



ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

Part Number: AA3528VR41S-N1

Neutral White

Features

- Single color.
- Suitable for all SMT assembly and solder process.
- Available on tape and reel.
- Ideal for backlighting.
- Package : 2000pcs / reel.
- Moisture sensitivity level : level 3.
- RoHS compliant.

Description

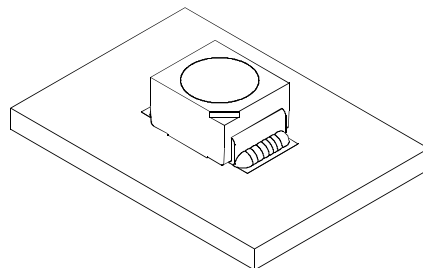
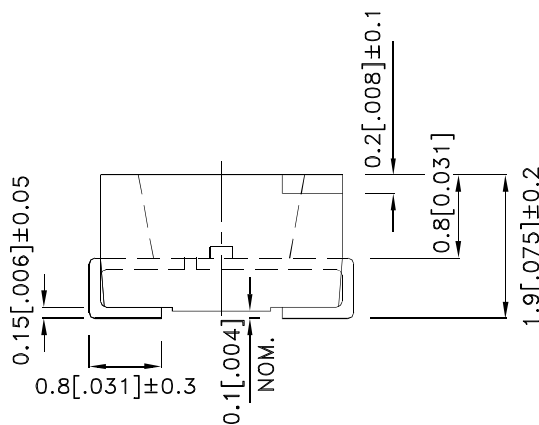
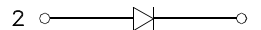
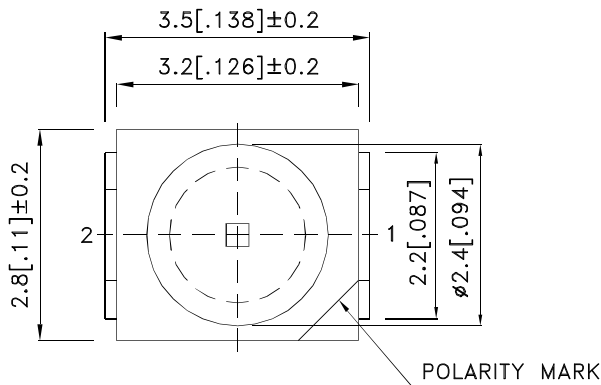
The source color devices are made with InGaN Light Emitting Diode.

Static electricity and surge damage the LEDs.

It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs.

All devices, equipment and machinery must be electrically grounded.

Package Dimensions



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.

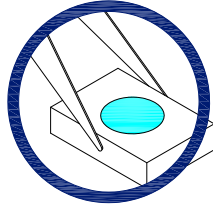


Handling Precautions

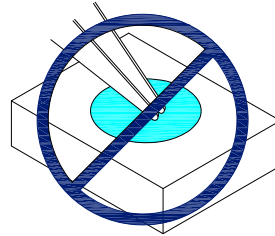
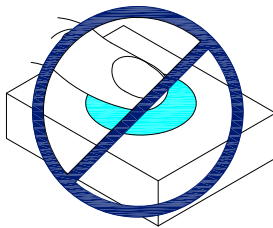
Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more susceptible to damage by external mechanical force.

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.

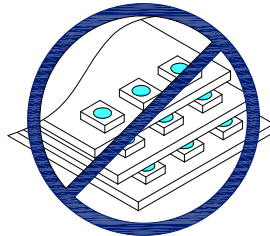
1. Handle the component along the side surfaces by using forceps or appropriate tools.



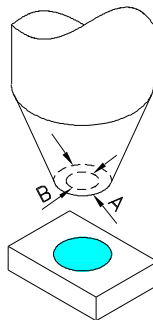
2. Do not directly touch or handle the silicone lens surface. It may damage the internal circuitry.



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.

All design applications should refer to Kingbright application notes available at <http://www.KingbrightUSA.com/ApplicationNotes>

Selection Guide

| Part No. | Dice | Lens Type | Iv (mcd) [2] @ 20mA | | Viewing Angle [1] |
|----------------|-----------------------|-------------|------------------------|------|----------------------|
| | | | Min. | Typ. | 2θ1/2 |
| AA3528VR41S-N1 | Neutral White (InGaN) | Water Clear | 1000 | 1500 | 120° |

Notes:

- θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 of the optical peak value.
- Luminous intensity/ luminous Flux: +/-15%.
- Luminous intensity value is traceable to the CIE127-2007 compliant national standards.

Electrical / Optical Characteristics at TA=25°C

| Symbol | Parameter | Device | Min. | Typ. | Max. | Units | Test Conditions |
|--------------------|-------------------|---------------|------|------|------|-------|---------------------------|
| V _F [1] | Forward Voltage | Neutral White | | 3.3 | 4.0 | V | I _F =20mA |
| CCT | Color Temperature | Neutral White | 3710 | 4000 | 4200 | K | I _F =20mA |
| I _R | Reverse Current | Neutral White | | | 50 | μA | V _R = 5V |
| C | Capacitance | Neutral White | | 100 | | pF | V _F =0V;f=1MHz |

Note:

- Forward Voltage: +/-0.1V.

Absolute Maximum Ratings at TA=25°C

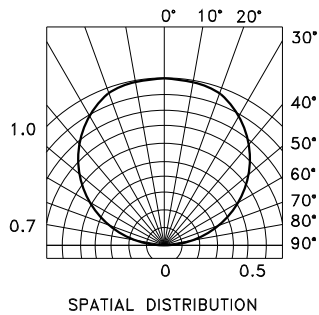
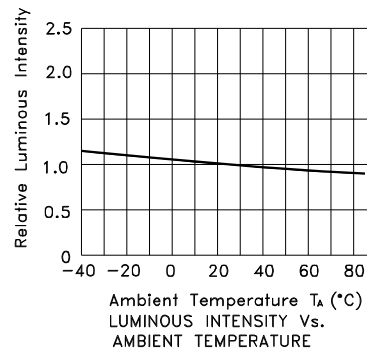
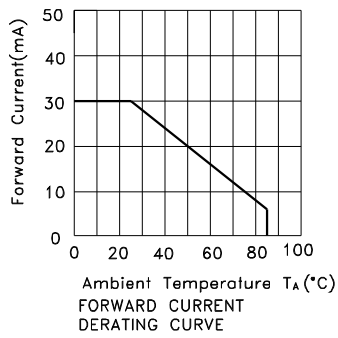
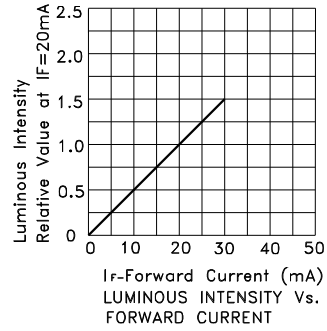
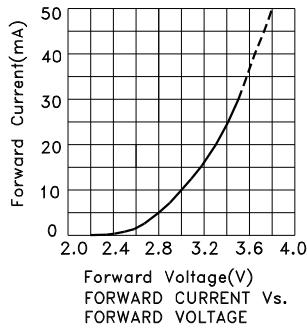
| Parameter | Neutral White | Units |
|--------------------------|----------------|-------|
| Power dissipation | 120 | mW |
| DC Forward Current | 30 | mA |
| Peak Forward Current [1] | 100 | mA |
| Reverse Voltage | 5 | V |
| Operating Temperature | -40°C To +85°C | |
| Storage Temperature | -40°C To +85°C | |

Note:

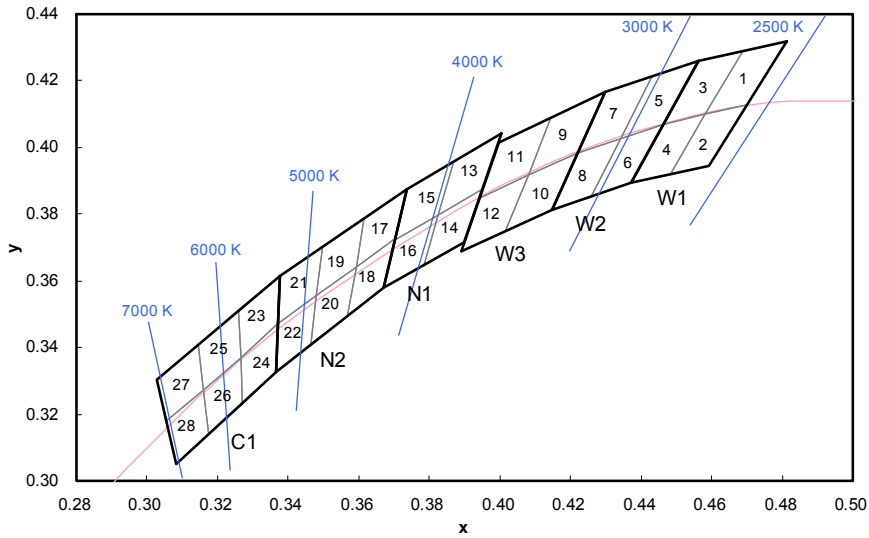
- 1/10 Duty Cycle, 0.1ms Pulse Width.

Neutral White

AA3528VR41S-N1



CCT 2500-7000 K Bin Code



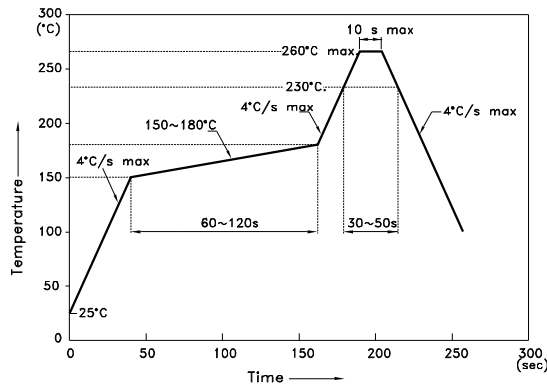
| Color | Group | Chromaticity Regions | CCT (K) | | |
|---------------|-------|------------------------|---------|------|------|
| | | | Min. | Typ. | Max. |
| Warm White | W1 | 1, 2, 3, 4 | 2580 | 2700 | 2870 |
| | W2 | 5, 6, 7, 8 | 2870 | 3000 | 3220 |
| | W3 | 9, 10, 11, 12 | 3220 | 3500 | 3710 |
| Neutral White | N1 | 13, 14, 15, 16 | 3710 | 4000 | 4260 |
| | N2 | 17, 18, 19, 20, 21, 22 | 4260 | 4700 | 5310 |
| Cool White | C1 | 23, 24, 25, 26, 27, 28 | 5310 | 6000 | 7040 |

Notes:
 Shipment may contain more than one chromaticity regions.
 Orders for single chromaticity region are generally not accepted.
 Measurement tolerance of the chromaticity coordinates is ± 0.01 .

| | x | y | | x | y | | x | y | | x | y |
|---|--------|--------|----|--------|--------|----|--------|--------|----|--------|--------|
| 1 | 0.4582 | 0.4099 | 8 | 0.4147 | 0.3814 | 15 | 0.3702 | 0.3722 | 22 | 0.3481 | 0.3557 |
| | 0.4687 | 0.4289 | | 0.4221 | 0.3984 | | 0.3736 | 0.3874 | | 0.3370 | 0.3472 |
| | 0.4813 | 0.4319 | | 0.4342 | 0.4028 | | 0.3869 | 0.3958 | | 0.3364 | 0.3328 |
| | 0.4700 | 0.4126 | | 0.4259 | 0.3853 | | 0.3825 | 0.3798 | | 0.3466 | 0.3411 |
| 2 | 0.4483 | 0.3919 | 9 | 0.4080 | 0.3916 | 16 | 0.3670 | 0.3578 | 23 | 0.3376 | 0.3616 |
| | 0.4582 | 0.4099 | | 0.4146 | 0.4089 | | 0.3702 | 0.3722 | | 0.3260 | 0.3512 |
| | 0.4700 | 0.4126 | | 0.4299 | 0.4165 | | 0.3825 | 0.3798 | | 0.3265 | 0.3371 |
| | 0.4593 | 0.3944 | | 0.4221 | 0.3984 | | 0.3783 | 0.3646 | | 0.3370 | 0.3472 |
| 3 | 0.4465 | 0.4071 | 10 | 0.4017 | 0.3751 | 17 | 0.3736 | 0.3874 | 24 | 0.3370 | 0.3472 |
| | 0.4562 | 0.4260 | | 0.4080 | 0.3916 | | 0.3616 | 0.3788 | | 0.3265 | 0.3371 |
| | 0.4687 | 0.4289 | | 0.4221 | 0.3984 | | 0.3592 | 0.3641 | | 0.3270 | 0.3230 |
| | 0.4582 | 0.4099 | | 0.4147 | 0.3814 | | 0.3703 | 0.3726 | | 0.3364 | 0.3328 |
| 4 | 0.4373 | 0.3893 | 11 | 0.3941 | 0.3848 | 18 | 0.3703 | 0.3726 | 25 | 0.3260 | 0.3512 |
| | 0.4465 | 0.4071 | | 0.3996 | 0.4015 | | 0.3592 | 0.3641 | | 0.3144 | 0.3408 |
| | 0.4582 | 0.4099 | | 0.4146 | 0.4089 | | 0.3568 | 0.3495 | | 0.3160 | 0.3274 |
| | 0.4483 | 0.3919 | | 0.4080 | 0.3916 | | 0.3670 | 0.3578 | | 0.3265 | 0.3371 |
| 5 | 0.4342 | 0.4028 | 12 | 0.3889 | 0.3690 | 19 | 0.3616 | 0.3788 | 26 | 0.3265 | 0.3371 |
| | 0.4430 | 0.4212 | | 0.3941 | 0.3848 | | 0.3496 | 0.3702 | | 0.3160 | 0.3274 |
| | 0.4562 | 0.4260 | | 0.4080 | 0.3916 | | 0.3481 | 0.3557 | | 0.3175 | 0.3139 |
| | 0.4465 | 0.4071 | | 0.4017 | 0.3751 | | 0.3592 | 0.3641 | | 0.3270 | 0.3230 |
| 6 | 0.4259 | 0.3853 | 13 | 0.3825 | 0.3798 | 20 | 0.3592 | 0.3641 | 27 | 0.3144 | 0.3408 |
| | 0.4342 | 0.4028 | | 0.3869 | 0.3958 | | 0.3481 | 0.3557 | | 0.3028 | 0.3304 |
| | 0.4465 | 0.4071 | | 0.4006 | 0.4044 | | 0.3466 | 0.3411 | | 0.3055 | 0.3177 |
| | 0.4373 | 0.3893 | | 0.3950 | 0.3875 | | 0.3568 | 0.3495 | | 0.3160 | 0.3274 |
| 7 | 0.4221 | 0.3984 | 14 | 0.3783 | 0.3646 | 21 | 0.3496 | 0.3702 | 28 | 0.3160 | 0.3274 |
| | 0.4299 | 0.4165 | | 0.3825 | 0.3798 | | 0.3376 | 0.3616 | | 0.3055 | 0.3177 |
| | 0.4430 | 0.4212 | | 0.3950 | 0.3875 | | 0.3370 | 0.3472 | | 0.3081 | 0.3049 |
| | 0.4342 | 0.4028 | | 0.3898 | 0.3716 | | 0.3481 | 0.3557 | | 0.3175 | 0.3139 |

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.

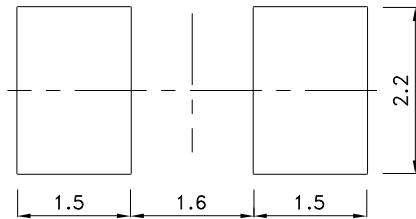
Reflow Soldering Profile For Lead-free SMT Process.



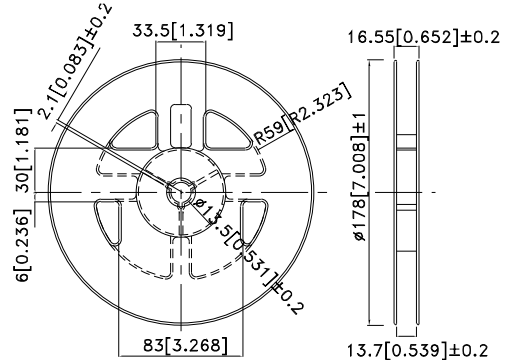
NOTES:

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.

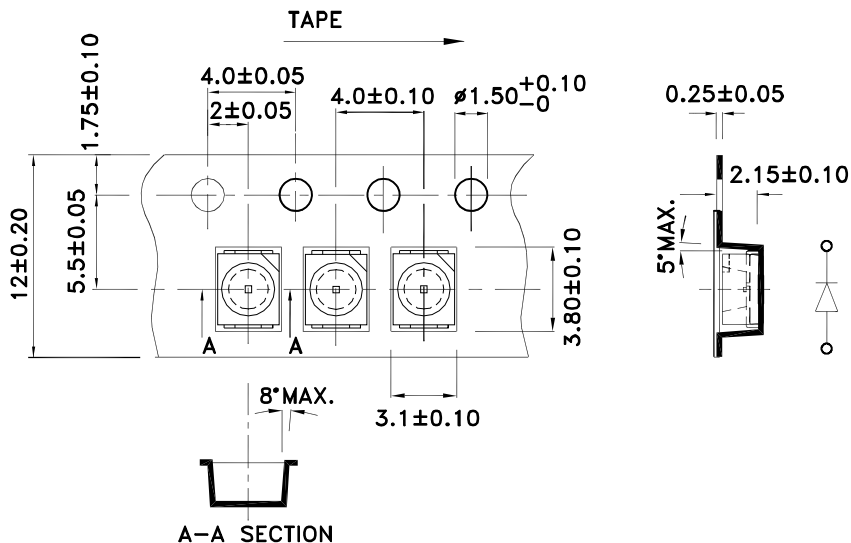
Recommended Soldering Pattern
(Units : mm; Tolerance: ± 0.1)



Reel Dimension



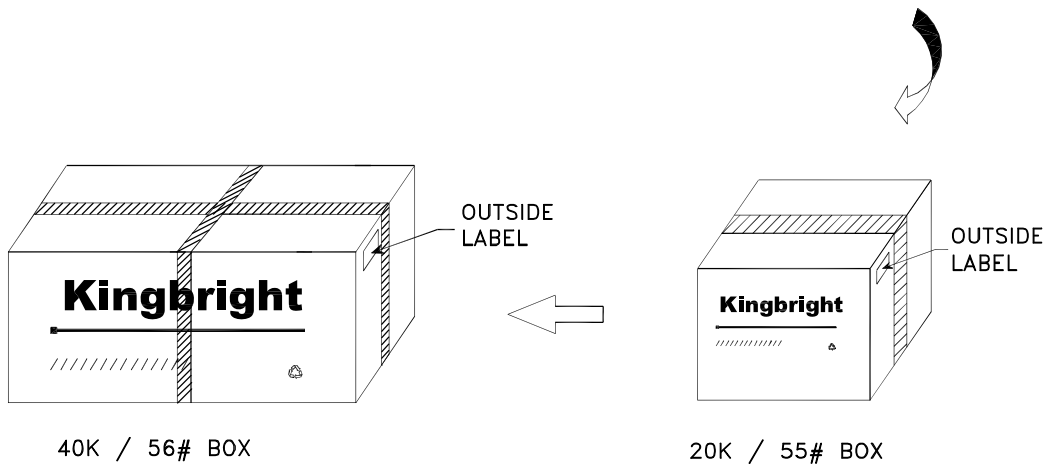
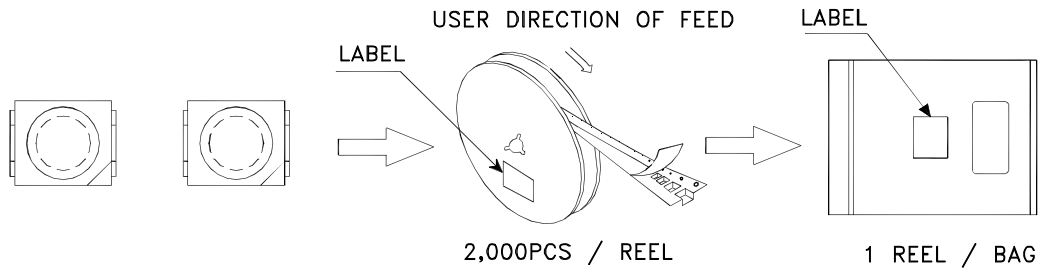
Tape Dimensions
(Units : mm)




Kingbright

PACKING & LABEL SPECIFICATIONS

AA3528VR41S-N1



| | |
|---|--|
| <h1>Kingbright</h1> | |
| P/NO: AA3528xxx | |
| QTY: 2,000 pcs | Q.C. Q C xx xx xxxx PASSED |
| S/N: XXXX | |
| CODE: XXX | |
| LOT NO: | |
|  <small>XXXXXXXXXXXXXXXXXXXXXXXXXX</small> | |
| RoHS Compliant | |