Kingbright

3.5x3.5mm SMD CHIP LED LAMP

Part Number: AA3535SYL1Z1S-AMT

Super Bright Yellow

ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

Features

- White SMD package, silicone resin.
- Low thermal resistance.
- Compatible with IR-reflow processes.
- ESD protection.
- Package: 2000pcs / reel.
- Moisture sensitivity level : level 2a.
- RoHS compliant

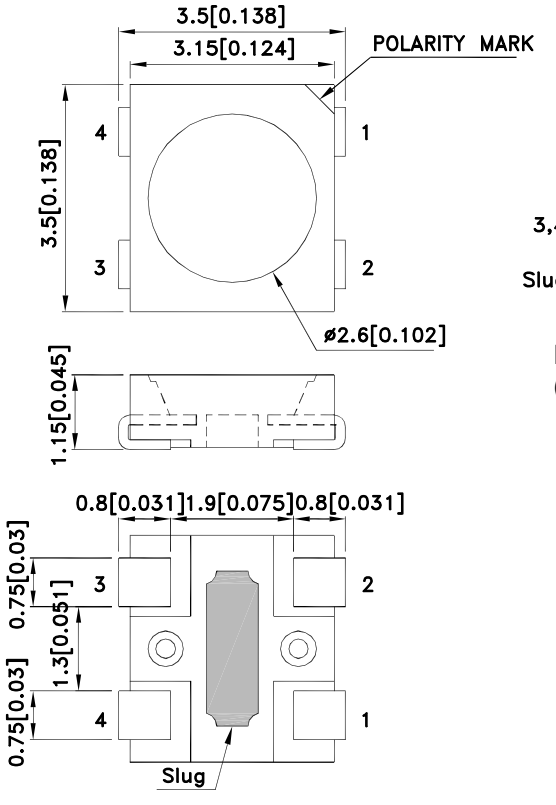
Descriptions

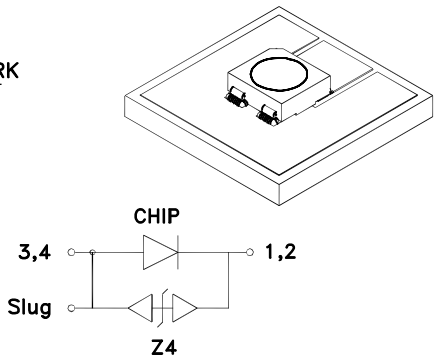
- The source color devices are made with AlGaInP Light Emitting Diode.
- Electrostatic discharge and power surge could damage the LEDs.
- It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs.
- All devices, equipments and machineries must be electrically grounded.

Applications

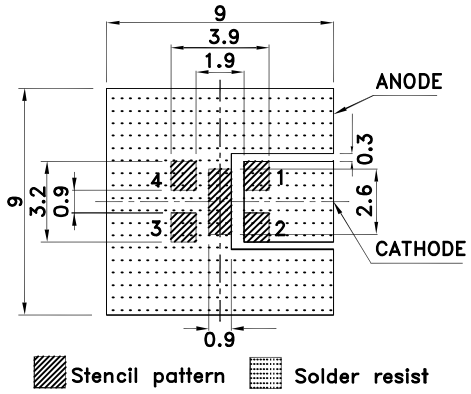
- Signal and symbol luminaire for orientation.
- Marker lights (e.g. steps, exit ways, etc).
- Decorative and entertainment lighting.
- Commercial and residential lighting.
- Automotive interior lighting.

Package Dimensions





Recommended Soldering Pattern
(Units : mm; Tolerance: ±0.1)

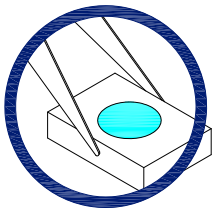


Notes:
1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.25(0.01") unless otherwise noted.
3. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.
4. The device has a single mounting surface. The device must be mounted according to the specifications.

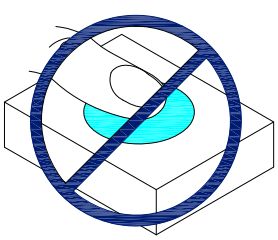
Handling Precautions

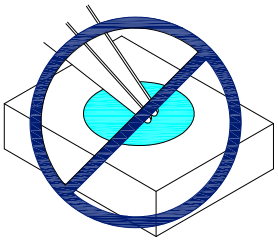
Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more susceptible to damage by external mechanical force.
As a result, special handling precautions need to be observed during assembly using silicone encapsulated LED products. Failure to comply might lead to damage and premature failure of the LED.

1. Handle the component along the side surfaces by using forceps or appropriate tools.

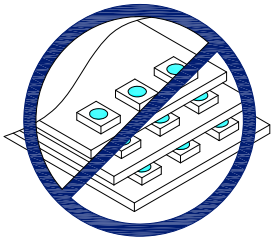


2. Do not directly touch or handle the silicone lens surface. It may damage the internal circuitry.

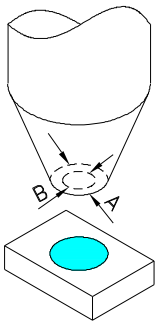




3. Do not stack together assembled PCBs containing exposed LEDs. Impact may scratch the silicone lens or damage the internal circuitry.



4.1. The inner diameter of the SMD pickup nozzle should not exceed the size of the LED to prevent air leaks.
4.2. A pliable material is suggested for the nozzle tip to avoid scratching or damaging the LED surface during pickup.
4.3. The dimensions of the component must be accurately programmed in the pick-and-place machine to insure precise pickup and avoid damage during production.



5. As silicone encapsulation is permeable to gases, some corrosive substances such as H_2S might corrode silver plating of leadframe. Special care should be taken if an LED with silicone encapsulation is to be used near such substances.

Selection Guide

Part No.	Dice	Lens Type	Iv (cd) [2] @ 150mA			Φv (lm) [2] @ 150mA*			Viewing Angle [1]
			Code.	Min.	Max.	Code.	Min.	Max.	2 θ 1/2
AA3535SYL1Z1S-AMT	Super Bright Yellow (AlGaInP)	Water Clear	Z	2.7	3.1	A17	8.6	10	120 °
			ZA	3.1	3.6	B1	10	12	
			ZB	3.6	4.2	B2	12	14	
			ZC	4.2	5.0	B3	14	17	

Notes:
1. θ 1/2 is the angle from optical centerline where the luminous intensity is 1/2 of the optical peak value.
2. Luminous intensity/ luminous flux: +/-15%.*LEDs are binned according to their luminous flux.
3. Luminous intensity/ luminous Flux value is traceable to the CIE127-2007 compliant national standards.

Absolute Maximum Ratings at T_A=25°C

Parameter	Symbol	Value	Unit
Power Dissipation	P_D	525	mW
Junction Temperature [1]	T_J	120	°C
Operating Temperature	Top	-40 To +100	°C
Storage Temperature	Tstg	-40 To +115	°C
DC Forward Current [1]	I_F	150	mA
Reverse Voltage	V_R	5	V
Peak Forward Current [2]	I_{FM}	270	mA
Thermal Resistance [1] (Junction/ambient)	$R_{th\ j\text{-}a}$	178	°C/W
Thermal Resistance [1] (Junction/solder point)	$R_{th\ j\text{-}S}$	78	°C/W
Electrostatic Discharge Threshold (HBM)		8000	V

Notes:
1.Results from mounting on PC board FR4(pad size ≥ 70mm^2), mounted on pc board-metal core PCB is recommend for lowest thermal Resistance.
2.1/10 Duty Cycle, 0.1ms Pulse Width.

Electrical / Optical Characteristics at T_A=25°C

Parameter	Symbol	Value				Unit
		Code.	Min.	Typ.	Max.	
Wavelength at peak emission I_F=150mA	λ peak			590		nm
Dominant Wavelength I_F=150mA	λ dom [1]	5	590		592	nm
		6	592		594	
		7	594		597	
		8	597		600	
Spectral Line Half-width I_F=150mA	Δλ			20		nm
Forward Voltage I_F=150mA	V_F [2]		2.5	3.0	3.5	V
Allowable Reverse Current	I_R				85	mA
Temperature coefficient of λ peak I_F=150mA, -10 ° C≤ T≤100 ° C	TC λ peak			0.13		nm/° C
Temperature coefficient of λ dom I_F=150mA, -10 ° C≤ T≤100 ° C	TC λ dom			0.10		nm/° C
Temperature coefficient of V_F I_F=150mA, -10 ° C≤ T≤100 ° C	TC_V			-3.3		mV/° C

Notes:
1.Wavelength: +/-1nm.
2.Forward Voltage: +/-0.1V.
3.Wavelength value is traceable to the CIE127-2007 compliant national standards.
4.Excess driving current and/or operating temperature higher than recommended conditions may result in severe light degradation or premature failure.

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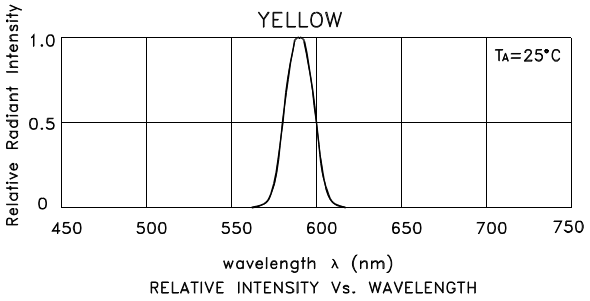
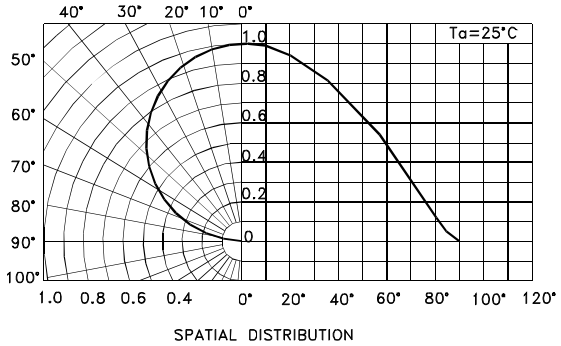
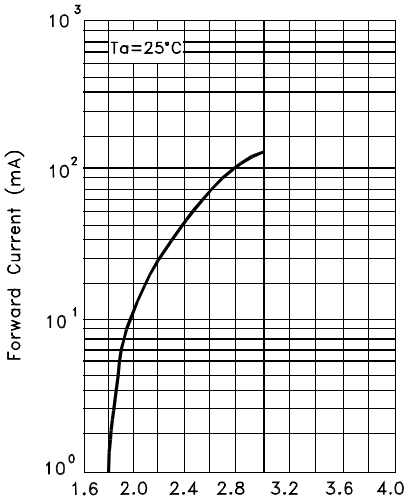


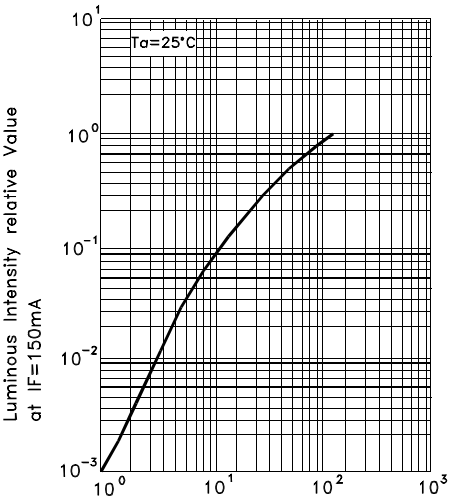
RELATIVE INTENSITY Vs. WAVELENGTH



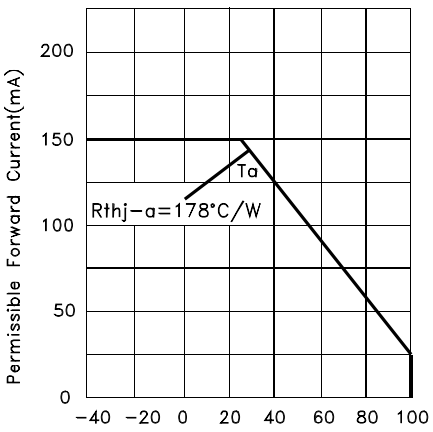
SPATIAL DISTRIBUTION



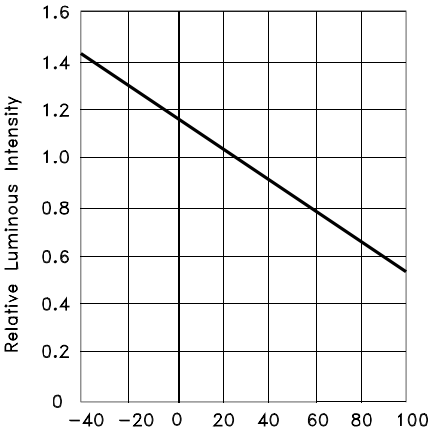
FORWARD CURRENT Vs.
FORWARD VOLTAGE



LUMINOUS INTENSITY Vs.
FORWARD CURRENT



FORWARD CURRENT
DERATING CURVE

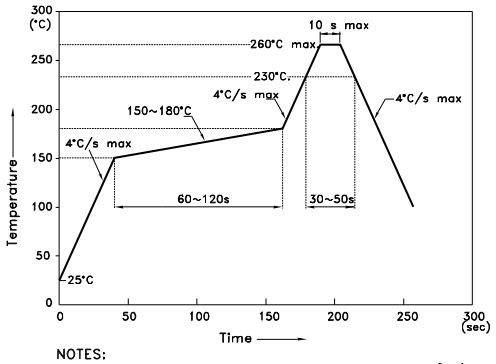


LUMINOUS INTENSITY VS.
AMBIENT TEMPERATURE

AA3535SYL1Z1S-AMT

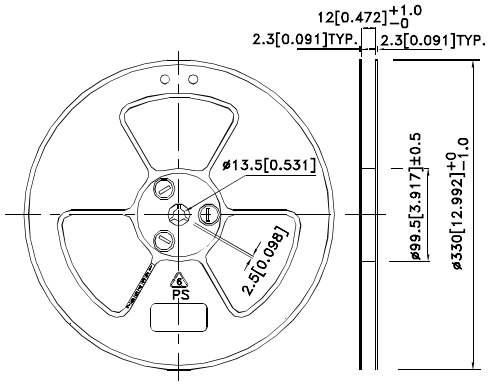
Reflow soldering is recommended and the soldering profile is shown below.
Other soldering methods are not recommended as they might cause damage to the product.

Reflow Soldering Profile For Lead-free SMT Process.

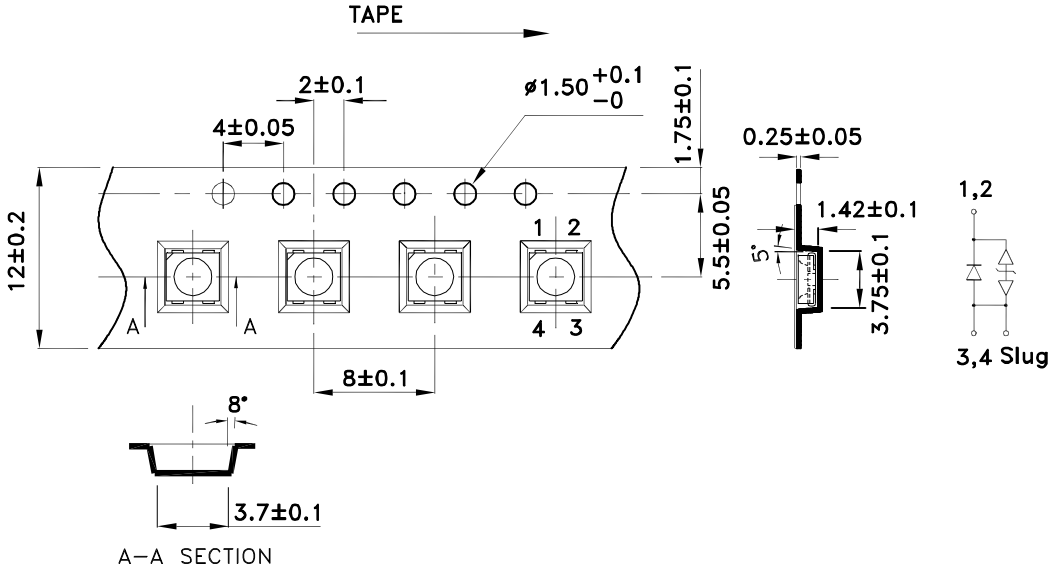


NOTES:
1. We recommend the reflow temperature 245°C(+/-5°C).The maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

Reel Dimension



Tape Specifications
(Units : mm)



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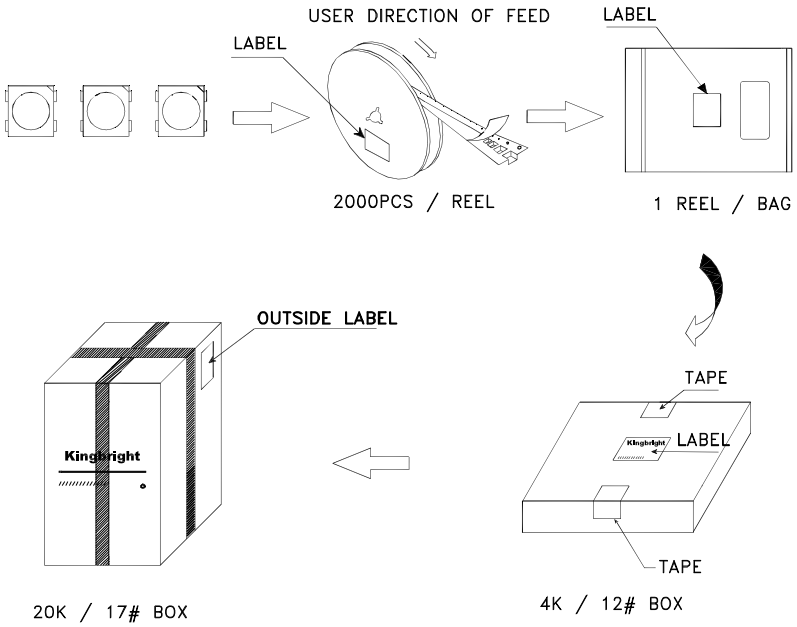
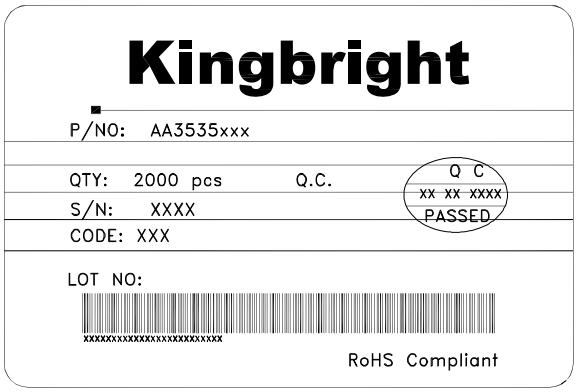
PACKING & LABEL SPECIFICATIONS **AA3535SYL1Z1S-AMT**





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Reliability Test Items And Conditions

The reliability of products shall be satisfied with items listed below

Lot Tolerance Percent Defective (LTPD) : 10%

No.	Test Item	Standards	Test Condition	Test Times / Cycles	Number of Damaged
1	Continuous operating test	-	Ta =25°C ,IF = maximum rated current*	1,000 h	0 / 22
2	High Temp. operating test	EIAJ ED-4701/100(101)	Ta = 100°C IF = derated current at 100°C	1,000 h	0 / 22
3	Low Temp. operating test	-	Ta = -40°C, IF = maximum rated current*	1,000 h	0 / 22
4	High temp. storage test	EIAJ ED-4701/100(201)	Ta = maximum rated storage temperature	1,000 h	0 / 22
5	Low temp. storage test	EIAJ ED-4701/100(202)	Ta = -40°C	1,000 h	0 / 22
6	High temp. & humidity storage test	-	Ta = 60°C, RH = 90%	500 h	0 / 22
7	High temp. & humidity operating test	-	Ta = 60°C, RH = 90% IF = derated current at 60°C	500 h	0 / 22
8	Soldering reliability test	EIAJ ED-4701/100(301)	Moisture soak : 30°C,70% RH, 72h Preheat : 150~180°C(120s max.) Soldering temp : 260°C(10s)	2 times	0 / 18
9	Thermal shock operating test	-	Ta = -40°C(15min) ~ 100°C(15min) IF = derated current at 100°C	1,000 cycles	0 / 22
10	Thermal shock test	-	Ta = -40°C(15min) ~ 100°C(15min)	1,000 cycles	0 / 22
11	Electric Static Discharge (ESD)	EIAJ ED-4701/100(304)	C = 100pF , R2 = 1.5KΩ V = 8000V	Once each Polarity	0 / 22
12	Vibration test	-	a = 196m/s² , f = 100~2KHz , t = 48min for all xyz axes	4 times	0 / 22

＊ : Refer to forward current vs. derating curve diagram

Failure Criteria

Items	Symbols	Conditions	Failure Criteria
luminous Intensity	I_V	I_F = 150mA	Testing Min. Value <Spec.Min.Value x 0.5
Forward Voltage	V_F	I_F = 150mA	Testing Max. Value ≥Spec.Max.Value x 1.2
Reverse Current	I_R	V_R = Maximum Rated Reverse Voltage	Testing Max. Value ≥Spec.Max.Value x 2.5
High temp. storage test	-	-	Occurrence of notable decoloration, deformation and cracking