

Mini DomiLED

With the intense colors that seem to glow with energy and its significant brightness, Mini DomiLED white LED is a highly reliable design device. Its dynamic nature makes it perfect choice for lighthing applications, office and home applications and standard industrial applications.



Features:

- > High brightness surface mount LED.
- > Based on InGaN technology.
- > 120° viewing angle.
- > Small package outline (LxWxH) of 2.0 x 1.8 x 1.3mm.
- > Qualified according to JEDEC moisture sensitivity Level 2.
- > Compatible to both IR reflow soldering.
- > Environmental friendly; RoHS compliance.
- > Superior Corrosion Resistance.
- > Compliance to automotive standard; AEC-Q102.



Applications:

- > Automotive: interior applications, eg: switches, climate control system, dashboard, etc.

Optical Characteristics at Tj=25°C

Part Number	Color	Viewing Angle°	Luminous Intensity @ IF = 30mA IV (mcd) <i>Appx. 1.1</i>		
			Min.	Typ.	Max.
DFZY-HZKG-W2X-5E	InGaN Yellow	120	1400.0	2240.0	2850.0
DFZY-HZKG-X1X2-5D	InGaN Yellow	120	1800.0	2240.0	2850.0
● DFZY-HZKG-WX1-5E	InGaN Yellow	120	1125.0	1800.0	2240.0
● DFZY-HZKG-W2X1-5D	InGaN Yellow	120	1400.0	1800.0	2240.0

● Not for new design

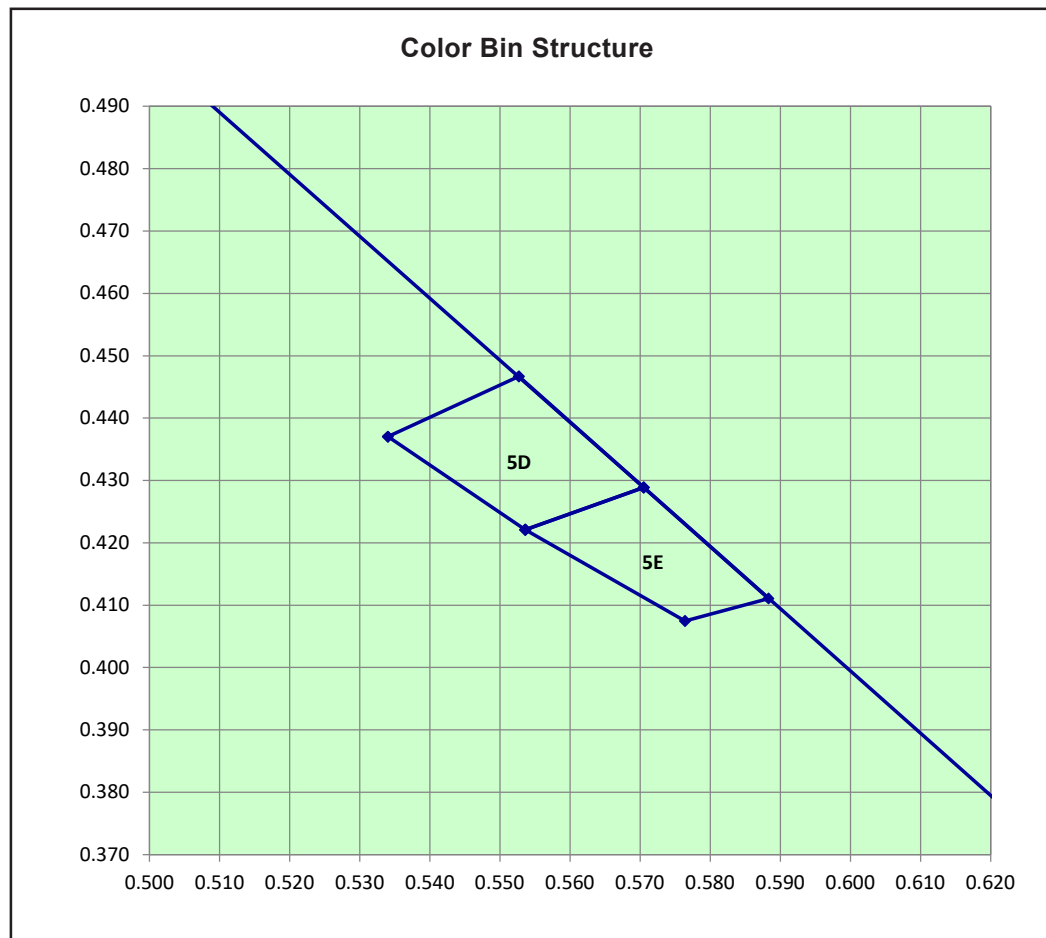
Electrical Characteristics at Tj=25°C

Part Number	Vf @ If = 30mA <i>Appx. 3.1</i>		
	Min. (V)	Typ. (V)	Max. (V)
DFZY-HZKG	2.8	3.1	3.4

Absolute Maximum Ratings

	Maximum Value	Unit
DC forward current	50	mA
Peak pulse current; (T _s =55°C, tp<=100μs , Duty cycle=0.03)	100	mA
Reverse voltage <i>Appx. 6.1</i>	Not for reverse bias	V
ESD threshold (HBM)	8000	V
LED junction temperature	125	°C
Operating temperature	-40 ... +115	°C
Storage temperature	-40 ... +125	°C
Power dissipation (at room temperature)	170	mW
Thermal resistance (Rated current = 30mA, Ts = 25 °C)		
- Real Thermal Resistance		
Junction / solder point, R _{th JS}	130	K/W

DFZY, 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
5D	Cx	0.5340	0.5527	0.5705	0.5536
	Cy	0.4370	0.4467	0.4289	0.4221

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.

Luminous Intensity Group at Tj=25°C

Brightness Group	Luminous Intensity Appx. 1.1 IV (mcd)
W1	1125.0 ... 1400.0
W2	1400.0 ... 1800.0
X1	1800.0 ... 2240.0
X2	2240.0 ... 2850.0

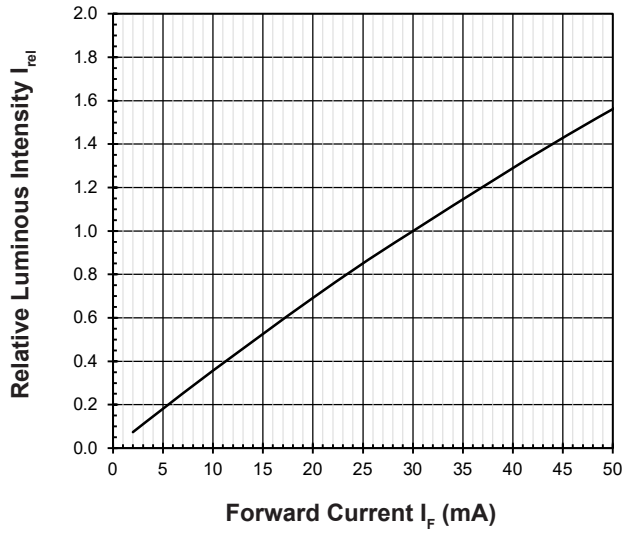
Vf Bining (Optional)

Vf @ If = 30mA	Forward Voltage (V) Appx. 3.1
VR7	2.80 ... 3.10
VR8	3.10 ... 3.40

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

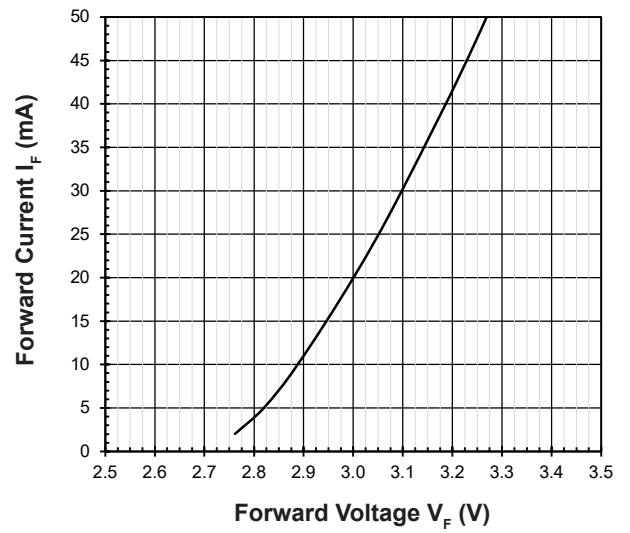
Relative Luminous Intensity Vs Forward Current Appx. 4.1

$$I_v/I_v(30\text{mA}) = f(I_F); T_j = 25^\circ\text{C}$$



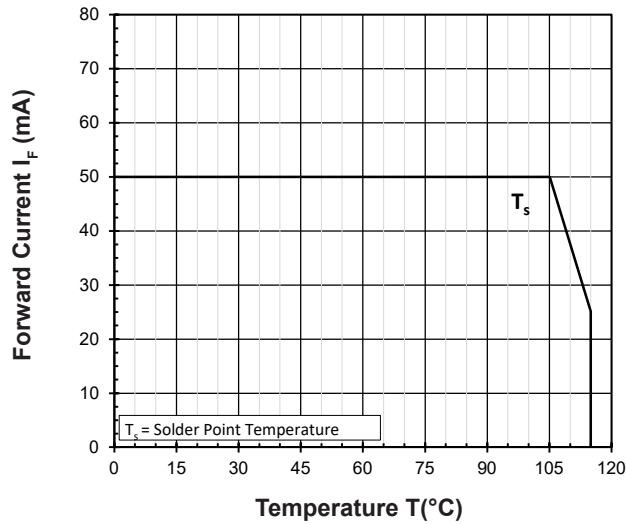
Forward Current Vs Forward Voltage Appx. 4.1

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



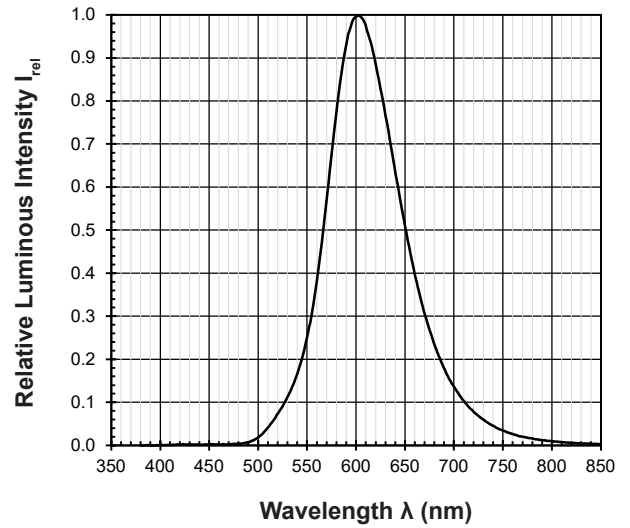
Maximum Current Vs Temperature

$$I_F = f(T)$$



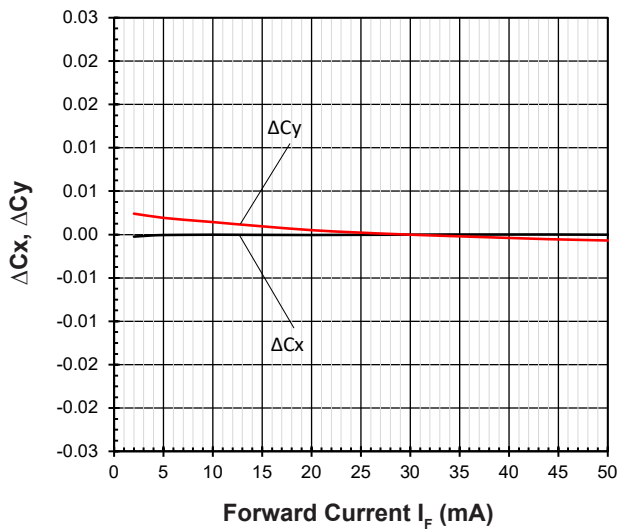
Relative Spectral Emission Appx. 4.1

$$I_{rel} = f(\lambda); T_j = 25^\circ\text{C}; I_F = 30\text{mA}$$



Chromaticity Coordinate Shift Vs Forward Current Appx. 4.1

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

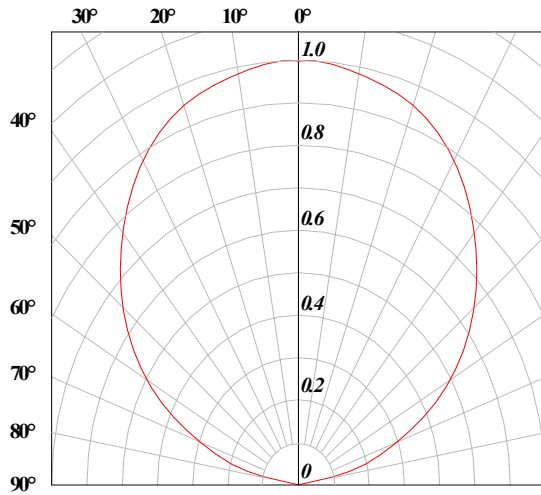


Allowable Forward Current Vs Duty Ratio

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

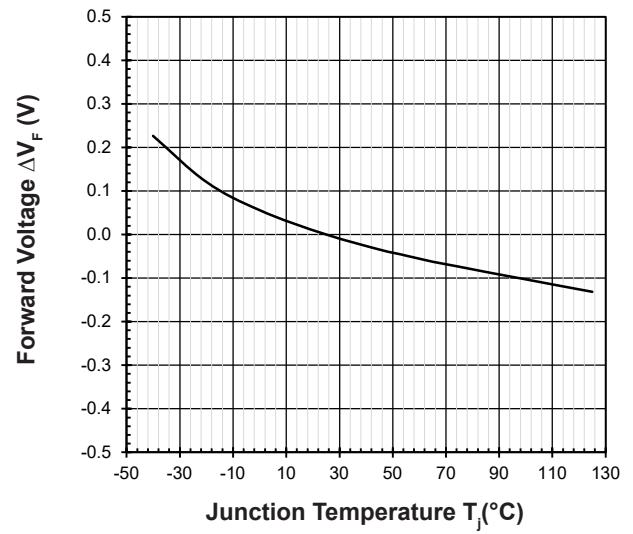


Radiation Pattern Appx. 4.1



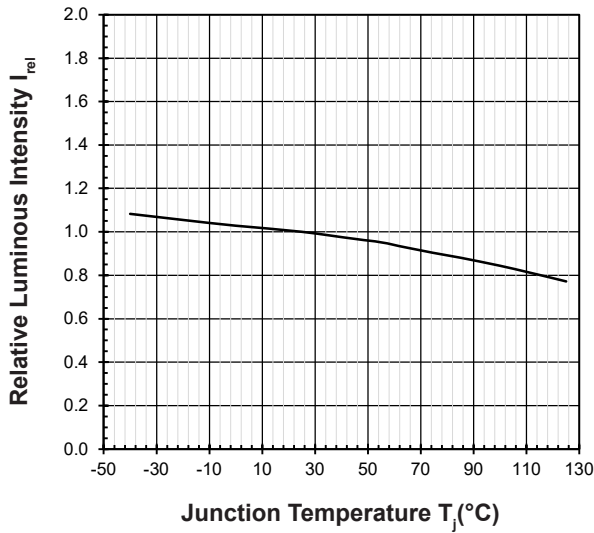
Forward Voltage Vs Junction Temperature Appx. 4.1

$$\Delta V_F = V_F - V_F(25^\circ\text{C}) = f(T_J); I_F = 30\text{mA}$$



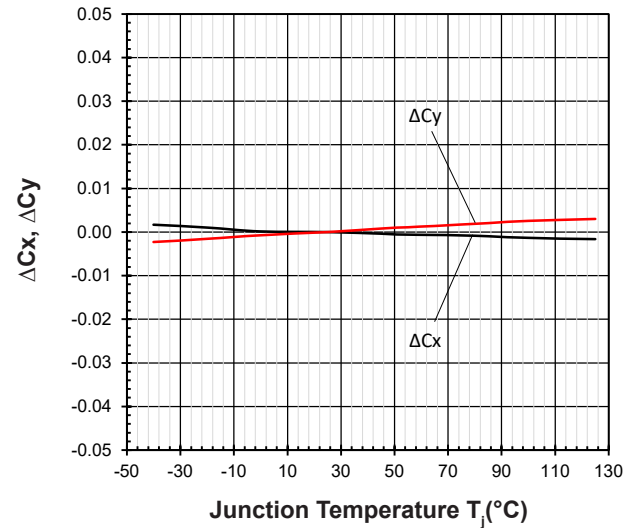
Relative Luminous Intensity Vs Junction Temperature Appx. 4.1

$$I_V/I_V(25^\circ\text{C}) = f(T_J); I_F = 30\text{mA}$$

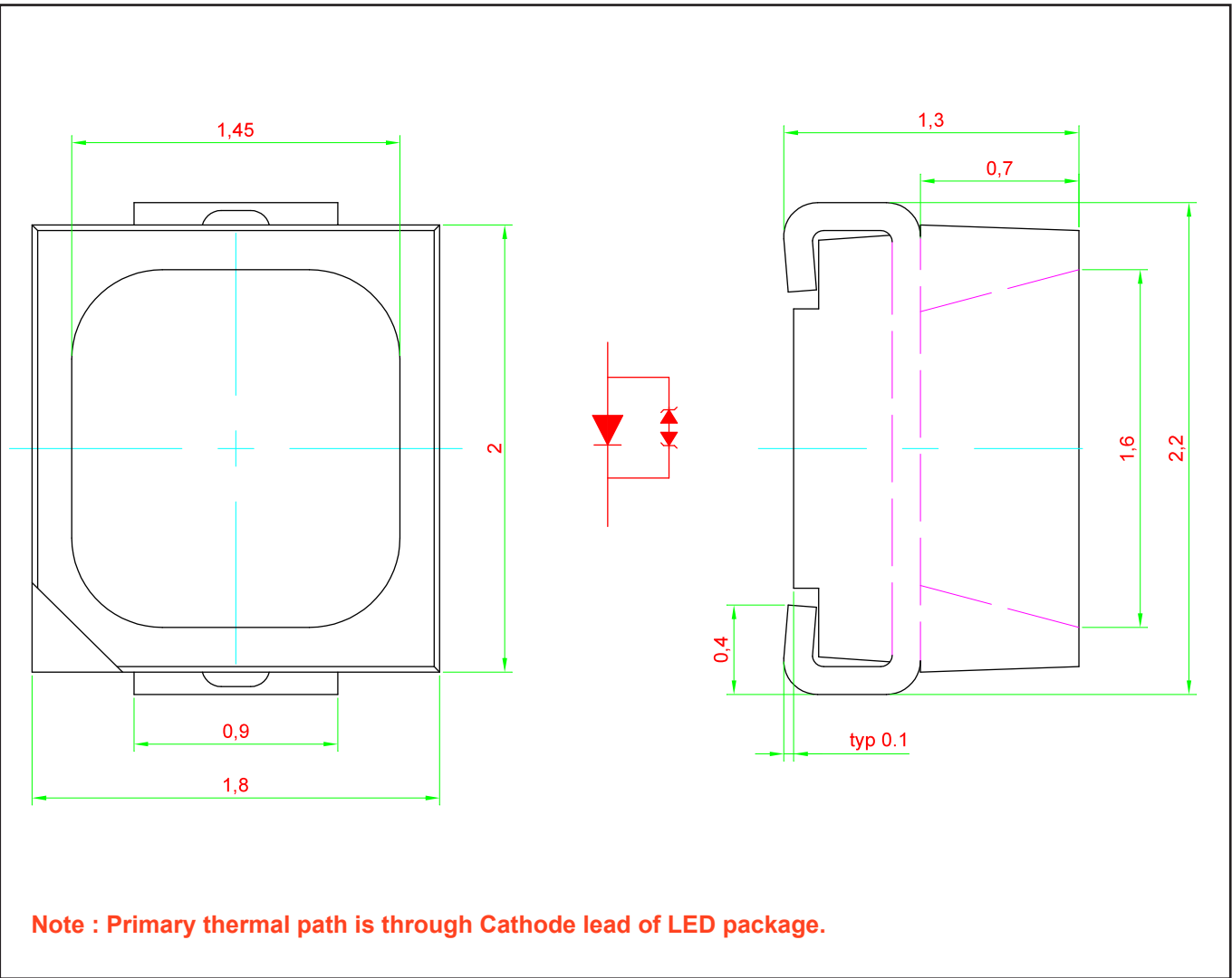


Chromaticity Coordinate Shift Vs Junction Temperature Appx. 4.1

$$\Delta C_x, \Delta C_y = f(T_J); I_F = 30\text{mA}$$



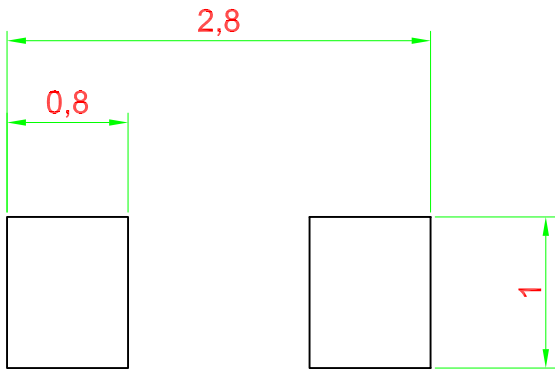
MiniPlus DomiLED • InGaN : DFZY-HZKG Package Outlines *Appx. 5.1*



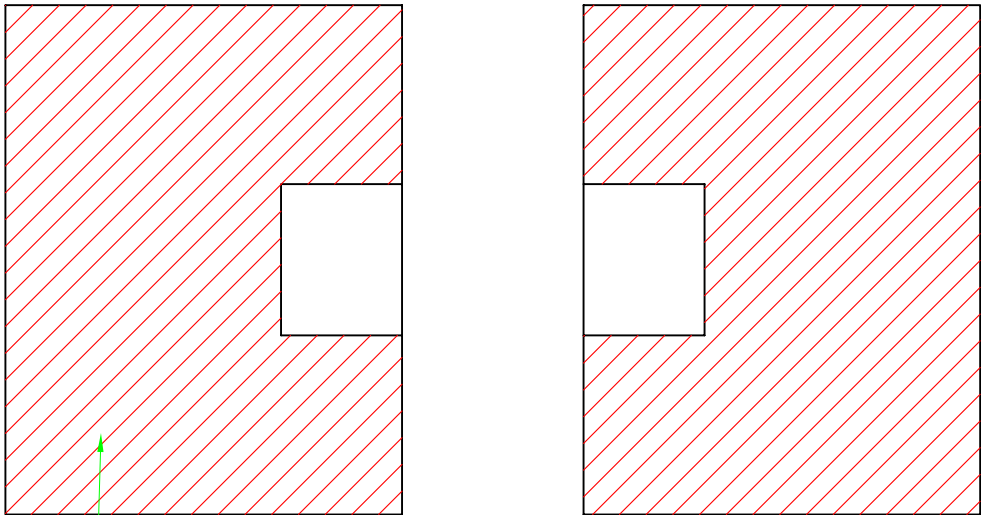
Material

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

Recommended Solder Pad *Appx. 5.1*



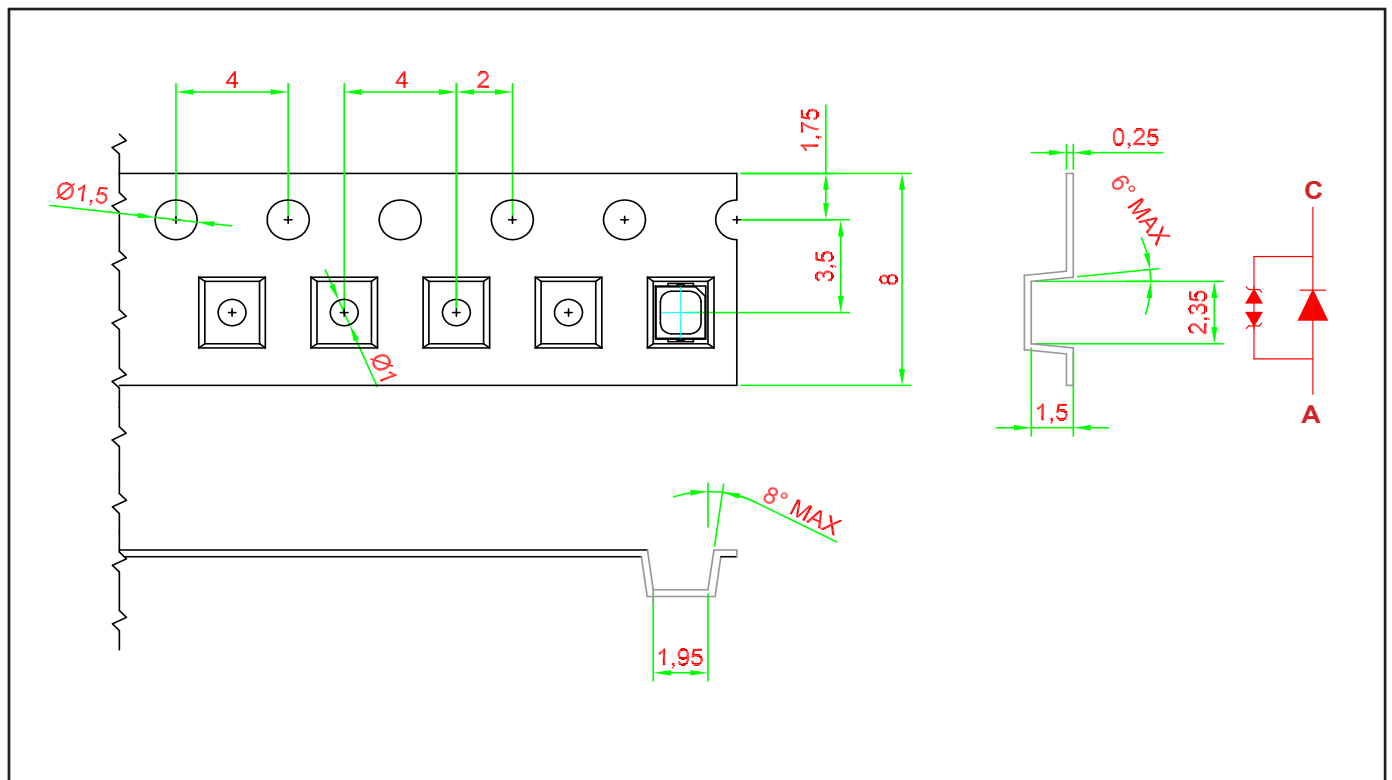
Improved Design For Better Heat Dissipation



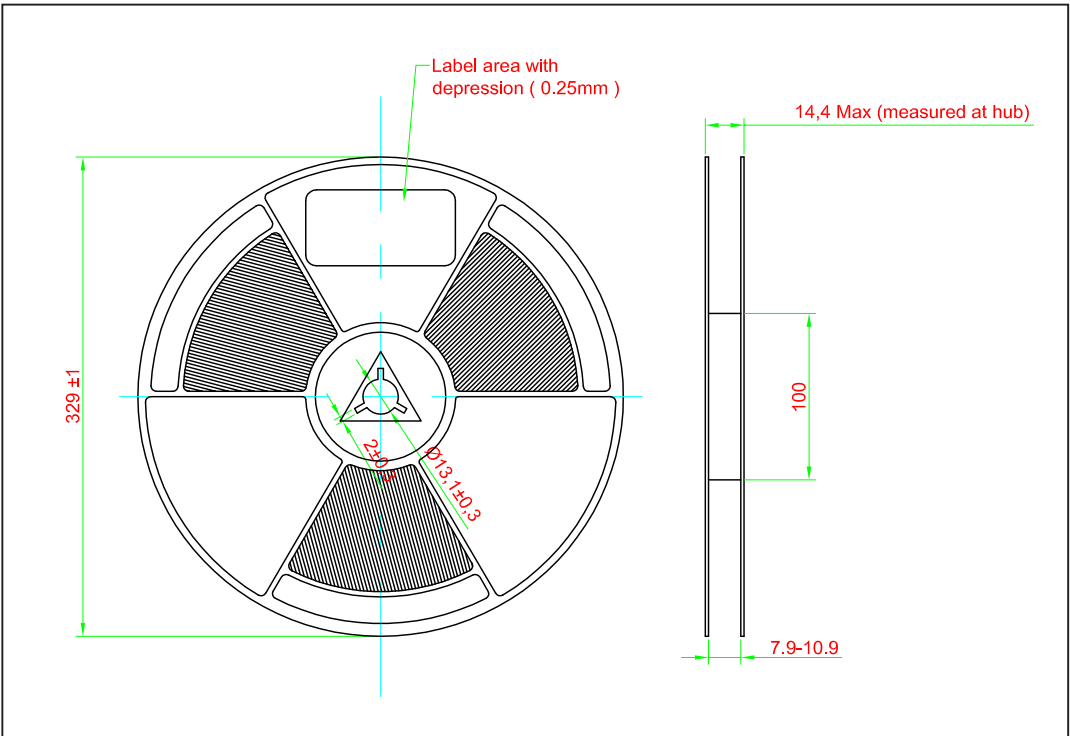
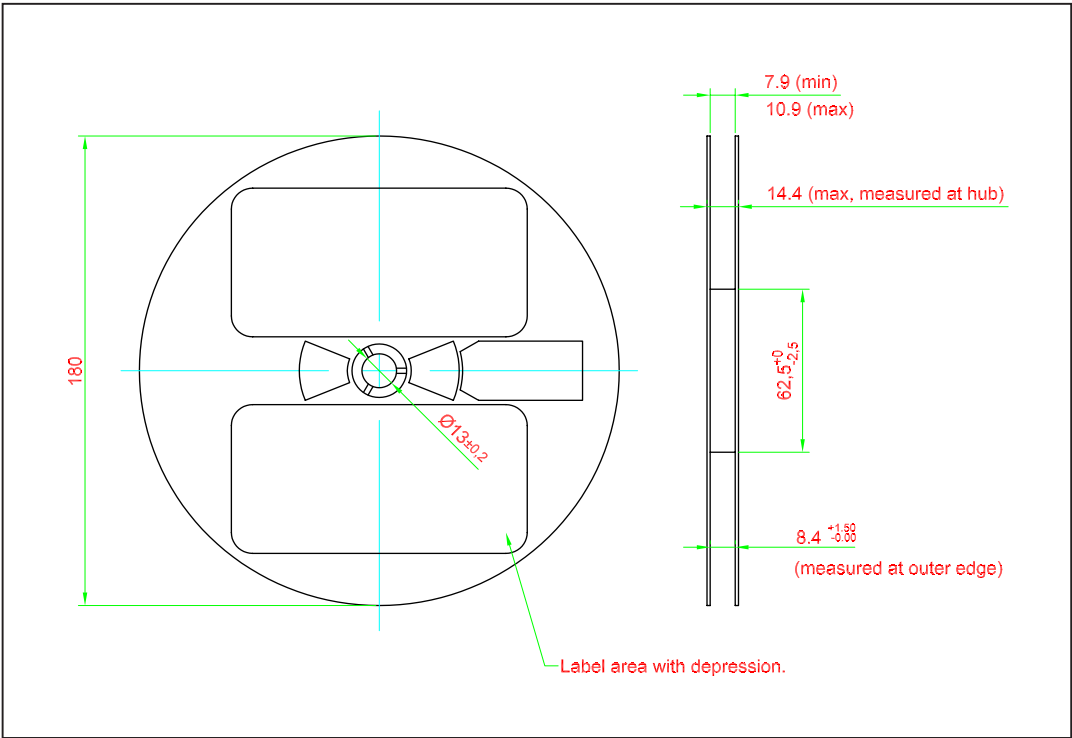
Additional Cu area for improved heat dissipation, > 16mm sq.

 Solder resist.

Taping and orientation *Appx. 5.1*



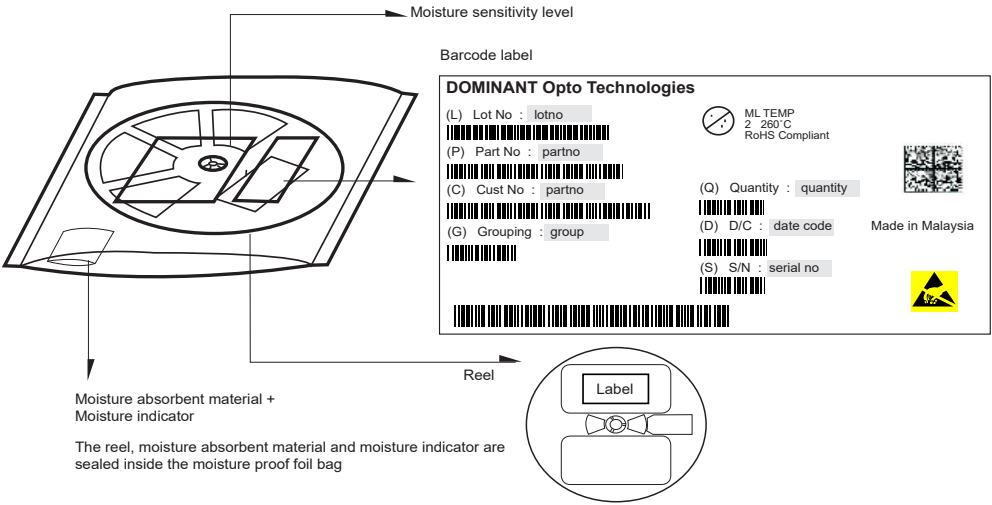
Packaging Specification



	Reel Diameter (mm)	Quantity (pcs)	*Ordering Number
Standard Packing	180	3000	DFZY-HZKG-xxx-x
Optional Packing	329	12000	DFZY-HZKG-xxx-x-K

Notes:
* For ordering purpose only. Please consult sales and marketing for details.

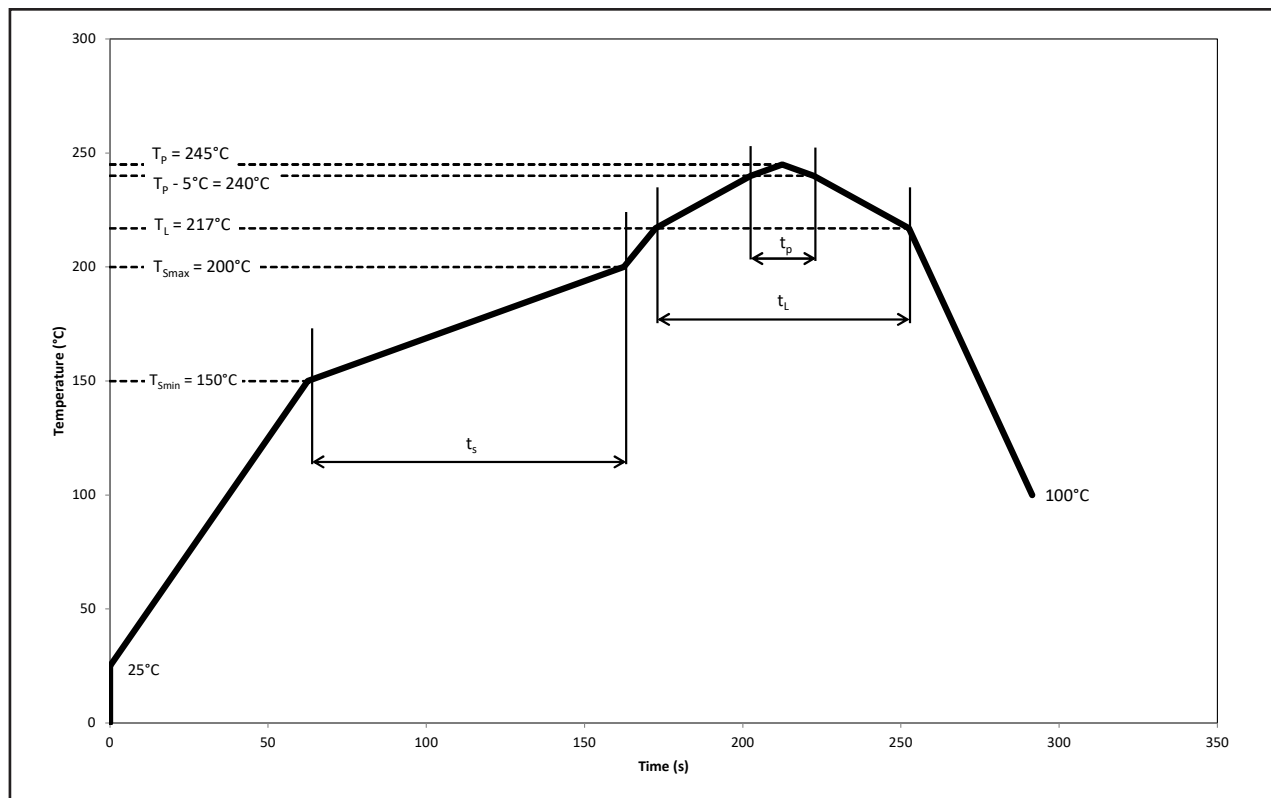
Packaging Specification



Quantity per bag (pcs)	Average 1pc MiniPlus DomiLED	1 completed bag (gram)
3000	0.008	203 ± 10
12000	0.008	555 ± 10

Recommended Pb-free Soldering Profile

Product complies to MSL Level 2 acc. to JEDEC J-STD-020E



Profile Feature	Symbol	Pb-Free Assembly			Unit
		Min.	Recommended	Max.	
Ramp-up rate to preheat 25°C to T _{smin}	-	-	2	3	°C/s
Time t _s T _{smin} to T _{smax}	t _s	60	100	120	s
Ramp-up rate to peak T _L to T _p	-	-	2	3	°C/s
Liquidous temperature	T _L	-	217	-	°C
Time above liquidous temperature	t _L	60	80	150	s
Peak temperature	T _p	-	245	260	°C
Time within 5°C of the specified peak temperature T _p - 5°C	t _p	10	20	30	s
Ramp-down rate T _p to 100°C	-	-	3	6	°C/s
Time 25°C to T _p	-	-	-	480	s

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 Due to the specific conditions of semiconductor devices' manufacturing processes, the provided typical data and calculated correlations of technical parameters should only be considered as statistical values. It is important to note that the actual parameters of individual devices may deviate from these typical data, calculated correlations or the typical characteristic line. Dominant reserves the right to update this typical data without prior notice, particularly in response to technical enhancements.

5) **Tolerance of Measure**

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

6) **Reverse Voltage:**

- 6.1 Not designed for reverse operation. Continuous reverse voltage can cause migration and LED damage.

Revision History

Page	Subjects	Date of Modification
-	Initial Release	01 Nov 2022
2	Not for New Design: DFZY-HZKG-WX1-5E, DFZY-HZKG-W2X1-5D Add New Part No: DFZY-HZKG-W2X-5E, DFZY-HZKG-X1X2-5D	03 Jan 2025

NOTE

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Dispose of product is in accordance with local, regional, national and international regulations.

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>.

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