

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 4.0 x 1.4 x 1.3mm.
- > Qualified according to JEDEC moisture sensitivity Level 2.
- > Compatible to both IR reflow soldering.
- > Environmental friendly; RoHS compliance.
- > Compliance to automotive standard; AEC-Q101.
- > Passed Corrosion Resistant Test. *Appx. 4.1*



Applications:

- > Automotive: interior applications, eg: switches, telematics, climate control system, dashboard, etc.
- > Communication: indicator and backlight in mobilephone.
- > Display: full color display video notice board.
- > Industry: white goods (eg: Oven, microwave, etc.).



Optical Characteristics at Tj=25°C

Part Ordering Number	Viewing Angle°	Luminous Intensity @ 10mA (mcd) <i>Appx. 1.1</i>		
		Min.	Typ.	Max.
DNZB-DRG-RS1-1J5L-1-I1	120	112.5	180.0	224.0
DNZB-DRG-R2S-6J8L-1-I1	120	140.0	224.0	285.0

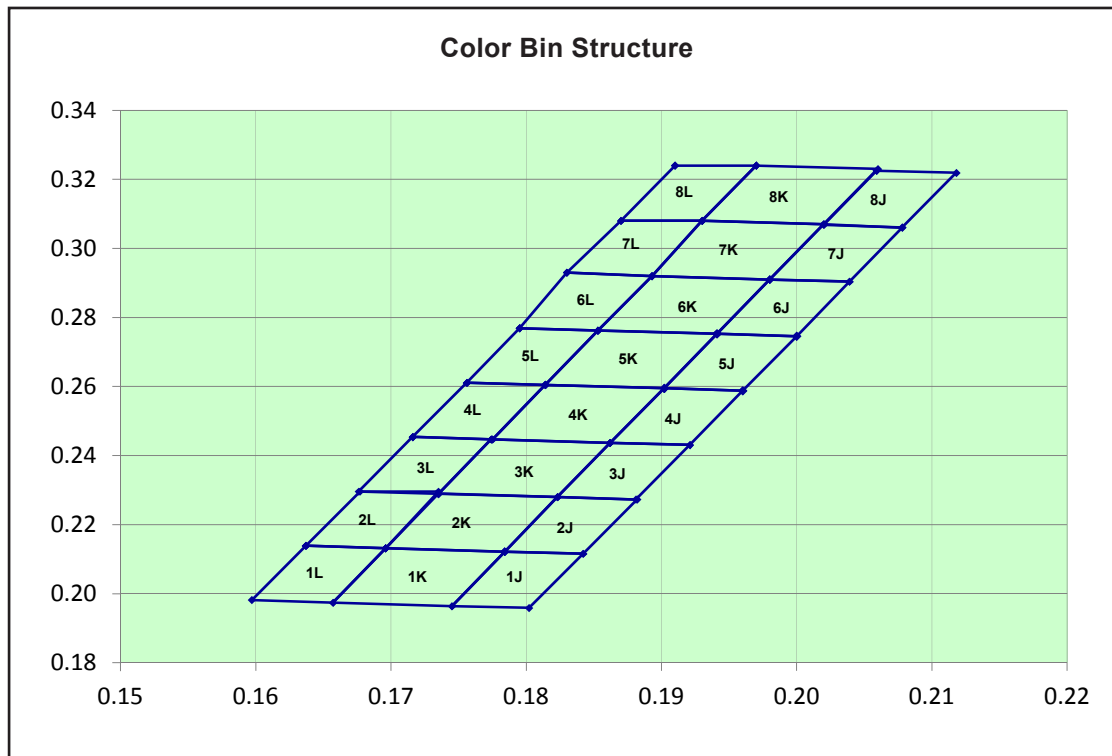
Electrical Characteristics at Tj=25°C

Part Number	Vf @ If = 10 mA <i>Appx. 3.1</i>			Vr @ Ir = 10 µA
	Min. (V)	Typ. (V)	Max. (V)	Min. (V)
DNZB-DRG	2.7	3.0	3.5	5.0

Absolute Maximum Ratings

	Maximum Value	Unit
DC forward current	20	mA
Peak pulse current; (tp ≤ 10µs, Duty cycle = 0.005)	100	mA
Reverse voltage	5	V
ESD threshold (HBM)	2000	V
LED junction temperature	110	°C
Operating temperature	-40 ... +100	°C
Storage temperature	-40 ... +100	°C
Power dissipation (at room temperature)	70	mW
Real Thermal resistance		
- Junction / ambient, Rth JA real	530	K/W
- Junction / solder point, Rth JS real	280	K/W
(Mounting on FR4 PCB, pad size ≥ 5 mm ² per pad)		

DNZB, Color Grouping *Appx. 2.1*



Bin		1	2	3	4
1J	Cx	0.1784	0.1842	0.1802	0.1745
	Cy	0.2122	0.2116	0.1959	0.1964
1K	Cx	0.1696	0.1784	0.1745	0.1657
	Cy	0.2132	0.2122	0.1964	0.1974
1L	Cx	0.1637	0.1696	0.1657	0.1597
	Cy	0.2139	0.2132	0.1974	0.1982
2J	Cx	0.1784	0.1842	0.1882	0.1823
	Cy	0.2122	0.2116	0.2273	0.2280
2K	Cx	0.1696	0.1784	0.1823	0.1735
	Cy	0.2132	0.2122	0.2280	0.2290
2L	Cx	0.1637	0.1696	0.1735	0.1677
	Cy	0.2139	0.2132	0.2296	0.2296
3J	Cx	0.1862	0.1823	0.1881	0.1921
	Cy	0.2437	0.2280	0.2273	0.2431
3K	Cx	0.1774	0.1735	0.1823	0.1862
	Cy	0.2447	0.2289	0.2280	0.2437
3L	Cx	0.1716	0.1676	0.1735	0.1774
	Cy	0.2454	0.2296	0.2289	0.2447
4J	Cx	0.1902	0.1862	0.1921	0.1960
	Cy	0.2595	0.2437	0.2431	0.2588

Bin		1	2	3	4
4K	Cx	0.2700	0.2775	0.2861	0.2797
	Cy	0.2361	0.2292	0.2427	0.2509
4L	Cx	0.2624	0.2700	0.2797	0.2733
	Cy	0.2431	0.2361	0.2509	0.2590
5J	Cx	0.2520	0.2624	0.2733	0.2646
	Cy	0.2527	0.2431	0.2590	0.2700
5K	Cx	0.2416	0.2559	0.2646	0.2520
	Cy	0.2623	0.2810	0.2700	0.2527
5L	Cx	0.2312	0.2472	0.2559	0.2416
	Cy	0.2719	0.2920	0.2810	0.2623
6J	Cx	0.2797	0.2861	0.2950	0.2898
	Cy	0.2509	0.2427	0.2568	0.2664
6K	Cx	0.2733	0.2797	0.2898	0.2848
	Cy	0.2590	0.2509	0.2664	0.2757
6L	Cx	0.2646	0.2733	0.2848	0.2780
	Cy	0.2700	0.2590	0.2757	0.2883
7J	Cx	0.2559	0.2712	0.2780	0.2646
	Cy	0.2810	0.3009	0.2883	0.2700
7K	Cx	0.2472	0.2644	0.2712	0.2559
	Cy	0.2920	0.3135	0.3009	0.2810
7L	Cx	0.2898	0.2950	0.3045	0.3007
	Cy	0.2664	0.2568	0.2717	0.2830
8J	Cx	0.2848	0.2898	0.3007	0.2971
	Cy	0.2757	0.2664	0.2830	0.2935
8K	Cx	0.2780	0.2848	0.2971	0.2922
	Cy	0.2883	0.2757	0.2935	0.3077
8L	Cx	0.2712	0.2873	0.2922	0.2780
	Cy	0.3009	0.3219	0.3077	0.2883

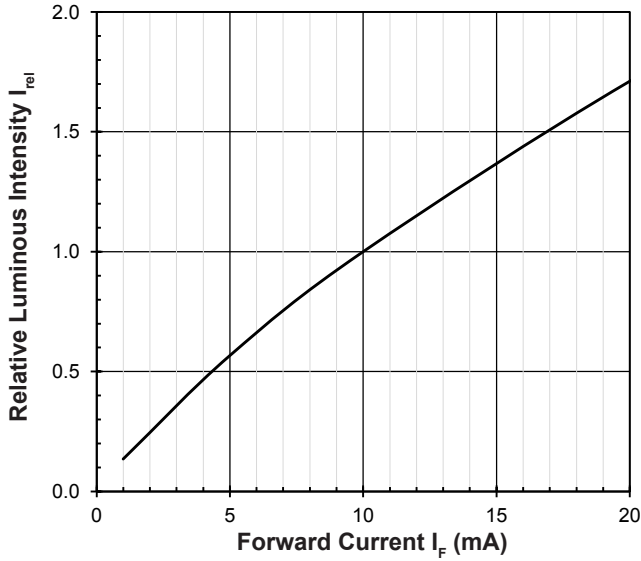
InGaN wavelength is very sensitive to drive current. Operating at lower current is not recommended and may yield unpredictable performance. Current pulsing should be used for dimming purposes.

Luminous Intensity Group at Tj=25°C

Brightness Group	Luminous Intensity <small>Appx. 1.1</small> IV (mcd)
R1	112.5 ... 140.0
R2	140.0 ... 180.0
S1	180.0 ... 224.0
S2	224.0 ... 285.0

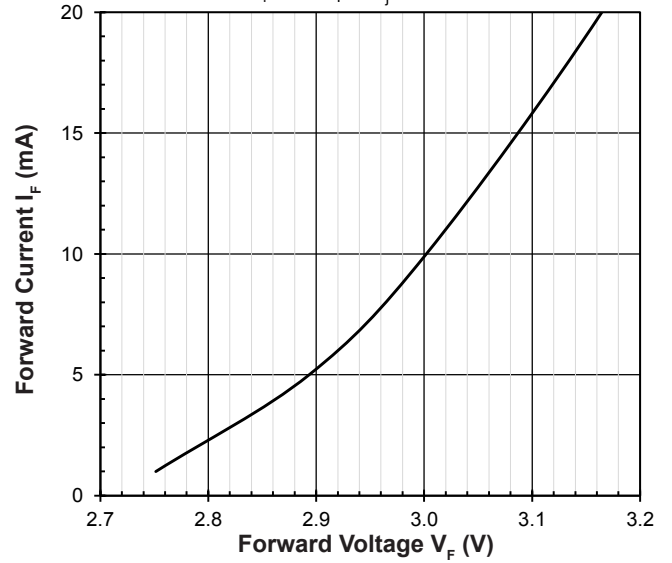
Relative Luminous Intensity Vs Forward Current

$I_v/I_v(10\text{mA}) = f(I_F); T_j = 25^\circ\text{C}$



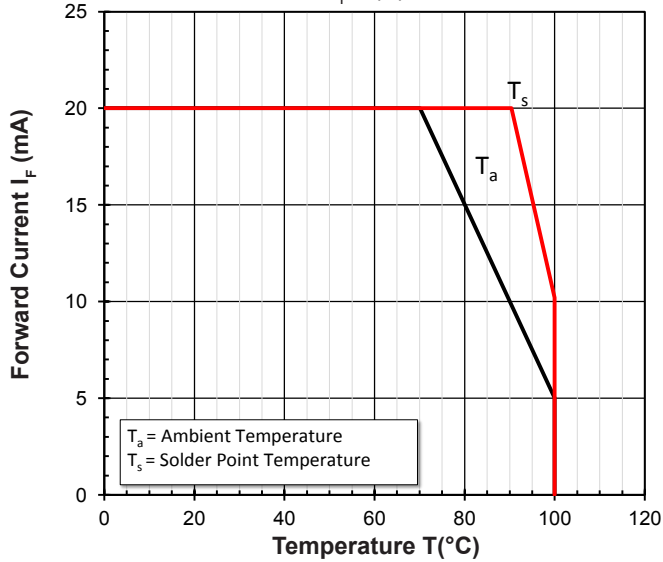
Forward Current Vs Forward Voltage

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



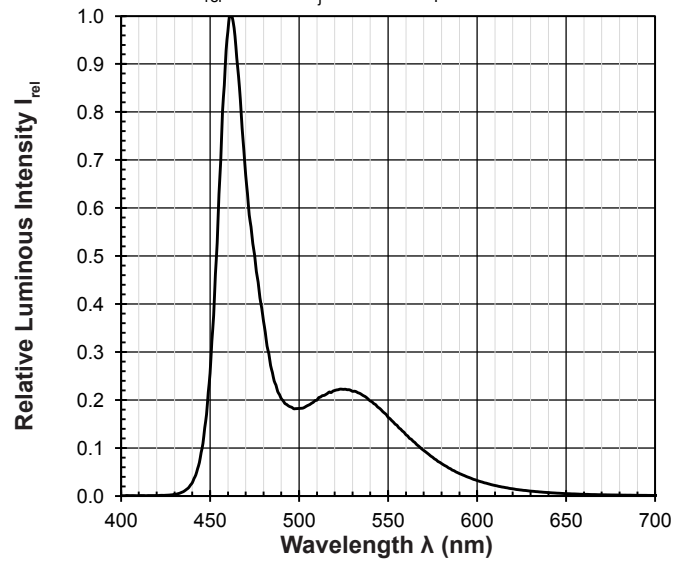
Maximum Current Vs Temperature

$I_F = f(T)$



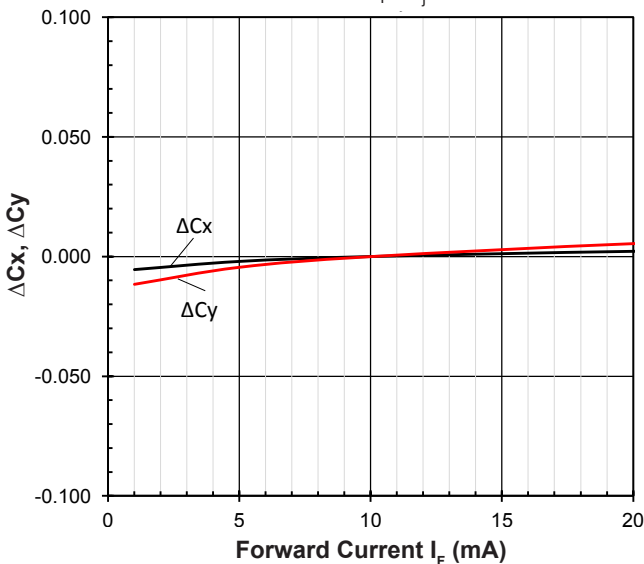
Relative Spectral Emission

$I_{rel} = f(\lambda); T_j = 25^\circ\text{C}; I_F = 10\text{mA}$



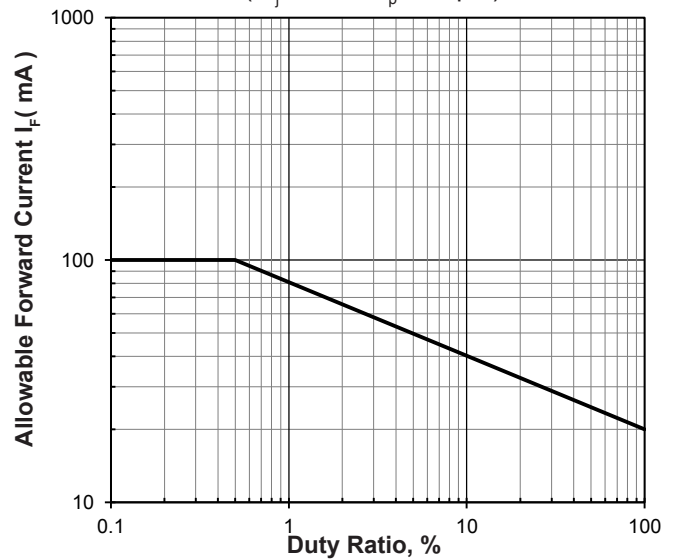
Chromaticity Coordinate Shift Vs Forward Current

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

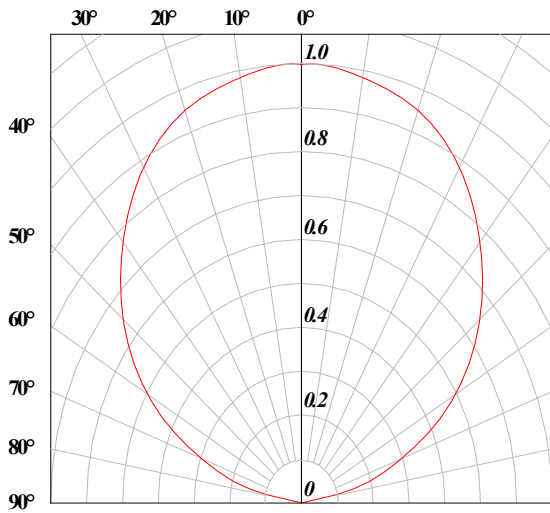


Allowable Forward Current Vs Duty Ratio

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

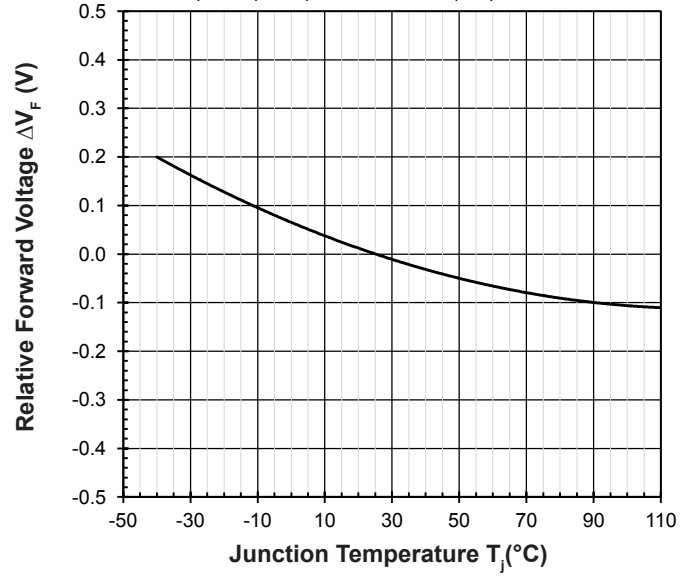


Radiation Pattern



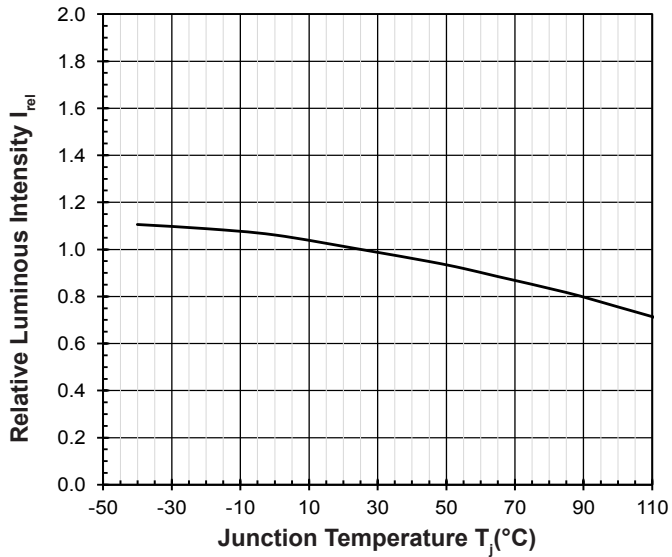
Relative Forward Voltage Vs Junction Temperature

$$\Delta V_F = V_F - V_F(25^\circ\text{C}) = f(T_j); I_F = 10\text{mA}$$



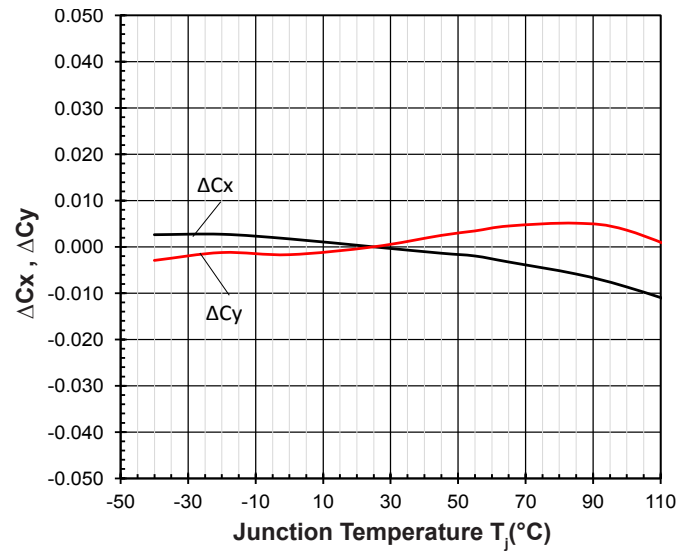
Relative Luminous Intensity Vs Junction Temperature

$$I_V/I_V(25^\circ\text{C}) = f(T_j); I_F = 10\text{mA}$$

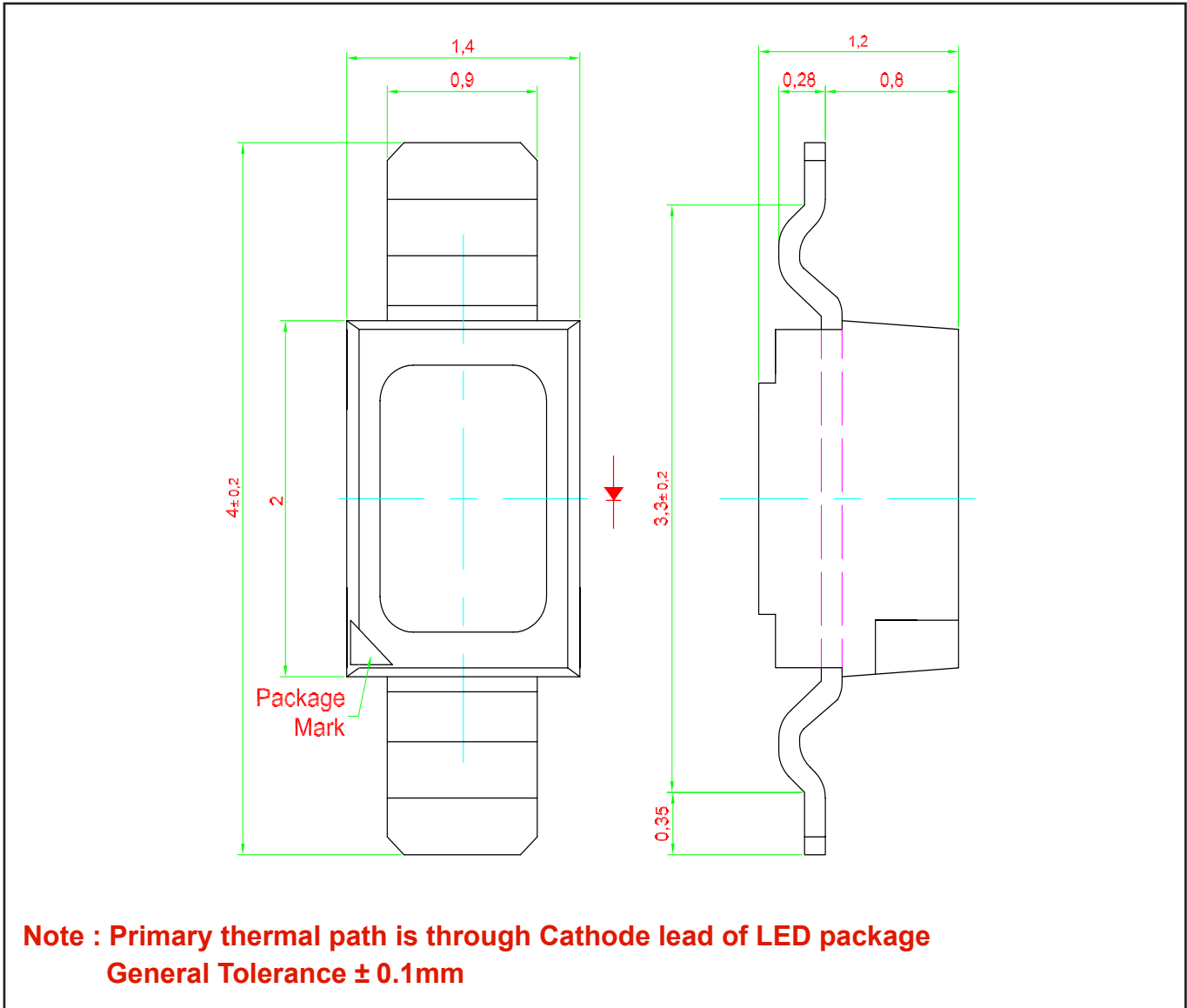


Chromaticity Coordinate Shift Vs Junction Temperature

$$\Delta C_x, \Delta C_y = f(T_j); I_F = 10\text{mA}$$



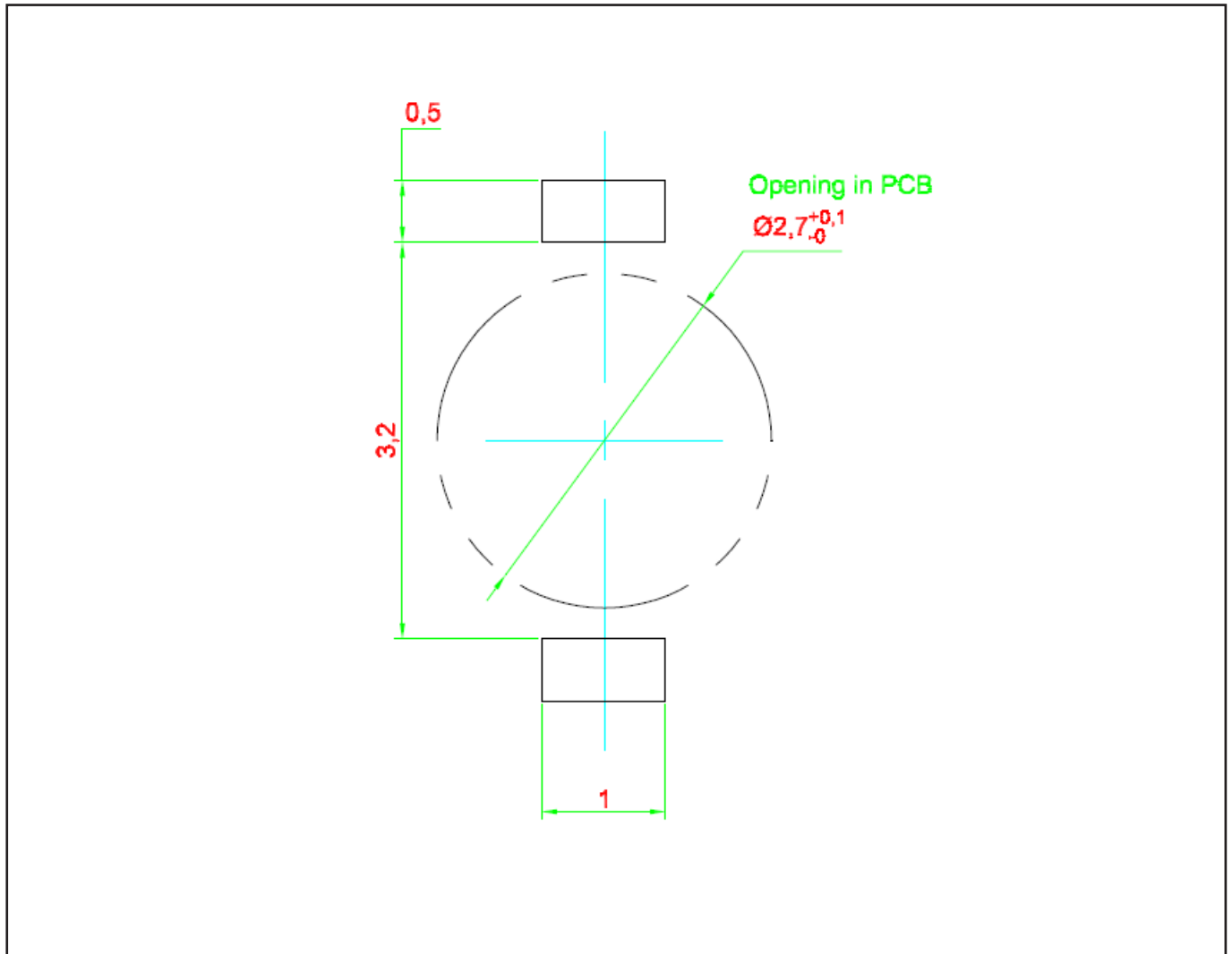
Mini DomiLED • InGaN: DNZB-DRG-I1 Package Outlines



Material

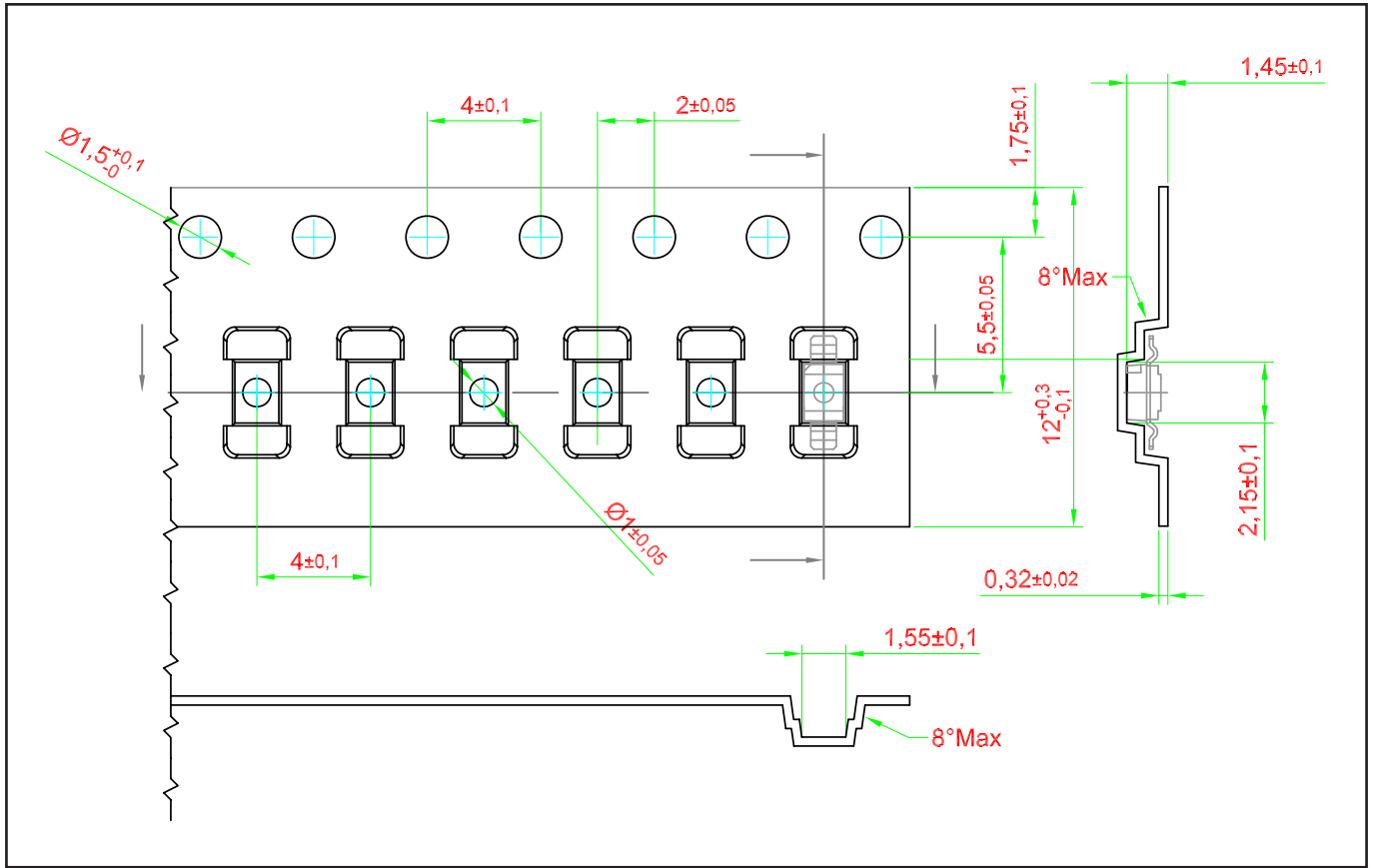
	Material
Lead-frame	Cu Alloy With Ag Plating
Package	High Temperature Resistant Plastic, PPA
Encapsulant	Silicone
Soldering Leads	Sn Plating

Recommended Solder Pad

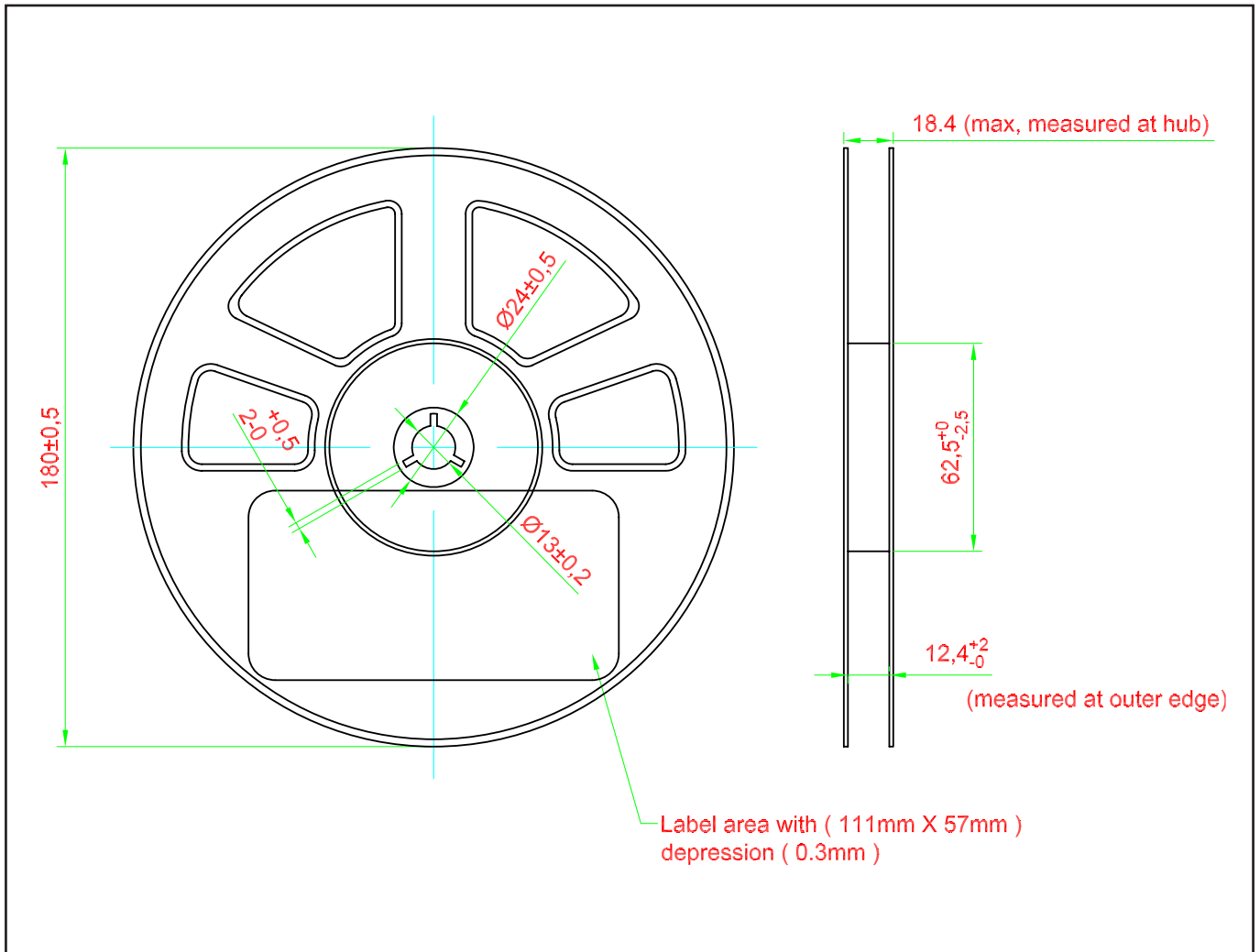


Taping and orientation

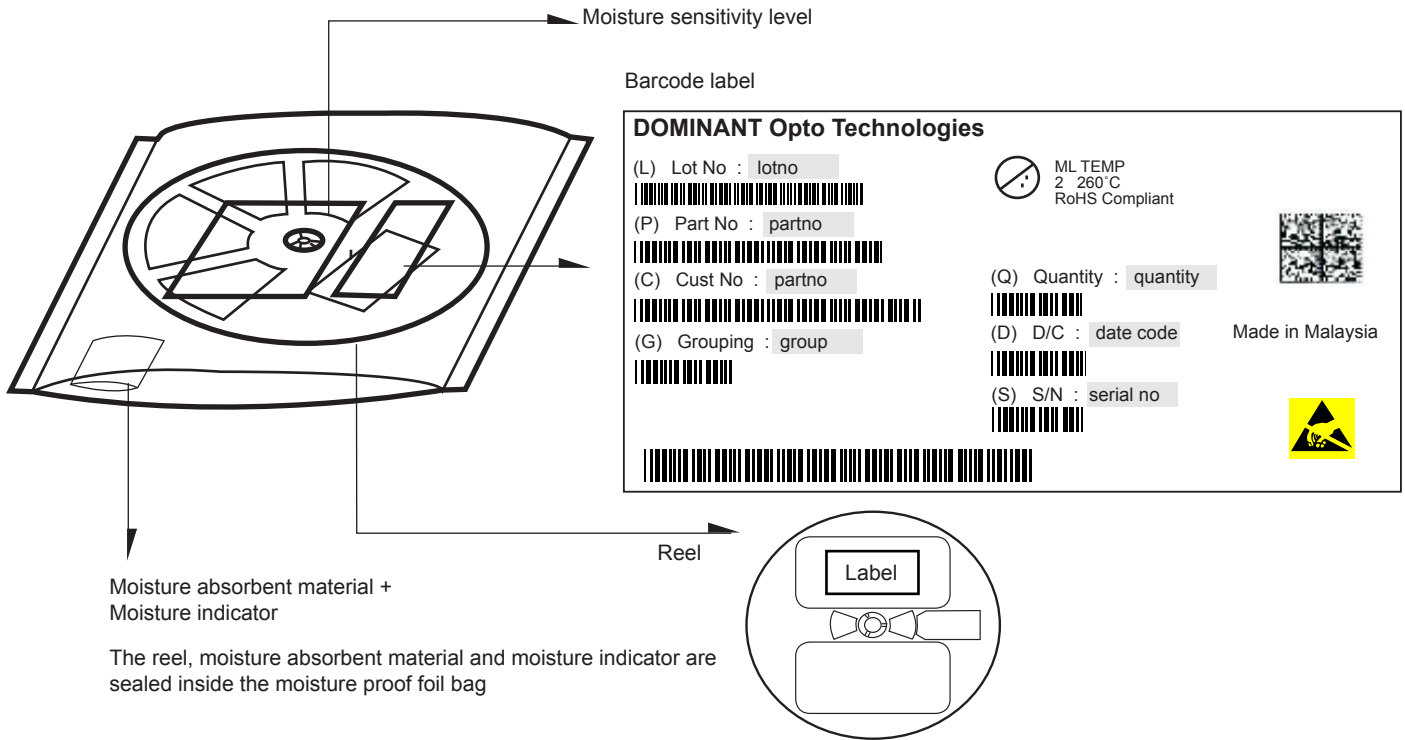
- Reels come in quantity of 3000 units.
- Reel diameter is 180 mm.



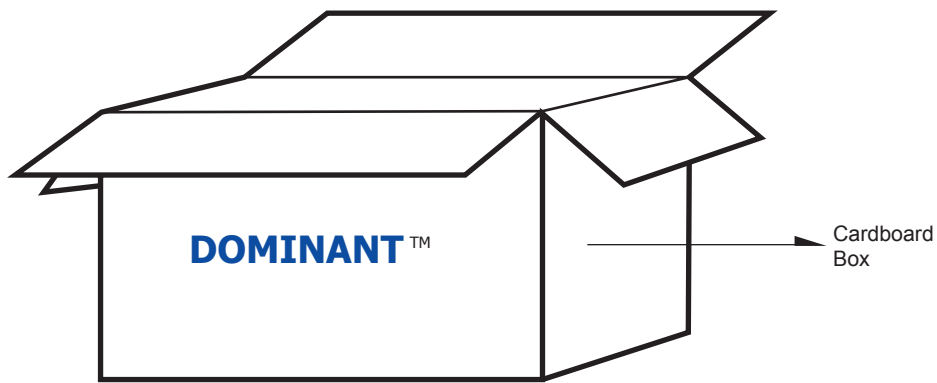
Packaging Specification



Packaging Specification



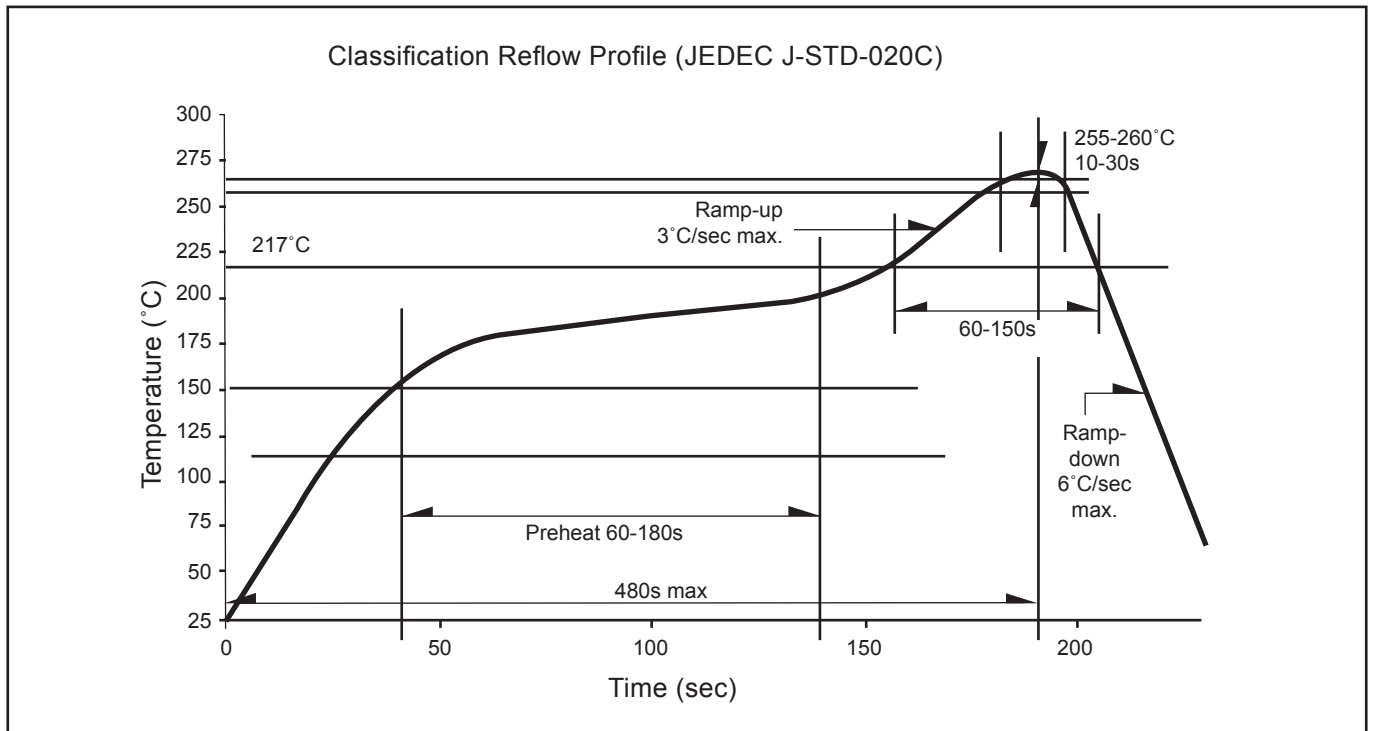
	Average 1pc Mini DomiLED	1 completed bag (3000pcs)
Weight (gram)	0.007	200 ± 10



For Mini DomiLED

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 ± 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 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: $40 \text{ }^\circ\text{C} / 90 \text{ } \% \text{ rh} / 15 \text{ ppm H}_2\text{S} / 336 \text{ h}$.
= 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	28 Aug 2017

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, a ISO/TS 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