EVERSTAR

The Brightest LED

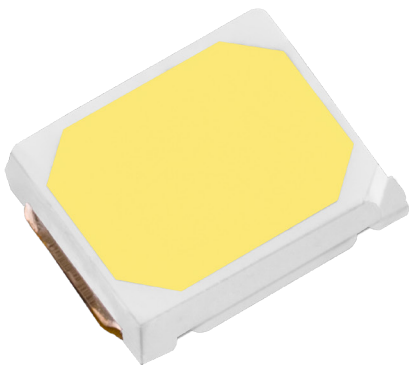
# DATASHEET

## ES-2835-053V-XX-XXX

# ES-2835-053V-XX-XXX Datasheet

## FEATURES

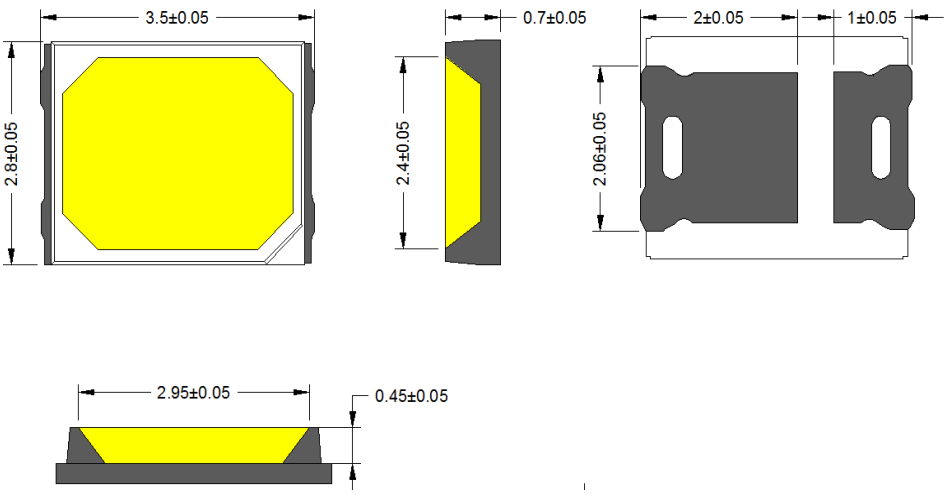
- Plcc-2 Package
- Top View White Led
- Wide Viewing Angle
- Rohs Compliant
- Package:17000pcs/reel



## APPLICATION

- General lighting
- Optical indicator
- Switch Lights
- Decorative and Entertainment Lighting

## Package Dimensions




**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 | Rating | Unit |
|---|---|---|---|
| Forward current | $I_F$ | 150 | mA |
| Peak Forward Current[1] | $I_{F(Peak)}$ | 180 | mA |
| Storage Temperature | $T_{stg}$ | -40~+105 | ℃ |
| Operating Temperature | $T_{opr}$ | -30~+105 | ℃ |
| Soldering Temperature | $T_s$ | / | ℃ |
| Junction Temperature | $T_j$ | 125 | ℃ |
| ESD Sensitivity | ESD | 2000V HBM | V |
| Lead Soldering Temperature | $T_{SOL}$ | Max. 350℃ for 5 sec | ℃ |

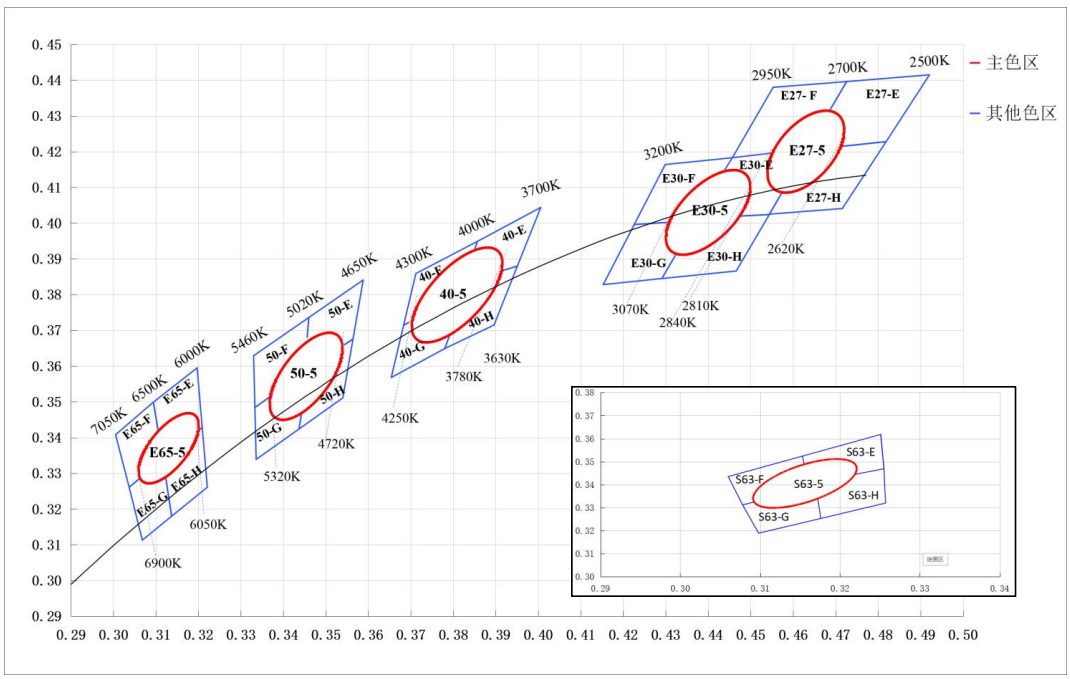
*1) These or any other conditions beyond those indicated under recommended operating conditions may cause permanent damages to the device .
*2) D. C. Current : Tj = Tc + Rth j-s × P ： Tj=Tc+ Rth j-s × P

## CHARACTERISTICS (Tj=25°C)

| Items | Symbol | CCT | Min | Avg | Max | Unit |
|---|---|---|---|---|---|---|
| L1 Luminous Flux | Φv | 3000 | 60 | ~ | 65 | LM |
| | | 4000 | 65 | ~ | 70 | LM |
| | | 5700 | 65 | ~ | 70 | LM |
| | | 6500 | 65 | ~ | 70 | LM |
| | | 7500 | 65 | ~ | 70 | LM |
| **Items** | **Symbol** | **CCT** | **Min** | **Avg** | **Max** | **Unit** |
| L2 Luminous Flux | Φv | 3000 | 65 | ~ | 70 | LM |
| | | 4000 | 70 | ~ | 75 | LM |
| | | 5700 | 70 | ~ | 75 | LM |
| | | 6500 | 70 | ~ | 75 | LM |
| | | 7500 | 70 | ~ | 75 | LM |
| Forward Voltage | Vf | If=150mA | 2.9 | ~ | 3.2 | V |
| Color Rendering Index | Ra | If=150mA | / | -- | -- | -- |
| Viewing Angle | 2θ1/2 | If=150mA | -- | 120 | -- | ° |
| Thermal Resistance | Rth j-s | | -- | 22 | -- | °C/W |
| Reverse Leakage Current | Ir | - | / | / | 5 | μA |

*These values are measured by the GS Everfine Hass2000 optical spectrum analyzer within the following tolerances: Hass2000
Luminous Flux (Φv) : ±5%, Forward Voltage (Vf) : ±0.1, X/Y : ±0.005, CRI Value : ±2
±5%, ±0.1, X/Y：±0.005, ±2

## CHROMATICITY BINS



| Main color BIN | x | y | a | b | θ | SDCM | Refer to CCT | |
|---|---|---|---|---|---|---|---|---|
| E65-5 | 0.3130 | 0.3370 | 0.00223 | 0.00095 | 58.38 | 5 | 6200-6700K | |
| Other color BIN | x1 | y1 | x2 | y2 | x3 | y3 | x4 | y4 |
| E65-E | 0.3116 | 0.3338 | 0.3094 | 0.3499 | 0.3197 | 0.3595 | 0.3209 | 0.3428 |
| E65-F | 0.3037 | 0.3261 | 0.3005 | 0.3408 | 0.3094 | 0.3499 | 0.3116 | 0.3338 |
| E65-G | 0.3068 | 0.3113 | 0.3037 | 0.3261 | 0.3116 | 0.3338 | 0.3137 | 0.3180 |
| E65-H | 0.3137 | 0.3180 | 0.3116 | 0.3338 | 0.3209 | 0.3428 | 0.3221 | 0.3261 |

| Main color BIN | x | y | a | b | θ | SDCM | Refer to CCT | |
|---|---|---|---|---|---|---|---|---|
| 50-5 | 0.3454 | 0.3572 | 0.00274 | 0.00118 | 59.62 | 5 | 4800-5200K | |
| Other color BIN | x1 | y1 | x2 | y2 | x3 | y3 | x4 | y4 |
| 50-E | 0.3449 | 0.3581 | 0.3460 | 0.3736 | 0.3588 | 0.3841 | 0.3564 | 0.3676 |
| 50-F | 0.3333 | 0.3484 | 0.3330 | 0.3629 | 0.3460 | 0.3736 | 0.3449 | 0.3581 |
| 50-G | 0.3333 | 0.3484 | 0.3336 | 0.3339 | 0.3437 | 0.3424 | 0.3449 | 0.3581 |
| 50-H | 0.3437 | 0.3424 | 0.3449 | 0.3581 | 0.3564 | 0.3676 | 0.3540 | 0.3511 |

| Main color BIN | x | y | a | b | θ | SDCM | Refer to CCT | |
|---|---|---|---|---|---|---|---|---|
| 40-5 | 0.3809 | 0.3799 | 0.00313 | 0.00134 | 54.00 | 5 | 3800-4200K | |
| Other color BIN | x1 | y1 | x2 | y2 | x3 | y3 | x4 | y4 |
| 40-E | 0.3818 | 0.3793 | 0.3857 | 0.3949 | 0.4006 | 0.4044 | 0.3951 | 0.3880 |
| 40-F | 0.3683 | 0.3714 | 0.3712 | 0.3859 | 0.3857 | 0.3949 | 0.3818 | 0.3793 |
| 40-G | 0.3654 | 0.3568 | 0.3683 | 0.3714 | 0.3818 | 0.3793 | 0.3780 | 0.3649 |
| 40-H | 0.3780 | 0.3649 | 0.3818 | 0.3793 | 0.3951 | 0.3880 | 0.3896 | 0.3715 |

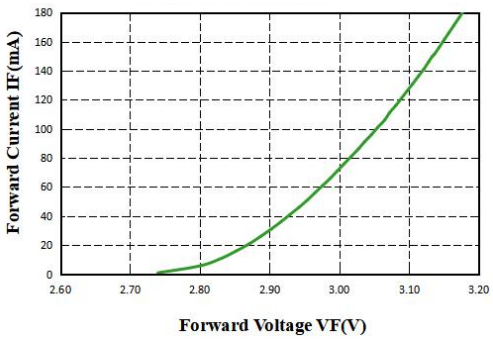
| Main color BIN | x | y | a | b | θ | SDCM | Refer to CCT | |
|---|---|---|---|---|---|---|---|---|
| E30-5 | 0.4400 | 0.4030 | 0.00278 | 0.00136 | 53.17 | 5 | 2850-3050K | |
| Other color BIN | x1 | y1 | x2 | y2 | x3 | y3 | x4 | y4 |
| E30-E | 0.4372 | 0.4009 | 0.4457 | 0.4183 | 0.4632 | 0.4205 | 0.4544 | 0.4024 |
| E30-F | 0.4226 | 0.3996 | 0.4299 | 0.4164 | 0.4457 | 0.4183 | 0.4372 | 0.4009 |
| E30-G | 0.4153 | 0.3828 | 0.4226 | 0.3996 | 0.4372 | 0.4009 | 0.4291 | 0.3845 |
| E30-H | 0.4291 | 0.3845 | 0.4372 | 0.4009 | 0.4544 | 0.4024 | 0.4466 | 0.3866 |

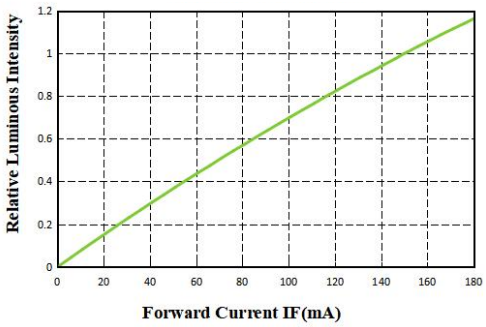
| Main color BIN | x | y | a | b | θ | SDCM | Refer to CCT | |
|---|---|---|---|---|---|---|---|---|
| E27-5 | 0.4630 | 0.4200 | 0.00258 | 0.00137 | 57.28 | 5 | 2650-2800K | |
| Other color BIN | x1 | y1 | x2 | y2 | x3 | y3 | x4 | y4 |
| E27-E | 0.4632 | 0.4205 | 0.4726 | 0.4396 | 0.4921 | 0.4415 | 0.4819 | 0.4228 |
| E27-F | 0.4457 | 0.4183 | 0.4553 | 0.438 | 0.4726 | 0.4396 | 0.4632 | 0.4205 |
| E27-G | 0.4372 | 0.4009 | 0.4457 | 0.4183 | 0.4632 | 0.4205 | 0.4544 | 0.4024 |
| E27-H | 0.4544 | 0.4025 | 0.4632 | 0.4205 | 0.4819 | 0.4228 | 0.4716 | 0.4041 |

| Main color BIN | x | y | a | b | θ | SDCM | Refer to CCT | |
|---|---|---|---|---|---|---|---|---|
| S63-5 | 0.3156 | 0.3405 | 0.0023 | 0.00095 | 65 | 5 | 5950-6650K | |
| Other color BIN | x1 | y1 | x2 | y2 | x3 | y3 | x4 | y4 |
| S63-E | 0.3154 | 0.3399 | 0.3245 | 0.3479 | 0.3241 | 0.3628 | 0.3143 | 0.3534 |
| S63-F | 0.3154 | 0.3399 | 0.3143 | 0.3534 | 0.3050 | 0.3445 | 0.3068 | 0.3322 |
| S63-G | 0.3154 | 0.3399 | 0.3068 | 0.3322 | 0.3088 | 0.3199 | 0.3166 | 0.3263 |
| S63-H | 0.3154 | 0.3399 | 0.3166 | 0.3263 | 0.3247 | 0.3330 | 0.3245 | 0.3479 |

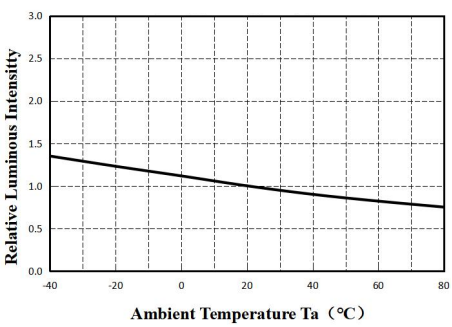
## Typical Characteristic Curves

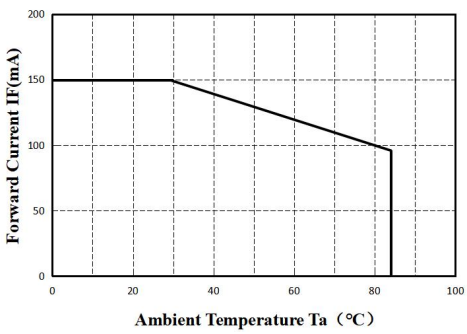
### Forward Current Characteristics



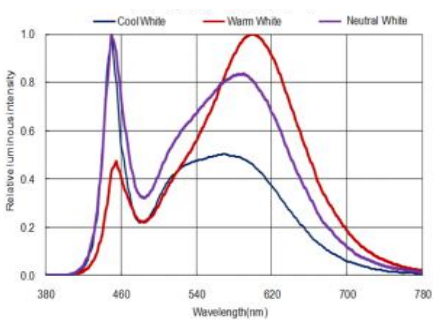



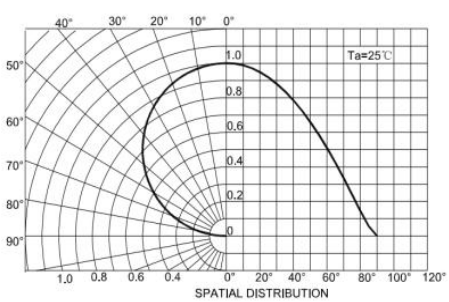

### Temperature Characteristics




### Derating Curve




Max Driving Forward Current vs. Soldering Temp

## Reliability Test Item and Conditions

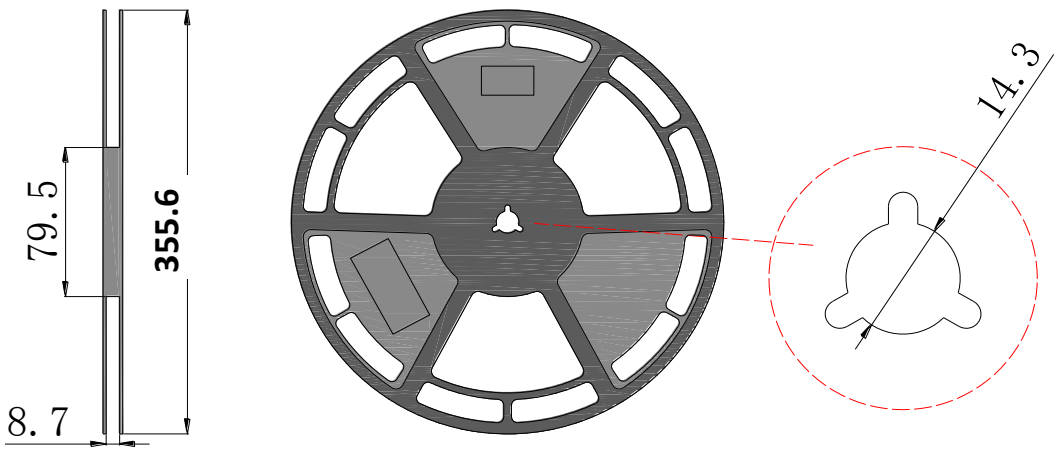
### Failure Criteria

| Items | Symbols | Test Conditions | Min | Max |
|---|---|---|---|---|
| Forward Voltage | Vf | If=Typical Current | -- | Initial Value*1.1 |
| Luminous Flux | Φv | If=Typical Current | Initial Value*0.7 | -- |

### Reliability Test

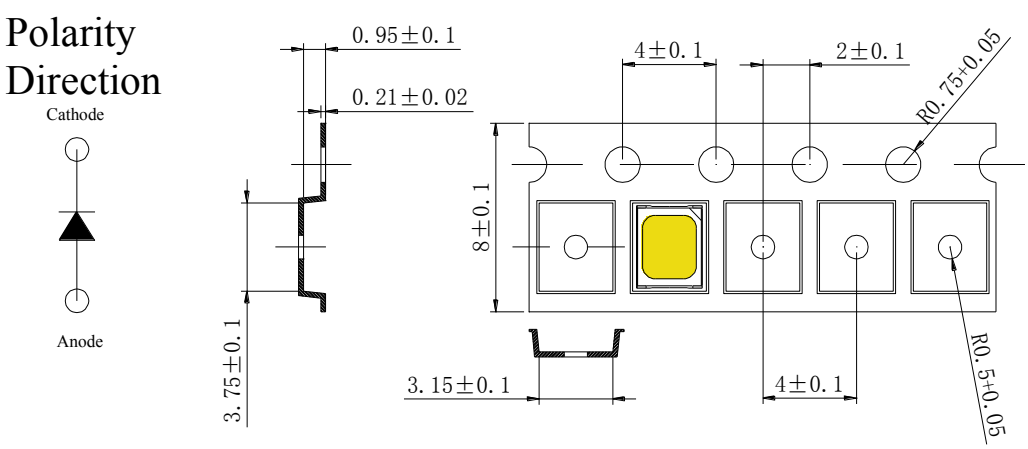
| Items | Test Condition | Test Hours/Cycles | Sample Size | Ac/Re |
|---|---|---|---|---|
| Room Temperature Operating Life | Ta=25°C<br>If=Typical Current (DC) | 1000hrs | 22pcs | 0/1 |
| High Temperature Operating Life | Ta=85°C<br>If=Typical Current (DC) | 1000hrs | 22pcs | 0/1 |
| Wet High Temperature Operating Life | Ta=85°C&85%RH<br>If=Typical Current (DC) | 168hrs | 22pcs | 0/1 |
| Low Temperature Operating Life | Ta=-30°C | 1000hrs | 22pcs | 0/1 |
| High Temperature Storage Life | Ta=85°C | 1000hrs | 22pcs | 0/1 |
| Low Temperature Storage Life | Ta=-40°C | 1000hrs | 22pcs | 0/1 |
| Temperature Cycle | H:+100°C 30min~<br>5min~L:-40°C 30min | 200cycles | 22pcs | 0/1 |
| Thermal Shock | H:+100°C 15min~<br>30sec~L:-40°C 15min | 200cycles | 22pcs | 0/1 |
| Reflow Soldering | 260°C 10sec | 3cycles | 22pcs | 0/1 |

## Packing Standard




**Reel**

**Tape**




Remarks:
1. The material of the reel is PS (black), and the material of the cover tape is PET (transparent)
2. The unmarked tolerance is ±1.0;
3. When the products are out of the warehouse, they are packaged with carrier tapes, put into aluminum foil bags, and vacuum-sealed with desiccant. Each carrier is packed with LEDs. The number of lamp beads is 20,000 pcs. When using, please confirm that the aluminum foil bag is not leaking and the carrier tape is not cracked.

## 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 3 months or more after being shipped from Everstar, a sealed container with a nitrogen atmosphere should be used for storage.
(4) The LEDs must be used within seven days 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.