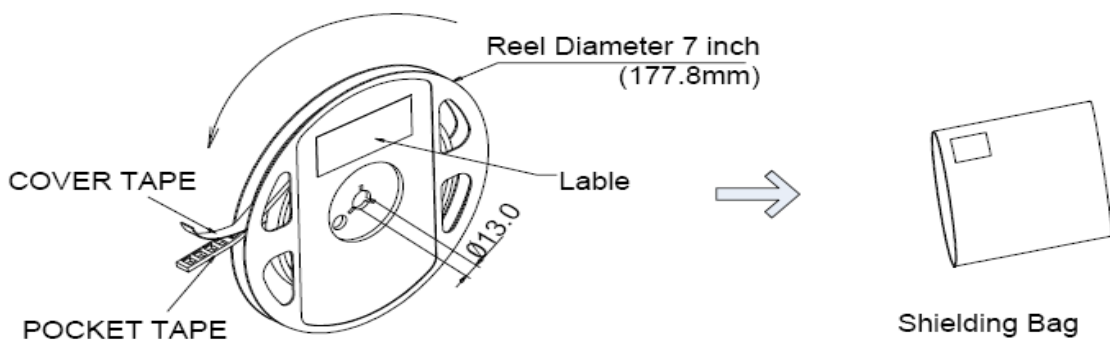
Orientation:



UNIT: mm

Symbol	Ao	Bo	Ko	Po	P1	P2	T
Spec	3.72±0.10	3.72±0.10	2.7±0.10	4.00±0.10	8.00±0.10	2.00±0.10	0.25±0.10
Symbol	E	F	Do	D1	W	10Po	--
Spec	1.75±0.10	5.5±0.05	1.55±0.05	1.50±0.10	12.0±0.30	40.0±0.20	--

REEL DIRECTION



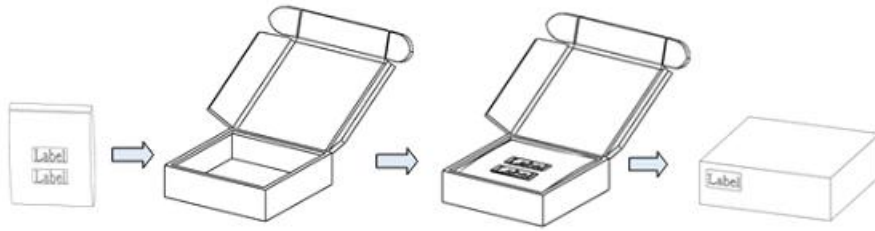
7 inch Anti-Static Reel

Max 500pcs/reel

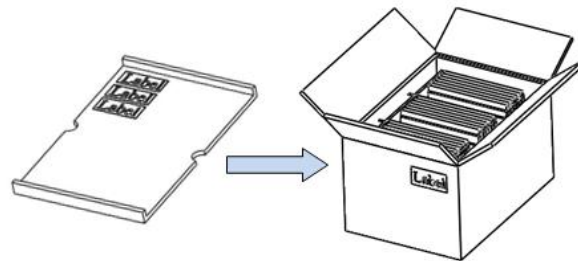
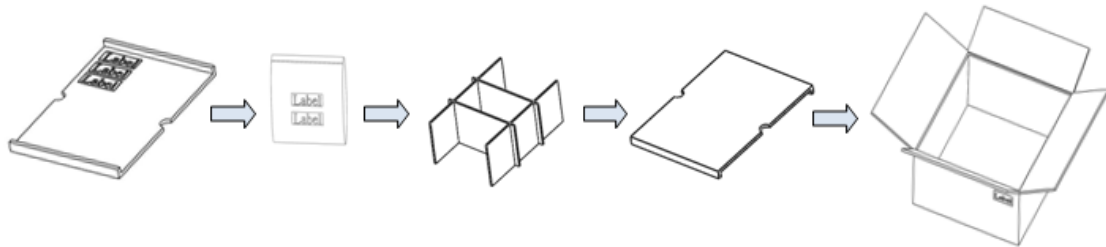
Min 200pcs/reel



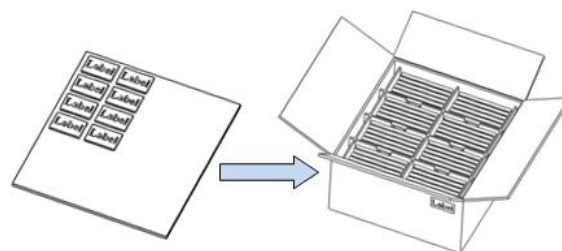
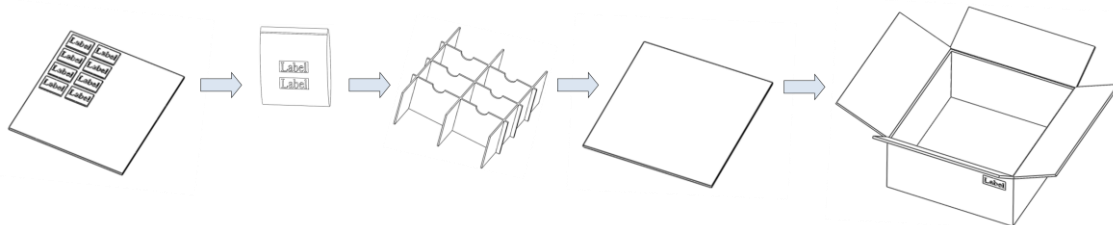
■ **Small Box**



■ **Medium Box**



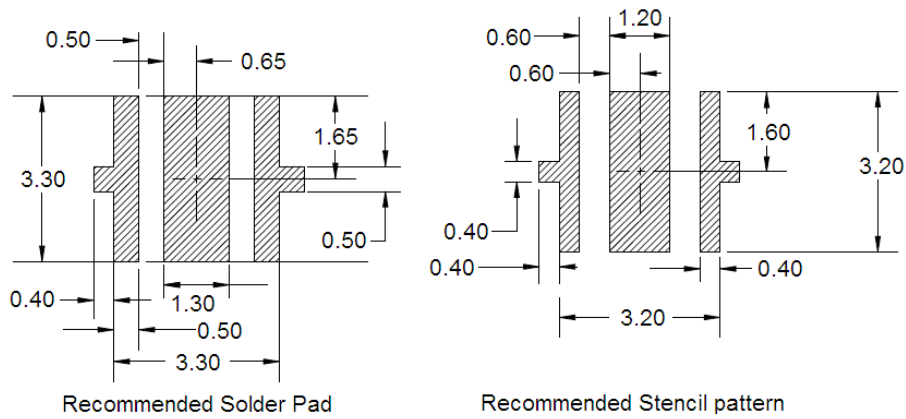
■ **Large Box**



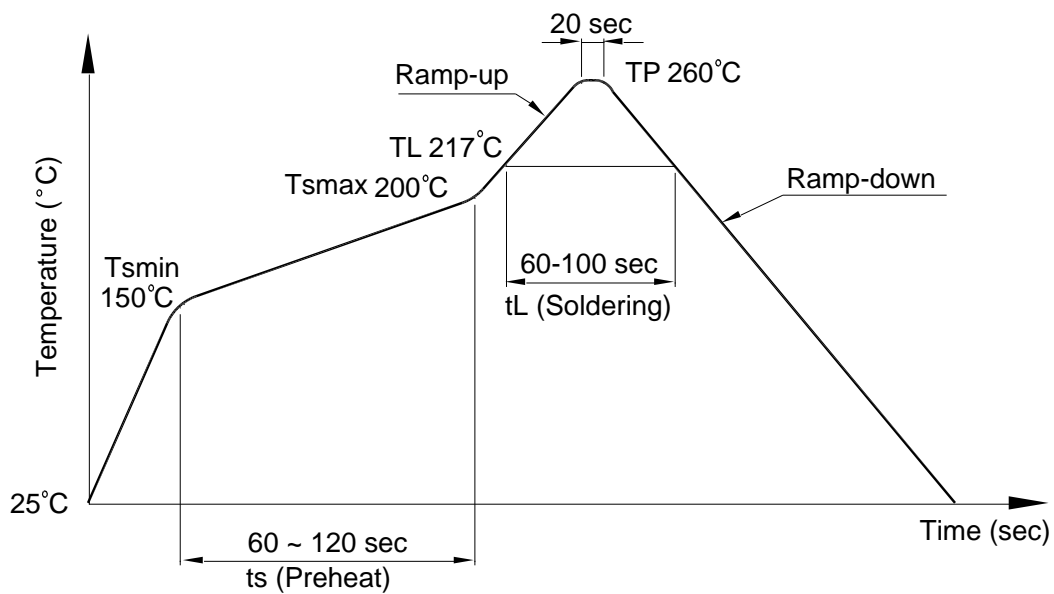
## Application Notes

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### Soldering PAD Design



### Recommended Reflow Soldering Profile (JEDEC-STD-020 latest version compliant)



Profile Items	Conditions
Preheat	
-Temperature Min.( $T_{Smin}$ )	150°C
-Temperature Max.( $T_{Smax}$ )	200°C
-Time(Min. to Max.)( $t_S$ )	90±30 sec
Soldering Zone	
-Temperature( $T_L$ )	217°C
-Time	60~100 sec
Peak Temperature( $T_P$ )	260°C
Ramp-up rate	3°C / sec max.
Ramp-down rate	3~6°C / sec

**Note:**

1. One time soldering is recommended; do not exceed 3 times reflow process.
2. The recommended peak temperature is 245°C. The maximum soldering temperature should be controlled under 260°C.