



MODEL NO: 11-22VRVGC/S10/TR8

Device Number : DSE-112-014 REV. 1.1

**Chip LEDs with Bi-Color(Multi-Color)**

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**Features :**

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

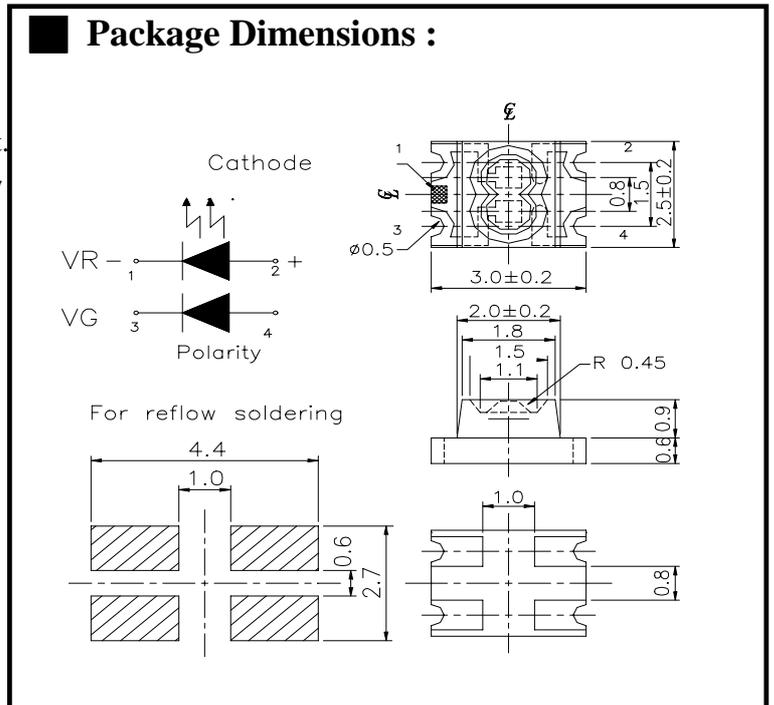
**Descriptions :**

- The 11-22 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.

**Package Dimensions :**



**Notes :**

Tolerances Unless Dimension  $\pm 0.1\text{mm}$   
 Angle  $\pm 0.5^\circ$   
 Unit = mm

PART NO	Chip		Lens Color
	Material	Emitted Color	
11-22VRVGC/S10/TR8	VR:	GaAsP/GaP	Water Clear
	VG:	GaP	

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<http://www.everlight.com>

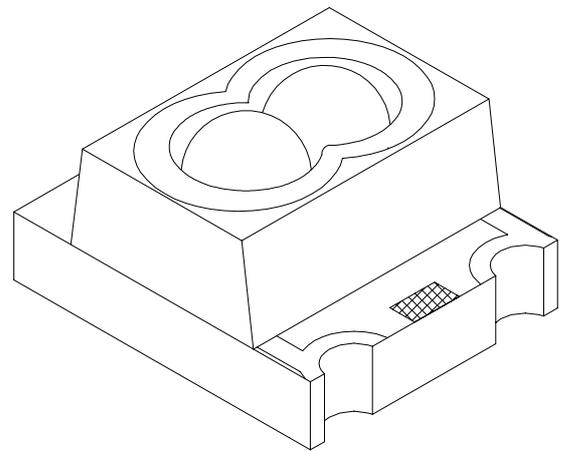
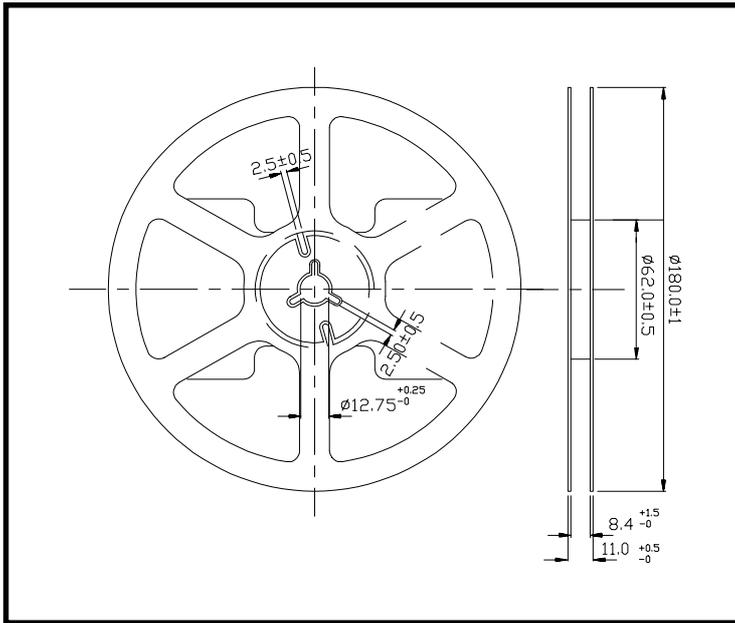


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*Chip LEDs with Bi-Color(Multi-Color)*

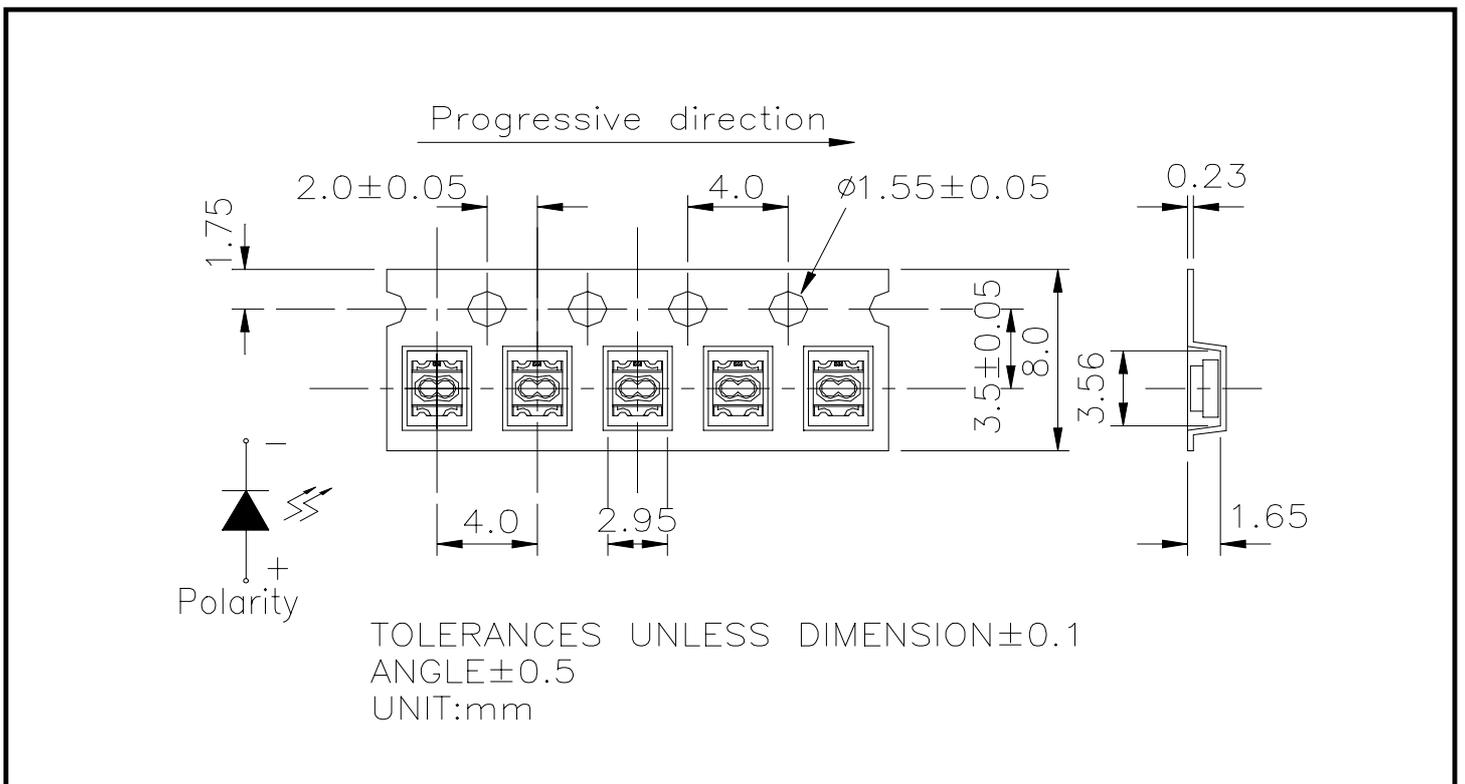
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■ Package Dimensions :



■ Loaded quantity per reel 2000 PCS/reel :





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■ Absolute Maximum Ratings at Ta = 25°C :

Parameter	Symbol	Rating	Unit
Reverse Voltage	V <sub>R</sub>	5	V
Forward Current	I <sub>F</sub>	VR: 30 VG: 30	mA
Operating Temperature	T <sub>opr</sub>	-40 ~ +85	°C
Storage Temperature	T <sub>stg</sub>	-40 ~ +90	°C
Soldering Temperature	T <sub>sol</sub>	260 (for 5 second)	°C
Power Dissipation	P <sub>d</sub>	VR: 100 VG: 100	mW
Peak Forward Current(Duty 1/10 @ 1KHZ)	I <sub>F(Peak)</sub>	VR: 160 VG: 160	mA



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Electronic Optical Characteristics :

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I <sub>v</sub> VR:	7.0	12.0	-----	mcd	I <sub>F</sub> =20mA
	VG:	14.0	21.0			
Viewing Angle	2θ 1/2	-----	90	-----	deg	I <sub>F</sub> =20mA
Peak Wavelength	λ <sub>p</sub> VR:	-----	640	-----	nm	I <sub>F</sub> =20mA
	VG:		570			
Dominant Wavelength	λ <sub>d</sub> VR:	-----	625	-----	nm	I <sub>F</sub> =20mA
	VG:		571			
Spectrum Radiation Bandwidth	Δλ VR:	-----	45	-----	nm	I <sub>F</sub> =20mA
Forward Voltage	V <sub>F</sub> VR:	1.7	2.0	2.6	V	I <sub>F</sub> =20mA
	VG:	1.7	2.1	2.4		
Reverse Current	I <sub>R</sub>	-----	-----	10	μA	V <sub>R</sub> =5V



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■ Reliability Test Items And Conditions :

NO	Item	Test Conditions	Test Hours/Cycle	Sample Size	Ac/Re
1	Solder Heat	TEMP : 260°C ± 5 °C	5 SEC	76 PCS	0/1
2	Temperature Cycle	H : +85°C 30min ∫ 5 min L : -55°C 30min	50 CYCLE	76 PCS	0/1
3	Thermal Shock	H : +100°C 5min ∫ 10 sec L : -10°C 5min	50 CYCLE	76 PCS	0/1
4	High Temperature Storage	TEMP : 100°C	1000 HRS	76 PCS	0/1
5	Low Temperature Storage	TEMP : -55°C	1000 HRS	76 PCS	0/1
6	DC Operating Life	I <sub>F</sub> = 20 m A	1000 HRS	76 PCS	0/1
7	High Temperature / High Humidity	85°C/85% RH	1000 HRS	76 PCS	0/1



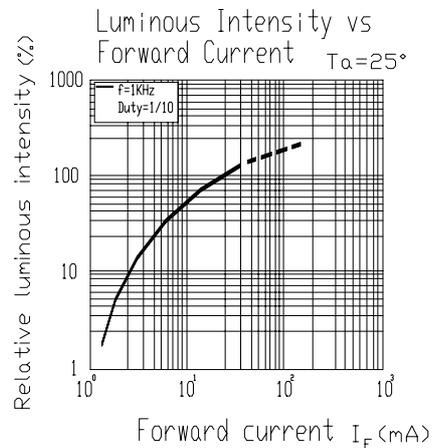
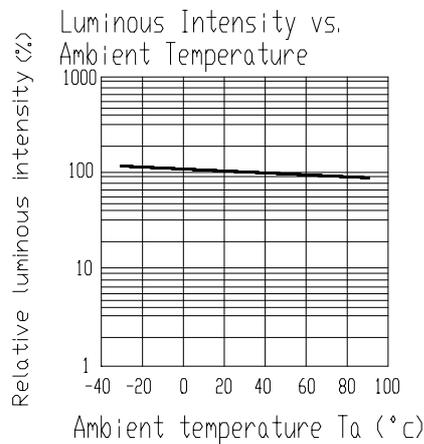
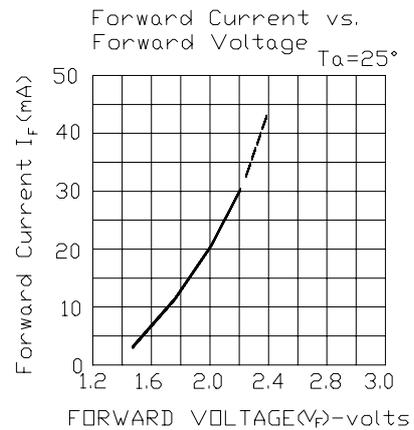
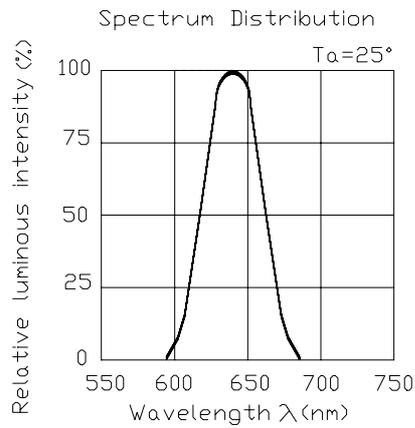
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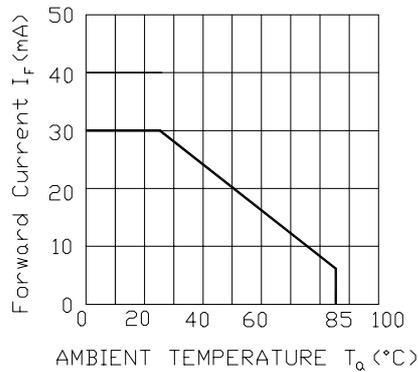
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■ Typical Electro-Optical Characteristic Curves :

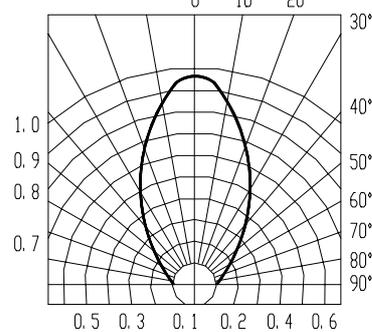
VR



Forward Current Derating Curve



Radiation Diagram  $T_a=25^\circ$





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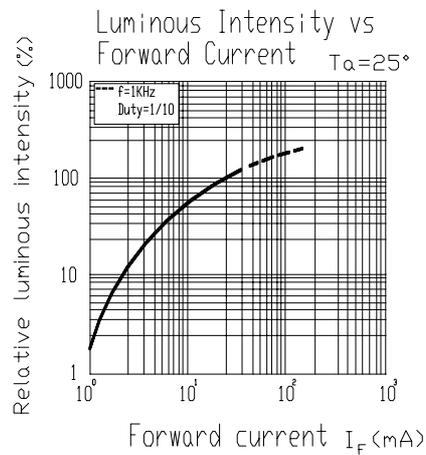
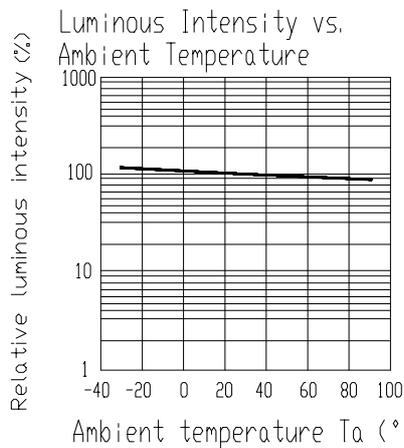
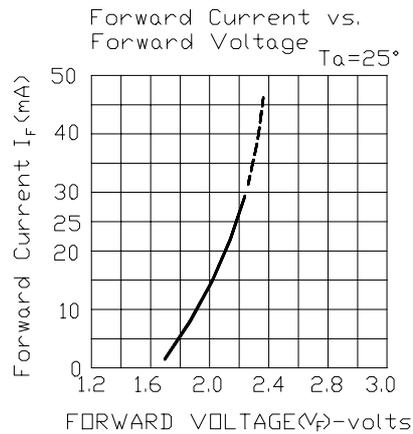
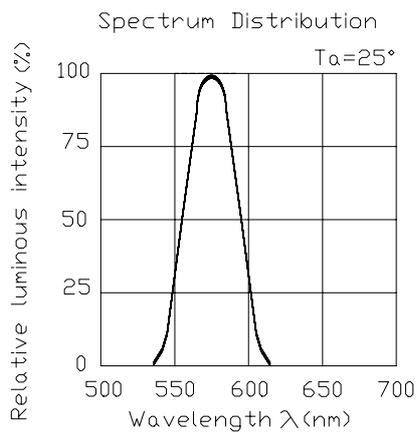
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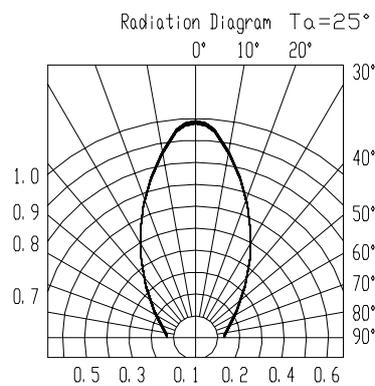
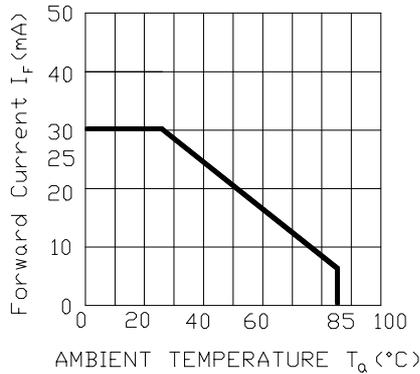
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**Typical Electro-Optical Characteristic Curves :**

**VG**



Forward Current Derating Curve





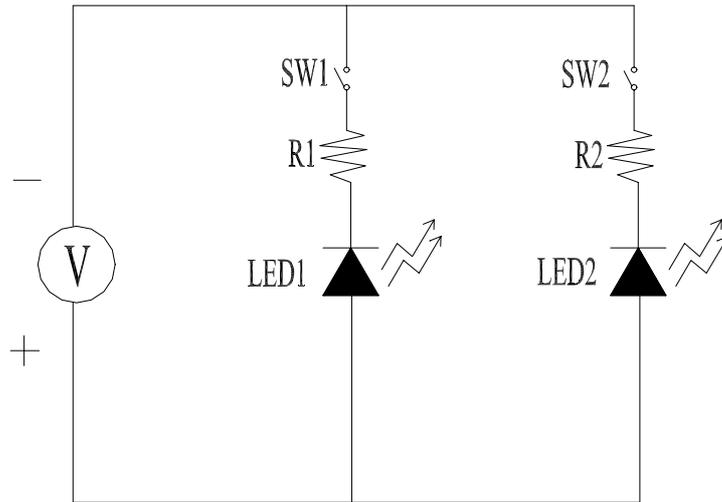
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■ **Test Circuit :**



■ **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 R.H. are :  $5^{\circ}\text{C} \sim 35^{\circ}\text{C}$  , R.H.60%.

2.2 Once the package is opened, the products should be used within a week.

Otherwise, they should be keeping in a damp proof box with desiccating 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  $5^{\circ}\text{C} \sim 35^{\circ}\text{C}$  , R.H.60% , they should be treated at  $60^{\circ}\text{C} \pm 5^{\circ}\text{C}$  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.



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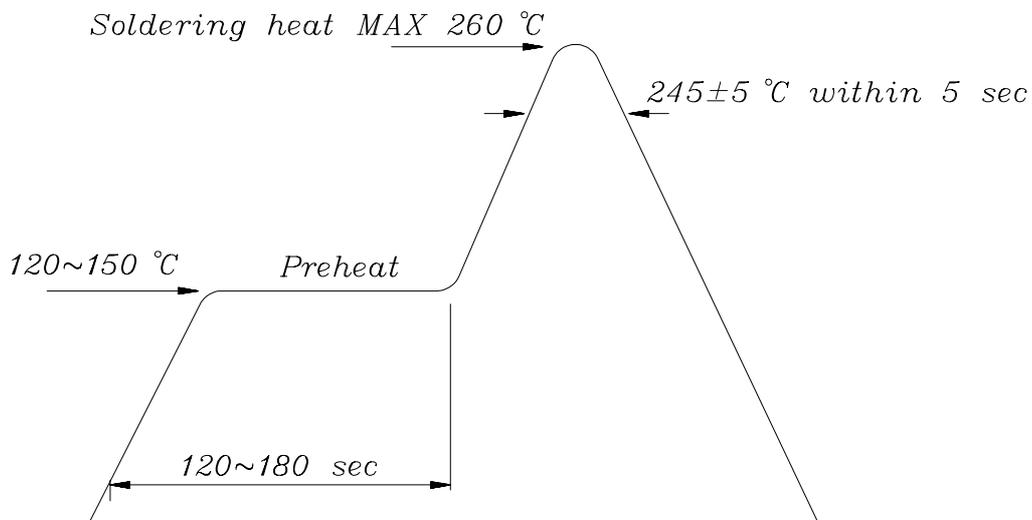
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■ **Soldering heat reliability ( DIP ) :**

Please refer to the following figure :

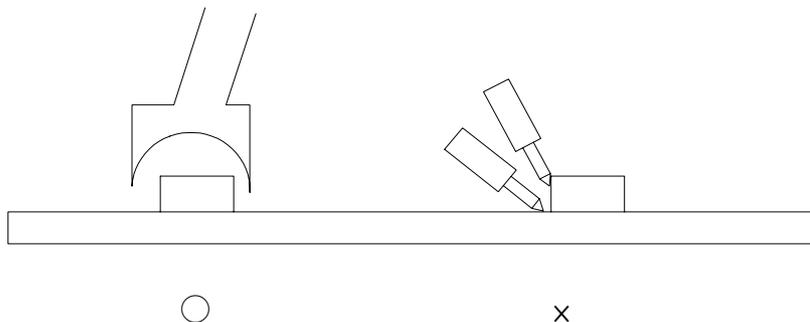


■ **Soldering Iron :**

Basic spec is  $\leq 5$  sec when 260°C. If temperature is higher, time should be shorter (+10°C → -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 °C.

■ **Rework :**

1. Customer must finish rework within 5 sec under 260°C.
2. The head of iron can not touch copper foil.
3. Twin-head type is preferred.





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■ Reflow Temp / Time :

