

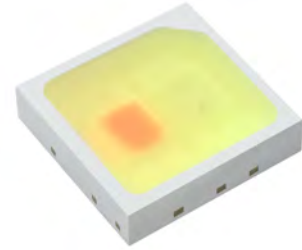
SPECIFICATIONS FOR T3S SERIES DUAL COLOR LED

Model: 3030

Part No: T3S27957912N-N***

Features:

- * Top view white LED
- * Thermally Enhanced Package Design
- * High luminous flux output
- * High current capability
- * Compact Package Size
- * Wide viewing angle
- * Pb-free Reflow Soldering Application
- * The product itself will remain within RoHS and REACH compliant



Applications

- * Architectural / Decorative lighting
- * Retrofits (replacement)
- * General lighting
- * Indoor & Outdoor sign board back light
- * Downlight & Spotlight

Part Numbering System

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 X1 X2 X3 X2 X3 X4 X5 X6 - X7 X8 X9

Item Number Code	Description	Content
X1	Type code	1S:1616; 20:2016; 3B:3014; 28:2835; 34:3020; 3S:3030S; 3C:3030; 5C:5050; 7C:7070; 1D:100100; 19: Ceramic 3535; 15: Ceramic 5050; 11: Ceramic 1616.
X2	CCT code	2700K:27; 3000K:30; 4000K:40; 5000K:50; 5700K:57; 6500K:65.
X3	Color Rendering	Ra70:7; Ra80:8; Ra90:9.
X4	No. of serial chip	1-Z.
X5	No. of parallel chip	1-Z.
X6	Component code	A-Z.
X7	Color Code	Z: Zener; N: No Zener
X8	Internal code1	\
X9	Internal code2	\

Absolute Maximum Ratings at Tj=25°C

Item	Symbol	Absolute Maximum Ratings	Unit
Forward Current	IF	350	mA
Pulse Forward Current	IFP	420	mA
Power Dissipation	PD	1260	mW
Reverse Voltage	VR	5	V
Operating Temperature	Topr	-40~+105	°C
Storage Temperature	Tstg	-40~+105	°C
Junction Temperature	Tj	120	°C
Soldering Temperature	Tsld	Reflow Soldering: 230°C or 260°C for 10sec	

* IFP condition with Pulse: Width≤100μs, Duty cycle≤1/10.

* LED's properties might be different from suggested values like above and below tables if operation condition will be exceeded our parameter range. Care is to be taken that power dissipation does not exceed the absolute maximum rating of the product.

* All measurements were made under the standardized environment of Lightning LED.

Electrical/Optical Characteristics at Tj=25°C

Item	Symbol	CCT	Min.	Typ.	Max.	Unit	Test Condition
Forward Voltage	VF	All	3.2	3.4	3.6	V	IF=300mA
Reverse Current	IR	All	-	-	10	μA	VR=5V
Viewing Angle	2θ1/2	All	-	120	-	°	IF=300mA
Luminous Flux	ΦV	2700K	80	90	-	lm	IF=300mA
		5700K	100	110	-		
Correlated Color Temperature	CCT	2700K	2580	2725	2870	K	IF=300mA
		5700K	5310	5665	6020		
Color Rendering	Ra	All	90	95	-	-	IF=300mA
Red Color Rendering	R9	All	0	-	-	-	IF=300mA
Thermal resistance	(Rth j-sp)	All	-	29	-	°C/W	IF=300mA

* Tolerance of measurements of the Luminous Flux is ±7%.

* Tolerance of measurements of the Forward Voltage is ±0.1V.

* Tolerance of measurements of the Ra is ±2.

* Tolerance of measurements of the R9 is ±6.

* The correlated color temperature is based on Ts at 85°C.

* 2θ1/2 is the off-axis where the luminous intensity is 1/2 of the peak intensity.

* Rth j-sp is the thermal resistance from LED junction to solder point on MCPCB with electrical power.

Bin Structure

Luminous Flux Ranks, IF =300mA , Tj = 25°C

Code	CCT	Min	Max	Unit
D2	2700K	80	100	lm
K2	5700K	100	120	lm

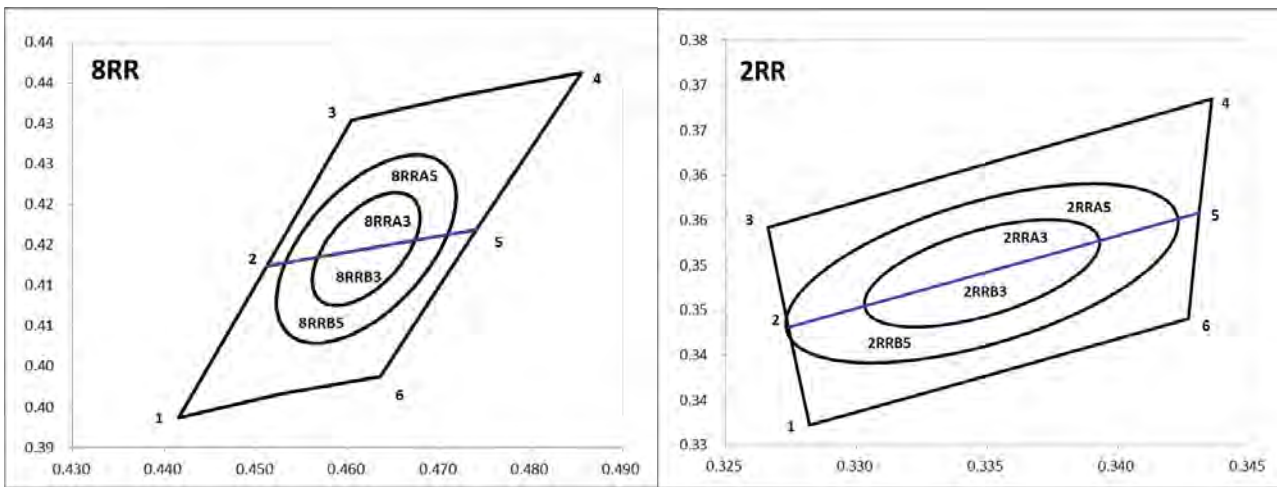
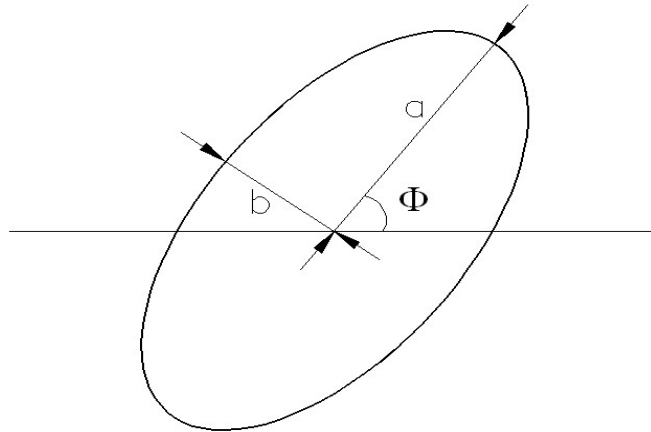
* Tolerance of measurements of the Luminous Flux is $\pm 7\%$.

Forward Voltage Ranks, IF = 300mA, Tj =25°C

Code	Min	Max	Unit
N3	3.2	3.6	V

* Tolerance of measurements of the Forward Voltage is $\pm 0.1V$.

CIE Chromaticity Diagram, IF =300mA, Tj = 25°C



The color ranks have chromaticity ranges within 3/5-step MacAdam ellipse

Color Code	Nominal CCT	Center		3 step		5 step		Angle(deg)
		x	y	a	b	a	b	
8RR	2700K	0.4620	0.4145	0.008100	0.004200	0.013500	0.00700	53.42
2RR	5700K	0.3348	0.3491	0.006705	0.003300	0.011175	0.005500	58.35

* Tolerance of measurements of the chromaticity Coordinate is ± 0.005 .

Bin Code description

Color Code	No.	CIE x	CIE y	No.	CIE x	CIE y
8RR	1	0.4415	0.3937	4	0.4855	0.4363
	2	0.4510	0.4121	5	0.4745	0.4176
	3	0.4604	0.4304	6	0.4635	0.3988
Color Code	No.	CIE x	CIE y	No.	CIE x	CIE y
2RR	1	0.3283	0.3317	4	0.3437	0.3690
	2	0.3276	0.3427	5	0.3432	0.3567
	3	0.3268	0.3536	6	0.3427	0.3443

* Tolerance of measurements of the chromaticity Coordinate is ± 0.005 .

Fig 1. Color Spectrum, $T_j = 25^\circ\text{C}$

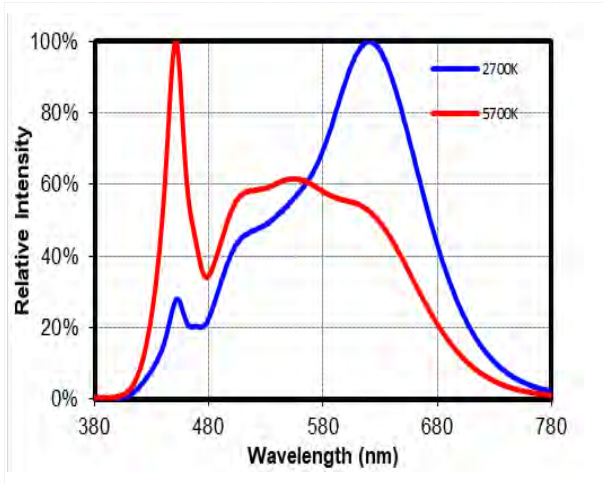


Fig 2. Viewing Angle Distribution, $T_j = 25^\circ\text{C}$

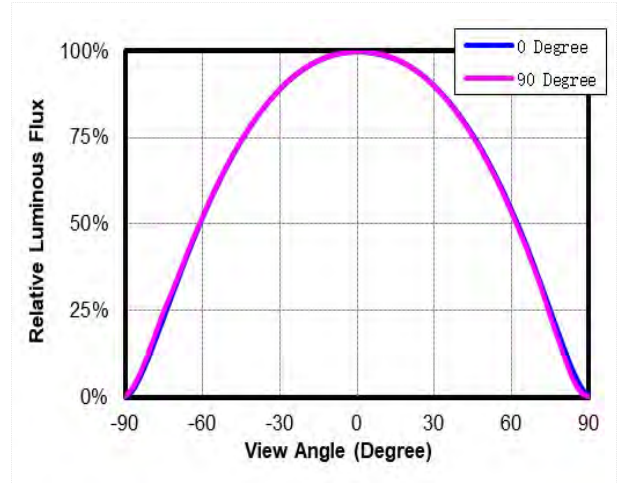


Fig 3. Forward Current vs. Relative Intensity, $T_j = 25^\circ\text{C}$

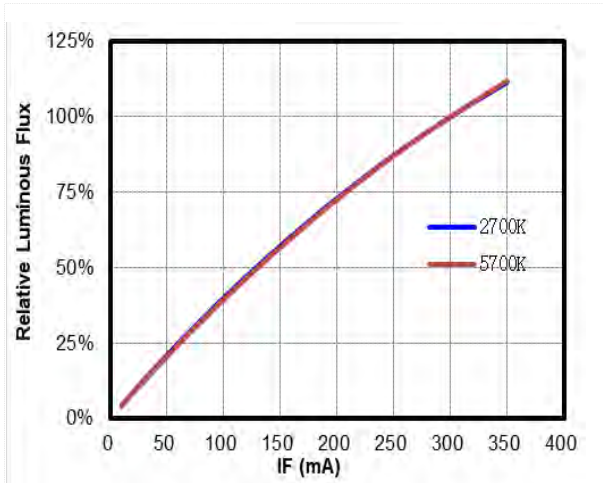


Fig 4. Forward Current vs. Forward Voltage, $T_j = 25^\circ\text{C}$

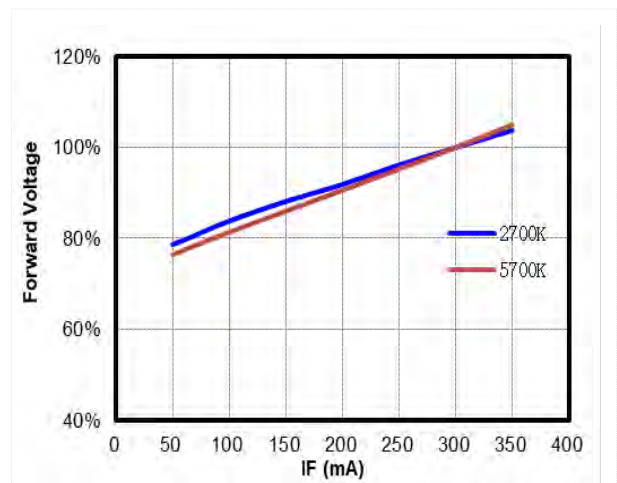


Fig 5. Soldering Temperature vs. Relative Luminous flux (IF=300mA)

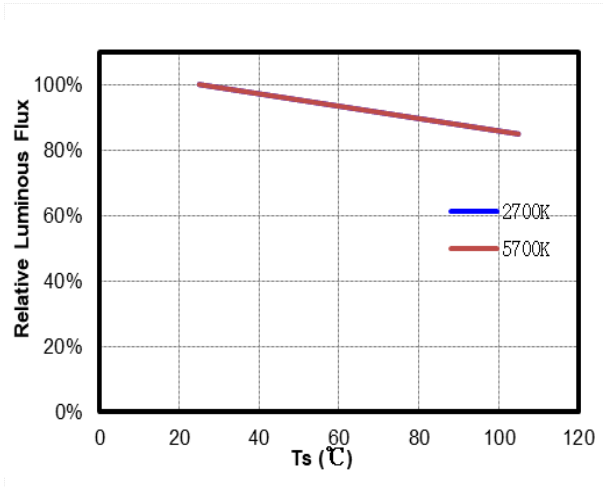


Fig 6. Soldering Temperature vs. Relative Forward Voltage (IF=300mA)

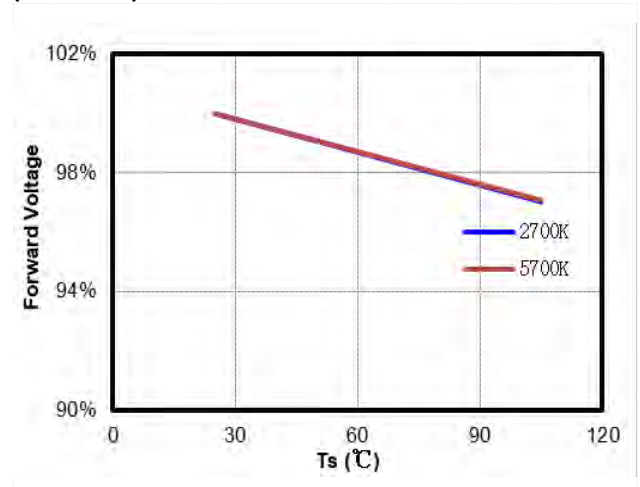
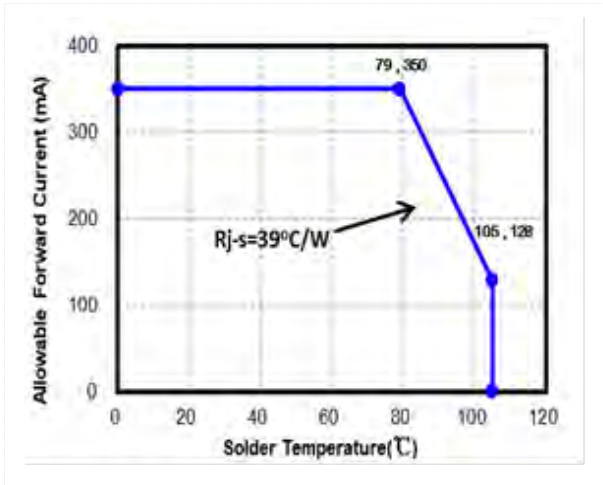
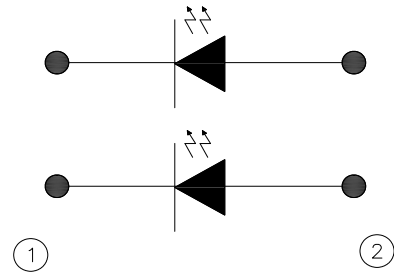
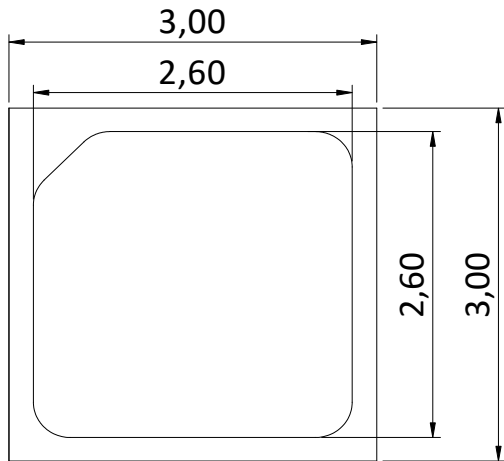


Fig 7. Allowable Forward Current vs. Soldering Temperature



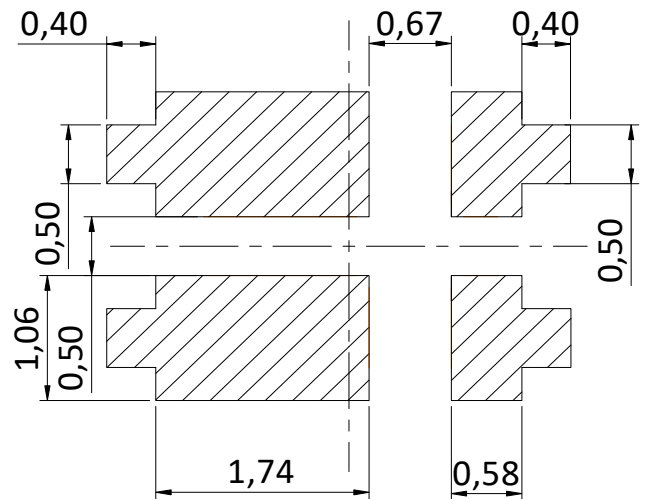
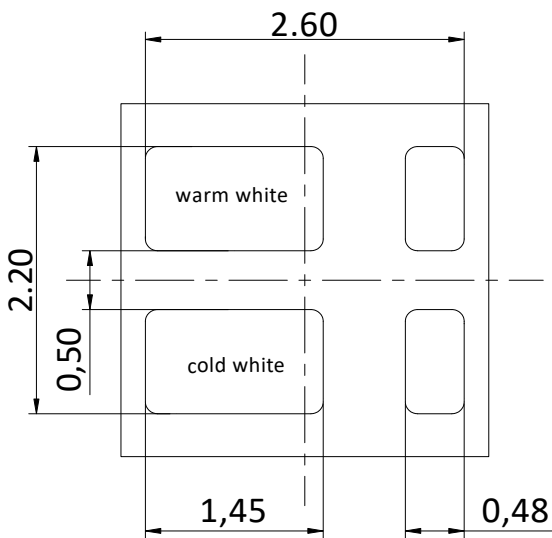
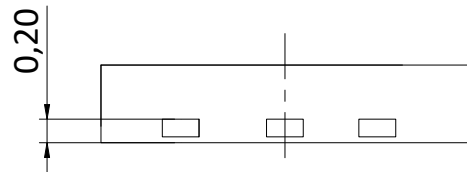
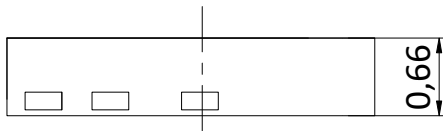
Package Dimensions



Polarity

①
Cathode

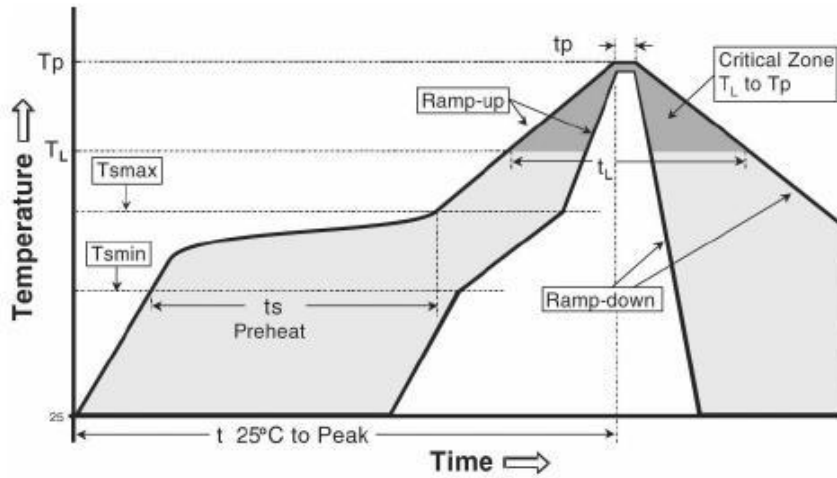
②
Anode



* The tolerance unless mentioned is $\pm 0.2\text{mm}$, unit = mm

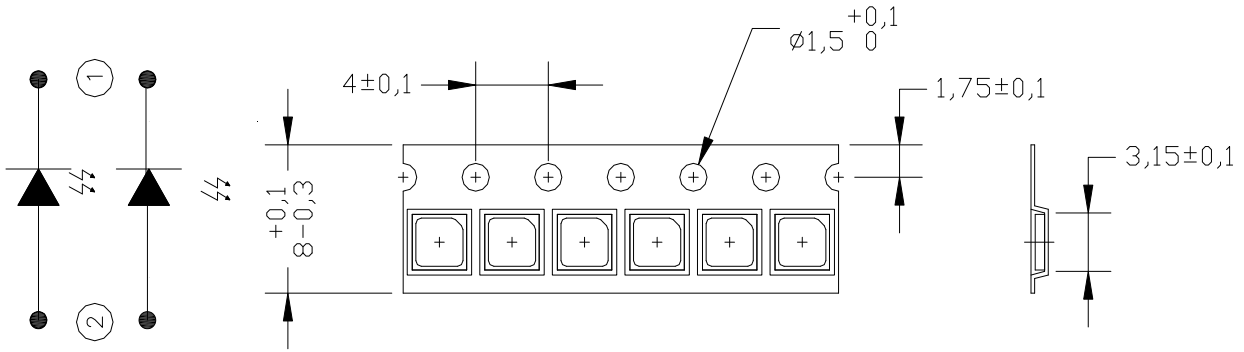
* The soldering pad pattern is only for reference and can be modified according to actual requirements

Reflow Soldering Characteristics



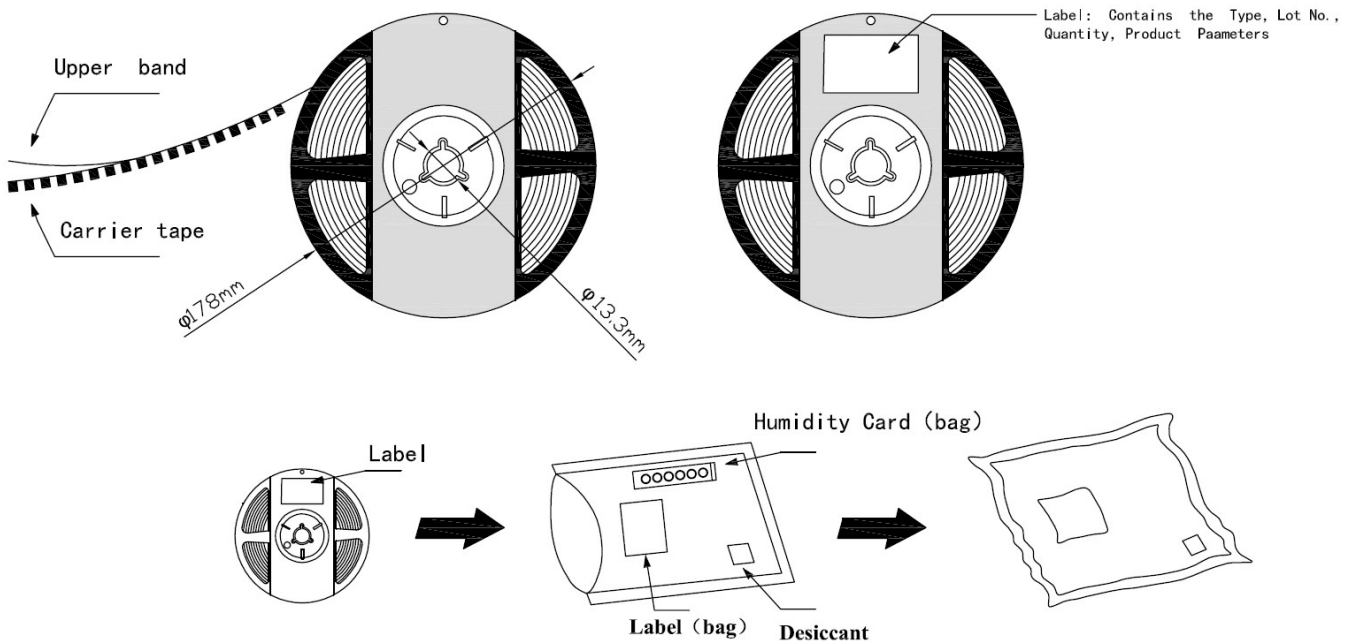
Reflow soldering	
Temperature Min (Tsmmin)	150° C
Temperature Max (Tsmmax)	200° C
Time(ts)from (Tsmmin to Tsmmax)	60-120 seconds.
Ramp-up rate (TL to Tp)	3° C/seconds max.
Liquidous temperature(TL)	217° C
Time(tL) maintained above TL	60-150 seconds
Peak package body temperature(Tp)	260° C max
Time (tp) within 5° C of the specified classification temperature (Tc).	30 seconds max
Ramp-down rate (Tp to TL)	6° C/second max
Time 25 ° C to peak temperature	8 min max

Package Dimensions of Tape

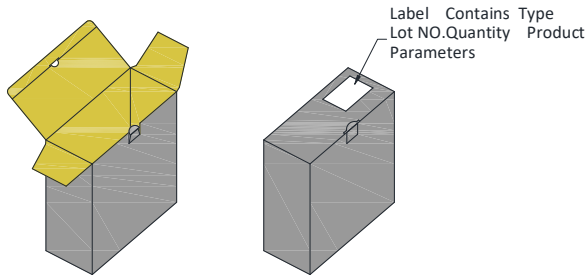


- * Quantity : Max 5000pcs/Reel
- * Cumulative Tolerance : Cumulative Tolerance/10 pitches to be ± 0.2 mm
- * Package : P/N, Manufacturing data Code No. and Quantity to be indicated on a damp proof Package.
- * unit = mm

Package Dimensions of Reel

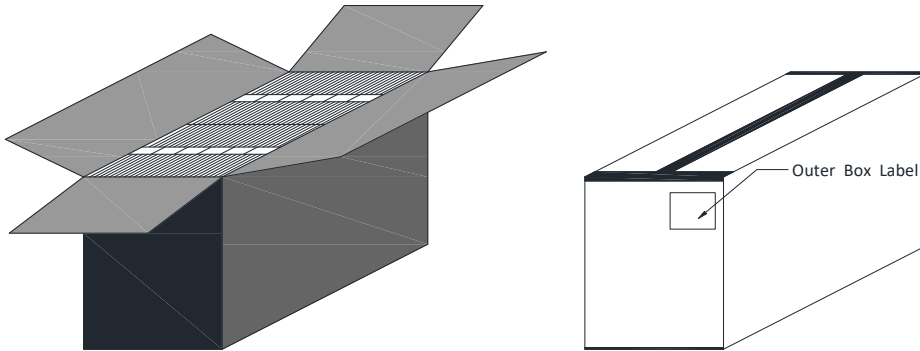


Package Box



* Capacity 10 reels per box.

Outer Box




* Capacity 30 or 60 reels per box.

Label

福建天电光电有限公司
FUJIAN LIGHTNING OPTOELECTRONIC CO.,LTD

型号Type: T*****_*****



光通量Φ@ *** mA: *** _ *** [LM]


色区Color Bin@*** mA: ****

电压Vf@ *** mA: ** - ** [V]

显指Ra@*** mA: ** (MIN)

Lot No.: A*****_*_*****

Bin Code: **** 数量QTY:**** PCS





Caution

1. Reflow soldering is recommended not to be done more than two times. In the case of more than 24 hours passed soldering after first, LEDs will be damaged.
2. Repairs should not be done after the LEDs have been soldered. When repair is unavoidable, suitable tools must be used.
3. Die slug is to be soldered.
4. When soldering, do not put stress on the LEDs during heating.
5. After soldering, do not warp the circuit board.

Notes on Lightning EMC Series soldering:

1. Recommend to use reflow machine.
2. Recommend to use heating plate soldering.
3. Manual soldering is not recommended.

Notes on reflow process:

1. To confirm whether the actual temperature curve in the reflow soldering conditions comply with recommended conditions. LEDs are guaranteed for one time reflow.
2. During reflow process do not apply force on LED active area.
3. After reflow process, PCB board should be cooled down before packing or storage.

Precaution for use

Storage

1. Before opening the package: The LED should be kept at $5^{\circ}\text{C}\sim 30^{\circ}\text{C}$ and 60%RH or less.
2. After opening the package: The LED's floor life is 168Hrs under 30°C or less and 60%RH or less. If unused LED remain, it should be stored in moisture proof packages JEDEC (MSL 3).
3. If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions:
Baking treatment: $60\pm 5^{\circ}\text{C}$ for 24 hours.

