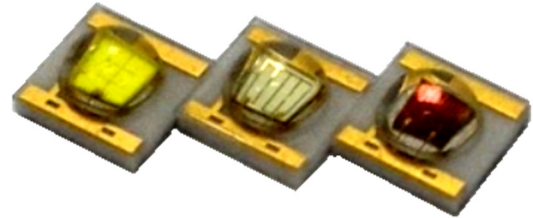


ALPS series LED

Product Datasheet



Description

The Plessey ALPS series is a full colour range of high power, high efficacy LED's in lensed 3535 packages. The domed lens and low thermal resistance packaging ensure high optical output, cool running and optimum reliability. Three lens options are available for each colour type. The ALPS series LED's are supplied in quantities of 1k per reel maximum.

Features

- Industry standard 3535 footprint
- High optical output
- Full colour range
- High reliability ceramic packaging
- Domed silicone lens
- 55-135deg lens options

Applications

- General Lighting
- Residential Lighting
- Commercial Lighting
- Street Lighting
- Torches
- Signage
- Displays

| Part No. | Colour | CCT / λ_D / λ_P^* | | Output @ 350mA | V_F | | CRI |
|-------------|---------------|-----------------------------------|--------|-------------------|-------|-----|--------|
| | | min | max | | min | max | |
| PLW3535Ax-C | Cool White | 4750K | 10000K | 139 lm | 2.8 | 3.6 | typ 70 |
| PLW3535Ax-N | Neutral White | 3700K | 4750K | 130 lm | 2.8 | 3.6 | typ 75 |
| PLW3535Ax-W | Warm White | 2600K | 3700K | 107 lm | 2.8 | 3.6 | min 80 |
| PLR3535Ax-S | Super Red | 650nm | 670nm | 280mW | 2.0 | 3.0 | |
| PLR3535Ax | Red | 620nm | 635nm | 56.8 lm | 2.0 | 3.0 | |
| PLA3535Ax | Amber | 580nm | 600nm | 56.8 lm | 2.0 | 3.0 | |
| PLG3535Ax | Green | 520nm | 535nm | 87.4 lm | 2.8 | 3.6 | |
| PLC3535Ax | Cyan | 500nm | 520nm | 80.6 lm | 2.8 | 3.6 | |
| PLB3535Ax-R | Blue | 460nm | 475nm | 30.6 lm | 2.8 | 3.6 | |
| PLB3535Ax-L | Royal Blue | 440nm* | 460nm* | 520mW | 2.8 | 3.6 | |

Absolute Maximum Ratings – White, Blue, Royal Blue, Green, Cyan

$T_j = +25^{\circ}\text{C}$ unless otherwise stated

| Parameter | Symbol | Min | Max | Unit |
|----------------------|-----------|-----|------|--------------------|
| DC Forward Current | I_F | - | 1000 | mA |
| Reverse Voltage | V_R | - | 5 | V |
| Storage Temperature | T_{stg} | -40 | 125 | $^{\circ}\text{C}$ |
| Junction Temperature | T_J | -40 | 150 | $^{\circ}\text{C}$ |

Absolute Maximum Ratings – Amber, Red, Super Red

$T_j = +25^{\circ}\text{C}$ unless otherwise stated

| Parameter | Symbol | Min | Max | Unit |
|----------------------|-----------|-----|-----|--------------------|
| DC Forward Current | I_F | - | 700 | mA |
| Reverse Voltage | V_R | - | 5 | V |
| Storage Temperature | T_{stg} | -40 | 125 | $^{\circ}\text{C}$ |
| Junction Temperature | T_J | -40 | 125 | $^{\circ}\text{C}$ |

Primary Electro-optical Characteristics

$I_F = 350\text{mA}$ & $T_J = 25^{\circ}\text{C}$ unless otherwise stated

| Part No. | CCT / λ_D / λ_P^* | | Output @ 350mA @700mA | | | V_F | |
|-------------|-----------------------------------|--------|-----------------------|---------|--------|-------|-----|
| | min | max | min | max | typ | min | max |
| PLW3535Ax-C | 4750K | 10000K | 107 lm | 148 lm | 250 lm | 2.8 | 3.6 |
| PLW3535Ax-N | 3700K | 4750K | 100 lm | 139 lm | 235 lm | 2.8 | 3.6 |
| PLW3535Ax-W | 2600K | 3700K | 87.4 lm | 114 lm | 190 lm | 2.8 | 3.6 |
| PLR3535Ax-S | 650nm | 670nm | 240mW | 320mW | 600mW | 2.0 | 3.0 |
| PLR3535Ax | 620nm | 635nm | 45.7 lm | 62 lm | 114 lm | 2.0 | 3.0 |
| PLA3535Ax | 580nm | 600nm | 45.7 lm | 62 lm | 114 lm | 2.0 | 3.0 |
| PLG3535Ax | 520nm | 535nm | 67.2 lm | 87.4 lm | 135 lm | 2.8 | 3.6 |
| PLC3535Ax | 500nm | 520nm | 62 lm | 80.6 lm | 125 lm | 2.8 | 3.6 |
| PLB3535Ax-R | 460nm | 475nm | 18 lm | 30.6 lm | 50 lm | 2.8 | 3.6 |
| PLB3535Ax-L | 440nm* | 460nm* | 400mW | 600mW | 1020mW | 2.8 | 3.6 |

Further Electro-Optical Characteristics

$I_F = 350\text{mA}$ & $T_J = 25^\circ\text{C}$ unless otherwise stated

| Parameter | Symbol | Colours | Value | Unit |
|--|---------------------------|---|----------|-------|
| V _F Temperature Coefficient | $\Delta V_F / \Delta T_J$ | White, Green, Cyan, Blue, Royal Blue | -2 to -4 | mV/°C |
| | | Super Red, Red, Amber | -1 to -2 | mV/°C |
| Thermal Resistance | R _{th j-mb} | White, Green, Cyan, Blue, Royal Blue | 8 | K/W |
| | | Super Red, Red, Amber | 10 | K/W |

Lens Options

Wide Angle version 125 – 135 deg
 Mid Angle version 85 – 90 deg
 Narrow Angle version 55 – 65 deg

| Name | 2 $\Theta_{1/2}$ (deg) | Name | 2 $\Theta_{1/2}$ (deg) | Name | 2 $\Theta_{1/2}$ (deg) |
|-------------|---------------------------|-------------|---------------------------|-------------|---------------------------|
| PLW3535AA-C | 130 | PLW3535AB-C | 90 | PLW3535AC-C | 65 |
| PLW3535AA-N | 130 | PLW3535AB-N | 90 | PLW3535AC-N | 65 |
| PLW3535AA-W | 130 | PLW3535AB-W | 90 | PLW3535AC-W | 65 |
| PLR3535AA-S | 125 | PLR3535AB-S | 85 | PLR3535AC-S | 55 |
| PLR3535AA | 125 | PLR3535AB | 85 | PLR3535AC | 55 |
| PLA3535AA | 125 | PLA3535AB | 85 | PLA3535AC | 55 |
| PLG3535AA | 130 | PLG3535AB | 90 | PLG3535AC | 65 |
| PLC3535AA | 130 | PLC3535AB | 90 | PLC3535AC | 65 |
| PLB3535AA-L | 130 | PLB3535AB-L | 90 | PLB3535AC-L | 65 |
| PLB3535AA-R | 130 | PLB3535AB-R | 90 | PLB3535AC-R | 65 |

Recommended Operating Conditions

In typical applications, for optimum LED performance

| Parameter | Symbol | Minimum | Maximum | Unit |
|-------------------------------|------------------|---------|---------|------|
| Operating Ambient Temperature | T _{opr} | -40 | +85 | °C |

Ordering Information

| Name | Luminous Intensity Bins | Wide Angle Order Code | Mid Angle Order Code | Narrow Angle Order Code |
|-------------|-------------------------|-----------------------|----------------------|-------------------------|
| PLW3535Ax-C | 2C to 7C | PLW3535AAC000 | PLW3535ABC000 | PLW3535ACC000 |
| PLW3535Ax-N | 1C to 6C | PLW3535AAN000 | PLW3535ABN000 | PLW3535ACN000 |
| PLW3535Ax-W | 8B to 3C | PLW3535AAW000 | PLW3535ABW000 | PLW3535ACW000 |
| PLR3535Ax-S | 1M to 3M | PLR3535AAS000 | PLR3535ABS000 | PLR3535ACS000 |
| PLR3535Ax | 1B to 4B | PLR3535AA000 | PLR3535AB000 | PLR3535AC000 |
| PLA3535Ax | 1B to 4B | PLA3535AA000 | PLA3535AB000 | PLA3535AC000 |
| PLG3535Ax | 5B to 8B | PLG3535AA000 | PLG3535AB000 | PLG3535AC000 |
| PLC3535Ax | 4B to 7B | PLC3535AA000 | PLC3535AB000 | PLC3535AC000 |
| PLB3535Ax-R | 1A to 3A | PLB3535AAR000 | PLB3535ABR000 | PLB3535ACR000 |
| PLB3535Ax-L | 5M to 1N | PLB3535AAL000 | PLB3535ABL000 | PLB3535ACL000 |

Radiant Flux Groups

$I_F = 350\text{mA}$, $T_{\text{amb}} = +25^\circ\text{C}$, unless otherwise stated

| Group ^[1] | Luminous Flux Φ_v (lm) | | Group ^[1] | Radiant Power (mW) | |
|----------------------|--------------------------------|------|----------------------|--------------------|-----|
| | min | max | | min | max |
| 1A | 18.0 | 23.5 | 1M | 240 | 280 |
| 2A | 23.5 | 30.6 | 2M | 280 | 320 |
| 3A | 30.6 | 35.2 | 3M | 320 | 360 |
| 1B | 45.7 | 51.7 | 4M | 360 | 400 |
| 2B | 51.7 | 56.8 | 5M | 400 | 440 |
| 3B | 56.8 | 62.0 | 6M | 440 | 480 |
| 4B | 62.0 | 67.2 | 7M | 480 | 520 |
| 5B | 67.2 | 73.9 | 8M | 520 | 560 |
| 6B | 73.9 | 80.6 | 9M | 560 | 600 |
| 7B | 80.6 | 87.4 | 1N | 600 | 650 |
| 8B | 87.4 | 93.9 | | | |
| 9B | 93.9 | 100 | | | |
| 1C | 100 | 107 | | | |
| 2C | 107 | 114 | | | |
| 3C | 114 | 122 | | | |
| 4C | 122 | 130 | | | |
| 5C | 130 | 139 | | | |
| 6C | 139 | 148 | | | |
| 7C | 148 | 156 | | | |

^[1] Tolerance $\pm 10\%$

Forward Voltage Bin Groups

$I_F = 350\text{mA}$, $T_{\text{amb}} = +25^\circ\text{C}$, unless otherwise stated

| Group | V_F ^[1] (V) | |
|-------|--------------------------|------|
| | Min. | Max. |
| V1 | 2.0 | 2.2 |
| V2 | 2.2 | 2.4 |
| V3 | 2.4 | 2.6 |
| V4 | 2.6 | 2.8 |
| V5 | 2.8 | 3.0 |
| V6 | 3.0 | 3.2 |
| V7 | 3.2 | 3.4 |
| V8 | 3.4 | 3.6 |

^[1] Tolerance $\pm 0.2\text{V}$

Wavelength Binning

| Colour | Abbreviation. | Min. | Max. |
|------------|---------------|------|------|
| Super Red | SR1 | 655 | 665 |
| Red | RE1 | 620 | 625 |
| | RE2 | 625 | 630 |
| | RE3 | 630 | 635 |
| Amber | AM1 | 585 | 590 |
| | AM2 | 590 | 595 |
| | AM3 | 595 | 600 |
| Green | GR1 | 520 | 525 |
| | GR2 | 525 | 530 |
| | GR3 | 530 | 535 |
| Cyan | CY1 | 500 | 505 |
| | CY2 | 505 | 510 |
| | CY3 | 510 | 515 |
| | CY4 | 515 | 520 |
| Blue | BL1 | 460 | 465 |
| | BL2 | 465 | 470 |
| | BL3 | 470 | 475 |
| Royal Blue | RB1 | 440 | 445 |
| | RB2 | 445 | 450 |
| | RB3 | 450 | 455 |
| | RB4 | 455 | 460 |

^[1] Tolerance $\pm 1\text{nm}$

Relative Spectral Emission (Typical)

T_j = 25°C

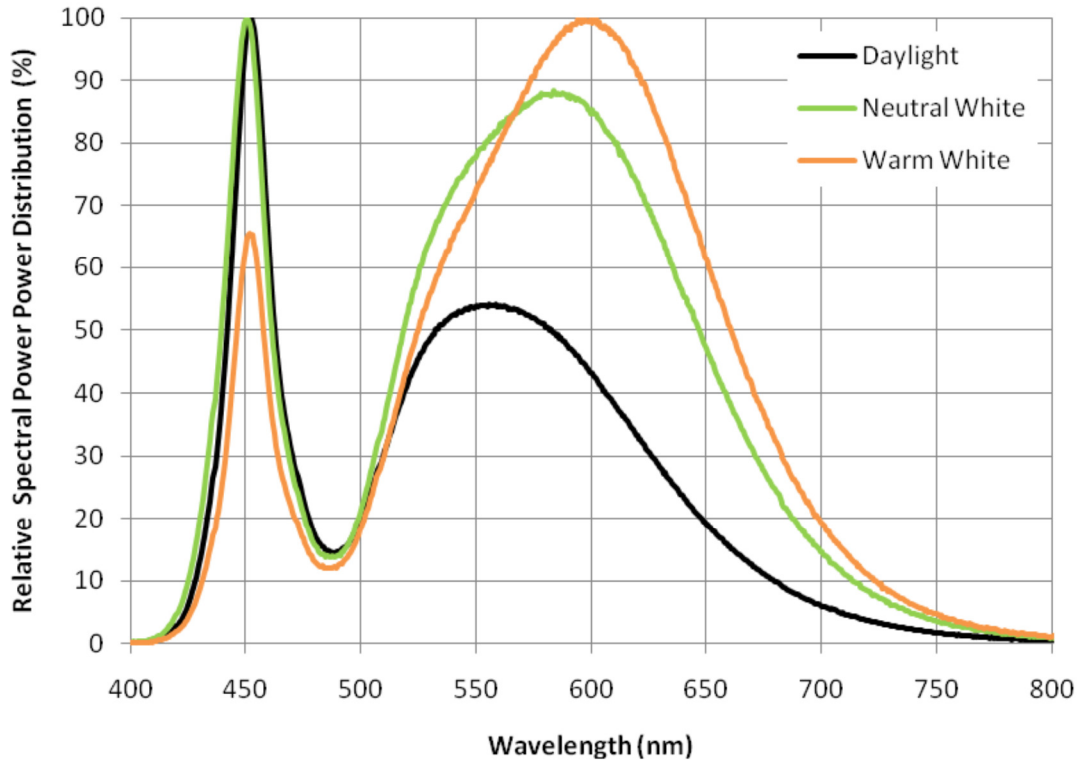


Fig.1 Normalised spectral power distribution – White

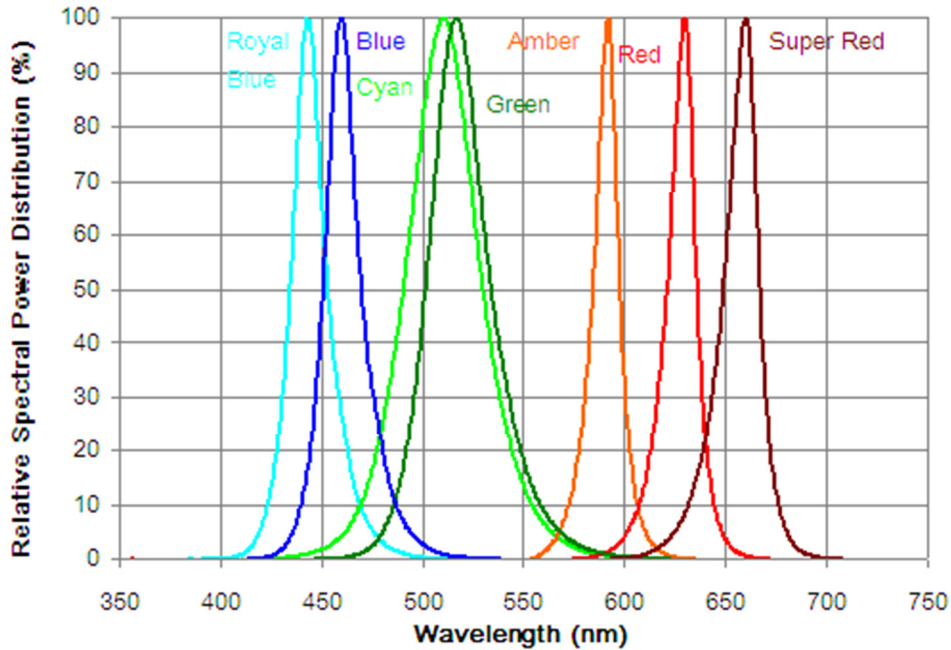


Fig.2 Normalised spectral power distribution – Royal Blue, Blue, Cyan, Green, Amber, Red, Super Red

Colour Chromaticity – Cool White

Cool White 4750-10000K

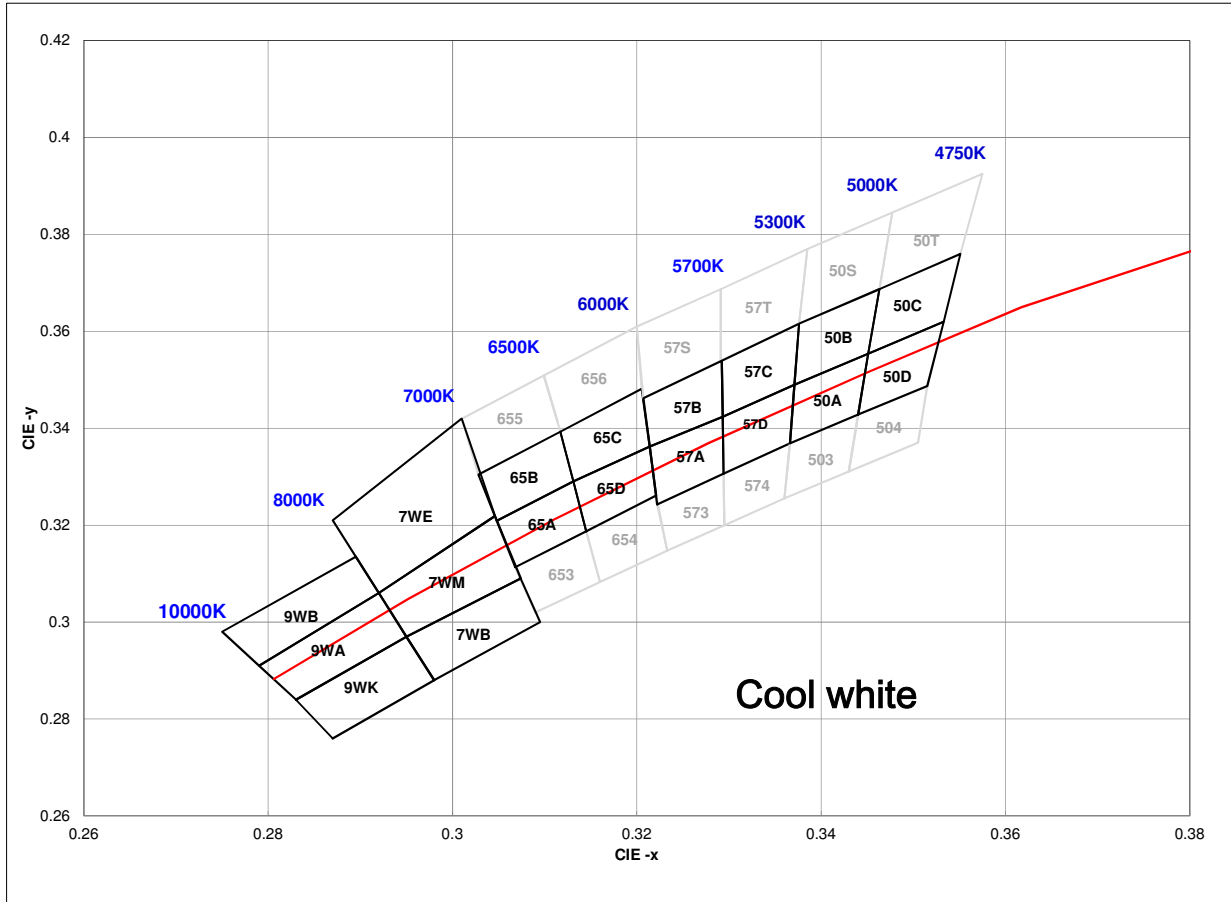


Fig.3A CIE1931 chromaticity diagram (ANSI standard C78.377-2008) – Cool White

ALPS Series | Product Datasheet

| 50A | | 50B | | 50C | | 50D | | 57A | | 57B | | 57C | | 57D | |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| x | y | x | y | x | y | x | y | x | y | x | y | x | y | x | y |
| 0.367 | 0.3578 | 0.3686 | 0.3649 | 0.3744 | 0.3685 | 0.3726 | 0.3612 | 0.3702 | 0.3722 | 0.3719 | 0.3797 | 0.3782 | 0.3837 | 0.3763 | 0.376 |
| 0.3686 | 0.3649 | 0.3702 | 0.3722 | 0.3763 | 0.376 | 0.3744 | 0.3685 | 0.3719 | 0.3797 | 0.3736 | 0.3874 | 0.3802 | 0.3916 | 0.3782 | 0.3837 |
| 0.3744 | 0.3685 | 0.3763 | 0.376 | 0.3825 | 0.3798 | 0.3804 | 0.3721 | 0.3782 | 0.3837 | 0.3802 | 0.3916 | 0.3869 | 0.3958 | 0.3847 | 0.3877 |
| 0.3726 | 0.3612 | 0.3744 | 0.3685 | 0.3804 | 0.3721 | 0.3783 | 0.3646 | 0.3763 | 0.376 | 0.3782 | 0.3837 | 0.3847 | 0.3877 | 0.3825 | 0.3798 |
| 0.367 | 0.3578 | 0.3686 | 0.3649 | 0.3744 | 0.3685 | 0.3726 | 0.3612 | 0.3702 | 0.3722 | 0.3719 | 0.3797 | 0.3782 | 0.3837 | 0.3763 | 0.376 |
| 65A | | 65B | | 65C | | 65D | | | | | | | | | |
| x | y | x | y | x | y | x | y | | | | | | | | |
| 0.3825 | 0.3798 | 0.3847 | 0.3877 | 0.3912 | 0.3917 | 0.3887 | 0.3836 | | | | | | | | |
| 0.3847 | 0.3877 | 0.3869 | 0.3958 | 0.3937 | 0.4001 | 0.3912 | 0.3917 | | | | | | | | |
| 0.3912 | 0.3917 | 0.3937 | 0.4001 | 0.4006 | 0.4044 | 0.3978 | 0.3958 | | | | | | | | |
| 0.3887 | 0.3836 | 0.3912 | 0.3917 | 0.3978 | 0.3958 | 0.395 | 0.3875 | | | | | | | | |
| 0.3825 | 0.3798 | 0.3847 | 0.3877 | 0.3912 | 0.3917 | 0.3887 | 0.3836 | | | | | | | | |
| 7WB | | 7WM | | 7WE | | 9WK | | 9WA | | 9WB | | | | | |
| x | y | x | y | x | y | x | y | x | y | x | y | | | | |
| 0.295 | 0.297 | 0.298 | 0.288 | 0.292 | 0.306 | 0.287 | 0.276 | 0.283 | 0.284 | 0.2895 | 0.3135 | | | | |
| 0.292 | 0.306 | 0.295 | 0.297 | 0.287 | 0.321 | 0.283 | 0.284 | 0.279 | 0.291 | 0.275 | 0.298 | | | | |
| 0.3046 | 0.3219 | 0.3074 | 0.309 | 0.301 | 0.342 | 0.295 | 0.297 | 0.292 | 0.306 | 0.279 | 0.291 | | | | |
| 0.3074 | 0.309 | 0.3095 | 0.3 | 0.3046 | 0.3219 | 0.298 | 0.288 | 0.295 | 0.297 | 0.292 | 0.306 | | | | |
| 0.295 | 0.297 | 0.298 | 0.288 | 0.292 | 0.306 | 0.287 | 0.276 | 0.283 | 0.284 | 0.2895 | 0.3135 | | | | |
| 50S | | 50T | | 503 | | 504 | | 57S | | 57T | | 573 | | 574 | |
| x | y | x | y | x | y | x | y | x | y | x | y | x | y | x | y |
| 0.3376 | 0.3616 | 0.3463 | 0.3687 | 0.336 | 0.3255 | 0.343 | 0.3311 | 0.3207 | 0.3462 | 0.3291 | 0.3687 | 0.3233 | 0.3148 | 0.3295 | 0.32 |
| 0.3385 | 0.377 | 0.3477 | 0.3845 | 0.3366 | 0.3369 | 0.344 | 0.3428 | 0.32 | 0.361 | 0.3291 | 0.3539 | 0.3222 | 0.3243 | 0.3294 | 0.3306 |
| 0.3477 | 0.3845 | 0.3575 | 0.3925 | 0.344 | 0.3428 | 0.3515 | 0.3487 | 0.3291 | 0.3687 | 0.3376 | 0.3616 | 0.3294 | 0.3306 | 0.3366 | 0.3369 |
| 0.3463 | 0.3687 | 0.3551 | 0.376 | 0.343 | 0.3311 | 0.3505 | 0.337 | 0.3291 | 0.3539 | 0.3385 | 0.377 | 0.3295 | 0.32 | 0.336 | 0.3255 |
| 0.3376 | 0.3616 | 0.3463 | 0.3687 | 0.336 | 0.3255 | 0.343 | 0.3311 | 0.3207 | 0.3462 | 0.3291 | 0.3687 | 0.3233 | 0.3148 | 0.3295 | 0.32 |
| 653 | | 654 | | 655 | | 656 | | | | | | | | | |
| x | y | x | y | x | y | x | y | | | | | | | | |
| 0.309 | 0.302 | 0.316 | 0.3083 | 0.3028 | 0.3304 | 0.3114 | 0.3414 | | | | | | | | |
| 0.3068 | 0.3113 | 0.3145 | 0.3187 | 0.301 | 0.342 | 0.3099 | 0.3509 | | | | | | | | |
| 0.3145 | 0.3187 | 0.3221 | 0.3261 | 0.3099 | 0.3509 | 0.32 | 0.361 | | | | | | | | |
| 0.316 | 0.3083 | 0.3233 | 0.3148 | 0.3117 | 0.3393 | 0.3205 | 0.3481 | | | | | | | | |
| 0.309 | 0.302 | 0.316 | 0.3083 | 0.3028 | 0.3304 | 0.3117 | 0.3393 | | | | | | | | |

[1] Tolerance ± 0.005

Note: CRI between 68 to 75

Colour Chromaticity – Neutral White

Neutral White 3700 – 4750K

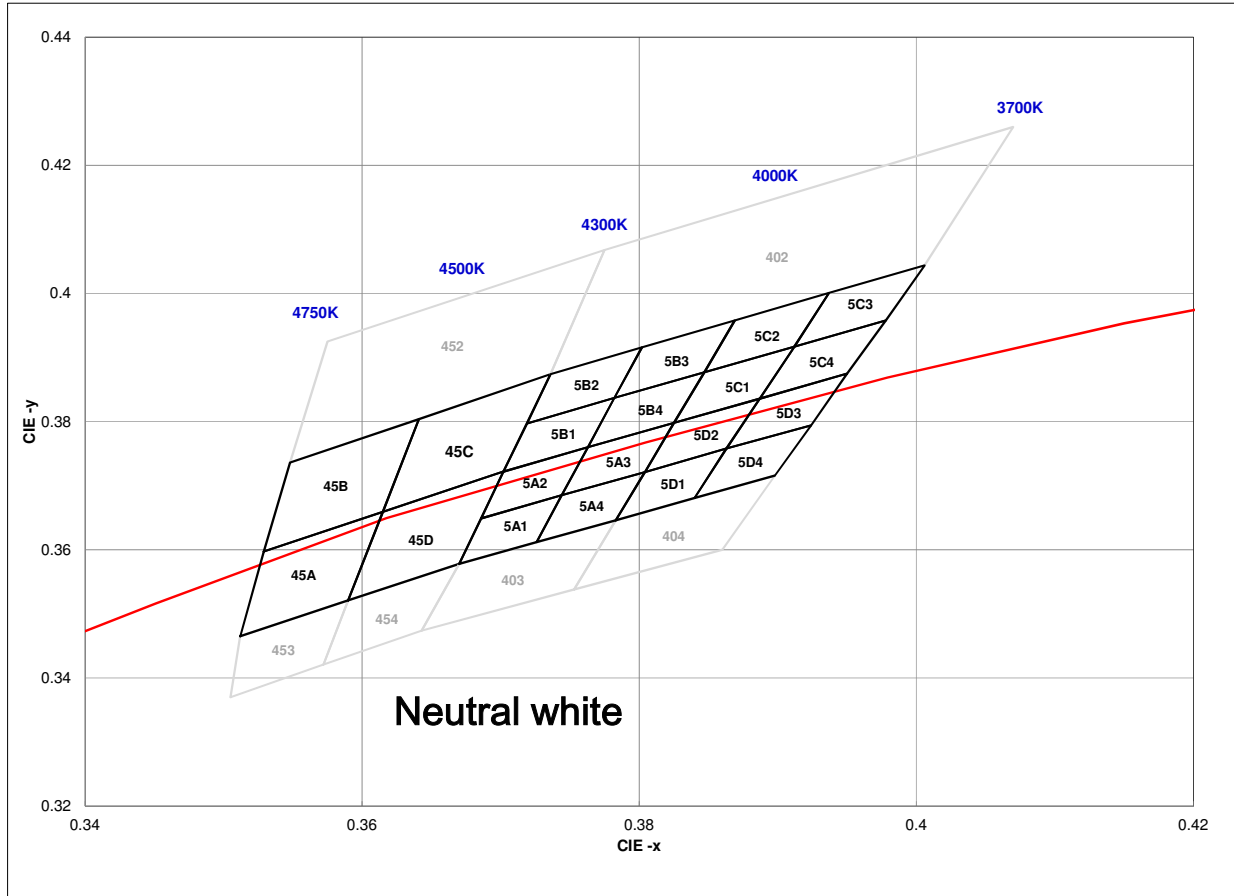


Fig.3B CIE1931 chromaticity diagram (ANSI standard C78.377-2008) – Neutral White

| 45A | | 45B | | 45C | | 45D | | | | | | | | | |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| x | y | x | y | x | y | x | y | | | | | | | | |
| 0.3512 | 0.3465 | 0.3529 | 0.3597 | 0.3615 | 0.3659 | 0.359 | 0.3521 | | | | | | | | |
| 0.3529 | 0.3597 | 0.3548 | 0.3736 | 0.3641 | 0.3804 | 0.3615 | 0.3659 | | | | | | | | |
| 0.3615 | 0.3659 | 0.3641 | 0.3804 | 0.3736 | 0.3874 | 0.3702 | 0.3722 | | | | | | | | |
| 0.359 | 0.3521 | 0.3615 | 0.3659 | 0.3702 | 0.3722 | 0.367 | 0.3578 | | | | | | | | |
| 0.3512 | 0.3465 | 0.3529 | 0.3597 | 0.3615 | 0.3659 | 0.359 | 0.3521 | | | | | | | | |
| 5A1 | | 5A2 | | 5A3 | | 5A4 | | 5B1 | | 5B2 | | 5B3 | | 5B4 | |
| x | y | x | y | x | y | x | y | x | y | x | y | x | y | x | y |
| 0.367 | 0.3578 | 0.3686 | 0.3649 | 0.3744 | 0.3685 | 0.3726 | 0.3612 | 0.3702 | 0.3722 | 0.3719 | 0.3797 | 0.3782 | 0.3837 | 0.3763 | 0.376 |
| 0.3686 | 0.3649 | 0.3702 | 0.3722 | 0.3763 | 0.376 | 0.3744 | 0.3685 | 0.3719 | 0.3797 | 0.3736 | 0.3874 | 0.3802 | 0.3916 | 0.3782 | 0.3837 |
| 0.3744 | 0.3685 | 0.3763 | 0.376 | 0.3825 | 0.3798 | 0.3804 | 0.3721 | 0.3782 | 0.3837 | 0.3802 | 0.3916 | 0.3869 | 0.3958 | 0.3847 | 0.3877 |
| 0.3726 | 0.3612 | 0.3744 | 0.3685 | 0.3804 | 0.3721 | 0.3783 | 0.3646 | 0.3763 | 0.376 | 0.3782 | 0.3837 | 0.3847 | 0.3877 | 0.3825 | 0.3798 |
| 0.367 | 0.3578 | 0.3686 | 0.3649 | 0.3744 | 0.3685 | 0.3726 | 0.3612 | 0.3702 | 0.3722 | 0.3719 | 0.3797 | 0.3782 | 0.3837 | 0.3763 | 0.376 |
| 5C1 | | 5C2 | | 5C3 | | 5C4 | | 5D1 | | 5D2 | | 5D3 | | 5D4 | |
| x | y | x | y | x | y | x | y | x | y | x | y | x | y | x | y |
| 0.3825 | 0.3798 | 0.3847 | 0.3877 | 0.3912 | 0.3917 | 0.3887 | 0.3836 | 0.3783 | 0.3646 | 0.3804 | 0.3721 | 0.3863 | 0.3758 | 0.384 | 0.3681 |
| 0.3847 | 0.3877 | 0.3869 | 0.3958 | 0.3937 | 0.4001 | 0.3912 | 0.3917 | 0.3804 | 0.3721 | 0.3825 | 0.3798 | 0.3887 | 0.3836 | 0.3863 | 0.3758 |
| 0.3912 | 0.3917 | 0.3937 | 0.4001 | 0.4006 | 0.4044 | 0.3978 | 0.3958 | 0.3863 | 0.3758 | 0.3887 | 0.3836 | 0.395 | 0.3875 | 0.3924 | 0.3794 |
| 0.3887 | 0.3836 | 0.3912 | 0.3917 | 0.3978 | 0.3958 | 0.395 | 0.3875 | 0.384 | 0.3681 | 0.3863 | 0.3758 | 0.3924 | 0.3794 | 0.3898 | 0.3716 |
| 0.3825 | 0.3798 | 0.3847 | 0.3877 | 0.3912 | 0.3917 | 0.3887 | 0.3836 | 0.3783 | 0.3646 | 0.3804 | 0.3721 | 0.3863 | 0.3758 | 0.384 | 0.3681 |
| 402 | | 403 | | 404 | | 452 | | 453 | | 454 | | | | | |
| x | y | x | y | x | y | x | y | x | y | x | y | | | | |
| 0.3736 | 0.3874 | 0.3643 | 0.3474 | 0.3753 | 0.3538 | 0.3548 | 0.3736 | 0.3505 | 0.337 | 0.3572 | 0.3421 | | | | |
| 0.3775 | 0.4068 | 0.367 | 0.3578 | 0.3783 | 0.3646 | 0.3575 | 0.3925 | 0.3512 | 0.3465 | 0.359 | 0.3521 | | | | |
| 0.407 | 0.426 | 0.3783 | 0.3646 | 0.3898 | 0.3716 | 0.3775 | 0.4068 | 0.359 | 0.3521 | 0.367 | 0.3578 | | | | |
| 0.4006 | 0.4044 | 0.3753 | 0.3538 | 0.386 | 0.36 | 0.3736 | 0.3874 | 0.3572 | 0.3421 | 0.3643 | 0.3474 | | | | |
| 0.3736 | 0.3874 | 0.3643 | 0.3474 | 0.3753 | 0.3538 | 0.3548 | 0.3736 | 0.3505 | 0.337 | 0.3572 | 0.3421 | | | | |

[1] Tolerance ±0.005. Note: CRI between 70 to 78

Colour Chromaticity – Warm White

Warm White 2600 – 3700K

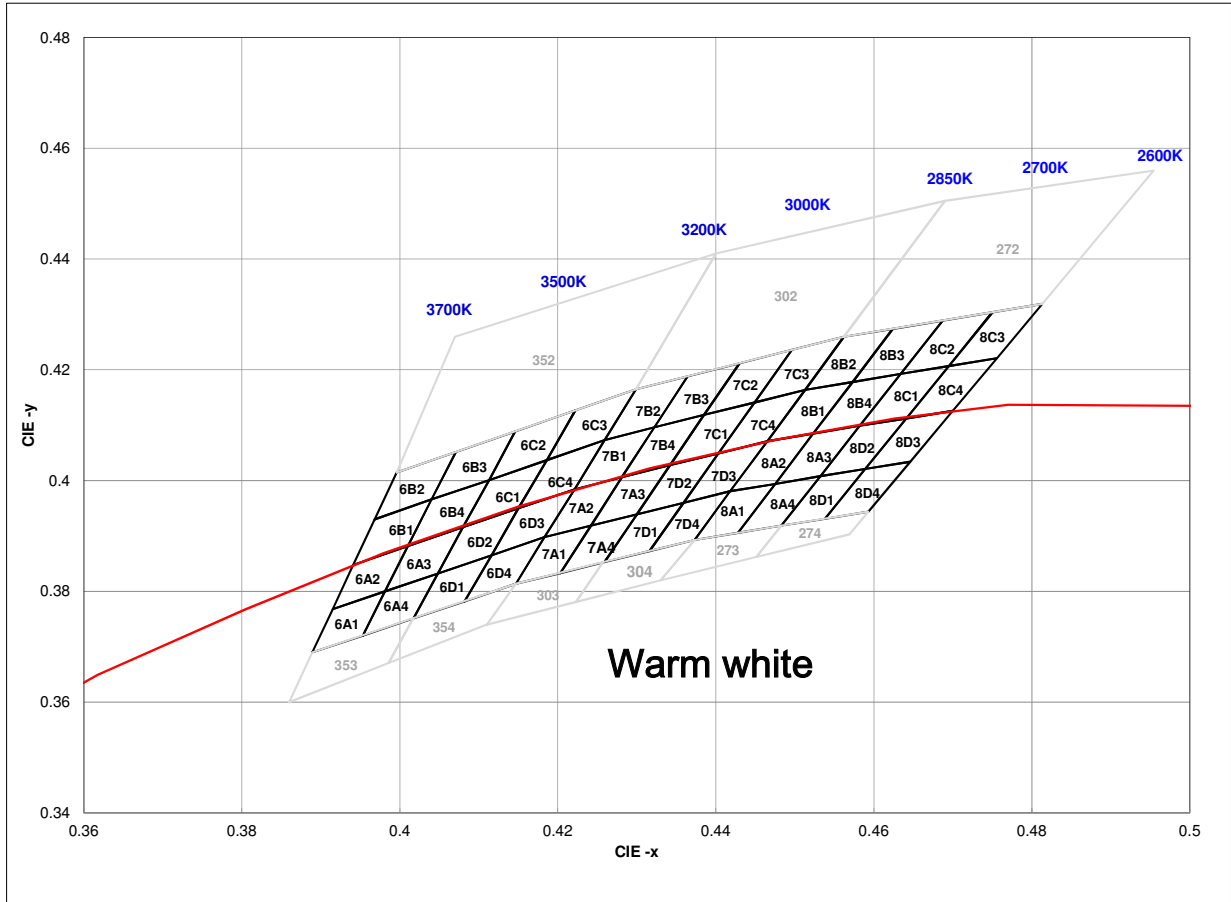


Fig.3C CIE1931 chromaticity diagram (ANSI standard C78.377-2008) – Warm White

| 6A1 | | 6A2 | | 6A3 | | 6A4 | | 6B1 | | 6B2 | | 6B3 | | 6B4 | |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| x | y | x | y | x | y | x | y | x | y | x | y | x | y | x | y |
| 0.3889 | 0.3690 | 0.3915 | 0.3768 | 0.3981 | 0.3800 | 0.3953 | 0.3720 | 0.3941 | 0.3848 | 0.3968 | 0.3930 | 0.4040 | 0.3966 | 0.4010 | 0.3882 |
| 0.3915 | 0.3768 | 0.3941 | 0.3848 | 0.4010 | 0.3882 | 0.3981 | 0.3800 | 0.3968 | 0.3930 | 0.3996 | 0.4015 | 0.4071 | 0.4052 | 0.4040 | 0.3966 |
| 0.3981 | 0.3800 | 0.4010 | 0.3882 | 0.4080 | 0.3916 | 0.4048 | 0.3832 | 0.4040 | 0.3966 | 0.4071 | 0.4052 | 0.4146 | 0.4089 | 0.4113 | 0.4001 |
| 0.3953 | 0.3720 | 0.3981 | 0.3800 | 0.4048 | 0.3832 | 0.4017 | 0.3751 | 0.4010 | 0.3882 | 0.4040 | 0.3966 | 0.4113 | 0.4001 | 0.4080 | 0.3916 |
| 0.3889 | 0.3690 | 0.3915 | 0.3768 | 0.3981 | 0.3800 | 0.3953 | 0.3720 | 0.3941 | 0.3848 | 0.3968 | 0.3930 | 0.4040 | 0.3966 | 0.4010 | 0.3882 |
| 6C1 | | 6C2 | | 6C3 | | 6C4 | | 6D1 | | 6D2 | | 6D3 | | 6D4 | |
| x | y | x | y | x | y | x | y | x | y | x | y | x | y | x | y |
| 0.4080 | 0.3916 | 0.4113 | 0.4001 | 0.4186 | 0.4037 | 0.4150 | 0.3950 | 0.4017 | 0.3751 | 0.4048 | 0.3832 | 0.4116 | 0.3865 | 0.4082 | 0.3782 |
| 0.4113 | 0.4001 | 0.4146 | 0.4089 | 0.4222 | 0.4127 | 0.4186 | 0.4037 | 0.4048 | 0.3832 | 0.4080 | 0.3916 | 0.4150 | 0.3950 | 0.4116 | 0.3865 |
| 0.4186 | 0.4037 | 0.4222 | 0.4127 | 0.4299 | 0.4165 | 0.4259 | 0.4073 | 0.4116 | 0.3865 | 0.4150 | 0.3950 | 0.4221 | 0.3984 | 0.4183 | 0.3898 |
| 0.4150 | 0.3950 | 0.4186 | 0.4037 | 0.4259 | 0.4073 | 0.4221 | 0.3984 | 0.4082 | 0.3782 | 0.4116 | 0.3865 | 0.4183 | 0.3898 | 0.4147 | 0.3814 |
| 0.4080 | 0.3916 | 0.4113 | 0.4001 | 0.4186 | 0.4037 | 0.4150 | 0.3950 | 0.4017 | 0.3751 | 0.4048 | 0.3832 | 0.4116 | 0.3865 | 0.4082 | 0.3782 |
| 7A1 | | 7A2 | | 7A3 | | 7A4 | | 7B1 | | 7B2 | | 7B3 | | 7B4 | |
| x | y | x | y | x | y | x | y | x | y | x | y | x | y | x | y |
| 0.4147 | 0.3814 | 0.4183 | 0.3898 | 0.4242 | 0.3919 | 0.4203 | 0.3833 | 0.4221 | 0.3984 | 0.4259 | 0.4073 | 0.4322 | 0.4096 | 0.4281 | 0.4006 |
| 0.4183 | 0.3898 | 0.4221 | 0.3984 | 0.4281 | 0.4006 | 0.4242 | 0.3919 | 0.4259 | 0.4073 | 0.4299 | 0.4165 | 0.4364 | 0.4188 | 0.4322 | 0.4096 |
| 0.4242 | 0.3919 | 0.4281 | 0.4006 | 0.4342 | 0.4028 | 0.4300 | 0.3939 | 0.4322 | 0.4096 | 0.4364 | 0.4188 | 0.4430 | 0.4212 | 0.4385 | 0.4119 |
| 0.4203 | 0.3833 | 0.4242 | 0.3919 | 0.4300 | 0.3939 | 0.4259 | 0.3853 | 0.4281 | 0.4006 | 0.4322 | 0.4096 | 0.4385 | 0.4119 | 0.4342 | 0.4028 |
| 0.4147 | 0.3814 | 0.4183 | 0.3898 | 0.4242 | 0.3919 | 0.4203 | 0.3833 | 0.4221 | 0.3984 | 0.4259 | 0.4073 | 0.4322 | 0.4096 | 0.4281 | 0.4006 |
| 7C1 | | 7C2 | | 7C3 | | 7C4 | | 7D1 | | 7D2 | | 7D3 | | 7D4 | |
| x | y | x | y | x | y | x | y | x | y | x | y | x | y | x | y |
| 0.4342 | 0.4028 | 0.4385 | 0.4119 | 0.4449 | 0.4141 | 0.4403 | 0.4049 | 0.4259 | 0.3853 | 0.4300 | 0.3939 | 0.4342 | 0.4028 | 0.4403 | 0.4049 |
| 0.4385 | 0.4119 | 0.4430 | 0.4212 | 0.4496 | 0.4236 | 0.4449 | 0.4141 | 0.4300 | 0.3939 | 0.4342 | 0.4028 | 0.4403 | 0.4049 | 0.4359 | 0.3960 |
| 0.4449 | 0.4141 | 0.4496 | 0.4236 | 0.4562 | 0.4260 | 0.4513 | 0.4164 | 0.4359 | 0.3960 | 0.4403 | 0.4049 | 0.4465 | 0.4071 | 0.4418 | 0.3981 |
| 0.4403 | 0.4049 | 0.4449 | 0.4141 | 0.4513 | 0.4164 | 0.4465 | 0.4071 | 0.4316 | 0.3873 | 0.4359 | 0.3960 | 0.4418 | 0.3981 | 0.4373 | 0.3893 |
| 0.4342 | 0.4028 | 0.4385 | 0.4119 | 0.4449 | 0.4141 | 0.4403 | 0.4049 | 0.4259 | 0.3853 | 0.4300 | 0.3939 | 0.4342 | 0.4028 | 0.4403 | 0.4049 |
| 8A1 | | 8A2 | | 8A3 | | 8A4 | | 8B1 | | 8B2 | | 8B3 | | 8B4 | |
| x | y | x | y | x | y | x | y | x | y | x | y | x | y | x | y |
| 0.4373 | 0.3893 | 0.4418 | 0.3981 | 0.4475 | 0.3994 | 0.4428 | 0.3906 | 0.4465 | 0.4071 | 0.4513 | 0.4164 | 0.4573 | 0.4178 | 0.4523 | 0.4085 |
| 0.4418 | 0.3981 | 0.4465 | 0.4071 | 0.4523 | 0.4085 | 0.4475 | 0.3994 | 0.4513 | 0.4164 | 0.4562 | 0.4260 | 0.4624 | 0.4274 | 0.4573 | 0.4178 |
| 0.4475 | 0.3994 | 0.4523 | 0.4085 | 0.4582 | 0.4099 | 0.4532 | 0.4008 | 0.4573 | 0.4178 | 0.4624 | 0.4274 | 0.4687 | 0.4289 | 0.4634 | 0.4193 |
| 0.4428 | 0.3906 | 0.4475 | 0.3994 | 0.4532 | 0.4008 | 0.4483 | 0.3919 | 0.4523 | 0.4085 | 0.4573 | 0.4178 | 0.4634 | 0.4193 | 0.4582 | 0.4099 |
| 0.4373 | 0.3893 | 0.4418 | 0.3981 | 0.4475 | 0.3994 | 0.4428 | 0.3906 | 0.4465 | 0.4071 | 0.4513 | 0.4164 | 0.4573 | 0.4178 | 0.4523 | 0.4085 |
| 8C1 | | 8C2 | | 8C3 | | 8C4 | | 8D1 | | 8D2 | | 8D3 | | 8D4 | |
| x | y | x | y | x | y | x | y | x | y | x | y | x | y | x | y |
| 0.4582 | 0.4099 | 0.4634 | 0.4193 | 0.4695 | 0.4207 | 0.4641 | 0.4112 | 0.4483 | 0.3919 | 0.4532 | 0.4008 | 0.4589 | 0.4021 | 0.4538 | 0.3931 |
| 0.4634 | 0.4193 | 0.4687 | 0.4289 | 0.4750 | 0.4304 | 0.4695 | 0.4207 | 0.4532 | 0.4008 | 0.4582 | 0.4099 | 0.4641 | 0.4112 | 0.4589 | 0.4021 |
| 0.4695 | 0.4207 | 0.4750 | 0.4304 | 0.4813 | 0.4319 | 0.4756 | 0.4221 | 0.4589 | 0.4021 | 0.4641 | 0.4112 | 0.4700 | 0.4126 | 0.4646 | 0.4034 |
| 0.4641 | 0.4112 | 0.4695 | 0.4207 | 0.4756 | 0.4221 | 0.4700 | 0.4126 | 0.4538 | 0.3931 | 0.4589 | 0.4021 | 0.4646 | 0.4034 | 0.4593 | 0.3944 |
| 0.4582 | 0.4099 | 0.4634 | 0.4193 | 0.4695 | 0.4207 | 0.4641 | 0.4112 | 0.4483 | 0.3919 | 0.4532 | 0.4008 | 0.4589 | 0.4021 | 0.4538 | 0.3931 |

| 272 | | 273 | | 274 | |
|--------|--------|--------|--------|--------|--------|
| x | y | x | y | x | y |
| 0.4562 | 0.4260 | 0.4330 | 0.3820 | 0.4451 | 0.3862 |
| 0.4690 | 0.4505 | 0.4373 | 0.3893 | 0.4483 | 0.3919 |
| 0.4954 | 0.4560 | 0.4483 | 0.3919 | 0.4593 | 0.3944 |
| 0.4813 | 0.4319 | 0.4451 | 0.3862 | 0.4569 | 0.3903 |
| 0.4562 | 0.4260 | 0.4330 | 0.3820 | 0.4451 | 0.3862 |
| 302 | | 303 | | 304 | |
| x | y | x | y | x | y |
| 0.4299 | 0.4165 | 0.4110 | 0.3740 | 0.4223 | 0.3781 |
| 0.4400 | 0.4410 | 0.4147 | 0.3814 | 0.4257 | 0.3853 |
| 0.4690 | 0.4505 | 0.4257 | 0.3853 | 0.4373 | 0.3893 |
| 0.4562 | 0.4260 | 0.4223 | 0.3781 | 0.4330 | 0.3820 |
| 0.4299 | 0.4165 | 0.4110 | 0.3740 | 0.4223 | 0.3781 |
| 352 | | 353 | | 354 | |
| x | y | x | y | x | y |
| 0.3996 | 0.4015 | 0.3860 | 0.3600 | 0.3986 | 0.3671 |
| 0.4070 | 0.4260 | 0.3889 | 0.3690 | 0.4017 | 0.3752 |
| 0.4400 | 0.4410 | 0.4017 | 0.3752 | 0.4147 | 0.3814 |
| 0.4299 | 0.4165 | 0.3986 | 0.3671 | 0.4110 | 0.3740 |
| 0.3996 | 0.4015 | 0.3860 | 0.3600 | 0.3986 | 0.3671 |

[1] Tolerance ±0.005

Note: CRI between 80 to 88

Angular Light Distribution

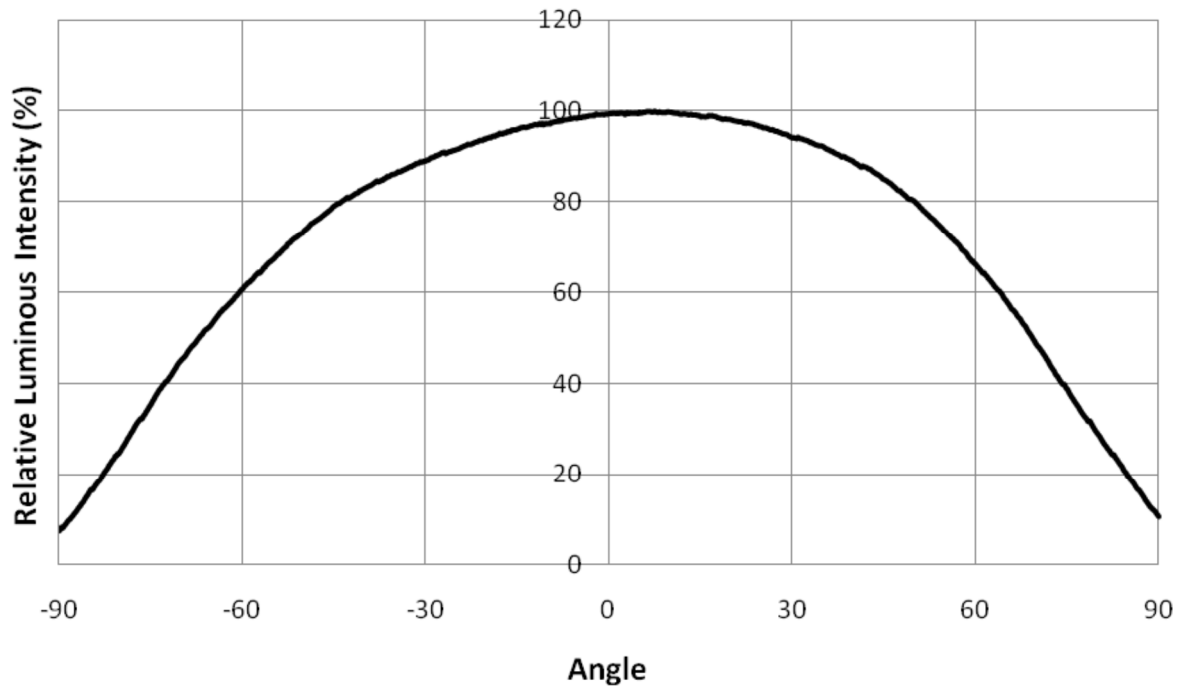


Fig.4 Angular distribution pattern of emitted light (typical) – Cool White

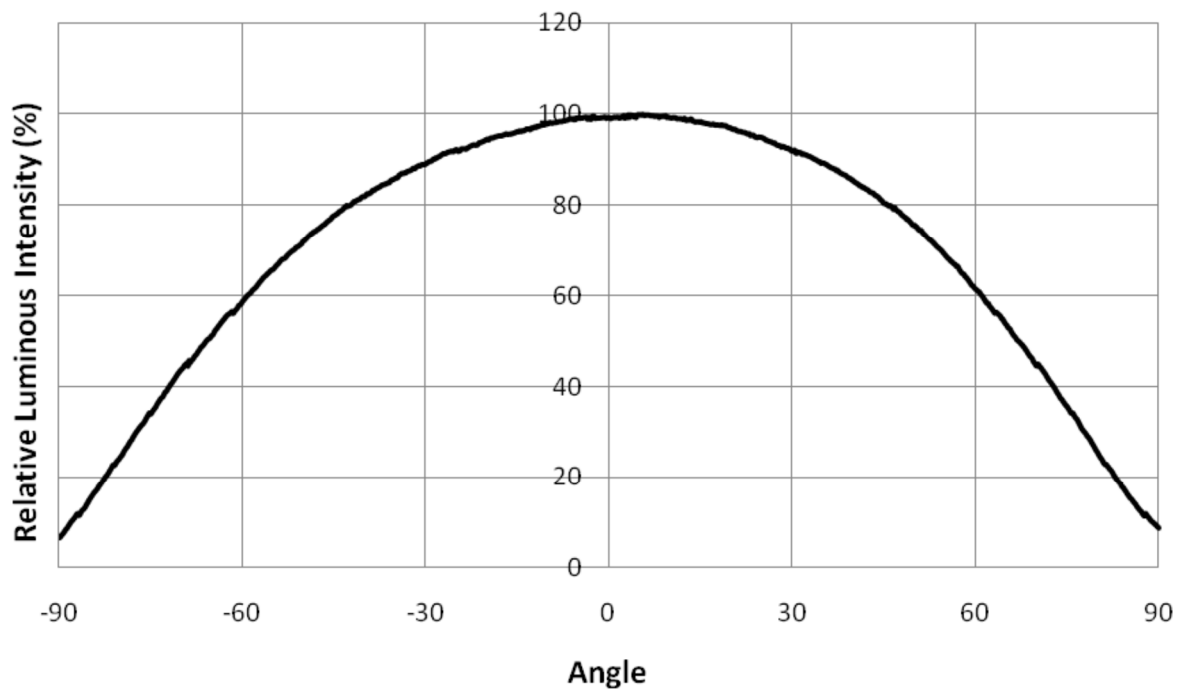


Fig.5 Angular distribution pattern of emitted light (typical) – Neutral White

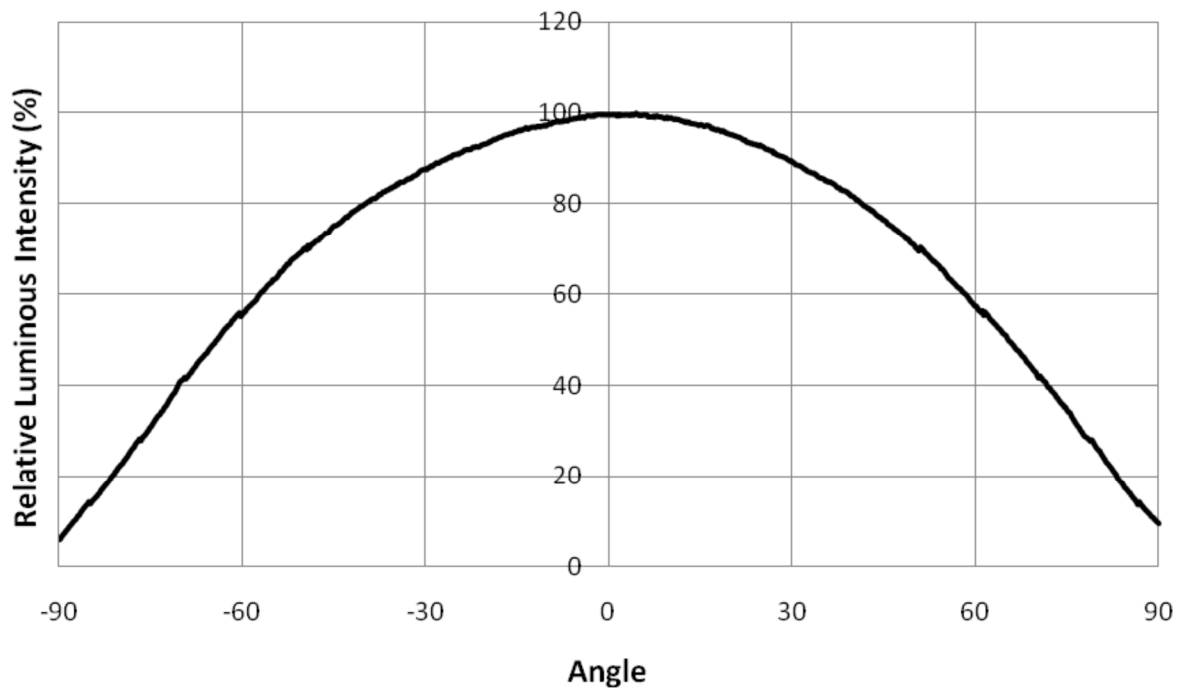


Fig.6 Angular distribution pattern of emitted light (typical) – Warm White

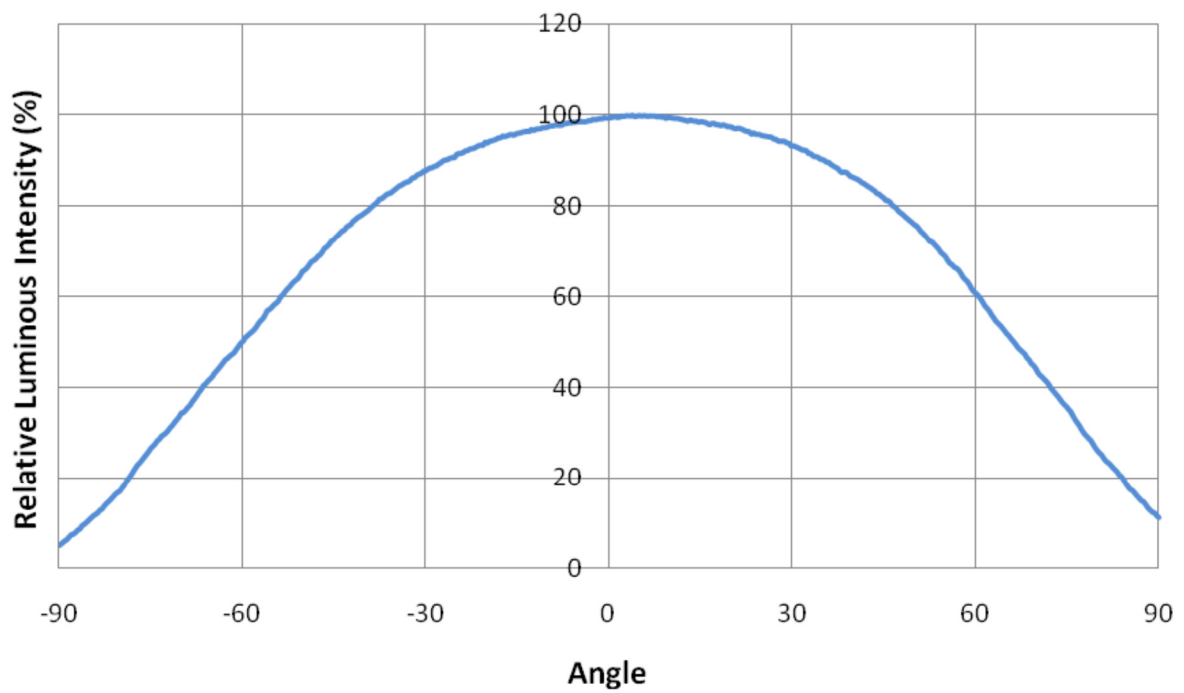


Fig.7 Angular distribution pattern of emitted light (typical) – Blue, Royal Blue

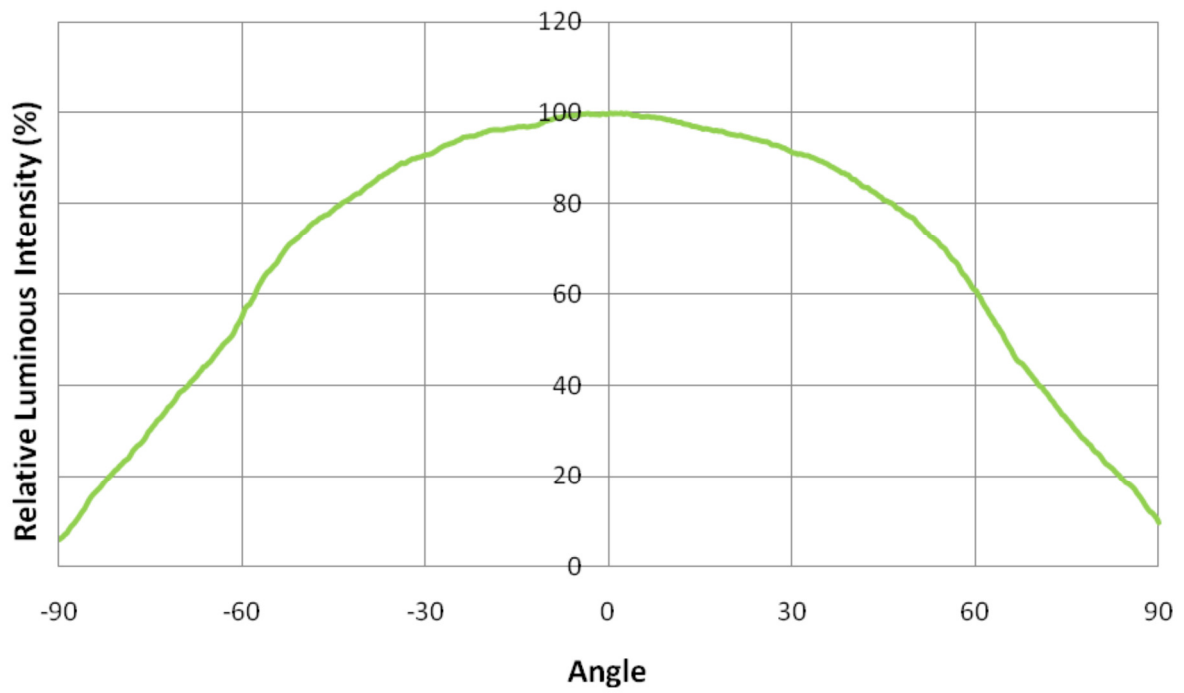


Fig.8 Angular distribution pattern of emitted light (typical) – Green, Cyan

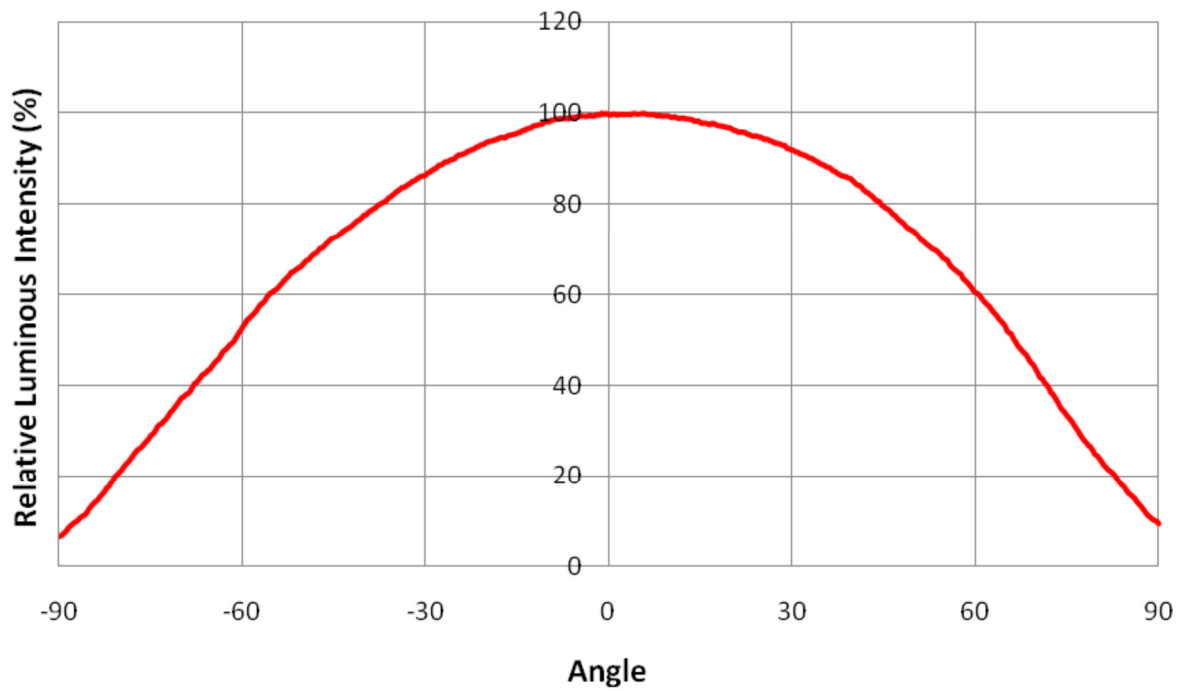


Fig.9 Angular distribution pattern of emitted light (typical) – Amber, Red, Super Red

Forward Current Characteristics

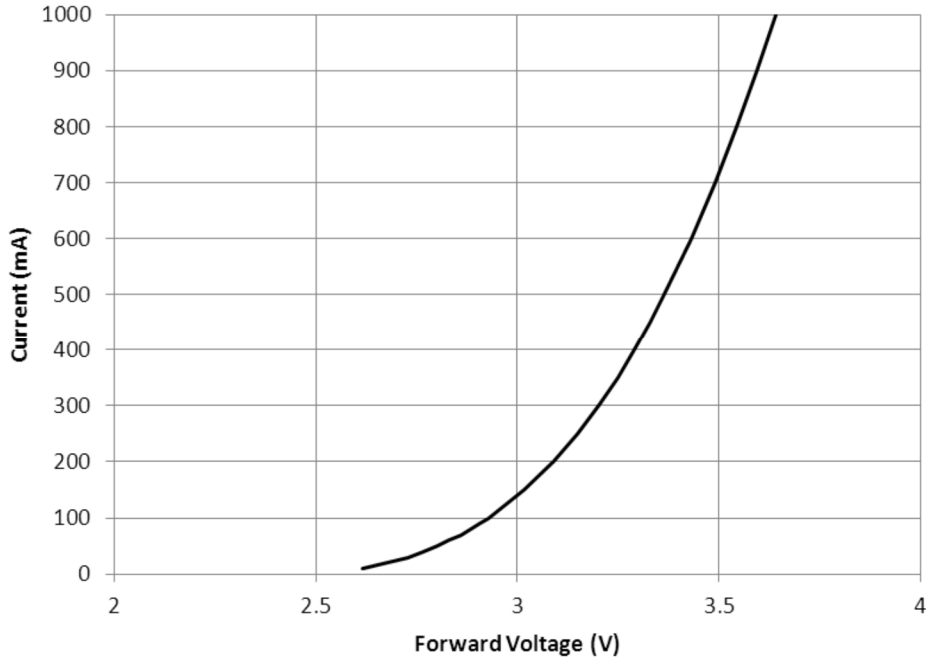


Fig.10 Typ forward voltage vs forward current – White, Blue, Royal Blue, Green, Cyan

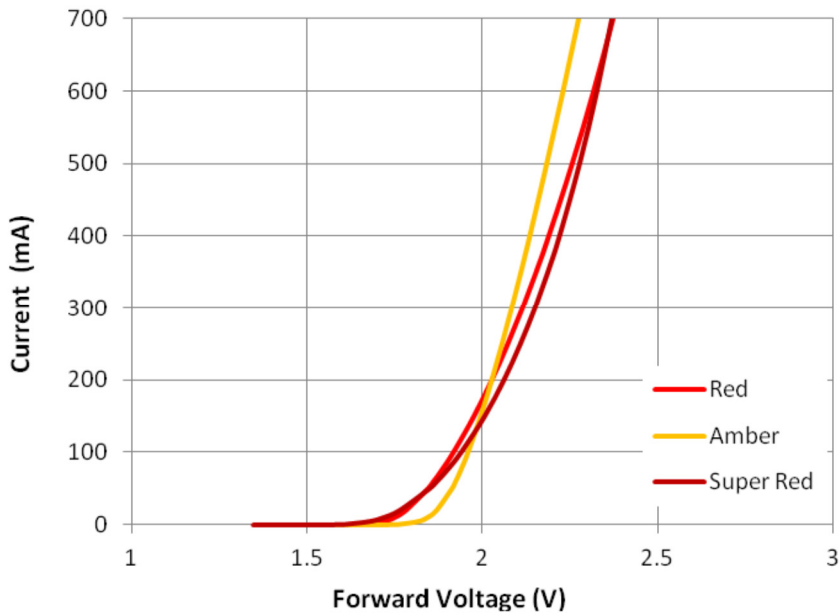


Fig.11 Typ forward voltage vs forward current – Amber, Red, Super Red

Temperature Characteristics

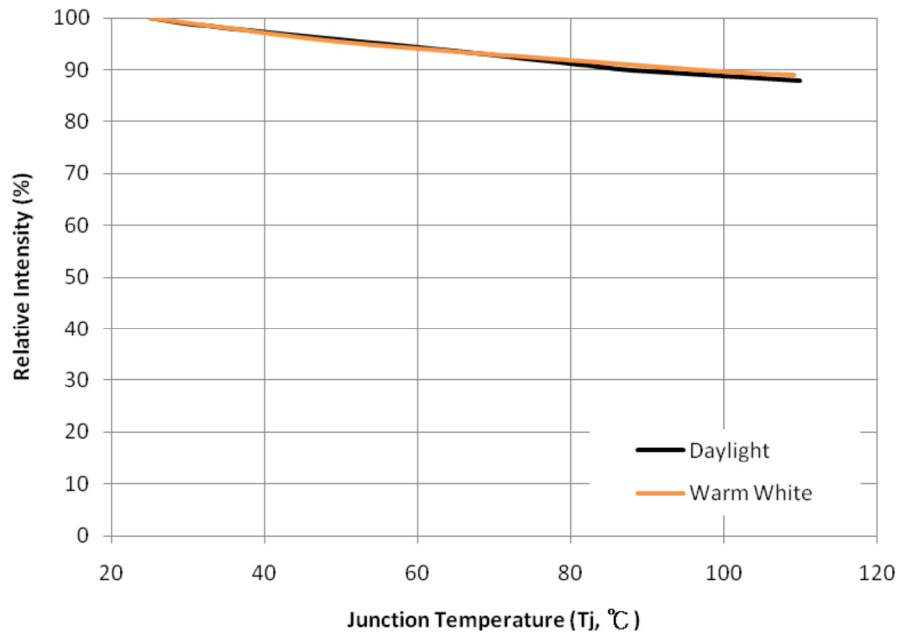


Fig.12 Relative luminous flux vs junction temperature - White

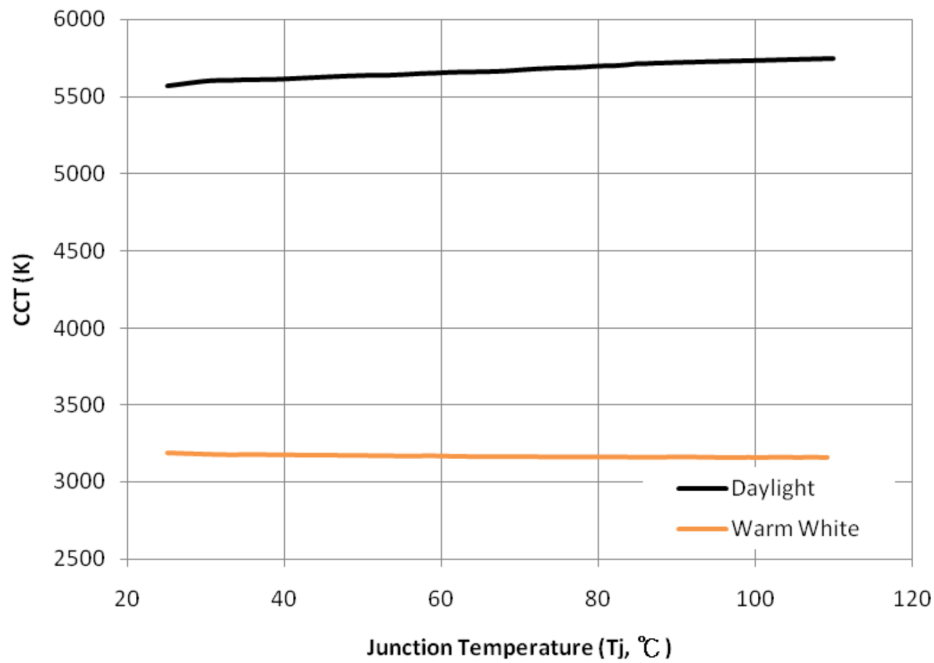


Fig.13 CCT vs junction temperature - White

Derating Curves

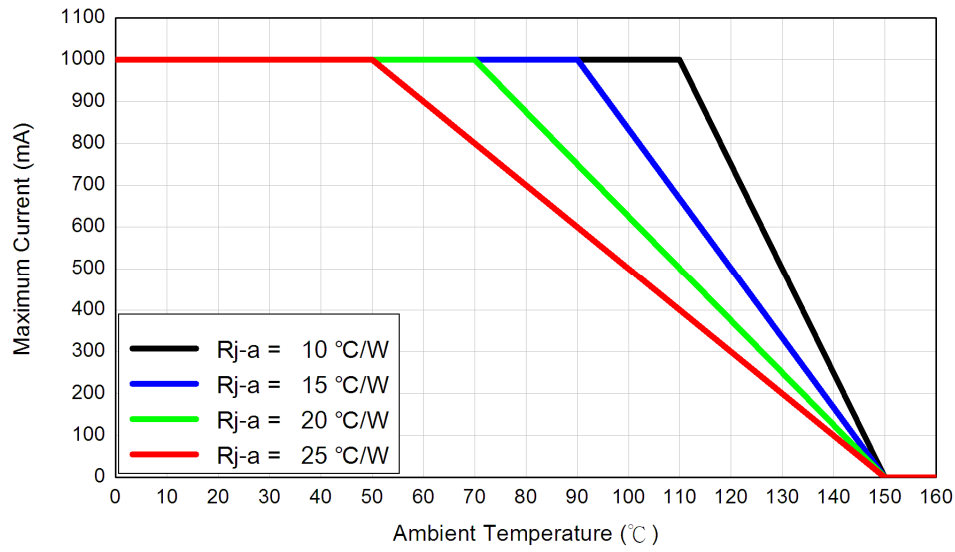


Fig.14 Ambient Temperature Derating Curve – White, Blue, Royal Blue, Green, Cyan

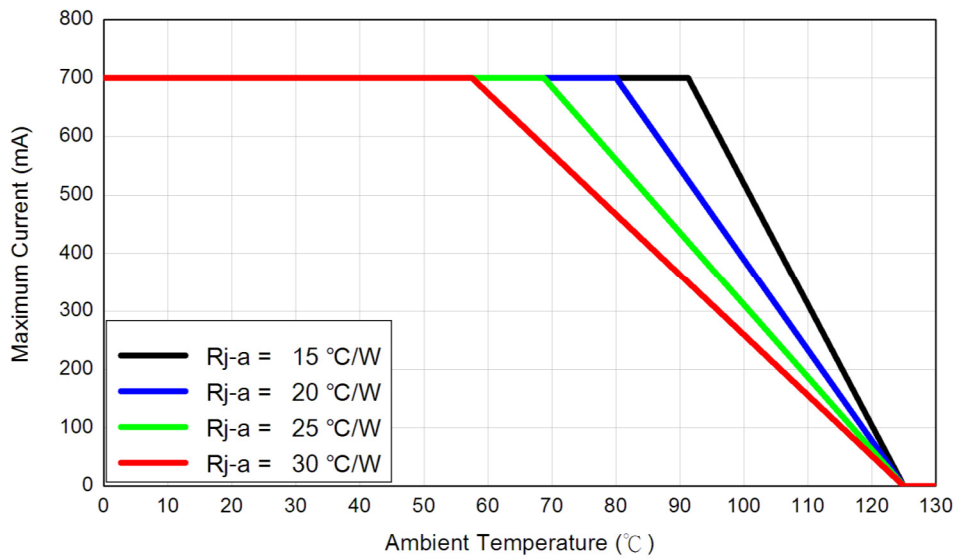


Fig.15 Ambient Temperature Derating Curve – Amber, Red, Super Red

Package Outline Dimensions

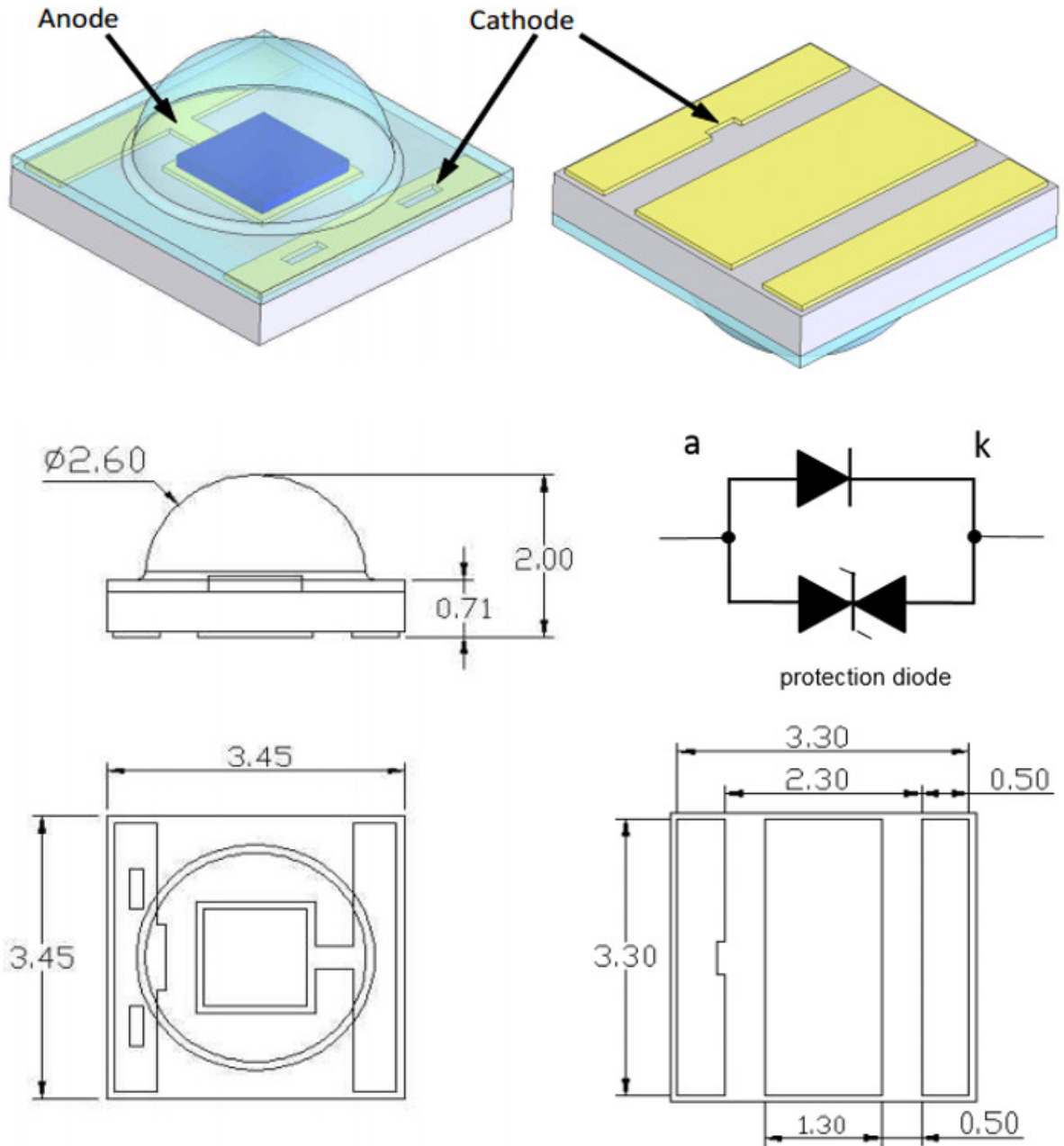


Fig.16 Mechanical drawings of the 3535 package

Notes:

1. All dimensions are in mm
2. All dimensions are to a tolerance of $\pm 0.13\text{mm}$

Handling Instructions

Plessey LEDs are not designed to operate with reverse bias.

Precautions are required to prevent reverse bias in applications and during handling.



Moisture Sensitivity

| JEDEC Level | Floor life | | Bake | |
|-------------|------------|-----------------|--------------|------------|
| | Time | Conditions | Time | Conditions |
| 1 | unlimited | ≤+30°C / 85% RH | Not required | - |

Soldering Information

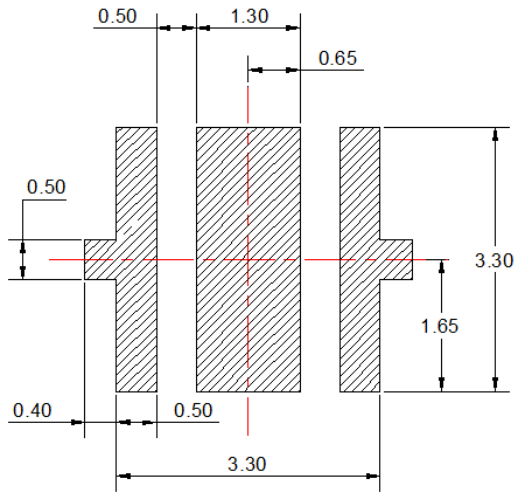


Fig.17 Recommended Solder Pad Design

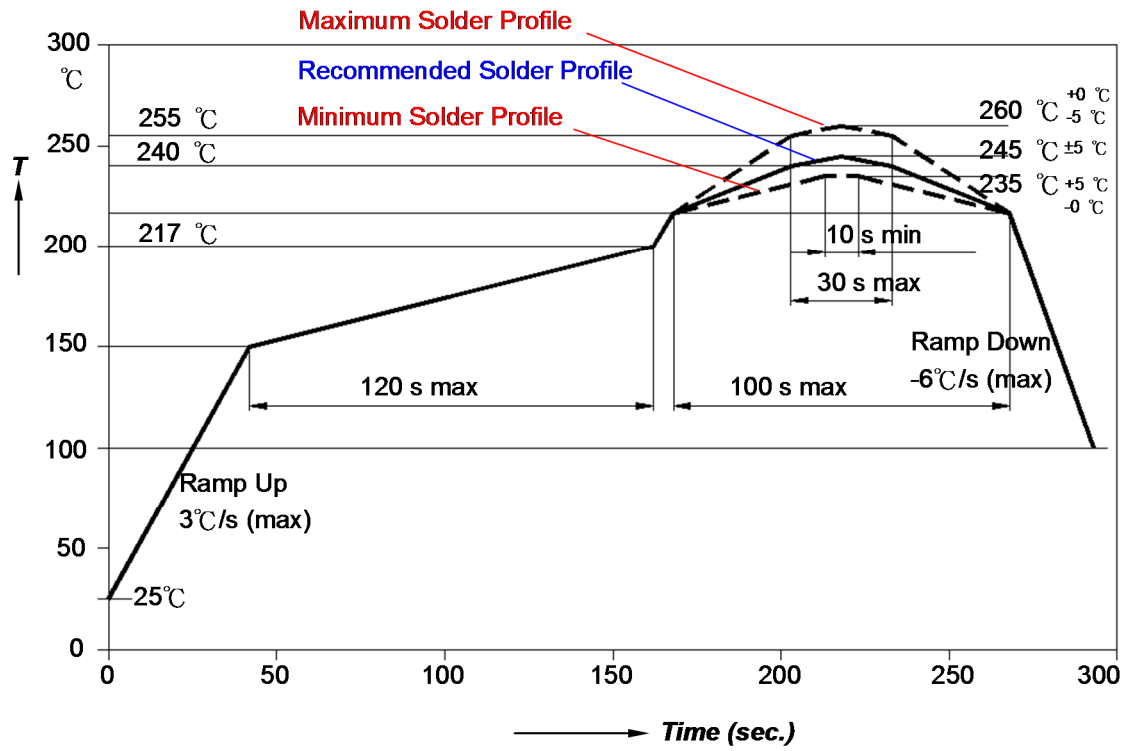
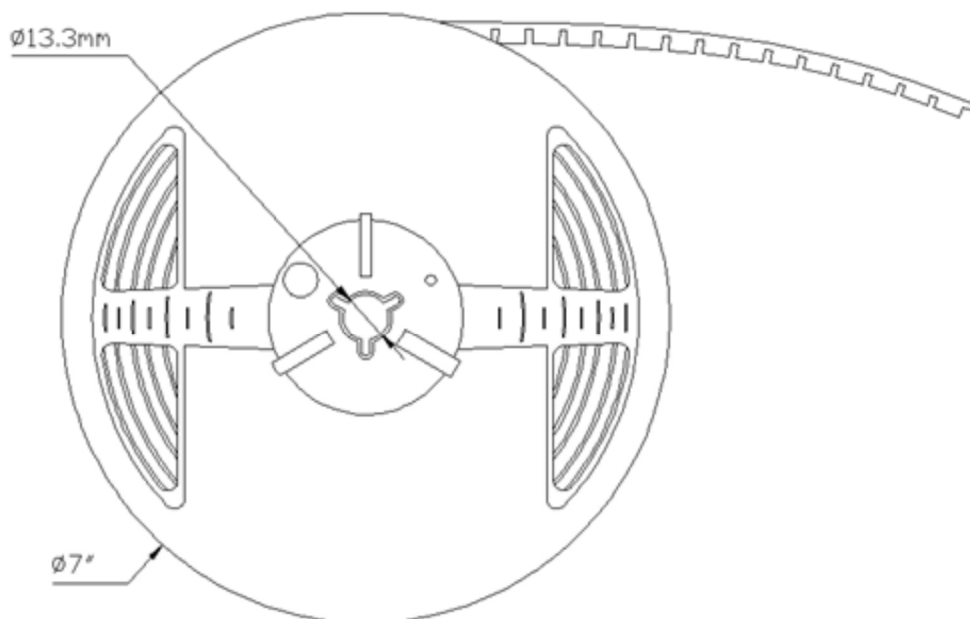
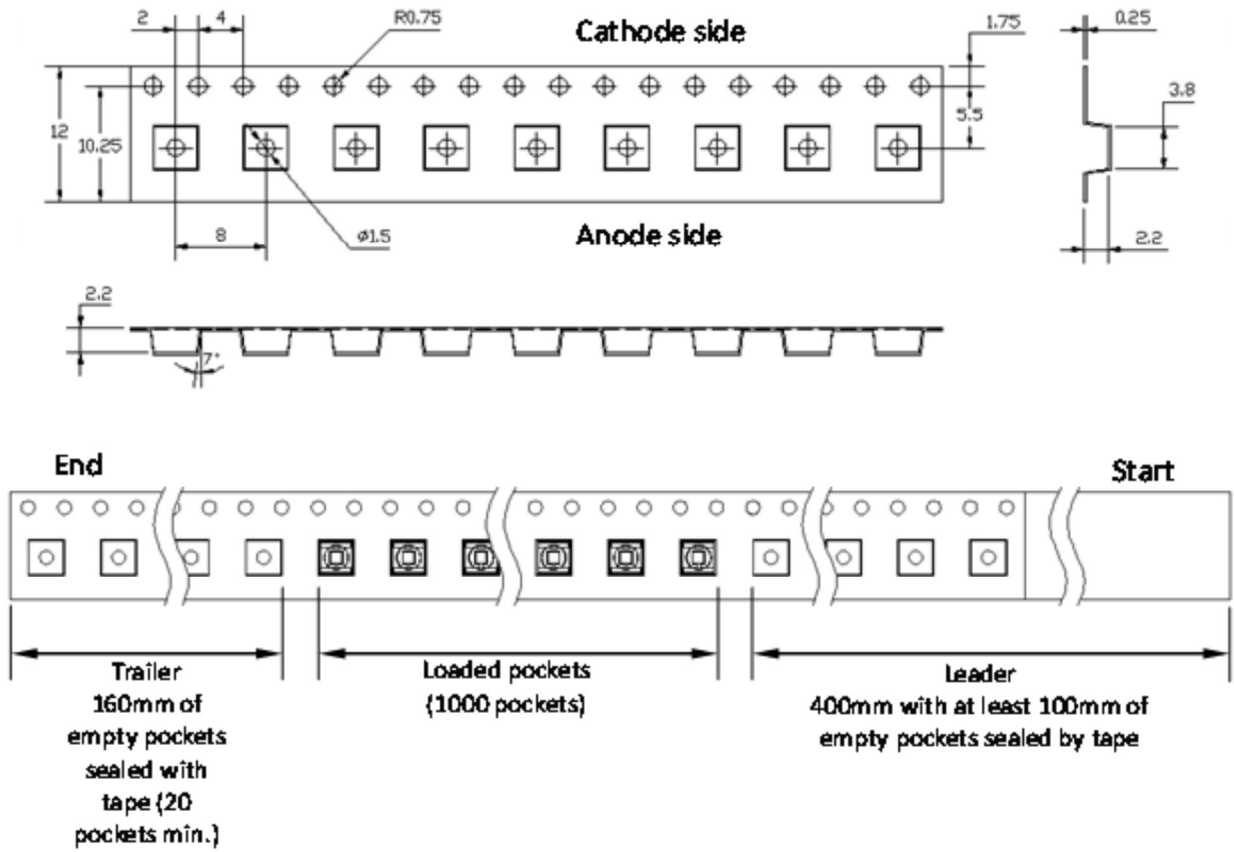


Fig.18 Recommended Solder Profile

Packing Information

The carrier tape conform to EIA-481D.



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Contact

Customer Support

+44 1752 693000 | support@plesseysemi.com

www.plesseysemi.com

Plessey Semiconductors Ltd | Plymouth
Tamerton Road, Roborough
Plymouth, Devon
PL6 7BQ United Kingdom

Plessey Semiconductors Ltd | Swindon
Design & Technology Centre, Delta
500, Delta Business Park, Swindon
SN5 7XE United Kingdom

P: +44 1752 693000

F: +44 1752 693700

P: +44 1793 518000

F: +44 1793 518030