

Power DomiLED

With its significant power in terms brightness, viewing angle and variety of application possibilities, Power DomiLED truly is a standout performer! Ideal for automotive interior lighting as well as home, office and industrial applications, it is also a proven performer in electronic signs and signals.



Features:

- > High brightness surface mount LED.
- > 120° viewing angle.
- > Small package outline (LxWxH) of 3.2 x 2.8 x 1.8mm.
- > Qualified according to JEDEC moisture sensitivity Level 2.
- > Compatible to IR reflow soldering.
- > Environmental friendly; RoHS compliance.
- > Built in ESD protection.
- > Compliance to automotive standard, AEC-Q102.
- > Superior corrosion resistant. *Appx. 6.1*



Applications:

- > Automotive:
Exterior applications, eg: turn signal lamp, side marker.



Optical Characteristics (Tj=25°C)

Part Ordering Number	Color	Viewing Angle°	Luminous Intensity @ 60mA IV (mcd) <i>Appx. 1.1</i>		
			Min.	Typ.	Max.
DWZY-KZKG-X2Y-1	InGaN Yellow	120	2240.0	3550.0	4500.0
DWZY-KZKG-YZ1-1	InGaN Yellow	120	2850.0	4500.0	5600.0

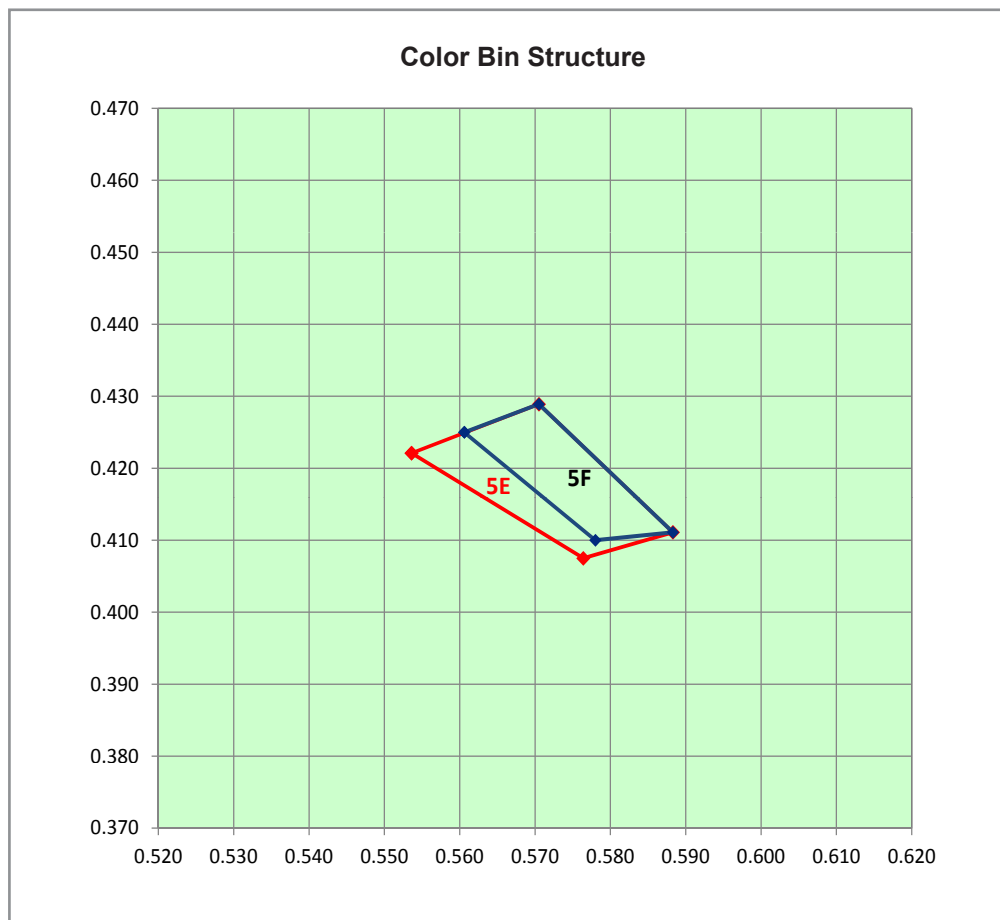
Electrical Characteristics at Tj=25°C

Part Number	Vf @ If = 60mA <i>Appx. 3.1</i>		
	Min. (V)	Typ. (V)	Max. (V)
DWZY-KZKG	2.90	3.10	3.50

Absolute Maximum Ratings

	Maximum Value	Unit
DC forward current	80	mA
Peak pulse current; (Ts=55°C, tp ≤ 100µs, Duty cycle = 0.03)	120	mA
Reverse voltage; Ir (max) = 10µA	Not designed for reverse bias	V
ESD threshold (HBM)	4000	V
LED junction temperature	150	°C
Operating temperature	-40 ... +110	°C
Storage temperature	-40 ... +125	°C
Power dissipation (at room temperature)	300	mW
Thermal resistance (Rated current = 60mA, Ts=25°C)		
- Junction / ambient, Rth JA	280	K/W
- Junction / solder point, Rth JS	130	K/W
(Mounting on DOMINANT standard PCB)		

DWZY, Color Grouping *Appx. 2.1*

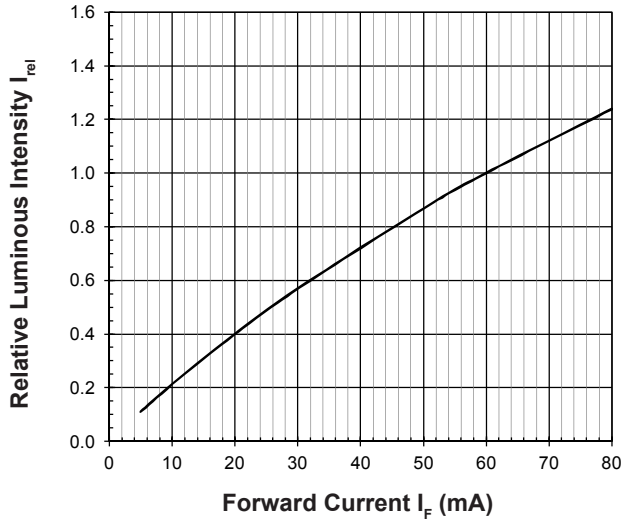


Bin		1	2	3	4
5E	Cx	0.5536	0.5705	0.5883	0.5764
	Cy	0.4221	0.4289	0.4111	0.4075
5F	Cx	0.5606	0.5705	0.5883	0.5780
	Cy	0.4250	0.4289	0.4111	0.4100

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 purposes.

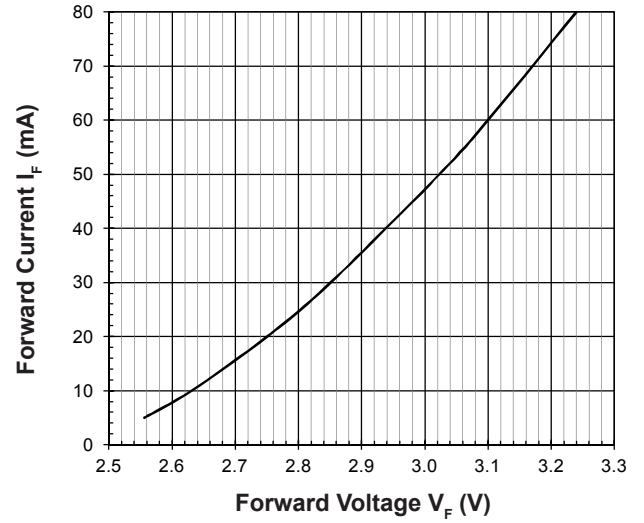
Relative Luminous Intensity Vs Forward Current

$I_v/I_v(60\text{mA}) = f(I_F); T_j = 25^\circ\text{C}$



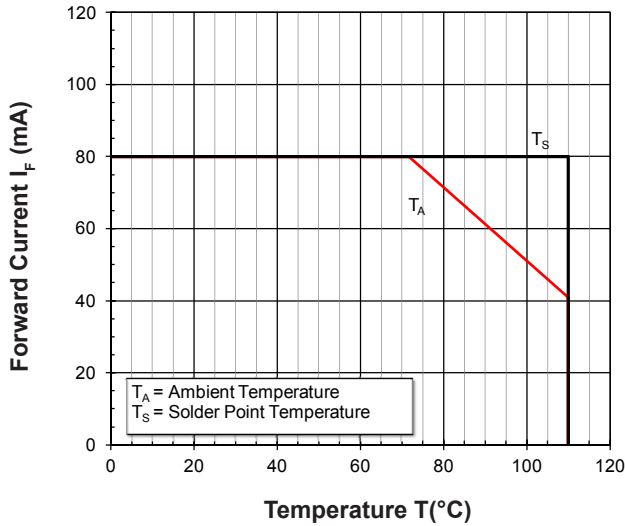
Forward Current Vs Forward Voltage

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



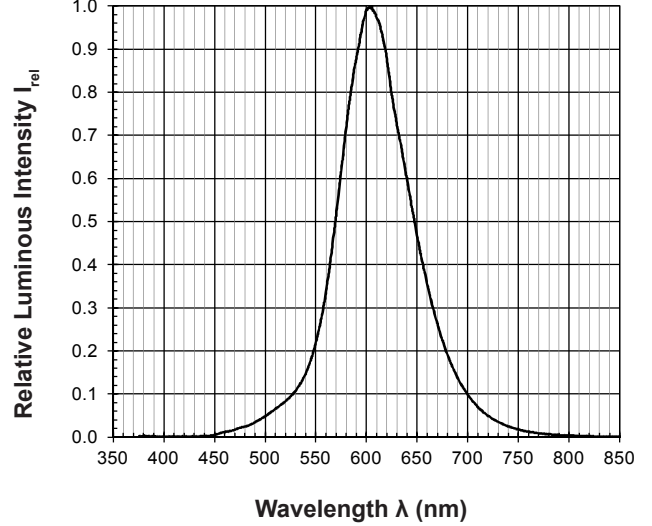
Maximum Current Vs Temperature

$I_F = f(T)$



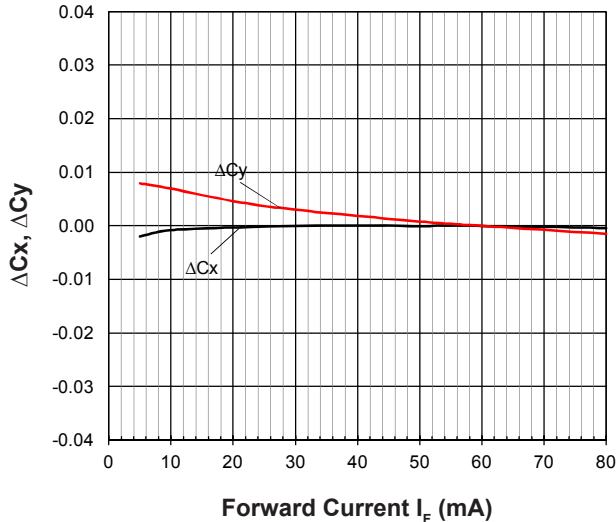
Relative Spectral Emission

$I_{rel} = f(\lambda); T_j = 25^\circ\text{C}; I_F = 60\text{mA}$



Chromaticity Coordinate Shift Vs Forward Current

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

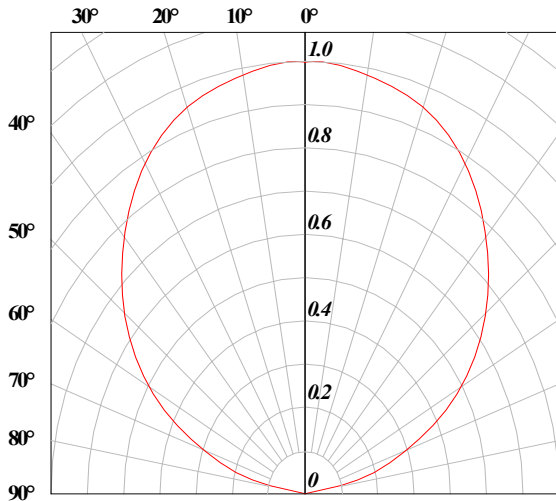


Allowable Forward Current Vs Duty Ratio

$(T_s = 55^\circ\text{C}; t_p \leq 100\mu\text{s})$

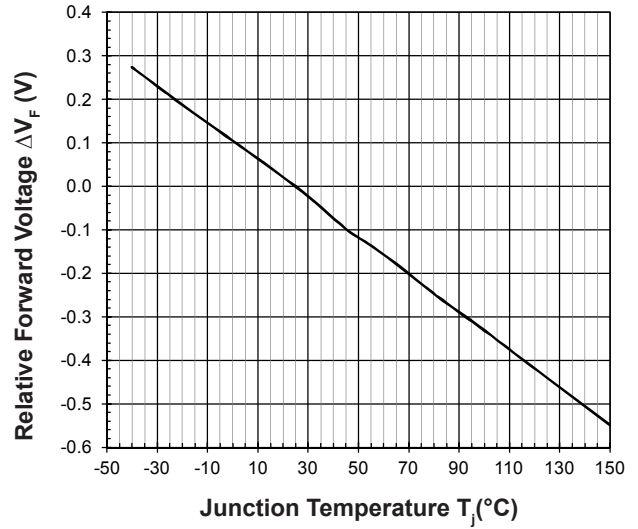


Radiation Pattern



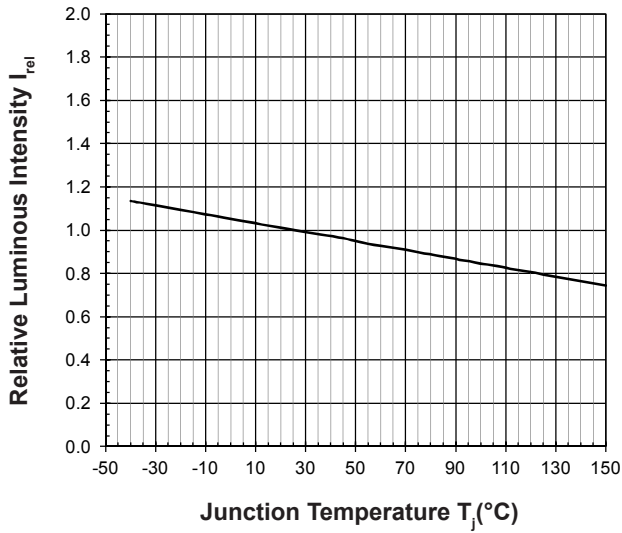
Relative Forward Voltage Vs Junction Temperature

$$\Delta V_F = V_F - V_F(25^\circ\text{C}) = f(T_j); I_F = 60\text{mA}$$



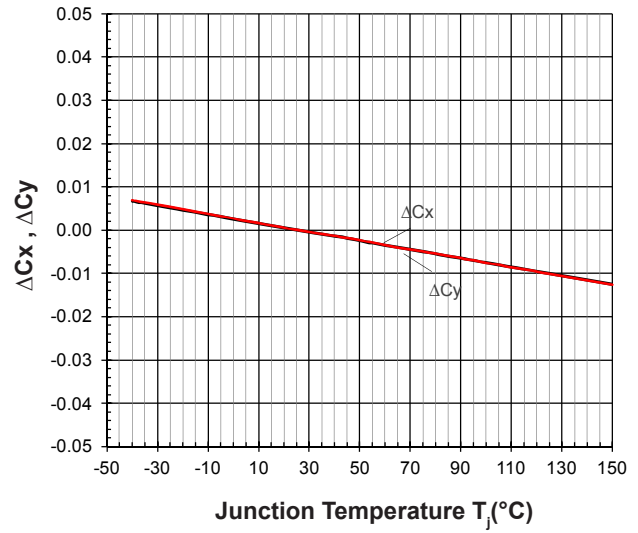
Relative Luminous Intensity Vs Junction Temperature

$$I_V/I_V(25^\circ\text{C}) = f(T_j); I_F = 60\text{mA}$$



Chromaticity Coordinate Shift Vs Junction Temperature

$$\Delta C_x, \Delta C_y = f(T_j); I_F = 60\text{mA}$$



Luminous Intensity Group at Tj=25°C

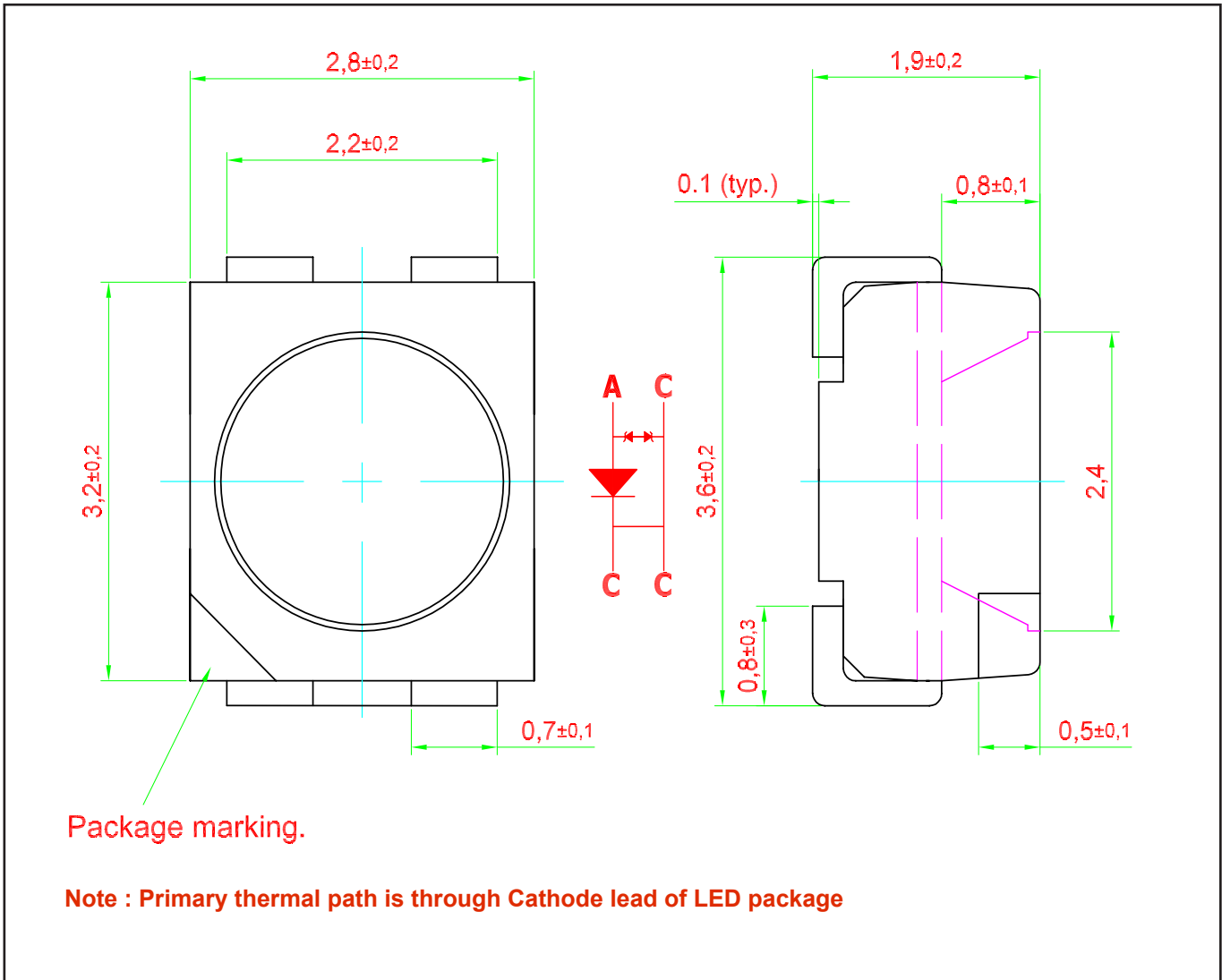
Brightness Group	Luminous Intensity <i>Appx. 1.1</i> IV (mcd)
X2	2240.0 ... 2850.0
Y1	2850.0 ... 3550.0
Y2	3550.0 ... 4500.0
Z1	4500.0 ... 5600.0

Vf Bining (Optional)

Vf Bin @ 60 mA	Forward Voltage (V) <i>Appx. 3.1</i>
V0	2.70 ... 3.00
V1	3.00 ... 3.30
V2	3.30 ... 3.60

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

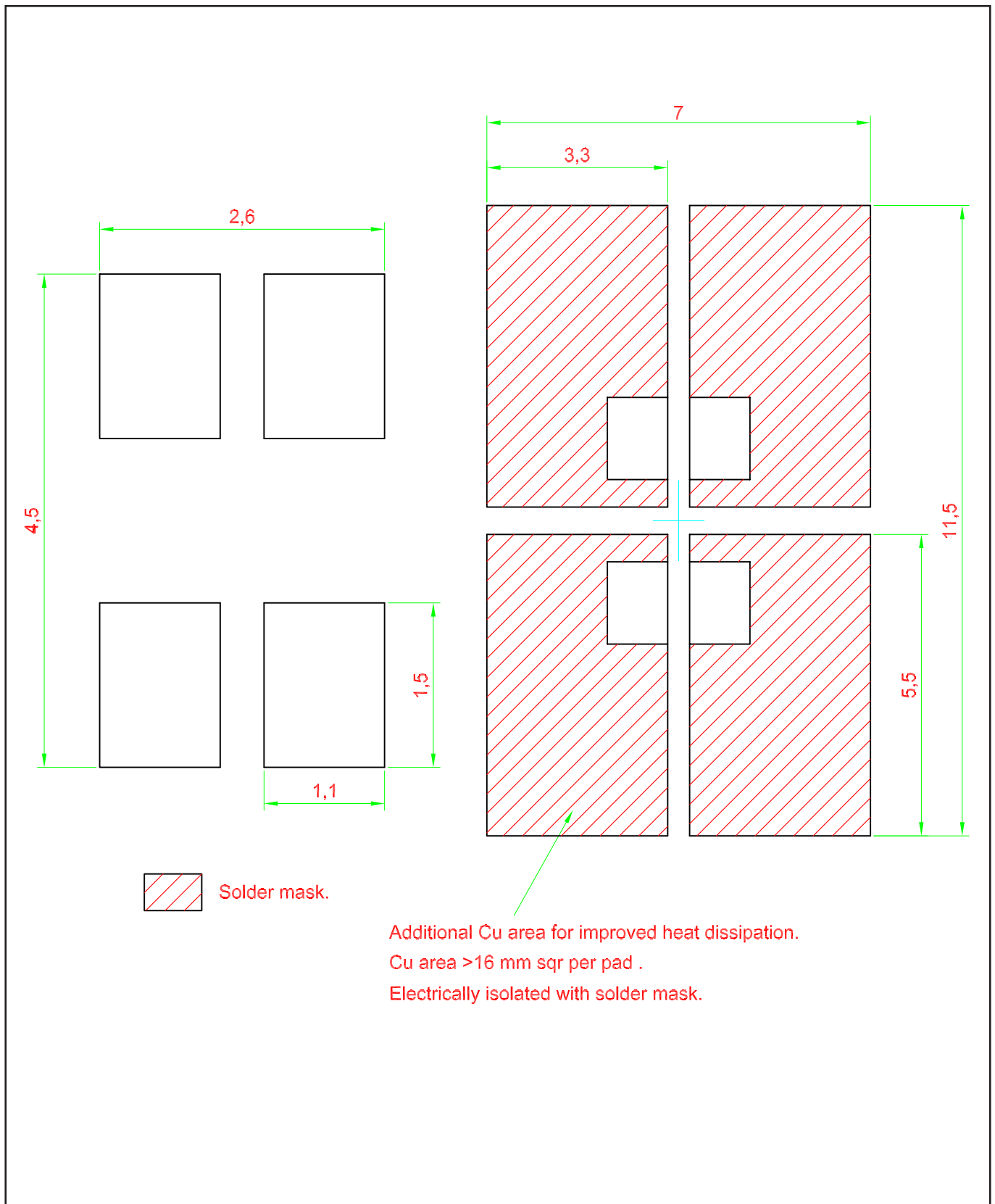
Power DomiLED • InGaN Yellow : DWZY-KZKG Package Outlines



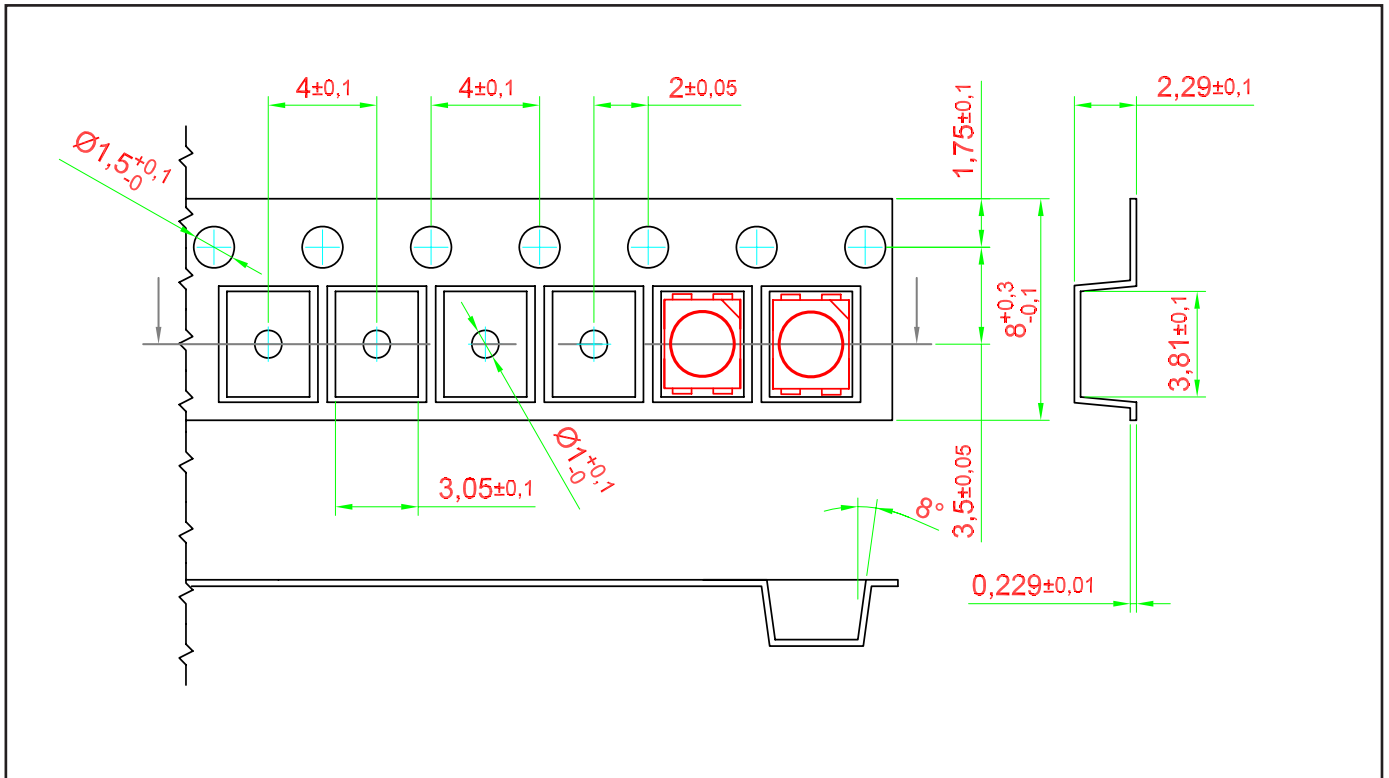
Material

	Material
Lead-frame	Cu Alloy With Au Plating
Package	High Temperature Resistant Plastic, PPA
Encapsulant	Silicone
Soldering Leads	Au Plating

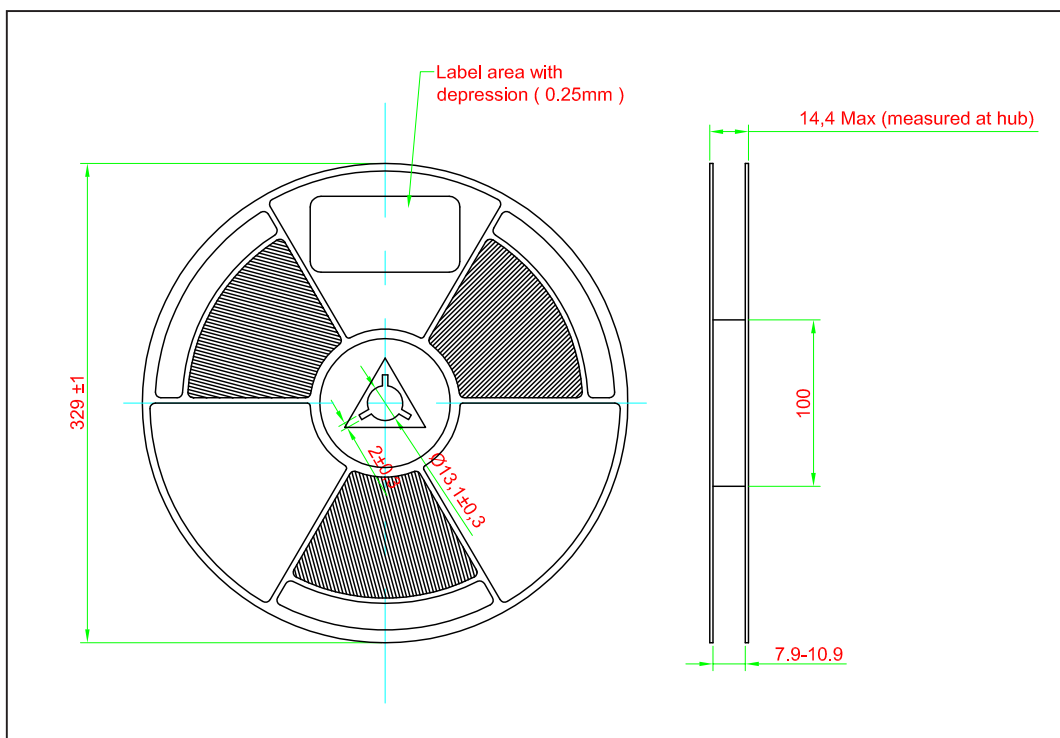
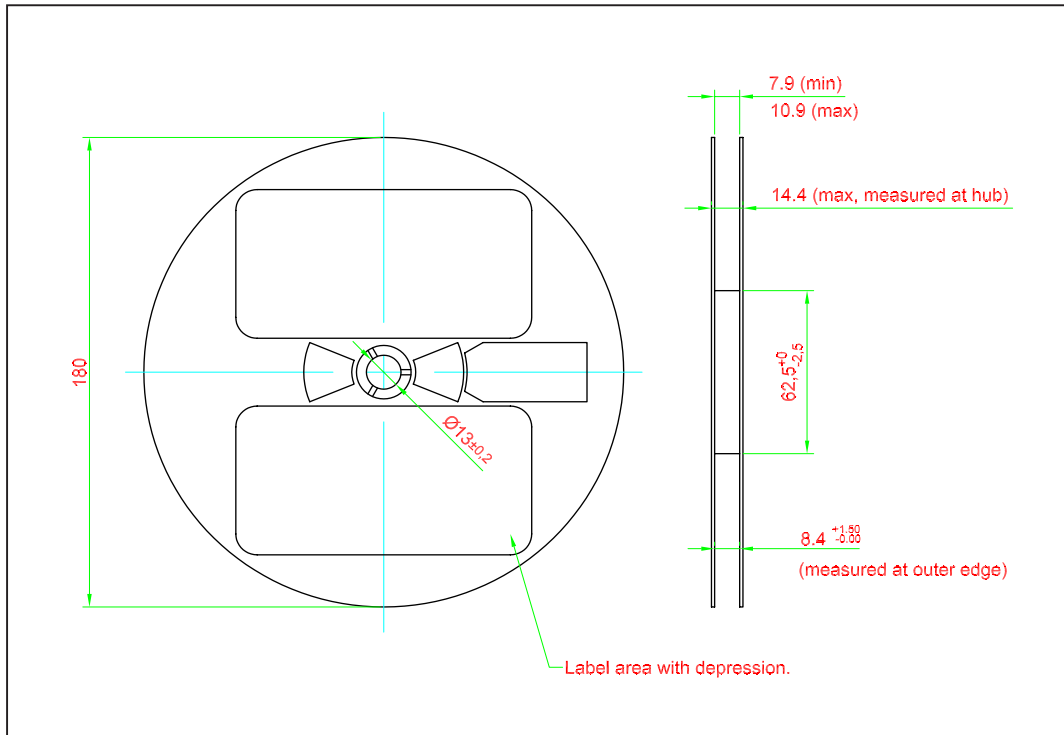
Recommended Solder Pad



Taping and orientation

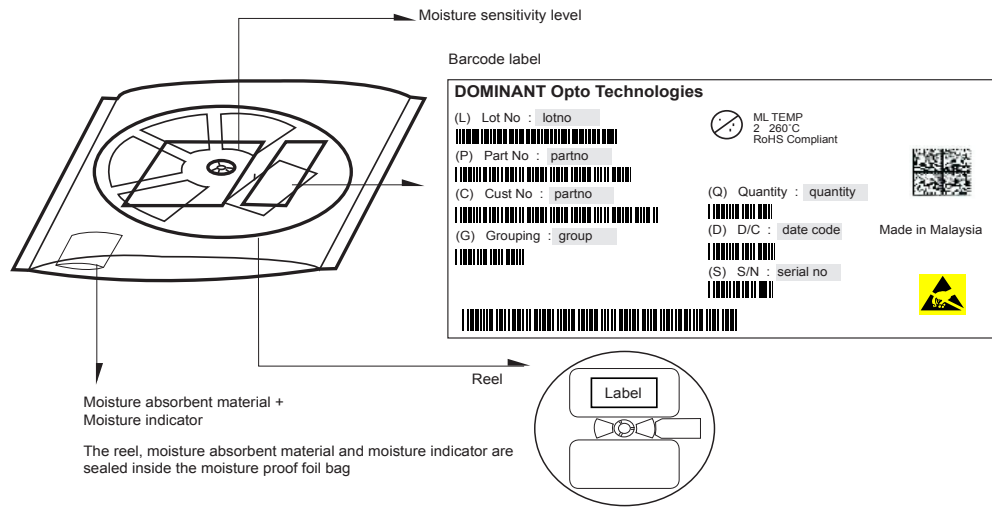


Packaging Specification

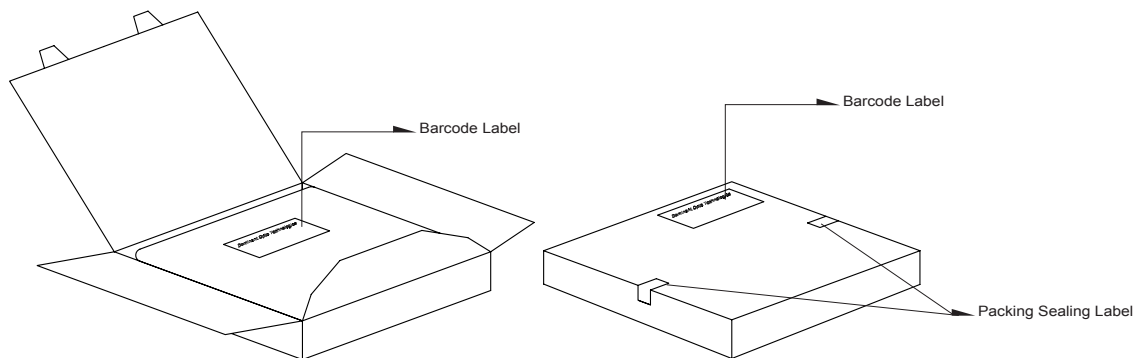


	Reel Diameter (mm)	Quantity (pcs)	Partno
Standard Packing	180	2000	DWZY-KZKG-xxx-x
Optional Packing	329	8000	DWZY-KZKG-xxx-x-8

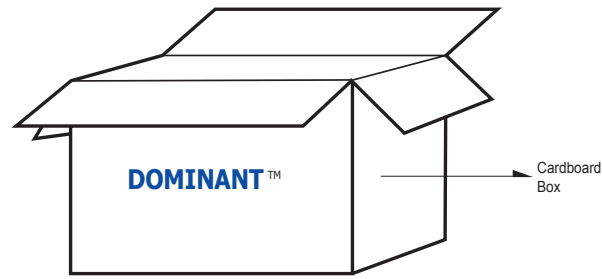
Packaging Specification



Quantity per bag (pcs)	Average 1pc Power DomiLED (gram)	1 completed bag (gram)
2000	0.034	240 ± 10
8000	0.034	750 ± 10

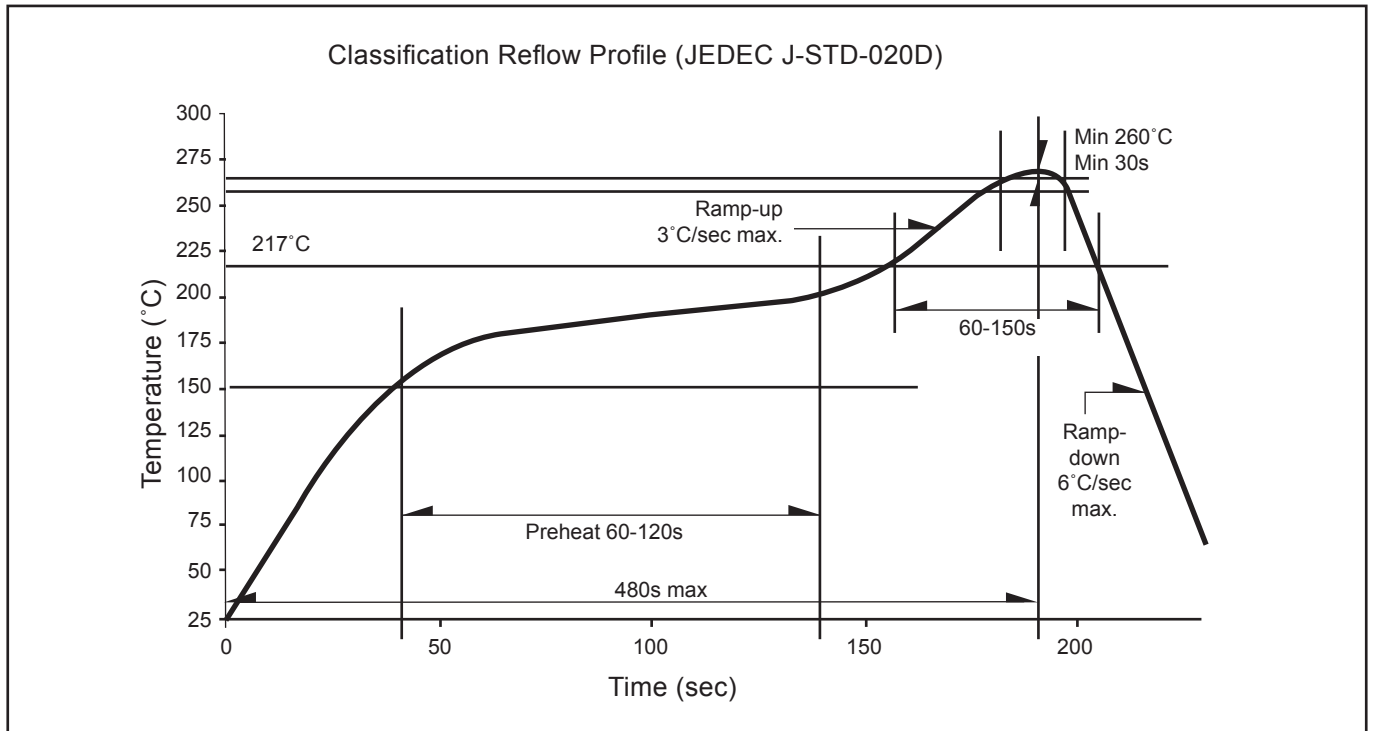


Reel Diameter (mm)	Packing Box Dimensions (mm)
180	210 x 210 x 16
329	345 x 345 x 16



Reel Diameter (mm)	Cardboard Box Size	Dimensions (mm)	Empty Box Weight (kg)	Reel / Box
180	Super Small	325 x 225 x 190	0.38	9 reels MAX
180	Small	325 x 225 x 280	0.54	15 reels MAX
180	Medium	570 x 440 x 230	1.46	60 reels MAX
180	Large	570 x 440 x 460	1.92	120 reels MAX
329	Medium	373 x 373 x 285	1.02	13 reels MAX
329	Large	580 x 373 x 405	1.50	30 reels MAX

Recommended Pb-free Soldering Profile



Appendix

1) **Brightness:**

- 1.1 Luminous intensity is measured at current pulse 25 ms(typ) 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 at current pulse 25 ms(typ) with an internal reproducibility of $\pm 8\%$ and an expanded uncertainty of $\pm 11\%$ (according to GUM with a coverage factor of $k=3$).
- 1.3 Radiant intensity is measured at current pulse 25 ms(typ) with an internal reproducibility of $\pm 8\%$ and an expanded uncertainty of $\pm 11\%$ (according to GUM with a coverage factor of $k=3$).
- 1.4 Radiant flux is measured at current pulse 25 ms(typ) 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 at current pulse 25 ms(typ) with an internal reproducibility of ± 0.005 and an expanded uncertainty of ± 0.01 (accordingly to GUM with a coverage factor of $k=3$).
- 2.2 Dominant wavelength is measured at current pulse 25 ms(typ) 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 when a current pulse of 8 ms(typ) 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) **Typical Values:**

- 4.1 At special conditions of LED manufacturing processes, typical data or calculated correlations of technical parameters only reflect the statistical figures. But not necessarily correspond to the actual parameters of each single product, which could differ from the typical data or calculated correlations or the typical characteristic line. These typical data may change whenever technical improvements happen.

5) **Tolerance of Measure**

- 5.1 Unless otherwise noted in drawing, tolerances are specified with ± 0.1 and dimension are specified in mm.

6) **Corrosion Robustness:**

- 6.1 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 (H_2S) [$25\text{ }^\circ\text{C} / 75\% \text{ rh} / 10 \text{ ppm H}_2\text{S} / 21 \text{ days}$].

Revision History

Page	Subjects	Date of Modification
-	Initial Release	31 Dec 2014
1, 2	Add features Add new partno: DWZY-KZKG-X2Y-1	31 Mar 2015
1, 3, 7, 11	Add Features Add Characteristics Add Notes in Packaging Outline Update Packaging Specification	22 Dec 2015
1, 2, 4, 5, 7, 13	Update Applications Typo Error in Color Update Graph Typo error in material Add Appendix	07 Oct 2016
2, 3, 11, 13	Update Thermal Resistance Update Color Bin Structure Update Package Specification Update Appendix	14 Feb 2019
10, 11, 12, 14	Update Features Update Graph: Allowable Forward Current Vs Duty Ratio Update Package Specification Update Appendix	27 Feb 2020

NOTE

All the information contained in this document is considered to be reliable at the time of publishing. However, DOMINANT Opto Technologies does not assume any liability arising out of the application or use of any product described herein.

DOMINANT Opto Technologies reserves the right to make changes to any products in order to improve reliability, function or design.

DOMINANT Opto Technologies products are not authorized for use as critical components in life support devices or systems without the express written approval from the Managing Director of DOMINANT Opto Technologies.

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, an IATF 16949 and ISO 14001 certified company, can be found under <http://www.dominant-semi.com>.

Please contact us for more information:

DOMINANT Opto Technologies Sdn. Bhd
Lot 6, Batu Berendam, FTZ Phase III, 75350 Melaka, Malaysia.
Tel: +606 283 3566 Fax: +606 283 0566
E-mail: sales@dominant-semi.com
