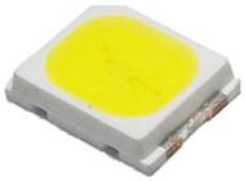
ST28PF Studio Lighting LEDs datasheet

The studio lighting LED products exhibit qualities closest to the reference source with high CRI, high fidelity and color gamut indexes, which dramatically enhance the appearance of products by allowing colors to appear clear, vivid. Furthermore, the high TLCI value meets a perfect match with modern television systems .

The Studio lighting with high CRI (Ra=98±2, Rf≥93, Rg=100±2) have been achieved without sacrificing the lumen efficiency, reliability, and cost.



FEATURES

- High CRI;
- R1-R15 > 90
- High Rf; Rg (TM-30-15)
- High TLCI Index
- ANSI-compatible chromaticity bins
- High luminous Intensity and high efficiency
- Compatible with reflow soldering process
- Low thermal resistance
- Long operation life
- Wide viewing angle at 120°
- Silicone encapsulation
- Environmental friendly, RoHS compliance

APPLICATIONS

- Studio lighting
- Cinematography
- Framing projectors
- Film production lighting

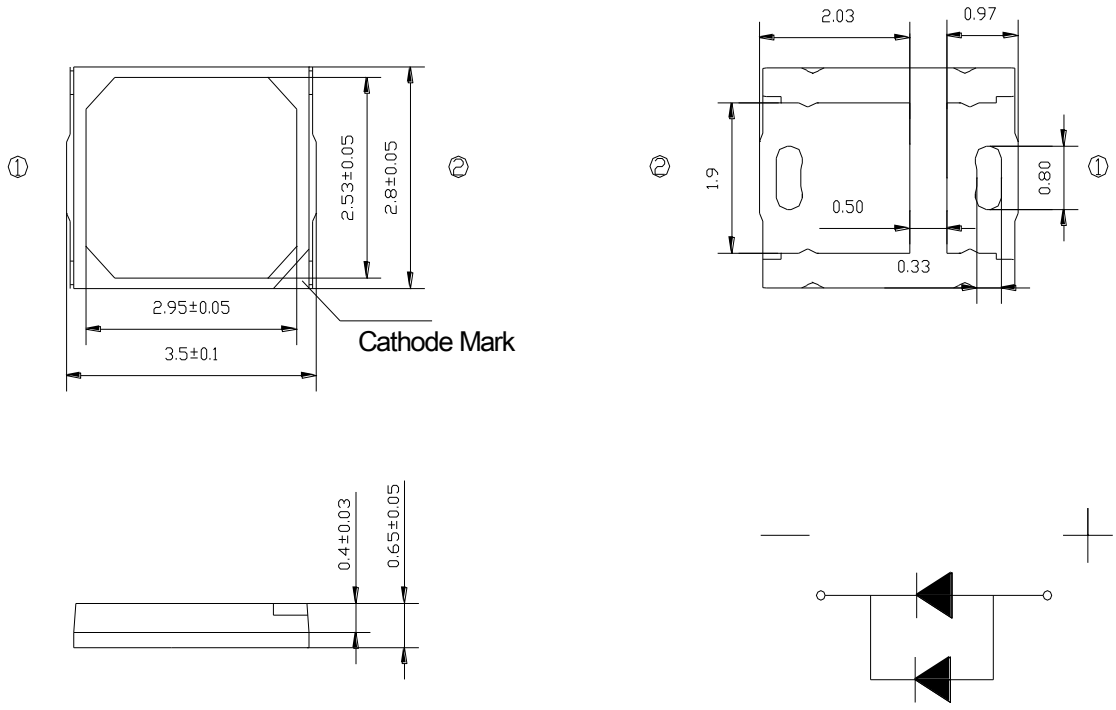
Naming Conventions

SOW2835 -32/56 - T - PF
(1) (2) (3) (4)

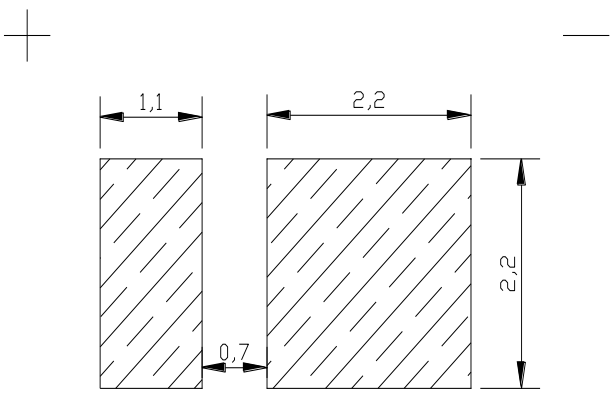
(1) SMD Series
(2) CCT Range:3200K/5600K
(3) Studio lighting series
(4) Product Series Code

Note: The information in this document is subject to change without notice.

PACKAGE DIMENSIONS



Recommended Solder Pad Design



Notes:
1. All dimensions in millimeters.
2. Thickness tolerance of copper plate is ±0.02mm.
3. Thickness tolerance of product is ±0.05mm.
4. Tolerance is ±0.1mm unless otherwise noted.

ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Absolute Maximum Rating	Unit
Forward current	I_F	180	mA
Peak Forward Current[1]	I_{FP}	400	mA
Reverse Voltage	V_R	5	V
Power Dissipation	Pd	576	mW
Operating Temperature	T_{opr}	-40~+85	℃
Storage Temperature	T_{stg}	-40~+100	℃
Soldering Temperature	T_{sld}	Reflow Soldering: 260℃ for 10 seconds	
LED Junction Temperature	T_j	115	℃

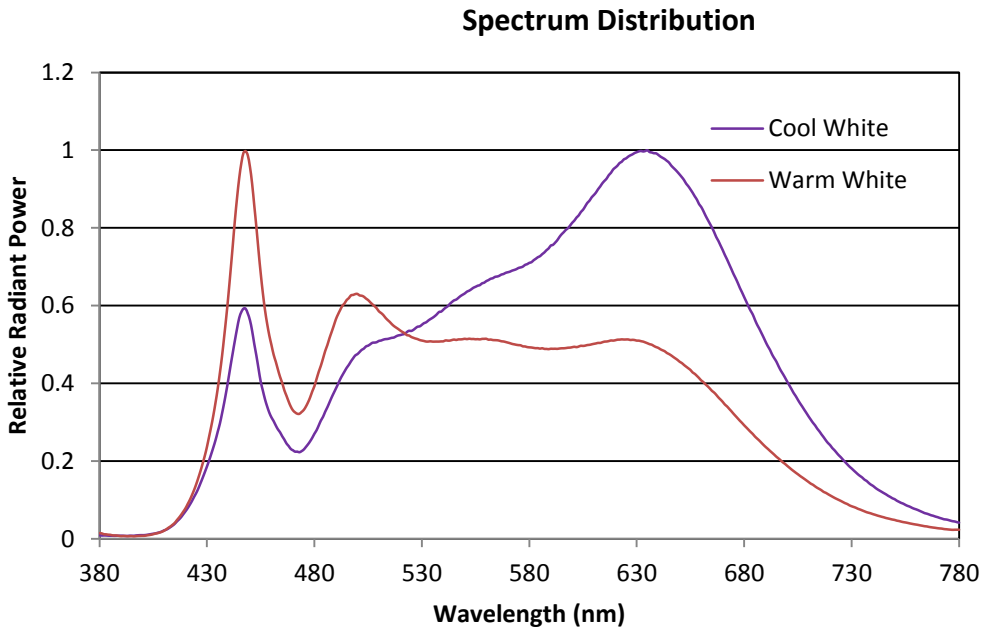
Note:
I_{FP} Conditions: Pulse Width≦10msec. and Duty ≦1/10.

CHARACTERISTICS (Tj=25℃)

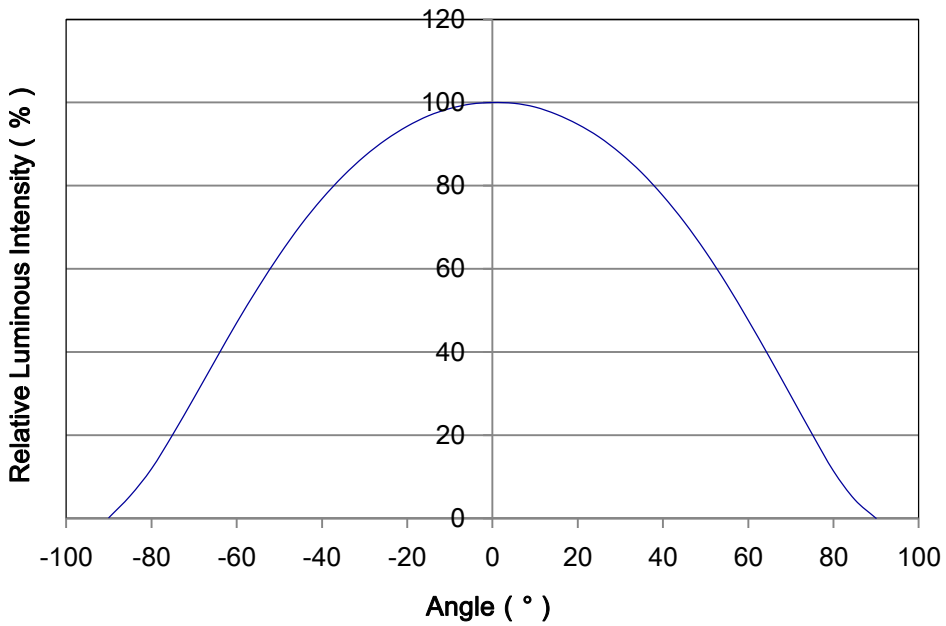
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Forward Voltage[1]	V_F		2.8	3.0	3.2	V
Viewing Angle	$2\theta_{1/2}$		--	120	--	deg.
Luminous Flux	Φv		38	--	54	lm
Color Rendering Index	CRI	I_F=150mA	95	98	--	--
Color Fidelity Index	Rf		--	94	--	--
Color Gamut Index	Rg		98	100	102	--
Thermal Resistance (Junction to Solder Point)	R_{th-js}		--	30	--	℃/W
Reverse Current	IR	Vr=5V	--	--	10	uA

Notes:
1. Luminous flux is measured with an accuracy of ± 10%.
2. Chromaticity coordinate bins are measured with an accuracy of ± 0.01.
3. CRI is measured with an accuracy of ± 2.
4. All measurements were made under the standardized environment of Shineon

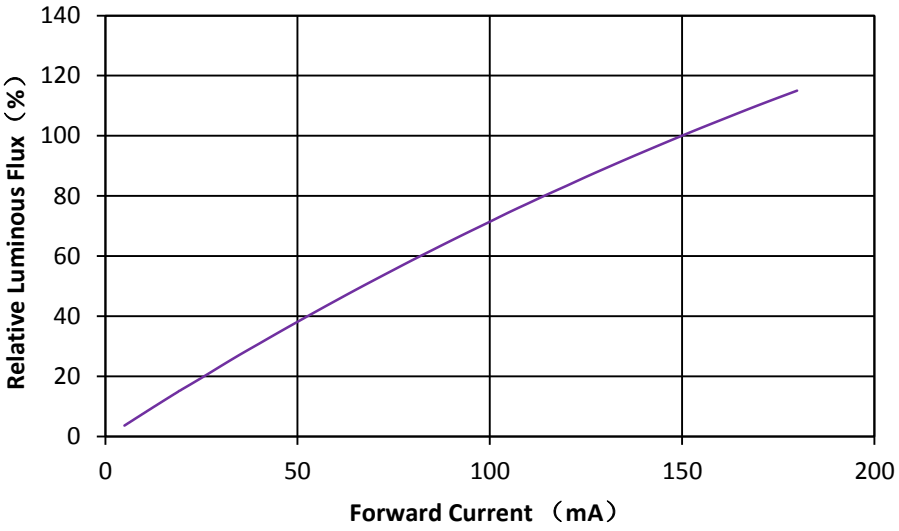
RELATIVE SPECTRAL POWER DISTRIBUTION (T_j=25℃)



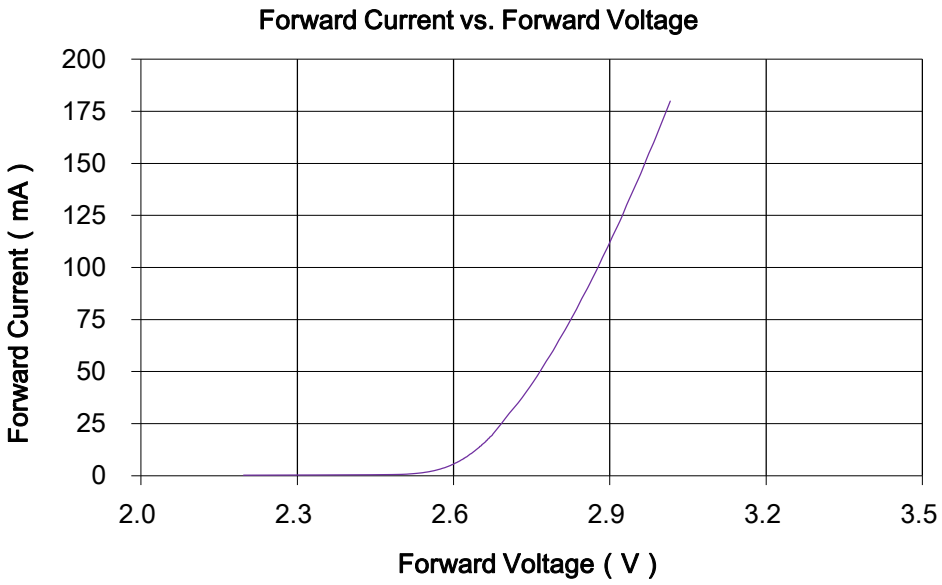
TYPICAL SPATIAL DISTRIBUTION



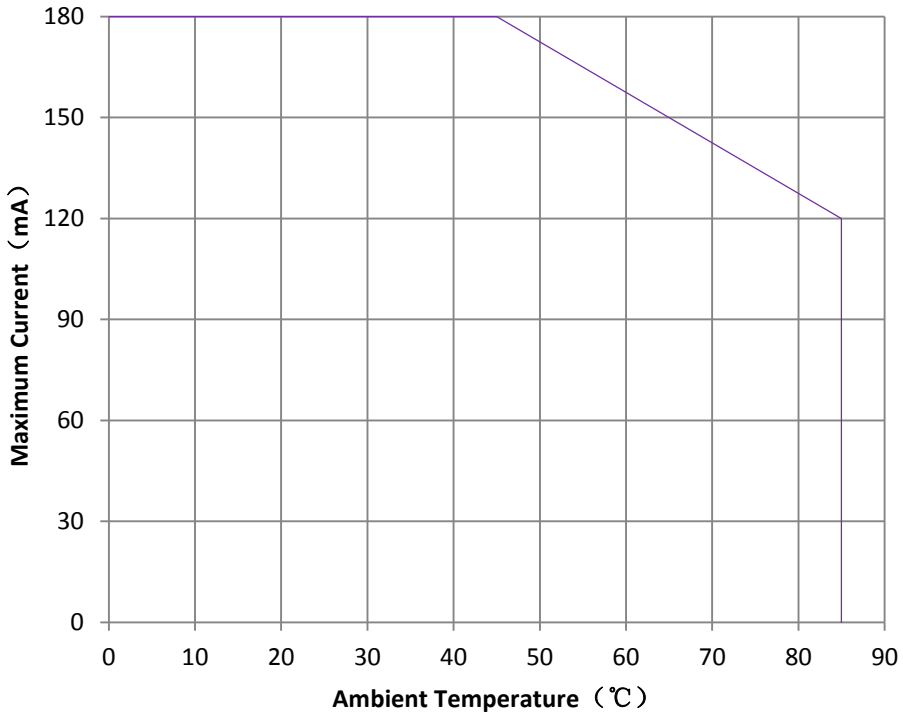
RELATIVE LUMINOUS FLUX VS. CURRENT (T_j=25℃)



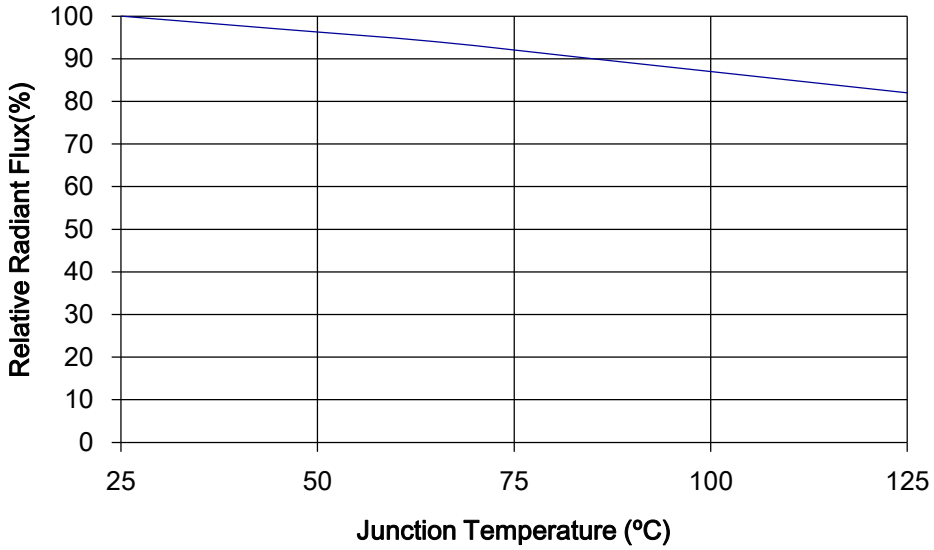
ELECTRICAL CHARACTERISTICS (Tj=25℃)



MAXIUM CURRENT VS. AMBIENT TEMPERATURE



RELATIVE RADIANT FLUX VS. JUNCTION TEMPERATURE



SORTING RANKS

(1) Luminous Flux (Tj=25℃)

Part Number	Condition	Rank			Unit
SOW2835-32-T-PF	150mA	OC	OD	OE	lm
		38-42	42-46	46-50	
SOW2835-56-T-PF		OD	OE	OF	
		42-46	46-50	50-54	

(2) Forward Voltage (Tj=25℃)

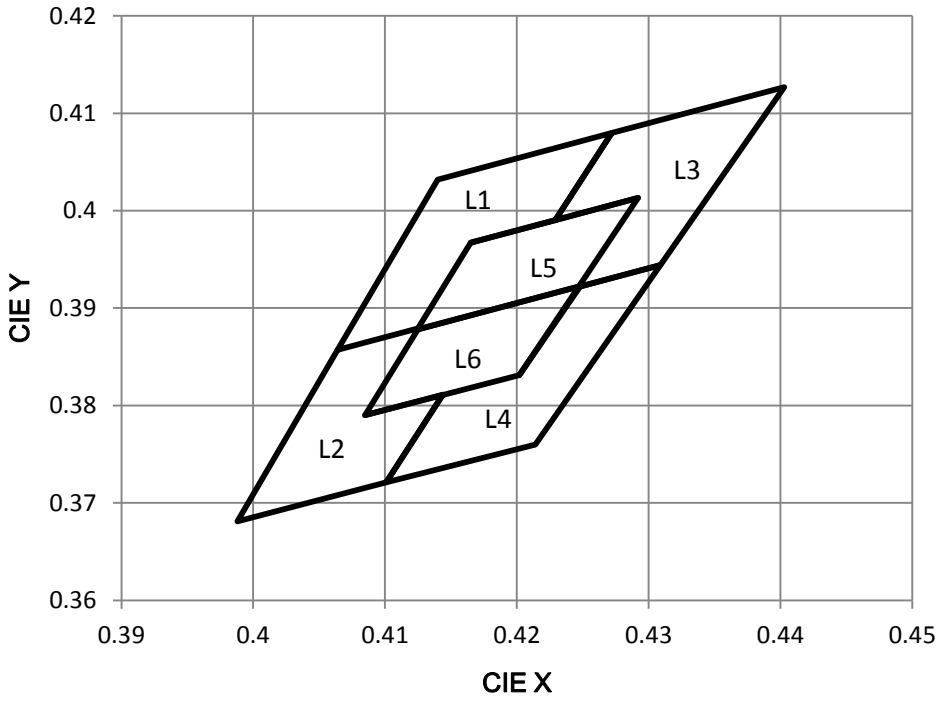
Rank	Condition	Min.	Max.	Unit
A8	150mA	2.8	2.9	V
A9		2.9	3.0	
B0		3.0	3.1	
B1		3.1	3.2	

Notes:
1. 5% tolerance for luminous intensity may be caused by measurement inaccuracy.
2. Measurement Uncertainty of the Forward Voltage : ± 0.1V

(3) Chromaticity Bins (Ta=85℃)

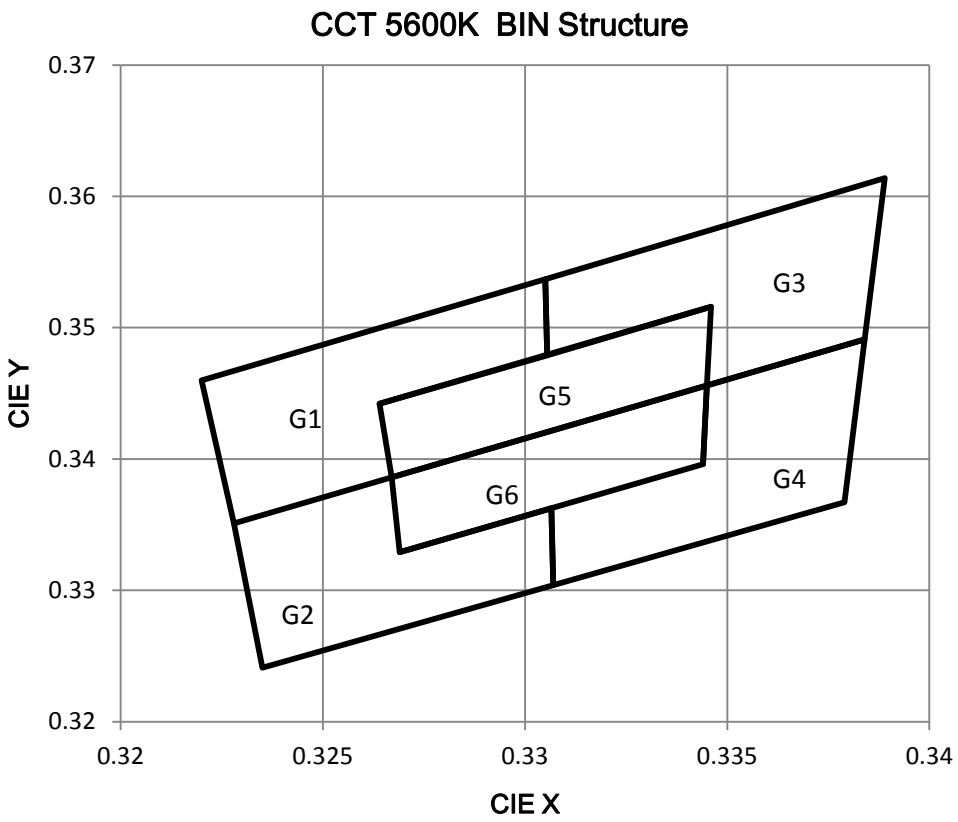
3200K (IF =150 mA)											
Rank		X	Y	Rank		X	Y	Rank		X	Y
L1	1	0.4064	0.3857	L3	1	0.4292	0.4013	L5	1	0.4165	0.3967
	2	0.414	0.4032		2	0.4229	0.399		2	0.4292	0.4013
	3	0.4272	0.4080		3	0.4272	0.408		3	0.4247	0.3922
	4	0.4229	0.3990		4	0.4403	0.4127		4	0.4125	0.3878
	5	0.4165	0.3967		5	0.4309	0.3944		5	--	--
	6	0.4125	0.3879		6	0.4248	0.3922		6	--	--
Rank		X	Y	Rank		X	Y	Rank		X	Y
L2	1	0.4125	0.3879	L4	1	0.4144	0.3811	L6	1	0.4125	0.3878
	2	0.4064	0.3857		2	0.4101	0.3721		2	0.4247	0.3922
	3	0.3988	0.3681		3	0.4214	0.376		3	0.4202	0.3831
	4	0.4101	0.3721		4	0.4309	0.3944		4	0.4085	0.379
	5	0.4144	0.3811		5	0.4248	0.3922		5	--	--
	6	0.4085	0.379		6	0.4202	0.3831		6	--	--

CCT 3200K BIN Structure



(3) Chromaticity Bins (Ta=85℃)

5600K (IF =150 mA)											
Rank		X	Y	Rank		X	Y	Rank		X	Y
G1	1	0.3228	0.3351	G3	1	0.3346	0.3516	G5	1	0.3264	0.3442
	2	0.322	0.346		2	0.3306	0.3479		2	0.3346	0.3516
	3	0.3305	0.3537		3	0.3305	0.3537		3	0.3345	0.3456
	4	0.3306	0.3479		4	0.3389	0.3614		4	0.3267	0.3386
	5	0.3264	0.3442		5	0.3384	0.3491		5	--	--
	6	0.3267	0.3386		6	0.3345	0.3456		6	--	--
Rank		X	Y	Rank		X	Y	Rank		X	Y
G2	1	0.3267	0.3386	G4	1	0.3344	0.3396	G6	1	0.3267	0.3386
	2	0.3228	0.3351		2	0.3345	0.3456		2	0.3345	0.3456
	3	0.3235	0.3241		3	0.3384	0.3491		3	0.3344	0.3396
	4	0.3307	0.3304		4	0.3379	0.3367		4	0.3269	0.3329
	5	0.3307	0.3363		5	0.3307	0.3304		5	--	--
	6	0.3269	0.3329		6	0.3307	0.3363		6	--	--

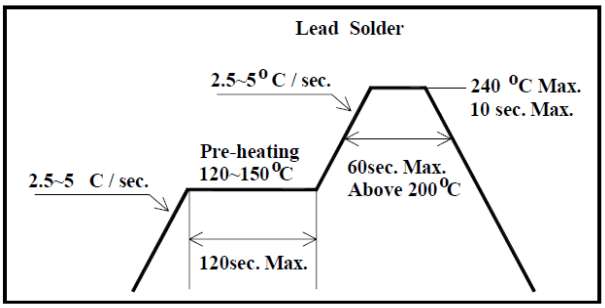


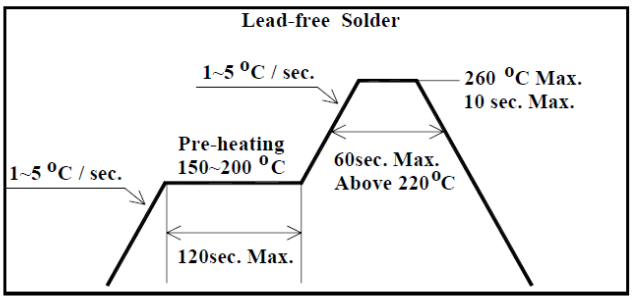
REFLOW SOLDERING CHARACTERISTICS

For Reflow Process:

Preheating : 140℃~160℃±5℃,within 2 minutes.
Operation heating : 260℃(Max.) within 10 seconds.(Max)
Gradual Cooling (Avoid quenching).

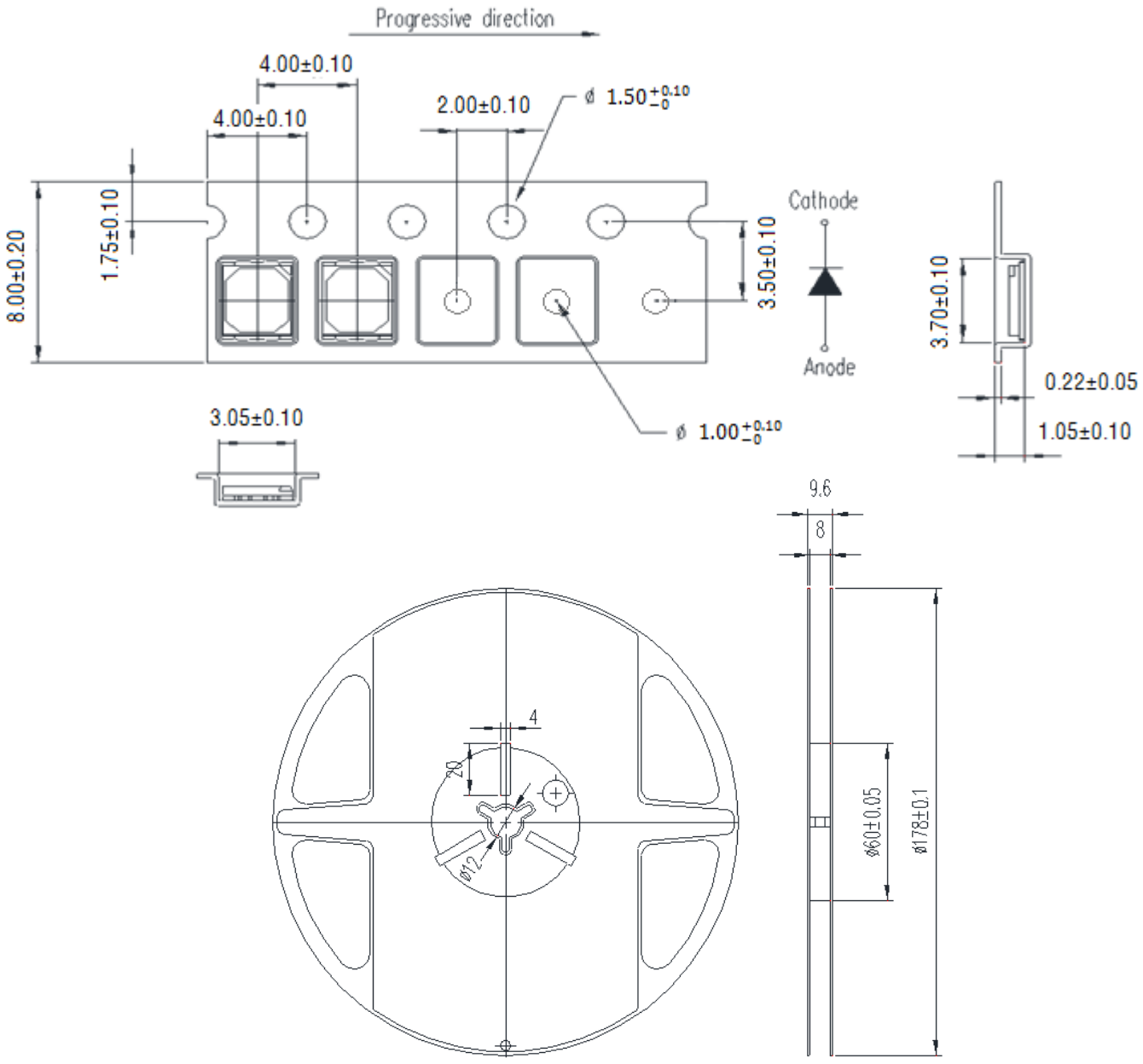
Lead solder		Lead-free solder	
Pre-heat	120-150℃	Pre-heat	150-200℃
Pre-heat time	120 sec.Max.	Pre-heat time	120 sec.Max.
Peak Temperature	240℃ Max.	Peak Temperature	260℃ Max.
Soldering time condition	10 sec.Max.	Soldering time condition	10 sec.Max.





Notes:
The encapsulated material of the LEDs is silicone . Therefore the LEDs have a soft surface on the top of package. The pressure to the top surface will be influence to the reliability of the LEDs. Precautions should be taken to avoid the strong pressure on the encapsulated part. So when using the picking up nozzle, the pressure on the silicone resin should be proper.

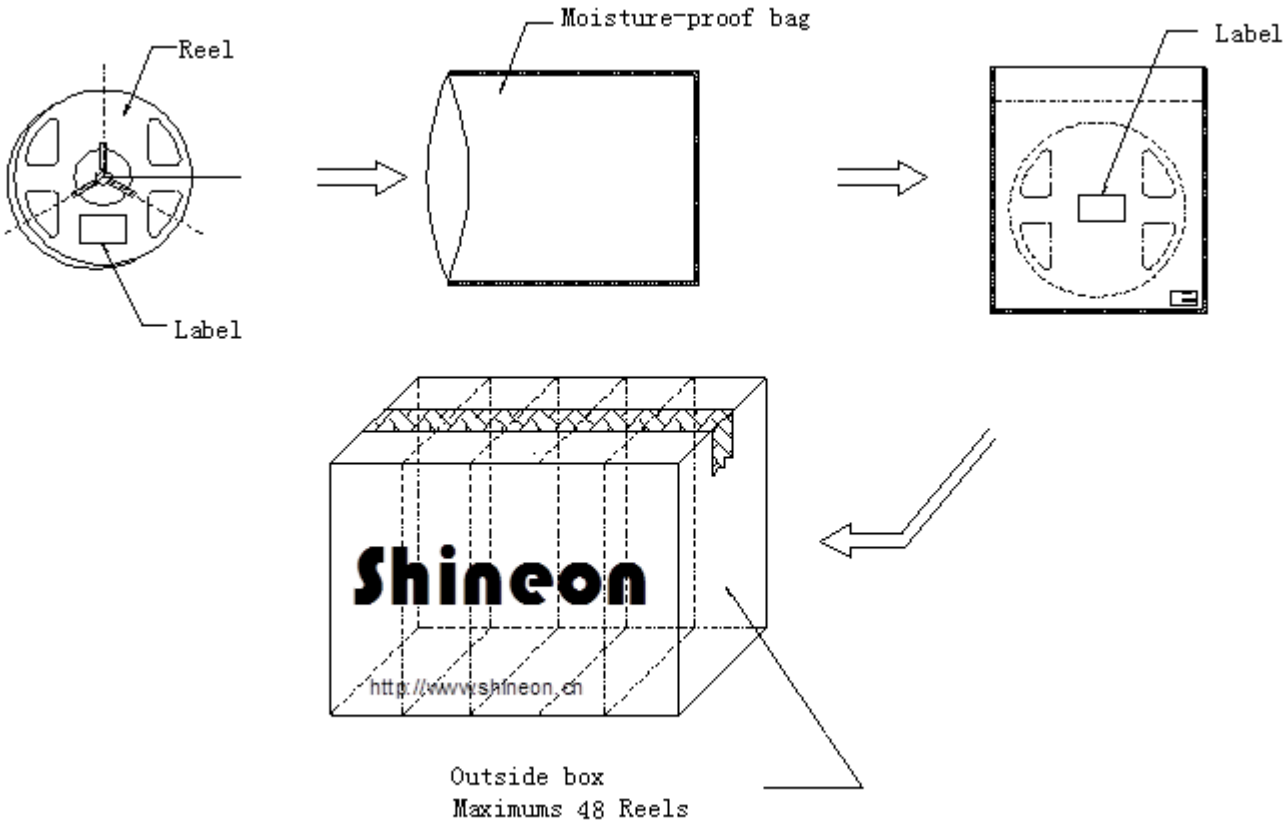
TAPE AND REEL



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

Notes:
(1) Quantity : 3,500pcs/Reel
(2) Cumulative Tolerance : Cumulative Tolerance/10 pitches to be ±0.2mm
(3) Adhesion Strength of Cover Tape : Adhesion strength to be 0.1-0.7N when the cover tape is turned off from the carrier tape at the angle of 10 ºto the carrier tape
(4) Package : P/N, Manufacturing data Code No. and quantity to be indicated on a damp proof Package.

PACKAGING


Reel
Label
Moisture-proof bag
Label
Shineon
http://www.shineon.cn
Outside box
Maximums 48 Reels

PRECAUTION FOR USE

(1) This device should not be used in any type of fluid such as water, oil, organic solvent, etc.
When washing is required, IPA should be used.

(2) When the LEDs are illuminating, operating current should be decided after considering the ambient maximum temperature.

(3) LEDs must be stored to maintain a clean atmosphere. If the LEDs are stored for 3months or more after being shipped from ShineOn, a sealed container with a nitrogen atmosphere should be used for storage.

(4) The LEDs must be used within four weeks after opening the moisture proof packing.
Repack unused Products with anti-moisture packing, fold to close any opening and then store in a dry place.

(5) The appearance and specifications of the product may be modified for improvement without notice.

(6) This LED is sensitive to the static electricity and surge. It is recommended to use a wrist Band or anti-electrostatic glove when handling the LEDs.

(7) On manual soldering, a solder tip must be needed as grounded for usage. If over voltage which exceeds the absolute maximum rating is applied to LEDs, it will cause damage LEDs and result in destruction. Damaged LEDs will show some unusual characteristics such as leak current remarkably increase ,turn-on voltage becomes lower and the LEDs get unlighted at low current.