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LED SMD



Lead-Free Parts

LG-150SRF/9UG-CT

DATA SHEET

DOC. NO : QW0905-LG-150SRF/9UG-CT

REV. : A

DATE : 03 - Aug - 2006



Features:

- 1. Package in 8.0mm carrier tape on 7" diameter reel.
- 2. Compatible with automatic placement equipment.
- 3. Compatible with infrared and vapor phase reflow solder process.

Descriptions:

- 1. The LG-150SRF/9UG 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.
- 2. Besides, lightweight makes them ideal for miniature applications. etc.

Applications:

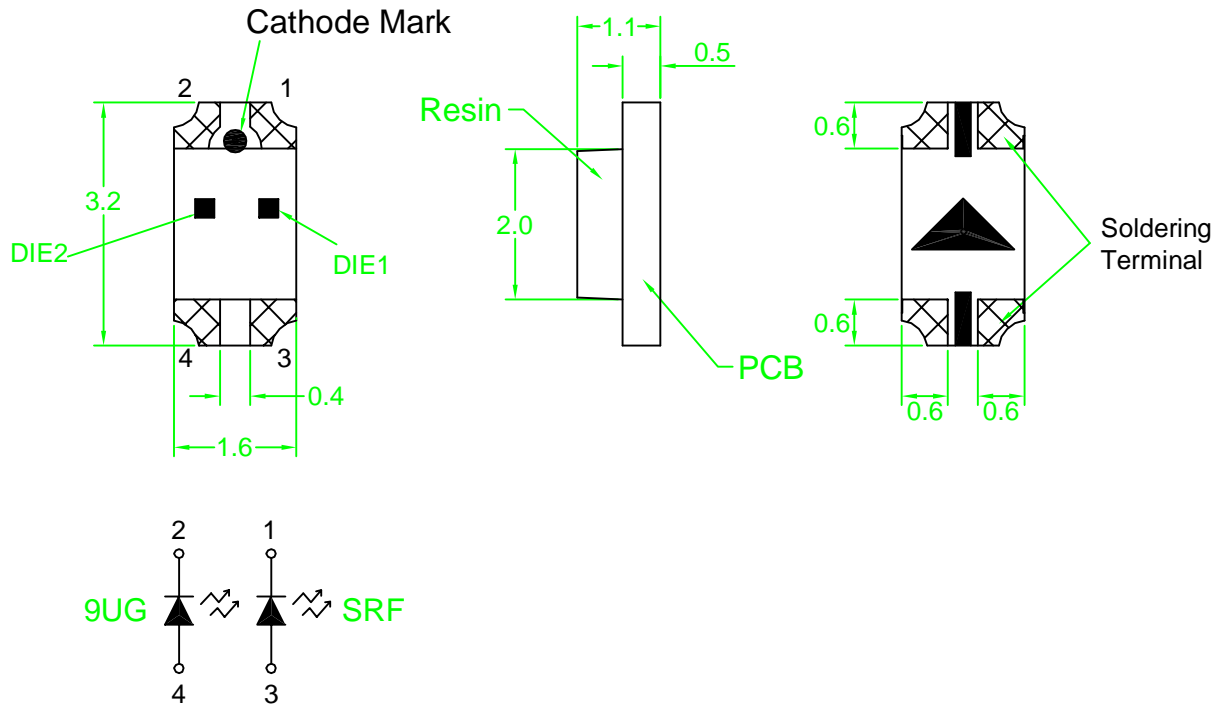
- 1. Automotive : backlighting in dashboard and switch.
- 2. Telecommunication : indicator and backlighting in telephone and fax.
- 3. Flat backlight for LCD, switch and symbol
- 4. General use.

Device Selection Guide:

PART NO	MATERIAL	COLOR	
		Emitted	Lens
LG-150SRF/9UG-CT	AlGaInP	Red	Water Clear
	AlGaInP	Green	

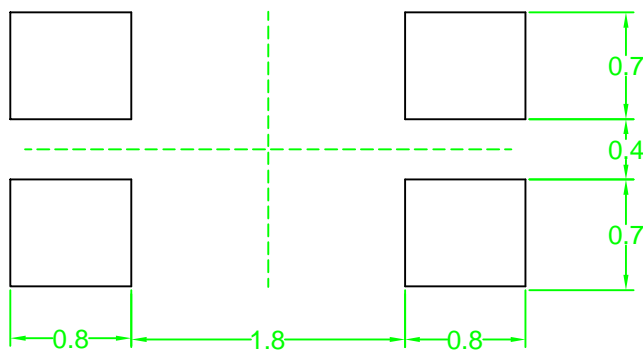


Package Dimensions



Note : 1.All dimension are in millimeter tolerance is $\pm 0.1\text{mm}$ unless otherwise noted.
 2.Specifications are subject to change without notice.

Recommended Soldering Pad Dimensions



Note : The tolerances unless mentioned is $\pm 0.1\text{mm}$, Angle ± 0.5 . Unit=mm.



Absolute Maximum Ratings at Ta=25

Parameter	Symbol	Ratings		UNIT
		SRF	9UG	
Power Dissipation	PD	72	78	mW
Peak Forward Current Duty 1/10@10KHz	IFP	90	60	mA
Forward Current	IF	30	30	mA
Reverse Current @5V	Ir	10	10	μ A
Electrostatic Discharge	ESD	2000		V
Operating Temperature	Topr	-40 ~ +85		
Storage Temperature	Tstg	-40 ~ +90		
Soldering Temperature	Tsol	Max 260 for 5 sec Max		

Typical Electrical & Optical Characteristics (Ta=25)

Items	Symbol	Min.	Typ.	Max.	UNIT	CONDITION	
Luminous Intensity	Iv	SRF	20	40	----	mcd	IF=20mA
		9UG	20	40	----		
Peak Wavelength	P	SRF	----	642	----	nm	IF=20mA
		9UG	----	575	----		
Dominant Wavelength	D	SRF	----	630	----	nm	IF=20mA
		9UG	----	574	----		
Spectral Line Half-Width		SRF	----	20	----	nm	IF=20mA
		9UG	----	20	----		
Forward Voltage	VF	SRF	1.5	----	2.4	V	IF=20mA
		9UG	1.7	----	2.6		
Viewing Angle	2 1/2	SRF	----	140	----	deg	IF=20mA
		9UG	----	140	----		

Note : 1.The forward voltage data did not including $\pm 0.1V$ testing tolerance.

2. The luminous intensity data did not including $\pm 15\%$ testing tolerance.



Typical Electro-Optical Characteristics Curve SRF CHIP

Fig.1 Forward current vs. Forward Voltage

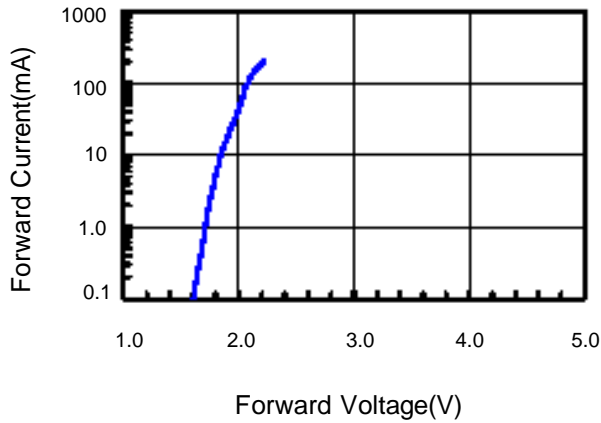


Fig.2 Relative Intensity vs. Forward Current

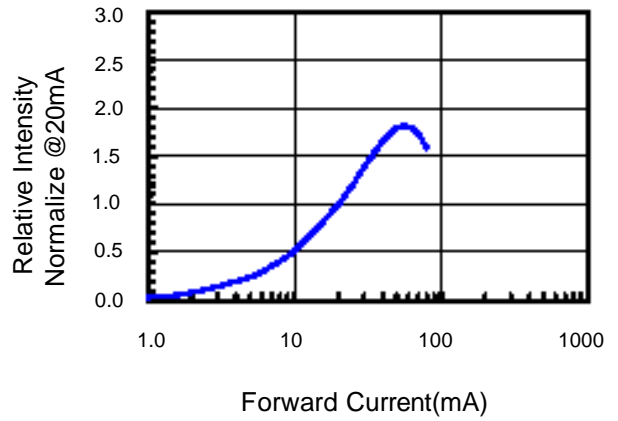


Fig.3 Forward Voltage vs. Temperature

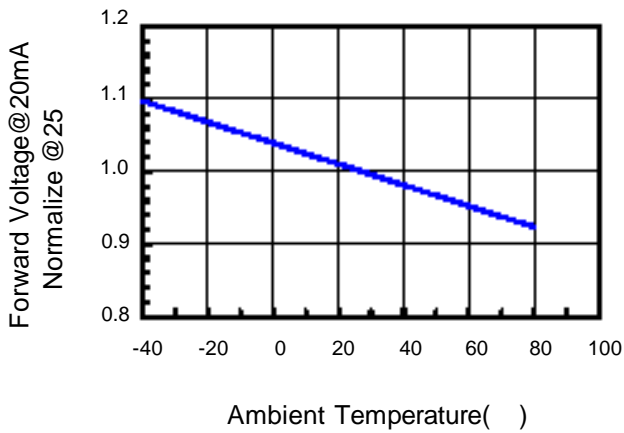


Fig.4 Relative Intensity vs. Temperature

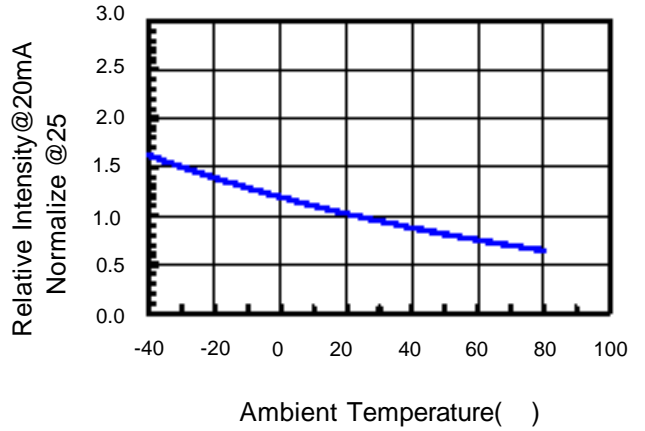


Fig.5 Relative Intensity vs. Wavelength

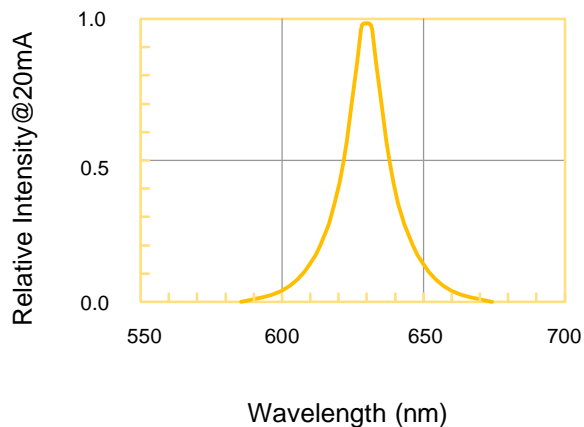
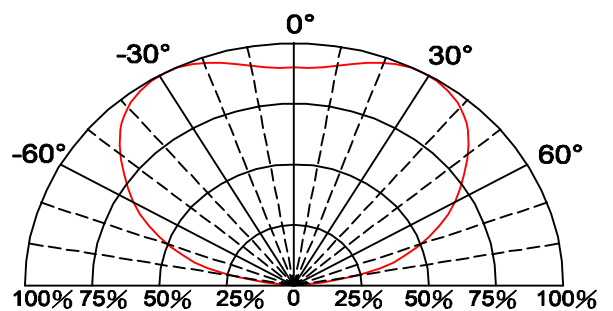


Fig.6 Directive Radiation





Typical Electro-Optical Characteristics Curve 9UG CHIP

Fig.1 Forward current vs. Forward Voltage

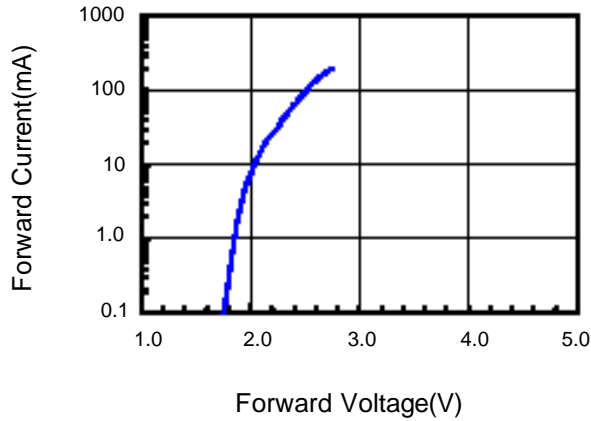


Fig.2 Relative Intensity vs. Forward Current

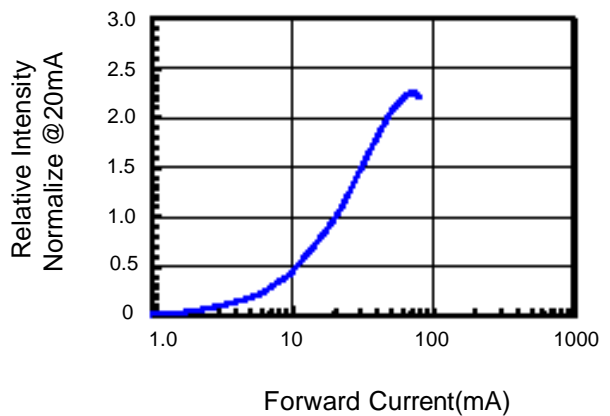


Fig.3 Forward Voltage vs. Temperature

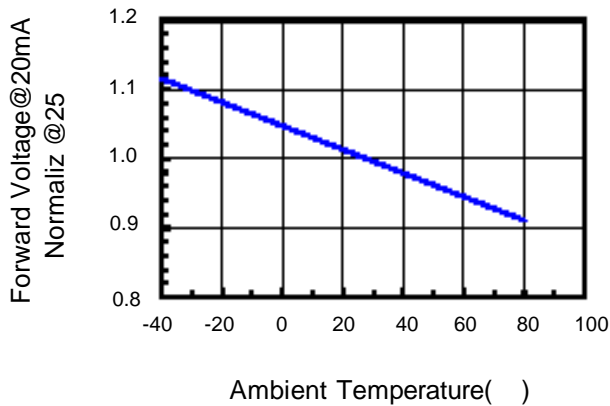


Fig.4 Relative Intensity vs. Temperature

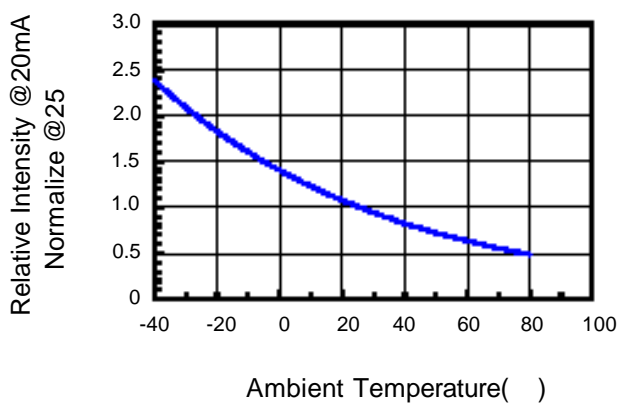


Fig.5 Relative Intensity vs. Wavelength

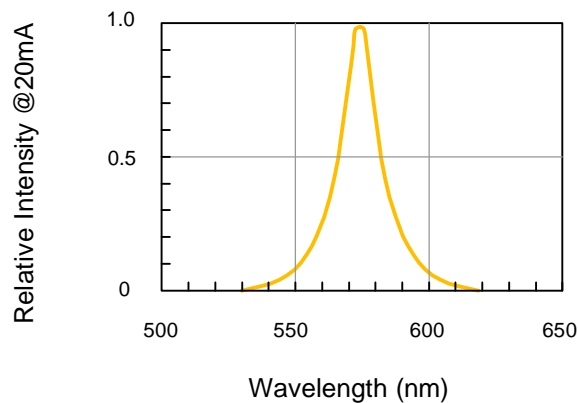
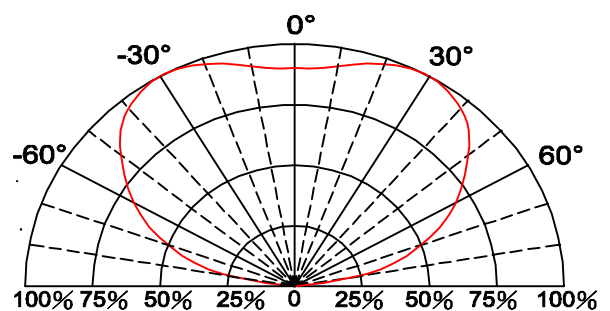
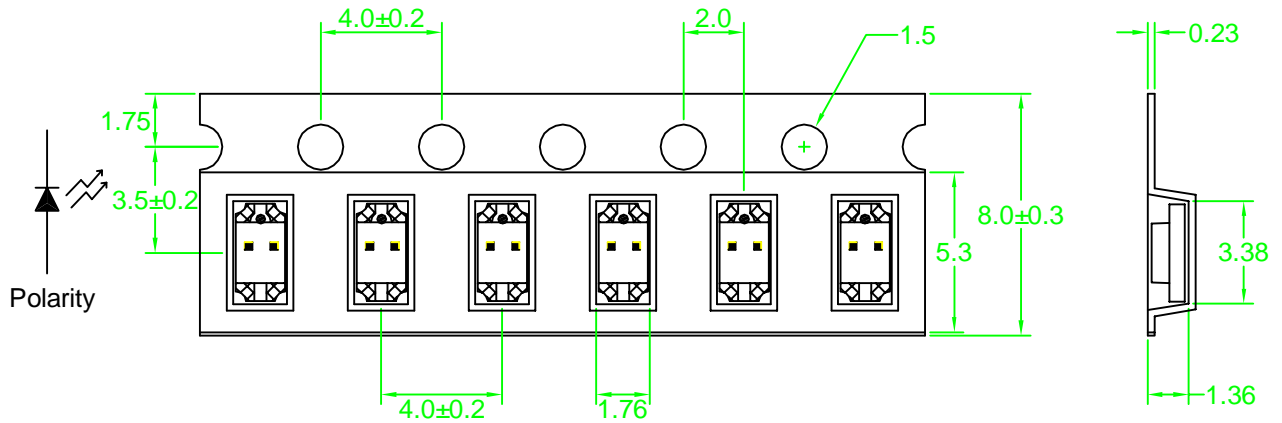


Fig.6 Directive Radiation



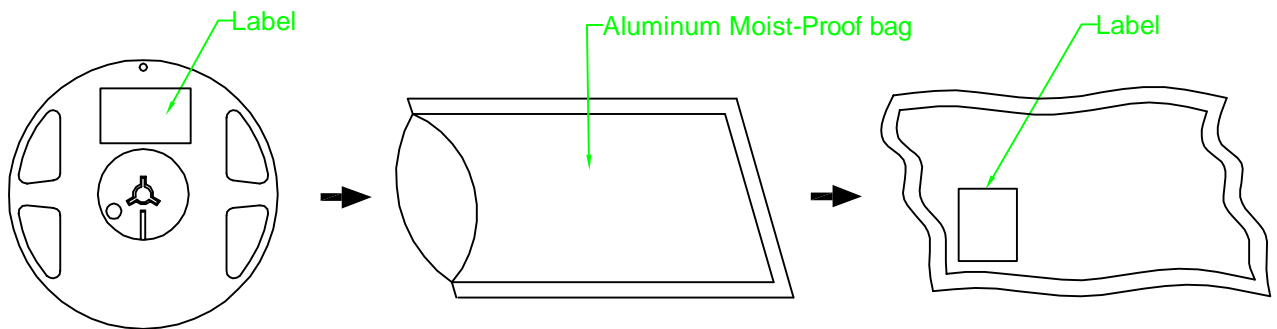


Carrier Tape Dimensions



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

Packing Specifications



Part No.	Description	Quantity/Reel
LG-150SRF/9UG-CT	8.0mm tape, 7" reel	3000 devices





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PART NO. LG-150SRF/9UG-CT

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Label Explanation

 立碁電子工業股份有限公司 LIGITEK ELECTRONICS CO., LTD. 	
PART NO. : LG-150SRF/9UG-CT	
LOT NO. : GSI-670107	
Q'TY(PCS) : 3000 PCS	VF:1.6 - 2.4
BIN/HUE : Q/29-N/9	VF:1.8 - 2.6

BIN Q : Red Chip Luminous Intensity

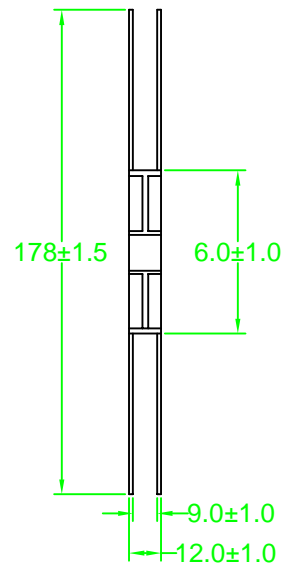
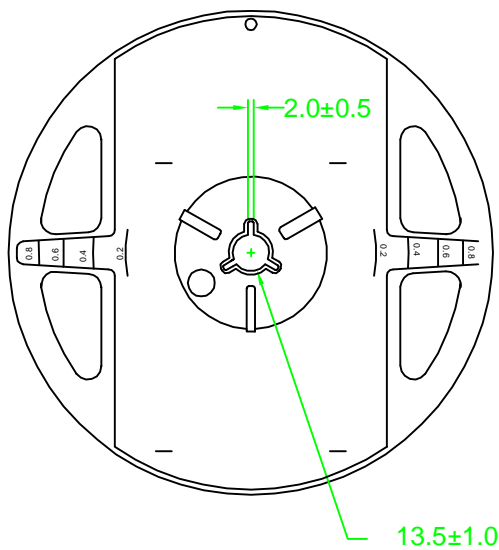
BIN N : Green Chip Luminous Intensity

HUE 29 : Red Chip Dominant Wavelength

HUE 9 : Green Chip Dominant Wavelength

1.8 - 2.6 : Forward Voltage

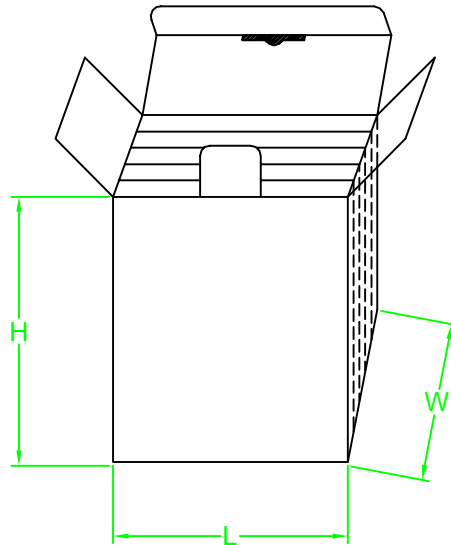
Reel Dimensions



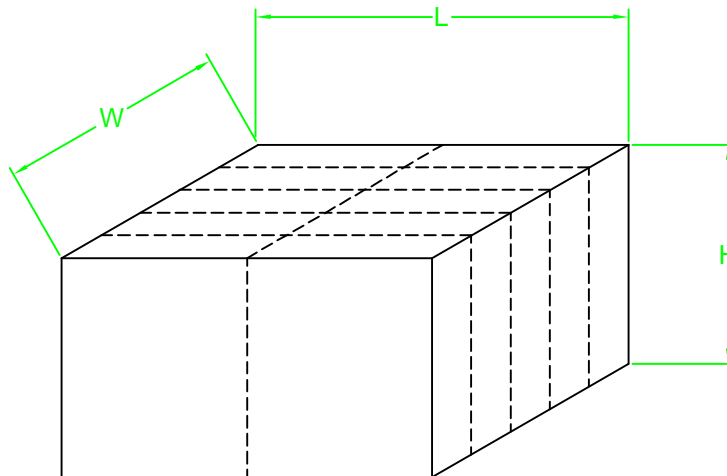


Box Explanation

- 1. 5 BAG / INNER BOX
- 2. INNER BOX SIZE : L X W X H 23cm X 8.5cm x 26cm



- 3. 10 INNER BOXES / CARTON
- 4. CARTON SIZE : L X W X H 49cm X 46cm x 29cm



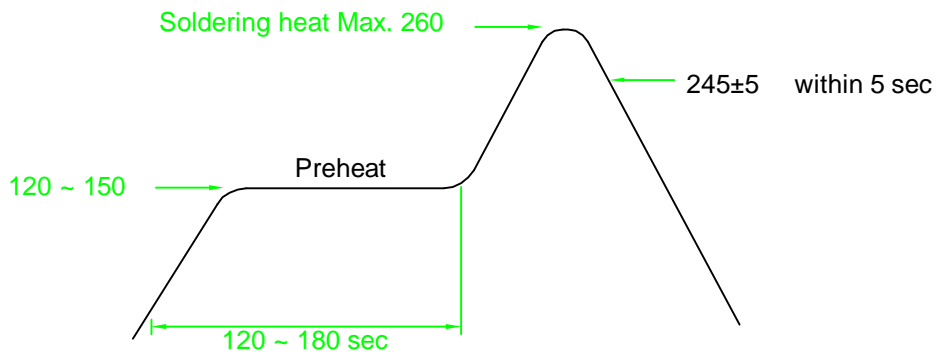


Recommended Soldering Conditions

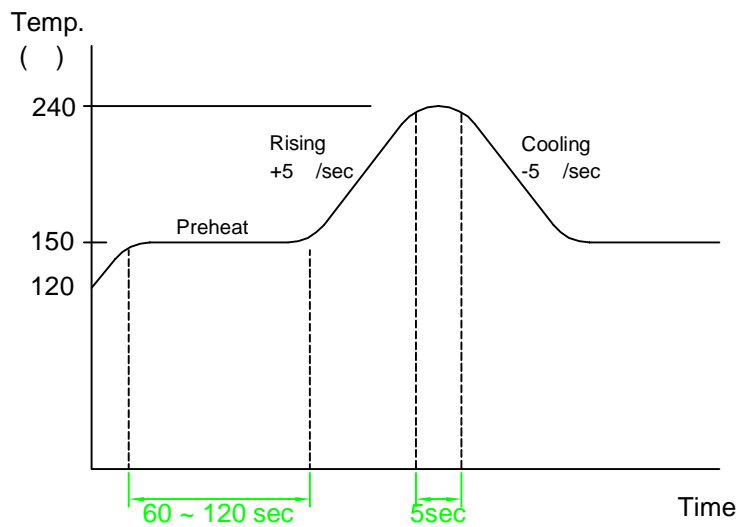
1. Hand Solder

Basic spec is 280 3 sec one time only.

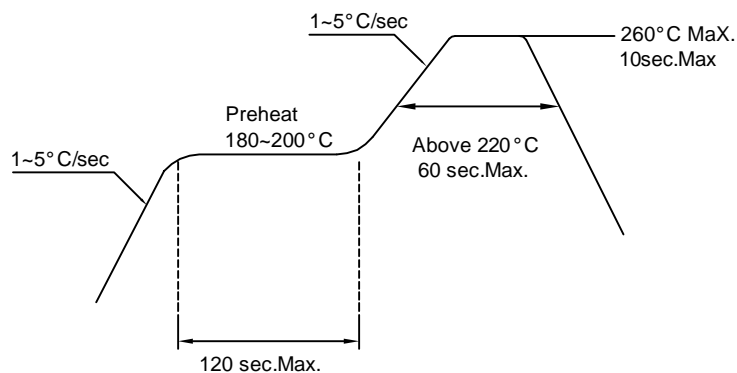
2. Wave Solder



3-1. LEAD Reflow Solder



3-2 PB-Free Reflow Solder



Reflow Soldering should not be done more than two times.



Reliability Test:

Classification	Test Item	Test Condition	Reference Standard
Endurance Test	Operating Life Test	1.Ta=Under Room Temperature As Per Data Sheet Maximum Rating. 2.If=20mA 3.t=1000 hrs (-24hrs, +72hrs)	MIL-STD-750D: 1026 MIL-STD-883D: 1005 JIS C 7021: B-1
	High Temperature Storage Test	1.Ta=105 ±5 2.t=1000 hrs (-24hrs, +72hrs)	MIL-STD-883D:1008 JIS C 7021: B-10
	Low Temperature Storage Test	1.Ta=-40 ±5 2.t=1000 hrs (-24hrs, +72hrs)	JIS C 7021: B-12
	High Temperature High Humidity Storage Test	1.Ta=65 ±5 2.RH=90 %~95% 3.t=1000hrs ±2hrs	MIL-STD-202F:103B JIS C 7021: B-11
Environmental Test	Thermal Shock Test	1.Ta=105 ±5 & -40 ±5 (10min) (10min) 2.total 10 cycles	MIL-STD-202F: 107D MIL-STD-750D: 1051 MIL-STD-883D: 1011
	Solderability Test	1.T.Sol=235 ±5 2.Immersion time 2 ±0.5sec 3.Coverage 95% of the dipped surface	MIL-STD-202F: 208D MIL-STD-750D: 2026 MIL-STD-883D: 2003 IEC 68 Part 2-20 JIS C 7021: A-2
	Temperature Cycling	1.105 ~ 25 ~ -55 ~ 25 30mins 5mins 30mins 5mins 2.10 Cyeles	MIL-STD-202F: 107D MIL-STD-750D: 1051 MIL-STD-883D: 1010 JIS C 7021: A-4
	IR Reflow	1.T=260°C Max. 10sec.Max. 2. 6 Min	MIL-STD-750D:2031.2 J-STD-020