BRIGHTEK
BRIGHTEK (EUROPE) LIMITED
Brighten Up The World With LED !

ISO/TS 16949:2009 | BS EN ISO 14001:2004 | QC 080000 IECQ HSPM

PRODUCT DATASHEET

ATTENTION
OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

► PLCC6 with IC
► 5714SV IC 2.00t (6 pins)
► Red/Green/Blue

N0M70S37ICSV

5 7 1 4 S V I C I n t e g r a t e d

5714SV IC-Integrated

FEATURES:

- **Package:** PLCC6 Side View Package with Integrated IC 6805
- **R/G/B Output Drive Current (typ.):** 5mA
- **Chip Input Voltage (typ.):** 5V
- **R/G/B Luminous Intensity (typ.):** 180/630/120mcd
- **Colour:** Red/Green/Blue
- **Lens Colour:** White Diffused
- **IC Feature:** Control IC and RGB LED chip integrated in 5714SV package. The data transmission frequency can reach 800Kbps, and when the refresh rate is 30 frames per second, the number of cascades is not less than 1024 points. Single-line zero code transmission protocol, can be infinite cascade. Grayscale adjustment: 256 levels. Built-in reset circuit, power does not light.
- **Soldering Methods:** Reflow soldering
- **ESD Level:** 2kV
- **MSL Level:** acc. to JEDEC Level 5a
- **Packing:** 12mm tape with max.1500pcs/reel, ø178mm (7'')

APPLICATIONS:

- Customer Electronics
- Telecommunication
- Indicator
- Home Appliance
- Full Colour LED Strip
- Gaming Device
- Guardrail Tube

RoHS Compliant

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CHARACTERISTICS:

Absolute Maximum Characteristics (T$_a$=25°C)

Parameter	Symbol	Ratings	Unit
Working Voltage	V$_{IN}$	+3.7~+5.5	V
Operation Temperature	T$_{OPT}$	-40~+85	°C
Storage Temperature	T$_{STG}$	-40~+85	°C
ESD Withstand Voltage (Human Mode)	V$_{ESD}$	2	kV

Electrical & Optical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Condition
Chip Input Voltage		V$_{DD}$	3.7	5.0	5.5	V	---
R/G/B Output Drive Current		I$_{DOUT}$	4.5	5	6	mA	V$_{DS}$=1V
PWM Frequency		F$_{PWM}$	---	4.5	---	KHz	---
Static Power Consumption		I$_{DD}$	---	0.3	---	mA	---
Signal Input Flip Threshold (High Level)		V$_{IH}$	2.6	---	---	V	+V$_{DD}$=5.0V
Signal Input Flip Threshold (Low Level)		V$_{IL}$	---	---	1.7	V	+V$_{DD}$=5.0V
Transfer Rate		F$_{DIN}$	---	800	---	Kbps	---
Dominant Wavelength	Red	λ$_d$	615	---	625	nm	I$_F$=5mA
	Green		525	---	535		
	Blue		465	---	475		
Luminous Intensity	Red	I$_v$	120 (0.375)	---	240 (0.750)	mcd (lm)	I$_F$=5mA
	Green		440 (1.400)	---	820 (2.550)		
	Blue		80 (0.250)	---	160 (0.500)		
Viewing Angle		2θ$_{1/2}$	---	120	---	deg	I$_F$=5mA

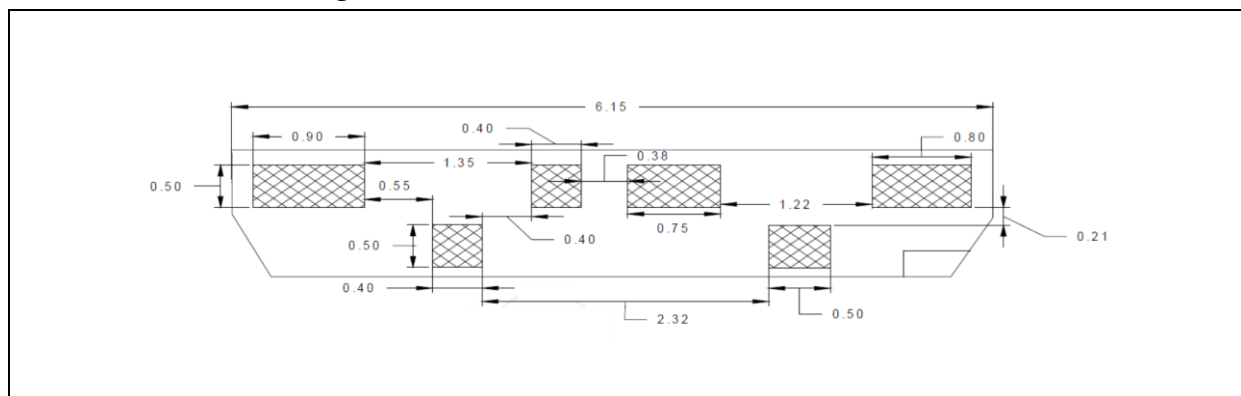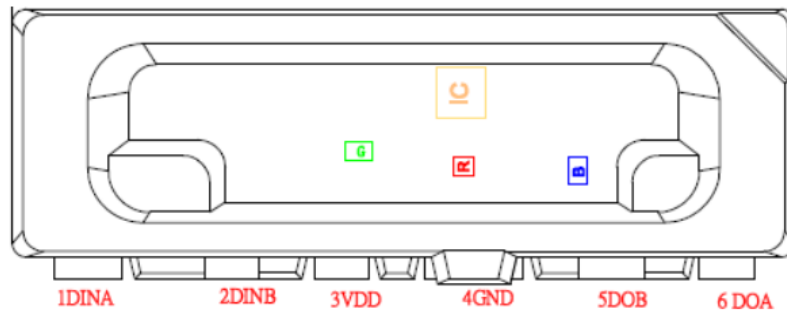## OUTLINE DIMENSION:

Package Dimension:
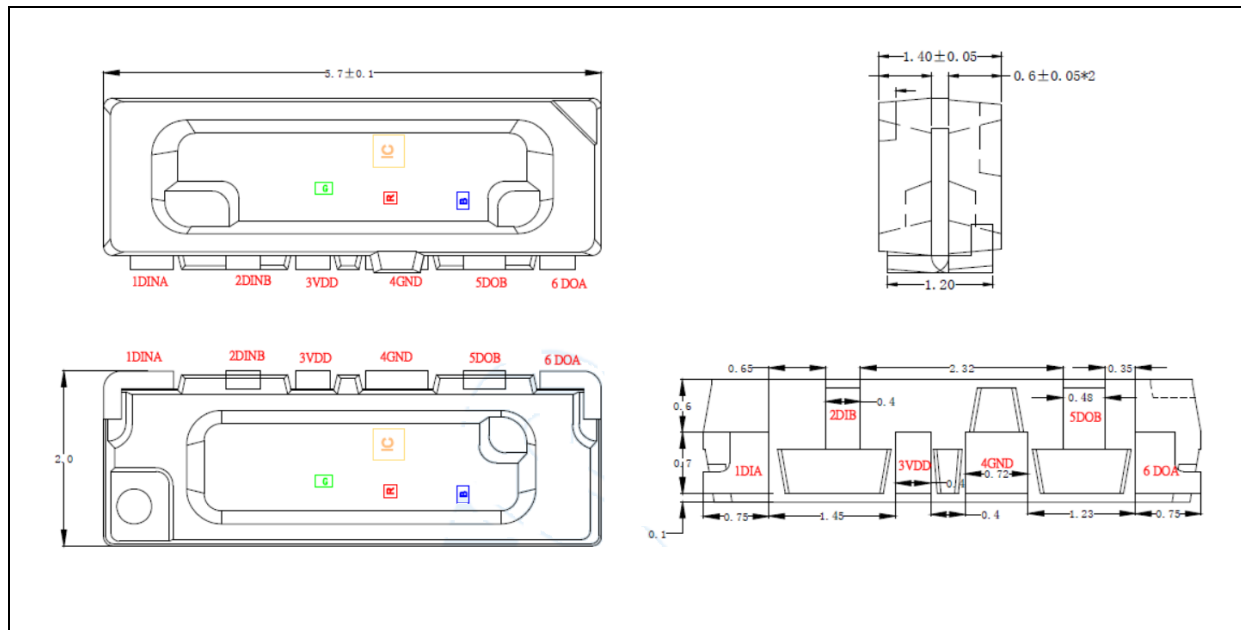
1. All dimensions are in millimetre (mm).
2. Tolerance ±0.1mm, unless otherwise noted.

Recommended Soldering Pad Dimension:

1. Dimensions are in millimetre (mm).
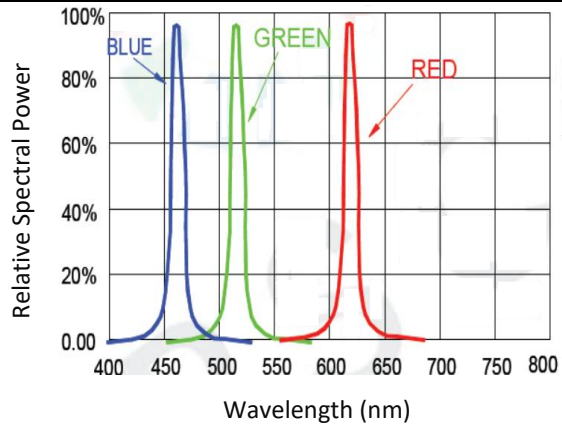2. Tolerance ±0.1mm with angle tolerance ±0.5°.

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PIN CONFIGURATION:

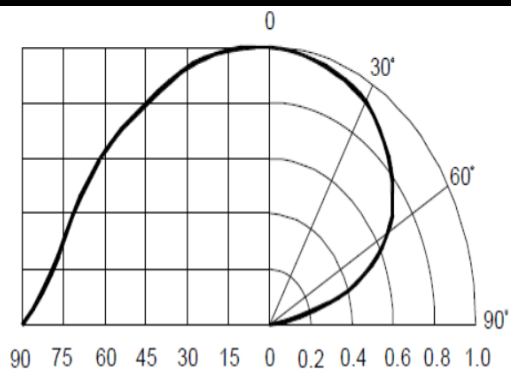| No.	Symbol	Function Description
1	DIN A	Data input A - Control data signal input A
2	DIN B	Data input B - Control data signal input B
3	VDD	Power Supply - Power supply pins
4	GND	Grounds - Power grounding
5	DOUT B	Data output B - Control data signal output B
6	DOUT A	Data output A - Control data signal output A

ELECTRO-OPTICAL CHARACTERISTICS:

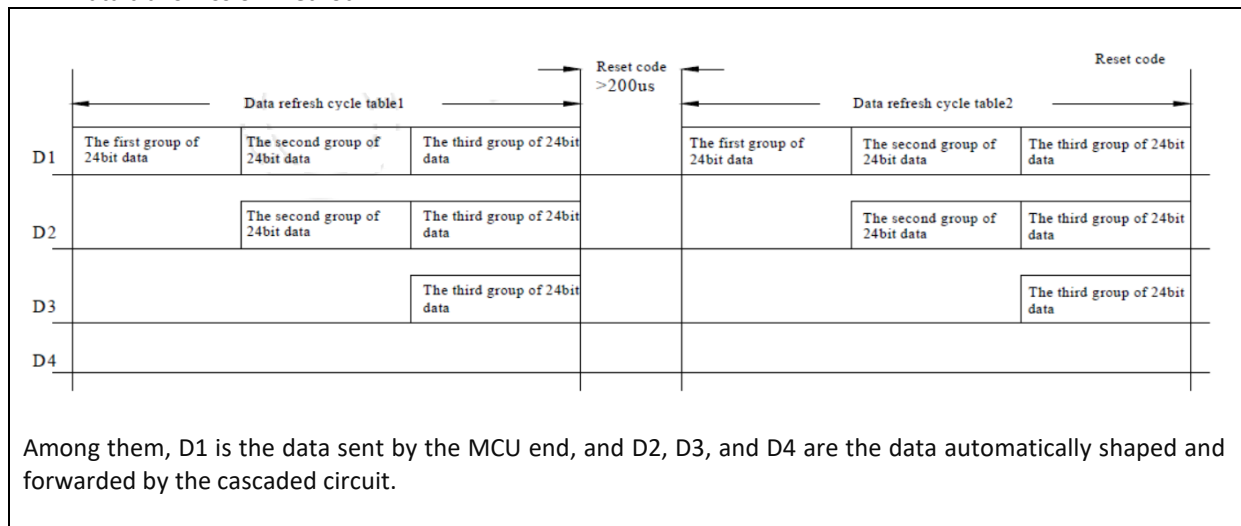| Relative Spectral Power v.s. Wavelength	Relative Intensity v.s. Temperature

Radiation Angle

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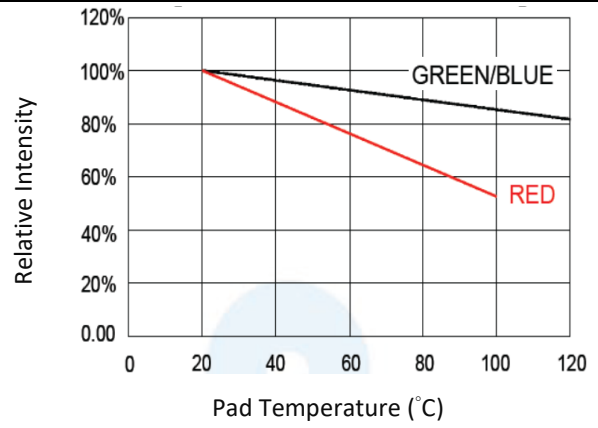
FUNCTION DESCRIPTION:

1. Suggested data transmission time:

Parameter	Symbol	Values			Unit
		Min.	Typ.	Max.	
Symbol Period	T	1.20	---	---	µs
0 Code, High Level Time	T0H	0.20	0.32	0.40	µs
0 Code, Low Level Time	T0L	0.80	---	---	µs
1 Code, High Level Time	T1H	0.65	0.75	1.00	µs
1 Code, Low Level Time	T1L	0.20	---	---	µs
Reset Code, Low Level Time	Reset	>200	---	---	µs

1. The protocol adopts unipolar zeroing code, and each symbol must have a low level. Each symbol in this protocol starts with a high level, and the duration of the high level determines the "0" or "1" code.
2. When writing a program, the minimum required code period is 1.2µs.
3. The high-level time of "0" and "1" codes should be within the specified range in the table above, and the low-level time of "0" and "1" codes should be less than 20µs.
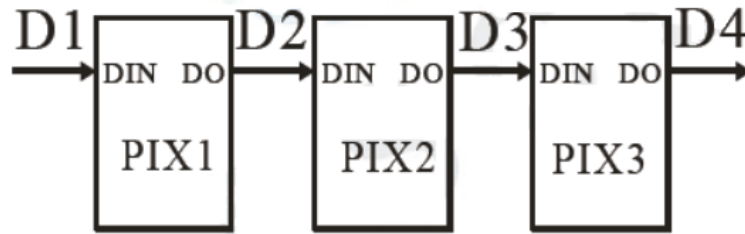
2. Data transmission method:

Among them, D1 is the data sent by the MCU end, and D2, D3, and D4 are the data automatically shaped and forwarded by the cascaded circuit.

3. Time series waveform diagram - Input code type:
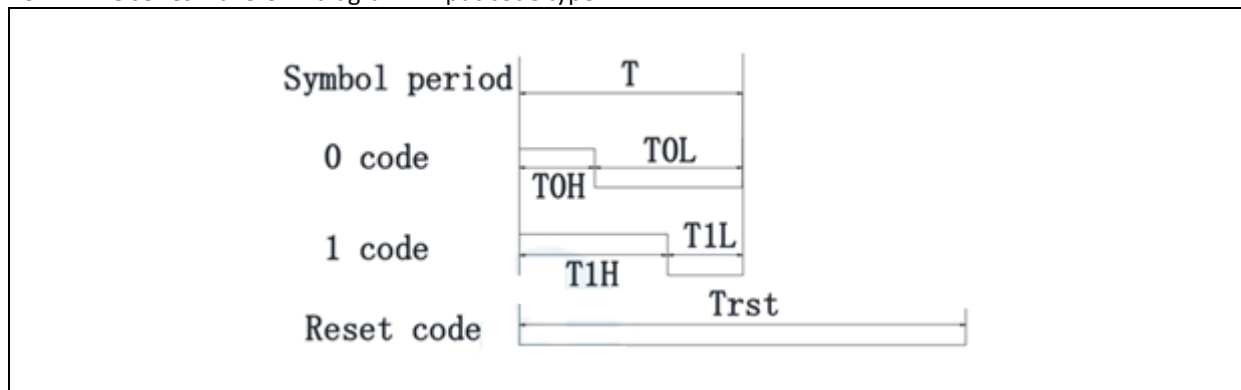
4. Connection method:

5. 24-bit data structure:

G7	G6	G5	G4	G3	G2	G1	G0	R7	R6	R5	R4
R3	R2	R1	R0	B7	B6	B5	B4	B3	B2	B1	B0

High bit first send, send data in GRB order (G7 -> G6 -> ... -> B0).

6. Principles of Applied Circuits:
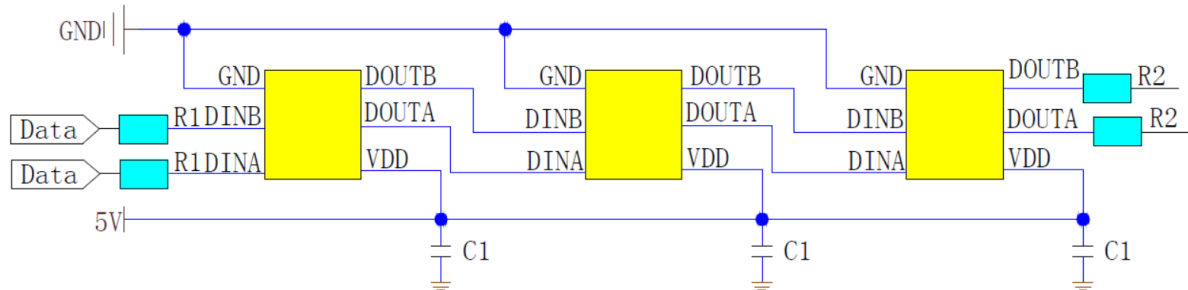
In practical application circuits, to prevent instantaneous high voltage damage to the internal signal input and output pins of the IC caused by live plugging and unplugging during testing, protective resistors should be connected in series at the signal input and output terminals. In addition, in order to ensure more stable operation between IC chips, the decoupling capacitance between each LED is essential.

Applications 1: For soft or hard light strips with short transmission distance between lamp beads, it is recommended to connect protective resistors in series at the signal input and output terminals, that is, R1 and R2 are about 500 ohms.

Application 2: Used for modules or general shaped products. The transmission distance between lamp beads is long, and the protective resistance connected in series at the signal end may vary slightly depending on the wire and transmission distance. Based on actual usage.

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RECOMMENDED SOLDERING PROFILE:
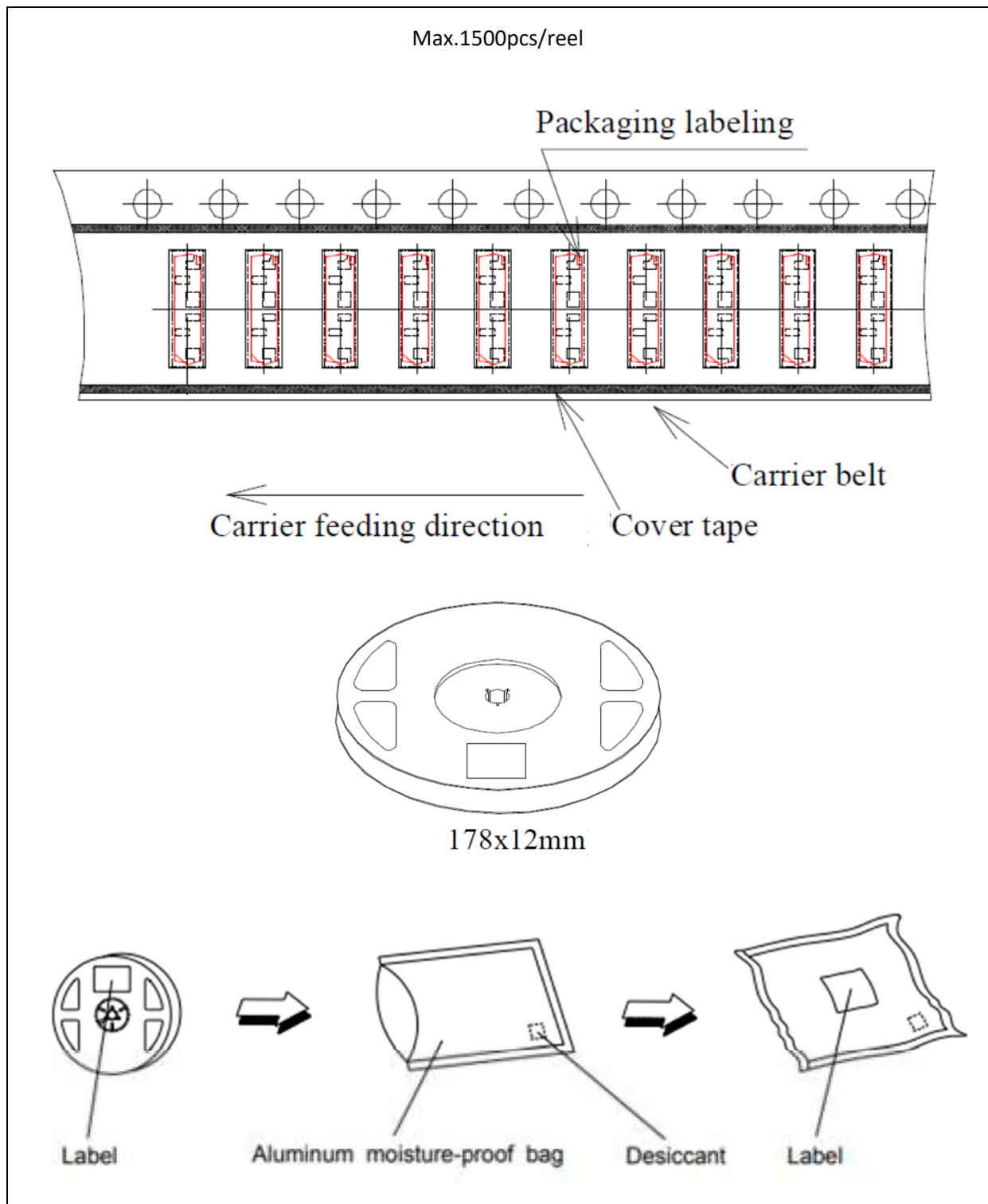
Lead-free Solder IR Reflow:
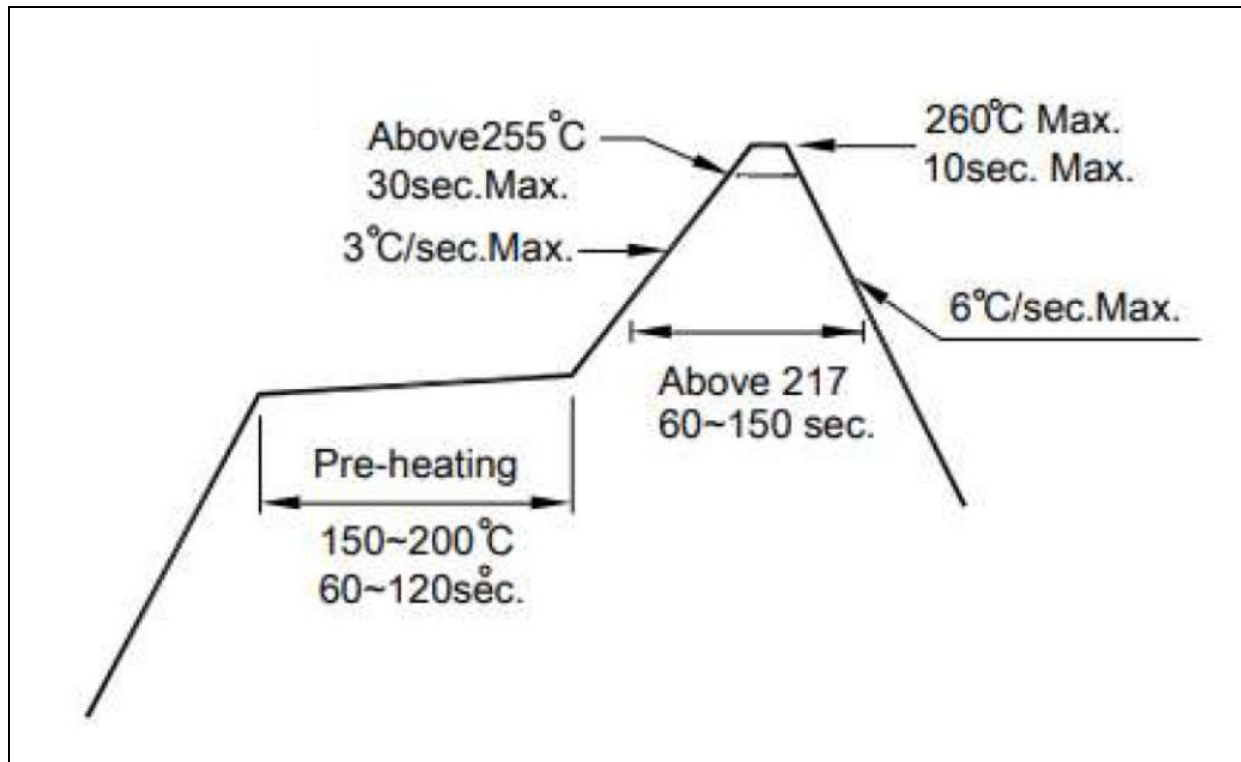
Note:
1. The maximum soldering temperature should be limited to 240°C. The maximum soldering temperature should be limited to 260°C.
2. Maxima reflow soldering: 2 times.
3. Before, during, and after soldering, should not apply stress on the components and PCB board.

PACKING SPECIFICATION:

Reel Dimension:

Max.1500pcs/reel

Packaging labeling

Carrier belt

Carrier feeding direction

Cover tape

178x12mm

Label

Aluminum moisture-proof bag

Desiccant

Label

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PRECAUTIONS OF USE:

Storage:

It is recommended to store the products in the following conditions:
- Humidity: 60% R.H. Max.
- Temperature: 5°C~30°C (41°F ~86°F).

Shelf life in sealed bag: 12 months at 5°C~30°C and <60% R.H.

Once the package is opened, the products should be used within 24 hours. Otherwise, they should be kept in a damp-proof box with descanting agents stored at R.H.<10% and apply baking before use.

Over-Current Proof:

Must apply resistors for protection otherwise slight voltage shift will cause big current change and burn-out will happen.

Baking:

It is recommended to bake the LED before soldering if the pack has been unsealed for longer than 24hrs. The suggested baking conditions are as followings:
- 60±5°C x 6hrs and <5%RH, taped / reel package.

It's normal to see slight color fading of carrier (light yellow) after baking in process.

Cleaning:

Use alcohol-based cleaning solvents such as isopropyl alcohol to clean the LED carrier / package. Avoid putting any stress force directly on to the LED lens.

ESD (Electrostatic Discharge):

Static Electricity or power surge will damage the LED. Use of a conductive wrist band or anti-electrosatic glove is recommended when handing the LED all time. All devices, equipment, machinery, work tables, and storage racks must be properly grounded.

REVISION RECORD:

Version	Date	Summary of Revision
A1.0	03/05/2023	Datasheet set-up.
A1.1	04/08/2025	New datasheet format.

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