

### Primax

Synonymous with function and performance, enter the Primax, the new era of high intensity illumination in LED. With its high flux output and high luminous intensity, Primax transcends today LED lightings technology and how we perceive it. The small package outline and high intensity make it an ideal choice for backlighting, signage, exterior automotive lighting and decorative lighting.



### Features:

- > Super high brightness surface mount LED
- > 120° viewing angle.
- > Compact package outline (LxW) of 3.7 x 3.5 mm.
- > Ultra low height profile - 0.8mm.
- > Low thermal resistance.
- > Compatible to IR reflow soldering.
- > Environmental friendly; RoHS compliance.
- > Compliance to automotive standard; AEC-Q101.
- > Passed Corrosion Resistant Test. *Appx. 4.1*



### Applications:

- > Automotive Interior Lighting  
(Dome lamp, map lighting, and trunk lighting)
- > Industrial Illumination.
- > White Goods Lighting.

**Optical Characteristics at Tj=25°C**

| Part Ordering Number | Color      | Viewing Angle° | Luminous Flux @ 100mA (lm) <i>Appx. 1.2</i> |      |      |
|----------------------|------------|----------------|---|------|------|
|                      |            |                | Min.  | Typ. | Max. |
| PQF-SSG-QR3-1        | Warm White | 120            | 30.6  | 39.8 | 51.7 |

Notes:

1. High color rendering index (CRI). Minimum CRI of 80.

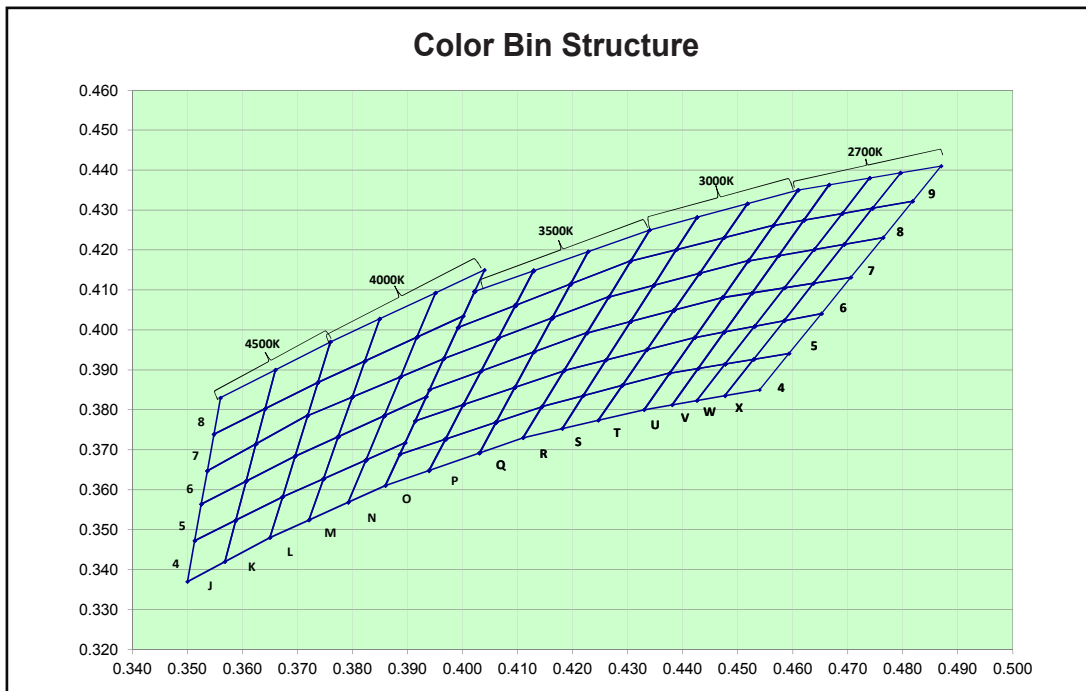
**Electrical Characteristics at Tj=25°C**

| Part Number | Vf @ If = 100 mA <i>Appx. 3.1</i> |          |          | Vr @ Ir = 10uA |
|-------------|-----------------------------------|----------|----------|----------------|
|             | Min. (V)                          | Typ. (V) | Max. (V) | Min. (V)       |
| PQF-SSG     | 2.8                               | 3.1      | 3.4      | 5              |

**Absolute Maximum Ratings**

|  | Maximum Value | Unit |
|--|---------------|------|
| DC forward current                                 | 180           | mA   |
| Peak pulse current (tp ≤ 10ms, Duty cycle = 0.5)   | 360           | mA   |
| Reverse voltage                                    | 5             | V    |
| ESD threshold (HBM)                                | 2000          | V    |
| LED junction temperature                           | 150           | °C   |
| Operating temperature                              | -40 ... +125  | °C   |
| Storage temperature                                | -40 ... +125  | °C   |
| Thermal resistance                                 |               |      |
| - Real Thermal Resistance                          |               |      |
| Junction / ambient, Rth JA real (Typ = 90K/W)      | 120           | K/W  |
| Junction / solder point, Rth JS real (Typ = 30K/W) | 45            | K/W  |
| (Mounting on DOMINANT standard PCB)                |               |      |

**PQF-SSG, Color Grouping** *Appx. 2.1*



| Bin |    | 1      | 2      | 3      | 4      |
|-----|----|--------|--------|--------|--------|
| 4U  | Cx | 0.4330 | 0.4370 | 0.4430 | 0.4380 |
|     | Cy | 0.3800 | 0.3890 | 0.3910 | 0.3810 |
| 5U  | Cx | 0.4370 | 0.4420 | 0.4480 | 0.4430 |
|     | Cy | 0.3890 | 0.3980 | 0.4000 | 0.3910 |
| 6U  | Cx | 0.4420 | 0.4470 | 0.4530 | 0.4480 |
|     | Cy | 0.3980 | 0.4080 | 0.4090 | 0.4000 |
| 7U  | Cx | 0.4470 | 0.4510 | 0.4580 | 0.4530 |
|     | Cy | 0.4080 | 0.4170 | 0.4180 | 0.4090 |
| 8U  | Cx | 0.4510 | 0.4560 | 0.4620 | 0.4580 |
|     | Cy | 0.4170 | 0.4260 | 0.4270 | 0.4180 |
| 9U  | Cx | 0.4560 | 0.4610 | 0.4670 | 0.4620 |
|     | Cy | 0.4260 | 0.4350 | 0.4370 | 0.4270 |
| 4V  | Cx | 0.4380 | 0.4430 | 0.4480 | 0.4430 |
|     | Cy | 0.3810 | 0.3910 | 0.3920 | 0.3830 |
| 5V  | Cx | 0.4430 | 0.4480 | 0.4530 | 0.4480 |
|     | Cy | 0.3910 | 0.4000 | 0.4010 | 0.3920 |
| 6V  | Cx | 0.4480 | 0.4530 | 0.4590 | 0.4530 |
|     | Cy | 0.4000 | 0.4090 | 0.4100 | 0.4010 |
| 7V  | Cx | 0.4530 | 0.4580 | 0.4640 | 0.4590 |
|     | Cy | 0.4090 | 0.4180 | 0.4200 | 0.4100 |
| 8V  | Cx | 0.4580 | 0.4620 | 0.4690 | 0.4640 |
|     | Cy | 0.4180 | 0.4270 | 0.4290 | 0.4200 |
| 9V  | Cx | 0.4620 | 0.4670 | 0.4740 | 0.4690 |
|     | Cy | 0.4270 | 0.4370 | 0.4380 | 0.4290 |

| <b>Bin</b> |    | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
|------------|----|----------|----------|----------|----------|
| 4W         | Cx | 0.4430   | 0.4480   | 0.4540   | 0.4480   |
|            | Cy | 0.3830   | 0.3920   | 0.3930   | 0.3840   |
| 5W         | Cx | 0.4480   | 0.4530   | 0.4590   | 0.4540   |
|            | Cy | 0.3920   | 0.4010   | 0.4020   | 0.3930   |
| 6W         | Cx | 0.4530   | 0.4590   | 0.4640   | 0.4590   |
|            | Cy | 0.4010   | 0.4100   | 0.4120   | 0.4020   |
| 7W         | Cx | 0.4590   | 0.4640   | 0.4700   | 0.4640   |
|            | Cy | 0.4100   | 0.4200   | 0.4210   | 0.4120   |
| 8W         | Cx | 0.4640   | 0.4690   | 0.4750   | 0.4700   |
|            | Cy | 0.4200   | 0.4290   | 0.4300   | 0.4210   |
| 9W         | Cx | 0.4690   | 0.4740   | 0.4800   | 0.4750   |
|            | Cy | 0.4290   | 0.4380   | 0.4400   | 0.4300   |
| 4X         | Cx | 0.4480   | 0.4540   | 0.4590   | 0.4540   |
|            | Cy | 0.3840   | 0.3930   | 0.3940   | 0.3850   |
| 5X         | Cx | 0.4540   | 0.4590   | 0.4650   | 0.4590   |
|            | Cy | 0.3930   | 0.4020   | 0.4040   | 0.3940   |
| 6X         | Cx | 0.4590   | 0.4640   | 0.4700   | 0.4650   |
|            | Cy | 0.4020   | 0.4120   | 0.4130   | 0.4040   |
| 7X         | Cx | 0.4640   | 0.4700   | 0.4760   | 0.4700   |
|            | Cy | 0.4120   | 0.4210   | 0.4230   | 0.4130   |
| 8X         | Cx | 0.4700   | 0.4750   | 0.4810   | 0.4760   |
|            | Cy | 0.4210   | 0.4300   | 0.4320   | 0.4230   |
| 9X         | Cx | 0.4750   | 0.4800   | 0.4870   | 0.4810   |
|            | Cy | 0.4300   | 0.4400   | 0.4410   | 0.4320   |
| 4R         | Cx | 0.4110   | 0.4150   | 0.4220   | 0.4180   |
|            | Cy | 0.3730   | 0.3810   | 0.3840   | 0.3750   |
| 5R         | Cx | 0.4150   | 0.4190   | 0.4260   | 0.4220   |
|            | Cy | 0.3810   | 0.3900   | 0.3930   | 0.3840   |
| 6R         | Cx | 0.4190   | 0.4220   | 0.4300   | 0.4260   |
|            | Cy | 0.3900   | 0.3990   | 0.4020   | 0.3930   |
| 7R         | Cx | 0.4220   | 0.4260   | 0.4350   | 0.4300   |
|            | Cy | 0.3990   | 0.4080   | 0.4110   | 0.4020   |
| 8R         | Cx | 0.4260   | 0.4300   | 0.4390   | 0.4350   |
|            | Cy | 0.4080   | 0.4170   | 0.4200   | 0.4110   |
| 9R         | Cx | 0.4300   | 0.4340   | 0.4430   | 0.4390   |
|            | Cy | 0.4170   | 0.4250   | 0.4290   | 0.4200   |
| 4S         | Cx | 0.4180   | 0.4220   | 0.4300   | 0.4250   |
|            | Cy | 0.3750   | 0.3840   | 0.3870   | 0.3780   |
| 5S         | Cx | 0.4220   | 0.4260   | 0.4340   | 0.4300   |
|            | Cy | 0.3840   | 0.3930   | 0.3960   | 0.3870   |
| 6S         | Cx | 0.4260   | 0.4300   | 0.4390   | 0.4340   |
|            | Cy | 0.3930   | 0.4020   | 0.4050   | 0.3960   |
| 7S         | Cx | 0.4300   | 0.4350   | 0.4430   | 0.4390   |
|            | Cy | 0.4020   | 0.4110   | 0.4140   | 0.4050   |
| 8S         | Cx | 0.4350   | 0.4390   | 0.4470   | 0.4430   |
|            | Cy | 0.4110   | 0.4200   | 0.4230   | 0.4140   |
| 9S         | Cx | 0.4390   | 0.4430   | 0.4520   | 0.4470   |
|            | Cy | 0.4200   | 0.4290   | 0.4320   | 0.4230   |
| 4T         | Cx | 0.4250   | 0.4300   | 0.4370   | 0.4330   |
|            | Cy | 0.3780   | 0.3870   | 0.3890   | 0.3800   |

| Bin |    | 1      | 2      | 3      | 4      |
|-----|----|--------|--------|--------|--------|
| 5T  | Cx | 0.4300 | 0.4340 | 0.4420 | 0.4370 |
|     | Cy | 0.3870 | 0.3960 | 0.3980 | 0.3890 |
| 6T  | Cx | 0.4340 | 0.4390 | 0.4470 | 0.4420 |
|     | Cy | 0.3960 | 0.4050 | 0.4080 | 0.3980 |
| 7T  | Cx | 0.4390 | 0.4430 | 0.4510 | 0.4470 |
|     | Cy | 0.4050 | 0.4140 | 0.4170 | 0.4080 |
| 8T  | Cx | 0.4430 | 0.4470 | 0.4560 | 0.4510 |
|     | Cy | 0.4140 | 0.4230 | 0.4260 | 0.4170 |
| 9T  | Cx | 0.4470 | 0.4520 | 0.4610 | 0.4560 |
|     | Cy | 0.4230 | 0.4320 | 0.4350 | 0.4260 |
| 4O  | Cx | 0.3860 | 0.3890 | 0.3980 | 0.3940 |
|     | Cy | 0.3610 | 0.3690 | 0.3730 | 0.3650 |
| 5O  | Cx | 0.3890 | 0.3910 | 0.4010 | 0.3980 |
|     | Cy | 0.3690 | 0.3770 | 0.3810 | 0.3730 |
| 6O  | Cx | 0.3910 | 0.3940 | 0.4040 | 0.4010 |
|     | Cy | 0.3770 | 0.3850 | 0.3900 | 0.3810 |
| 7O  | Cx | 0.3940 | 0.3970 | 0.4070 | 0.4040 |
|     | Cy | 0.3850 | 0.3930 | 0.3980 | 0.3900 |
| 8O  | Cx | 0.3970 | 0.4000 | 0.4100 | 0.4070 |
|     | Cy | 0.3930 | 0.4010 | 0.4060 | 0.3980 |
| 9O  | Cx | 0.4000 | 0.4030 | 0.4130 | 0.4100 |
|     | Cy | 0.4010 | 0.4100 | 0.4150 | 0.4060 |
| 4P  | Cx | 0.3940 | 0.3980 | 0.4060 | 0.4030 |
|     | Cy | 0.3650 | 0.3730 | 0.3770 | 0.3690 |
| 5P  | Cx | 0.3980 | 0.4010 | 0.4100 | 0.4060 |
|     | Cy | 0.3730 | 0.3810 | 0.3860 | 0.3770 |
| 6P  | Cx | 0.4010 | 0.4040 | 0.4130 | 0.4100 |
|     | Cy | 0.3810 | 0.3900 | 0.3940 | 0.3860 |
| 7P  | Cx | 0.4040 | 0.4070 | 0.4160 | 0.4130 |
|     | Cy | 0.3900 | 0.3980 | 0.4030 | 0.3940 |
| 8P  | Cx | 0.4070 | 0.4100 | 0.4200 | 0.4160 |
|     | Cy | 0.3980 | 0.4060 | 0.4120 | 0.4030 |
| 9P  | Cx | 0.4100 | 0.4130 | 0.4230 | 0.4200 |
|     | Cy | 0.4060 | 0.4150 | 0.4200 | 0.4120 |
| 4Q  | Cx | 0.4030 | 0.4060 | 0.4150 | 0.4110 |
|     | Cy | 0.3690 | 0.3770 | 0.3810 | 0.3730 |
| 5Q  | Cx | 0.4060 | 0.4100 | 0.4190 | 0.4150 |
|     | Cy | 0.3770 | 0.3860 | 0.3900 | 0.3810 |
| 6Q  | Cx | 0.4100 | 0.4130 | 0.4220 | 0.4190 |
|     | Cy | 0.3860 | 0.3940 | 0.3990 | 0.3900 |
| 7Q  | Cx | 0.4130 | 0.4160 | 0.4260 | 0.4220 |
|     | Cy | 0.3940 | 0.4030 | 0.4080 | 0.3990 |
| 8Q  | Cx | 0.4160 | 0.4200 | 0.4300 | 0.4260 |
|     | Cy | 0.4030 | 0.4120 | 0.4170 | 0.4080 |
| 9Q  | Cx | 0.4200 | 0.4230 | 0.4340 | 0.4300 |
|     | Cy | 0.4120 | 0.4200 | 0.4250 | 0.4170 |
| 4L  | Cx | 0.3650 | 0.3670 | 0.3750 | 0.3720 |
|     | Cy | 0.3480 | 0.3580 | 0.3620 | 0.3520 |
| 5L  | Cx | 0.3670 | 0.3690 | 0.3770 | 0.3750 |
|     | Cy | 0.3580 | 0.3680 | 0.3730 | 0.3620 |

| Bin |    | 1      | 2      | 3      | 4      |
|-----|----|--------|--------|--------|--------|
| 6L  | Cx | 0.3690 | 0.3710 | 0.3800 | 0.3770 |
|     | Cy | 0.3680 | 0.3780 | 0.3830 | 0.3730 |
| 7L  | Cx | 0.3710 | 0.3740 | 0.3830 | 0.3800 |
|     | Cy | 0.3780 | 0.3870 | 0.3930 | 0.3830 |
| 8L  | Cx | 0.3740 | 0.3760 | 0.3850 | 0.3830 |
|     | Cy | 0.3870 | 0.3970 | 0.4030 | 0.3930 |
| 4M  | Cx | 0.3720 | 0.3750 | 0.3820 | 0.3790 |
|     | Cy | 0.3520 | 0.3620 | 0.3670 | 0.3560 |
| 5M  | Cx | 0.3750 | 0.3770 | 0.3850 | 0.3820 |
|     | Cy | 0.3620 | 0.3730 | 0.3780 | 0.3670 |
| 6M  | Cx | 0.3770 | 0.3800 | 0.3880 | 0.3850 |
|     | Cy | 0.3730 | 0.3830 | 0.3880 | 0.3780 |
| 7M  | Cx | 0.3800 | 0.3830 | 0.3920 | 0.3880 |
|     | Cy | 0.3830 | 0.3930 | 0.3990 | 0.3880 |
| 8M  | Cx | 0.3830 | 0.3850 | 0.3950 | 0.3920 |
|     | Cy | 0.3930 | 0.4030 | 0.4090 | 0.3990 |
| 4N  | Cx | 0.3790 | 0.3820 | 0.3900 | 0.3860 |
|     | Cy | 0.3560 | 0.3670 | 0.3720 | 0.3610 |
| 5N  | Cx | 0.3820 | 0.3850 | 0.3930 | 0.3900 |
|     | Cy | 0.3670 | 0.3780 | 0.3830 | 0.3720 |
| 6N  | Cx | 0.3850 | 0.3880 | 0.3970 | 0.3930 |
|     | Cy | 0.3780 | 0.3880 | 0.3930 | 0.3830 |
| 7N  | Cx | 0.3880 | 0.3920 | 0.4010 | 0.3970 |
|     | Cy | 0.3880 | 0.3990 | 0.4040 | 0.3930 |
| 8N  | Cx | 0.3920 | 0.3950 | 0.4040 | 0.4010 |
|     | Cy | 0.3990 | 0.4090 | 0.4150 | 0.4040 |
| 4J  | Cx | 0.3500 | 0.3510 | 0.3590 | 0.3570 |
|     | Cy | 0.3370 | 0.3470 | 0.3520 | 0.3430 |
| 5J  | Cx | 0.3510 | 0.3520 | 0.3610 | 0.3590 |
|     | Cy | 0.3470 | 0.3560 | 0.3620 | 0.3520 |
| 6J  | Cx | 0.3520 | 0.3540 | 0.3630 | 0.3610 |
|     | Cy | 0.3560 | 0.3650 | 0.3710 | 0.3620 |
| 7J  | Cx | 0.3540 | 0.3550 | 0.3640 | 0.3630 |
|     | Cy | 0.3650 | 0.3740 | 0.3810 | 0.3710 |
| 8J  | Cx | 0.3550 | 0.3560 | 0.3660 | 0.3640 |
|     | Cy | 0.3740 | 0.3830 | 0.3900 | 0.3810 |
| 4K  | Cx | 0.3570 | 0.3590 | 0.3670 | 0.3650 |
|     | Cy | 0.3430 | 0.3520 | 0.3580 | 0.3480 |
| 5K  | Cx | 0.3590 | 0.3610 | 0.3690 | 0.3670 |
|     | Cy | 0.3520 | 0.3620 | 0.3680 | 0.3580 |
| 6K  | Cx | 0.3610 | 0.3630 | 0.3710 | 0.3690 |
|     | Cy | 0.3620 | 0.3710 | 0.3780 | 0.3680 |
| 7K  | Cx | 0.3630 | 0.3640 | 0.3740 | 0.3710 |
|     | Cy | 0.3710 | 0.3810 | 0.3870 | 0.3780 |
| 8K  | Cx | 0.3640 | 0.3660 | 0.3760 | 0.3740 |
|     | Cy | 0.3810 | 0.3900 | 0.3970 | 0.3870 |

InGaN wavelength is very sensitive to drive current. Operating at lower current is not recommended and may yield unpredictable performance current pulsing should be used for dimming purposed.

**Luminous Intensity Group at Tj=25°C**

| Brightness Group | Luminous Flux (lm) <i>Appx. 1.2</i> |
|------------------|-------------------------------------|
| Q2               | 30.6 ... 34.8                       |
| Q3               | 34.8 ... 39.8                       |
| R2               | 39.8 ... 45.2                       |
| R3               | 45.2 ... 51.7                       |

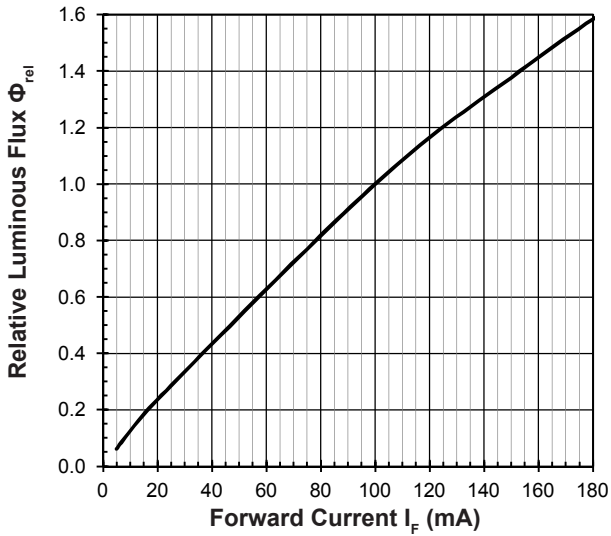
**Vf Binning (Optional)**

| Vf @ If = 100mA | Forward Voltage (V) <i>Appx. 3.1</i> |
|-----------------|--------------------------------------|
| V1              | 2.80 ... 3.00                        |
| V2              | 3.00 ... 3.20                        |
| V3              | 3.20 ... 3.40                        |

Please consult sales and marketing for special part number to incorporate Vf binning.

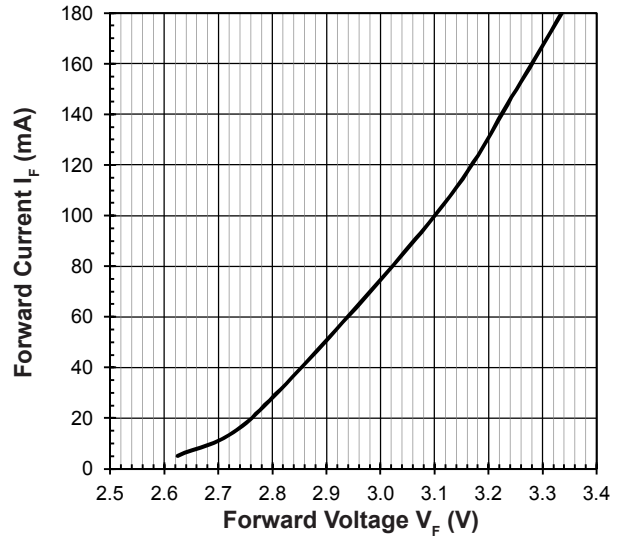
**Relative Luminous Flux Vs Forward Current**

$\Phi_V/\Phi_V(100\text{mA}) = f(I_F); T_j = 25^\circ\text{C}$



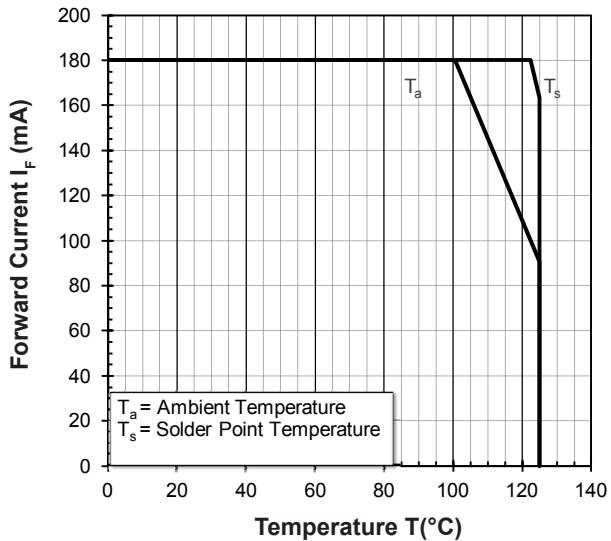
**Forward Current Vs Forward Voltage**

$I_F = f(V_F); T_j = 25^\circ\text{C}$



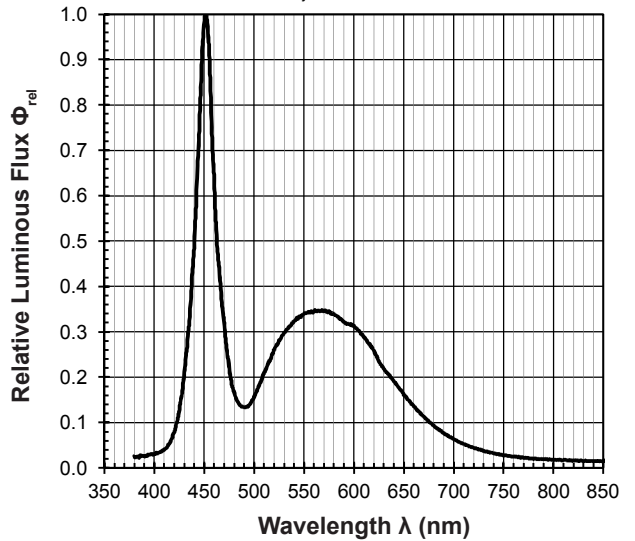
**Maximum Current Vs Temperature**

$I_F = f(T)$



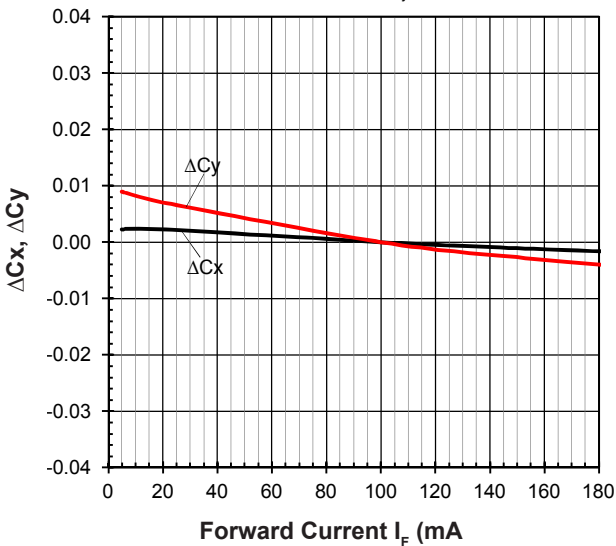
**Relative Spectral Emission**

$\Phi_{rel} = f(\lambda); T_j = 25^\circ\text{C}; I_F = 100\text{mA}$



**Chromaticity Coordinate Shift Vs Forward Current**

$\Delta Cx, \Delta Cy = f(I_F); T_j = 25^\circ\text{C}$



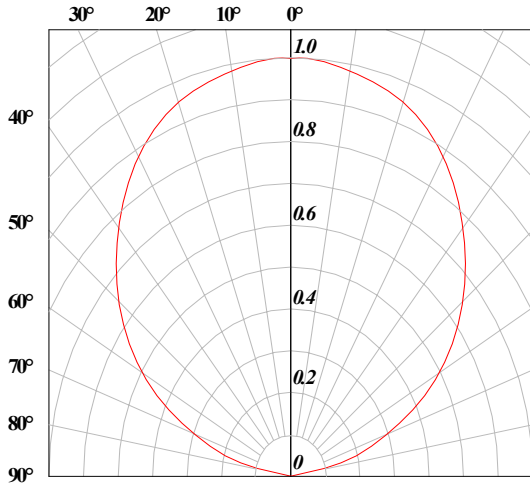
**Allowable Forward Current Vs Duty Ratio**

$(T_j = 25^\circ\text{C}; t_p \leq 10\text{ms})$



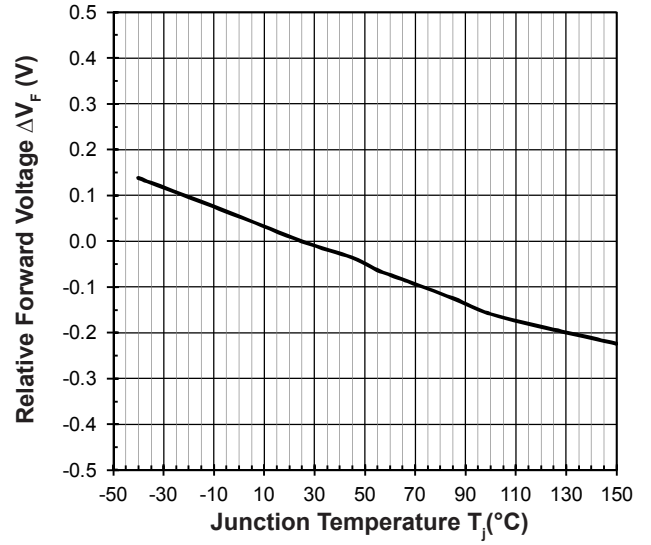


**Radiation Pattern**



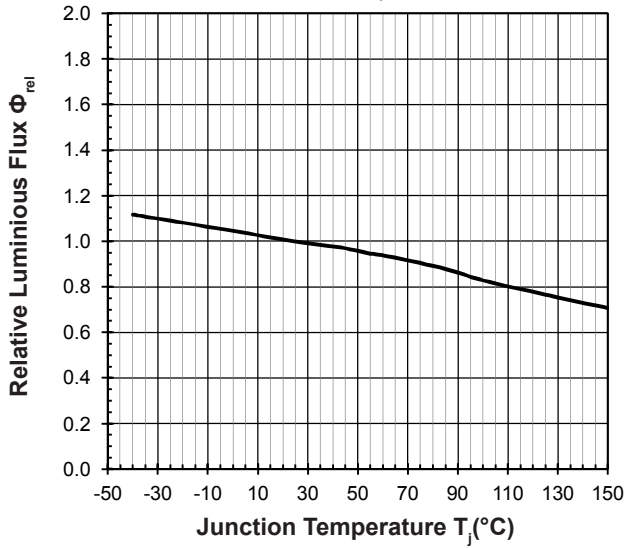
**Relative Forward Voltage Vs Junction Temperature**

$$\Delta V_F = V_F - V_F(25^\circ\text{C}) = f(T_j); I_F = 100\text{mA}$$



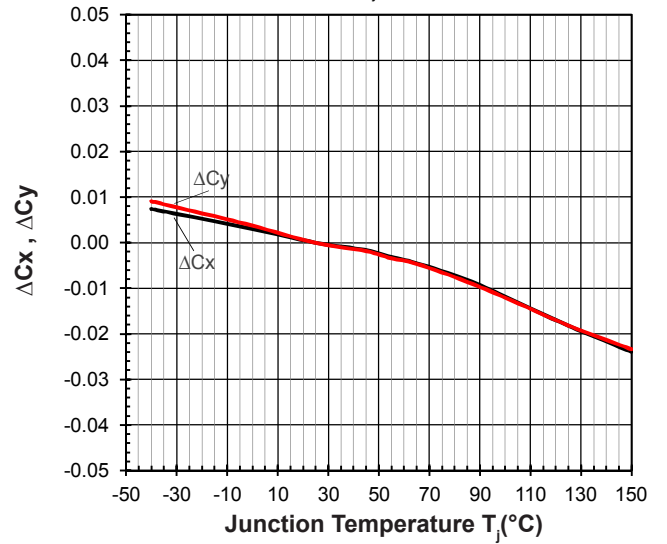
**Relative Luminous Flux Vs Junction Temperature**

$$\Phi_V/\Phi_V(25^\circ\text{C}) = f(T_j); I_F = 100\text{mA}$$

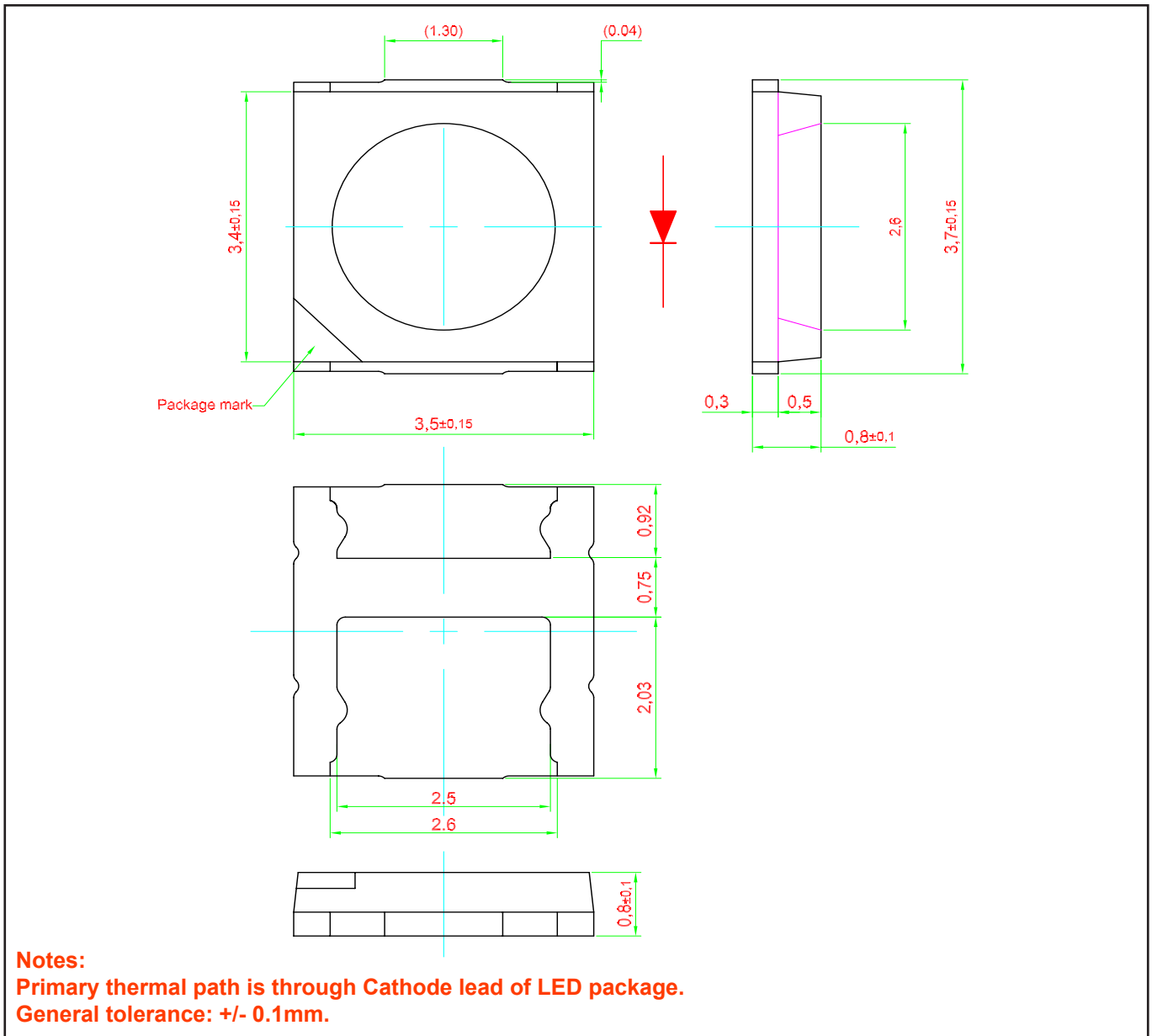


**Chromaticity Coordinate Shift Vs Junction Temperature**

$$\Delta C_x, \Delta C_y = f(T_j); I_F = 100\text{mA}$$



**PrimaxPlus 100 InGaN Warm White: PQF-SSG Package Outlines**

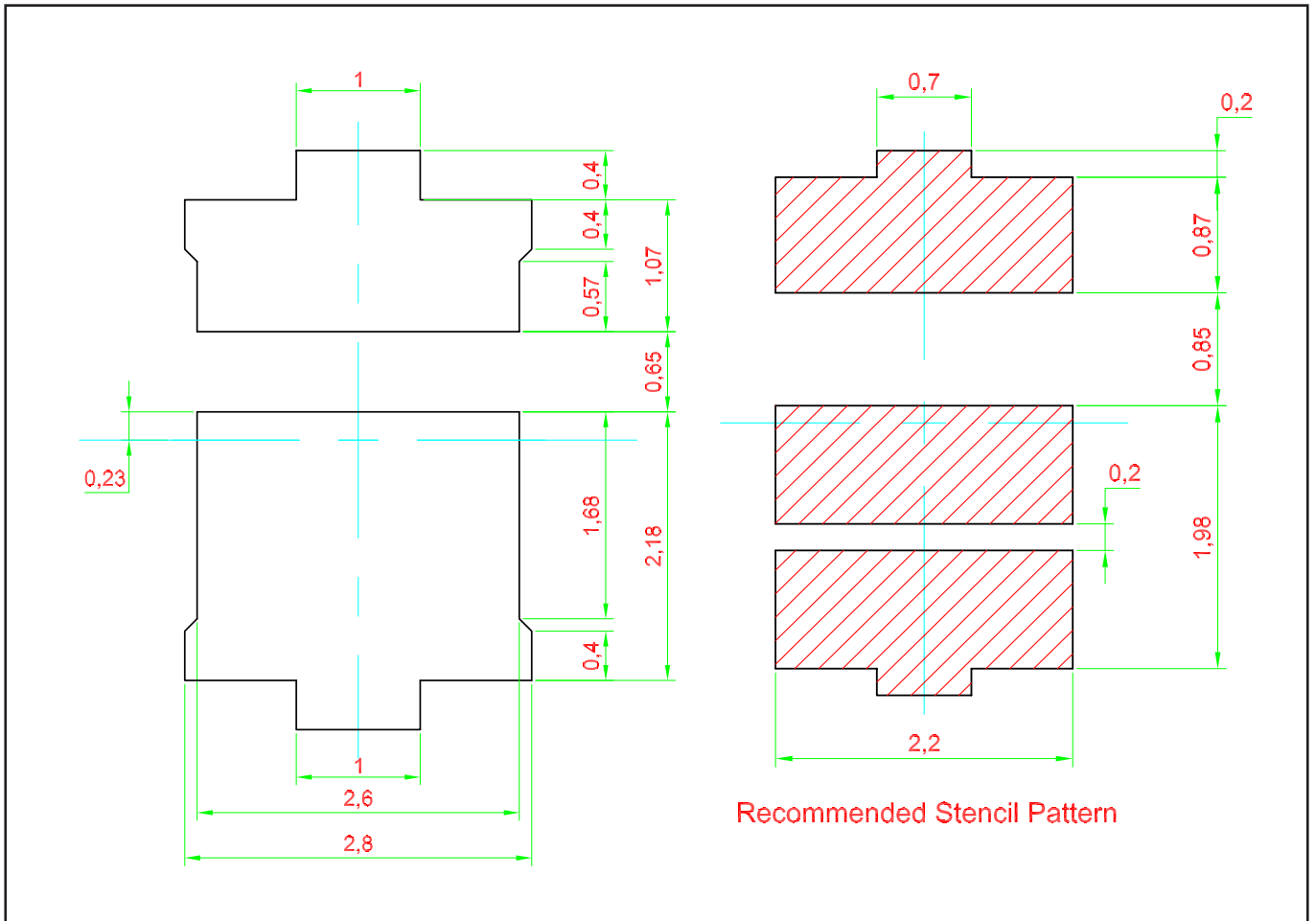


**Material**

| Material        |                                    |
|-----------------|------------------------------------|
| Lead-frame      | Cu Alloy With Ag Plating           |
| Package         | High Temperature Resistant Plastic |
| Encapsulant     | Silicone Resin                     |
| Soldering Leads | NiPdAu Plating                     |

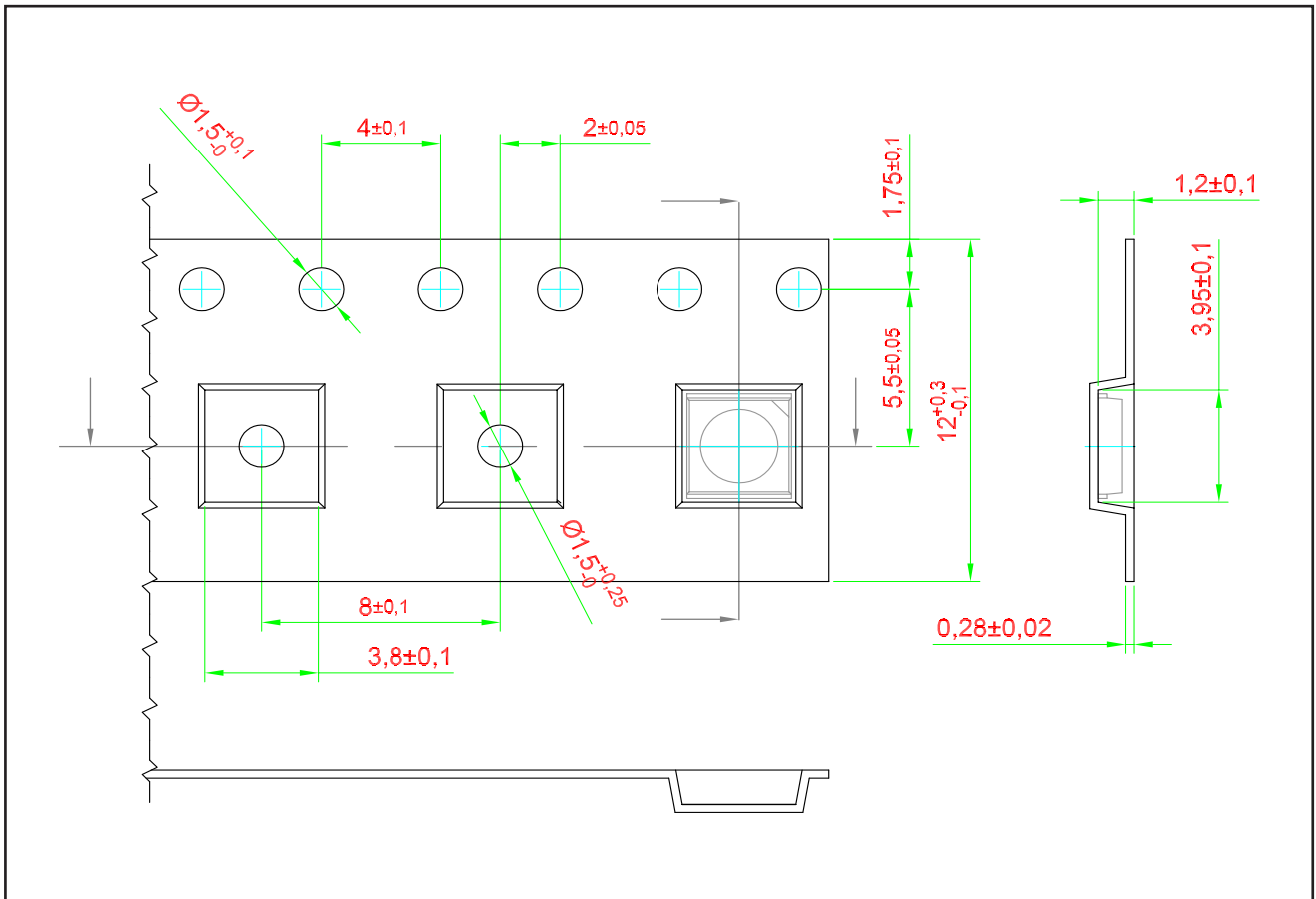
Note: This product is Pb free

**Recommended Solder Pad**

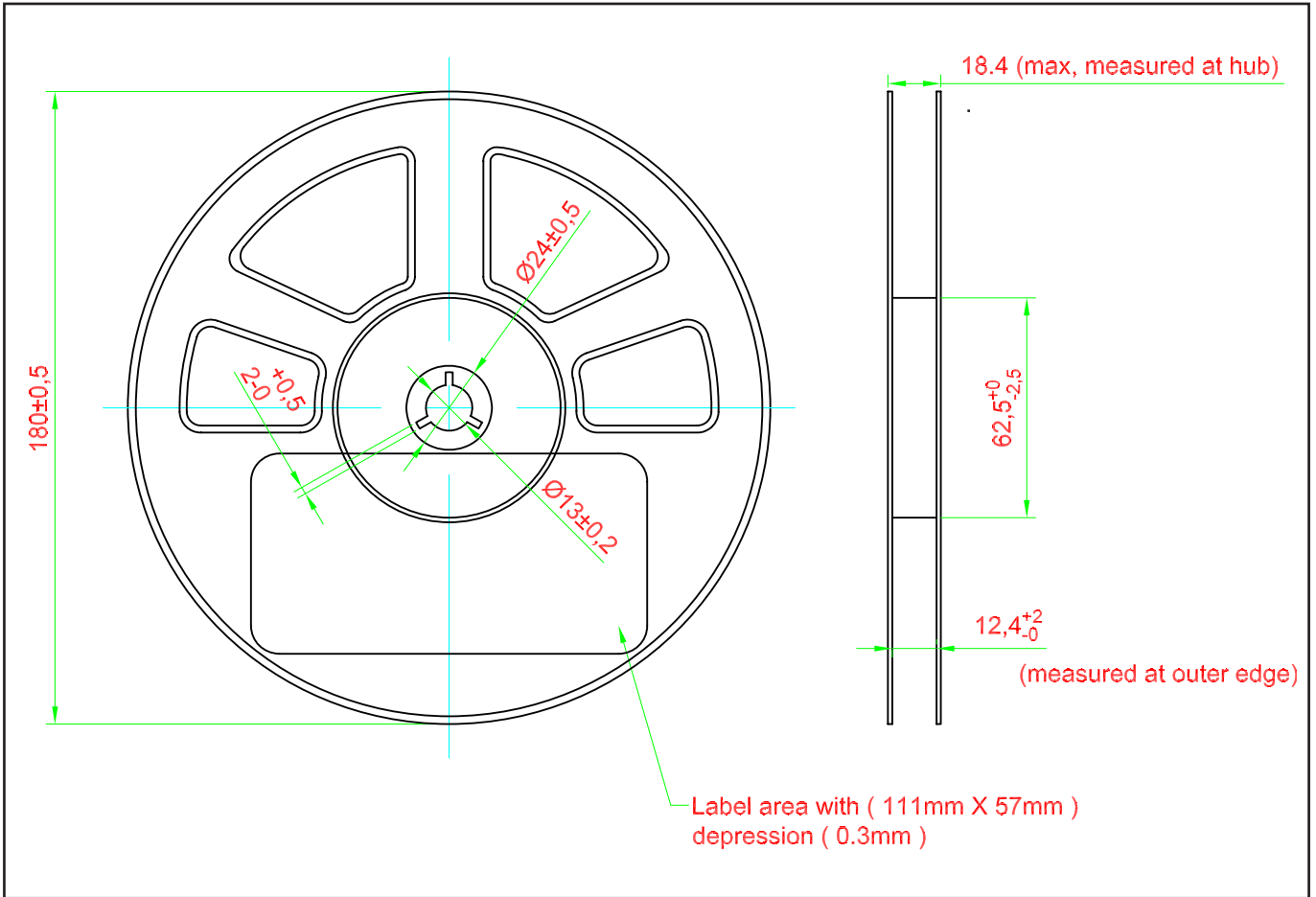


### Taping and orientation

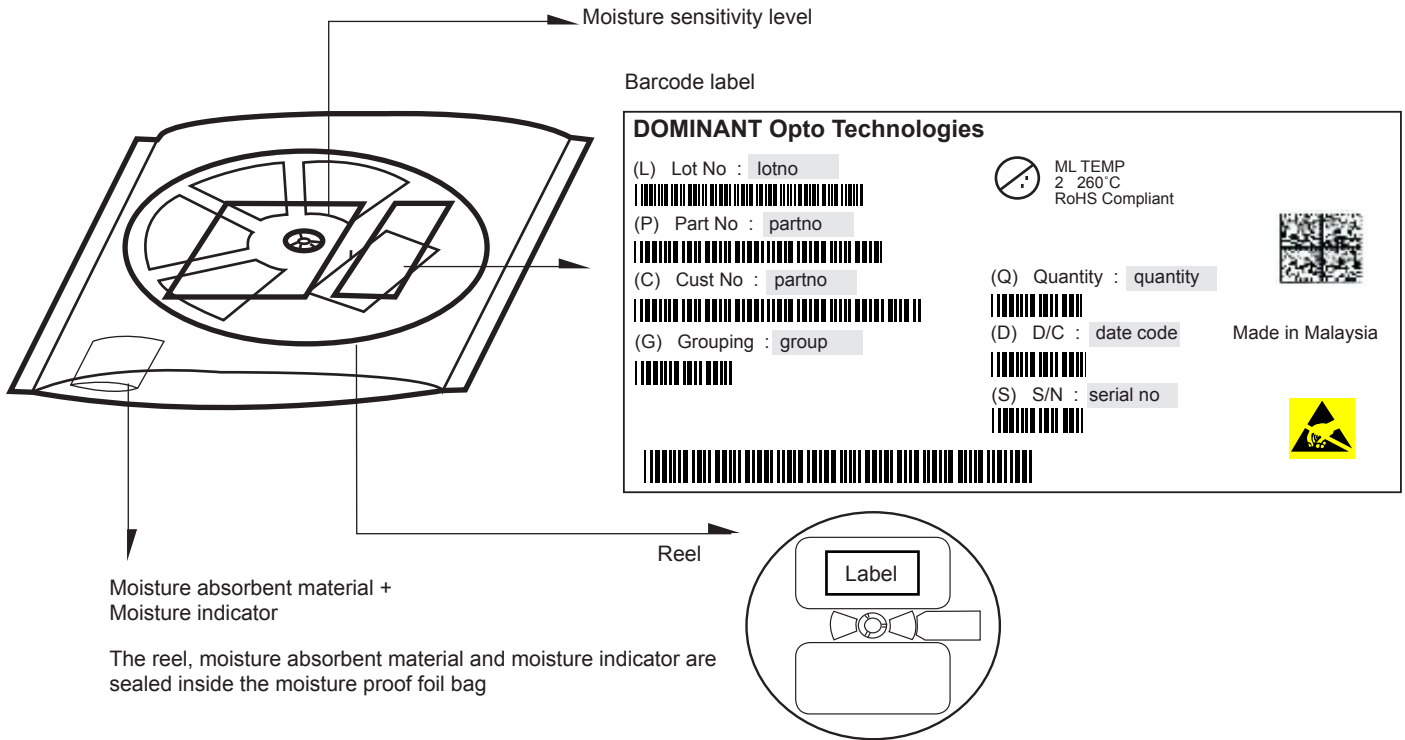
- Reels come in quantity of 1000 units.
- Reel diameter is 180 mm.



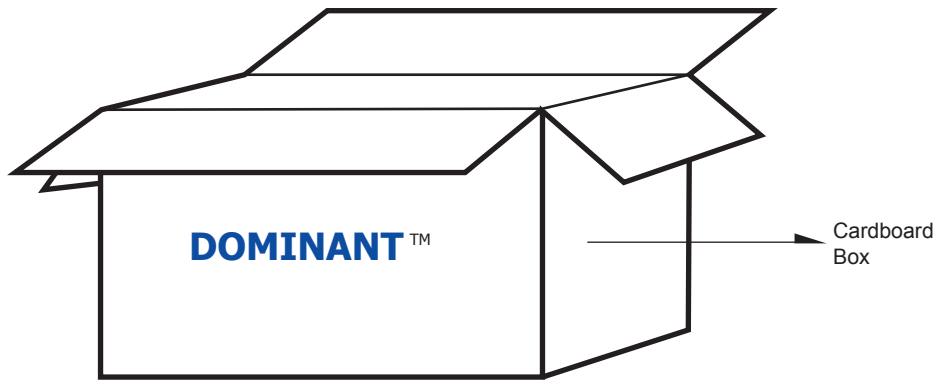
**Packaging Specification**



**Packaging Specification**



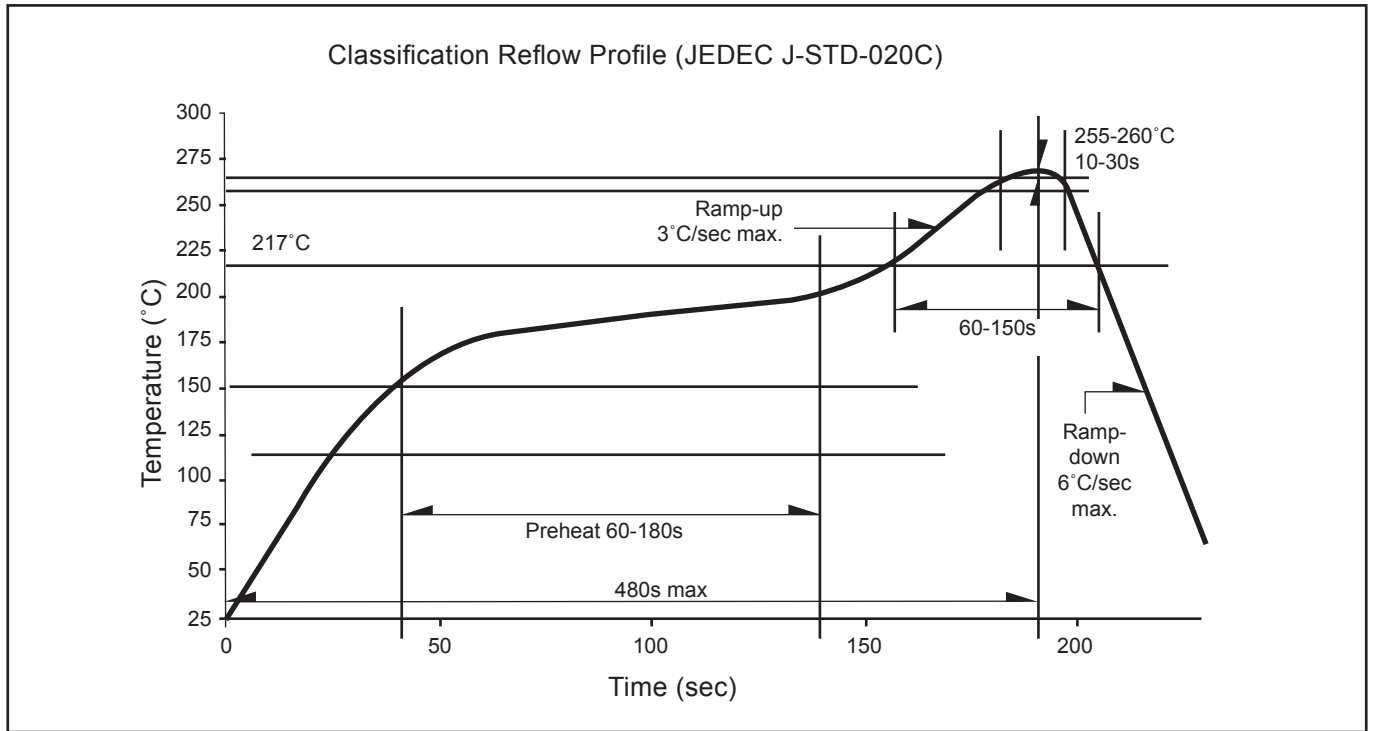
|               | Average 1pc PrimaxPlus | 1 completed bag (1000pcs) |
|---------------|------------------------|---------------------------|
| Weight (gram) | 0.034                  | 230 ± 10                  |



**For PrimaxPlus**

| Cardboard Box Size | Dimensions (mm) | Empty Box Weight (kg) | Reel / Box   |
|--------------------|-----------------|-----------------------|--------------|
| Super Small        | 325 x 225 x 190 | 0.38                  | 7 reels MAX  |
| Small              | 325 x 225 x 280 | 0.54                  | 11 reels MAX |
| Medium             | 570 x 440 x 230 | 1.46                  | 48 reels MAX |
| Large              | 570 x 440 x 460 | 1.92                  | 96 reels MAX |

**Recommended Pb-free Soldering Profile**



## Appendix

### 1) **Brightness:**

- 1.1 Luminous intensity is measured with an internal reproducibility of  $\pm 8 \%$  and an expanded uncertainty of  $\pm 11 \%$  (according to GUM with a coverage factor of  $k=3$ ).
- 1.2 Luminous flux is measured with an internal reproducibility of  $\pm 8 \%$  and an expanded uncertainty of  $\pm 11 \%$  (according to GUM with a coverage factor of  $k=3$ ).

### 2) **Color:**

- 2.1 Chromaticity coordinate groups are measured with an internal reproducibility of  $\pm 0.005$  and an expanded uncertainty of  $\pm 0.01$  (accordingly to GUM with a coverage factor of  $k=3$ ).
- 2.2 DOMINANT wavelength is measured with an internal reproducibility of  $\pm 0.5\text{nm}$  and an expanded uncertainty of  $\pm 1\text{nm}$  (accordingly to GUM with a coverage factor of  $k=3$ ).

### 3) **Voltage:**

- 3.1 Forward Voltage,  $V_f$  is measured with an internal reproducibility of  $\pm 0.05\text{V}$  and an expanded uncertainty of  $\pm 0.1\text{V}$  (accordingly to GUM with a coverage factor of  $k=3$ ).

### 4) **Corrosion Robustness:**

- 4.1 Test conditions:  $40 \text{ }^\circ\text{C} / 90 \text{ } \%$  rh /  $15 \text{ ppm H}_2\text{S} / 336 \text{ h}$ .  
= Stricter than IEC 60068-2-43 ( $\text{H}_2\text{S}$ ) [ $25 \text{ }^\circ\text{C} / 75 \%$  rh /  $10 \text{ ppm H}_2\text{S} / 21 \text{ days}$ ].



**Revision History**

| <b>Page</b>    | <b>Subjects</b>   | <b>Date of Modification</b> |
|----------------|---|-----------------------------|
| -              | Initial release   | 19 Apr 2016                 |
| 10             | Typo error on material  | 10 May 2016                 |
| 14             | Typo error on weight per unit   | 22 Jun 2016                 |
| 1, 2, 8, 9, 16 | Add Features<br>Update Peak Pulse Current<br>Update Real Thermal Resistance<br>Update Graph: Maximum Current Vs Temperature<br>Add Graph: Allowable Forward Current Vs Duty Ratio<br>Add Appendix | 19 Dec 2016                 |
| 1, 8, 10, 11   | Update Product Photo<br>Update Graph: Forward Current Vs Forward Voltage<br>Update Package Outline<br>Update Recommended Solder Pad   | 17 May 2017                 |
| 2              | Add Notes: Minimum CRI of 80  | 10 Jul 2017                 |
|                |   |                             |
|                |   |                             |
|                |   |                             |
|                |   |                             |

**NOTE**

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## About Us

DOMINANT Opto Technologies is a dynamic company that is amongst the world's leading automotive LED manufacturers. With an extensive industry experience and relentless pursuit of innovation, DOMINANT's state-of-art manufacturing and development capabilities have become a trusted and reliable brand across the globe. More information about DOMINANT Opto Technologies, a ISO/TS 16949 and ISO 14001 certified company, can be found under <http://www.dominant-semi.com>.

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