DOMINANT™
Opto Technologies
Innovating Illumination

DATA SHEET:

Mini DomiLED

InGaN White : DNW-PJG

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 1.4 x 1.3mm.
- > Qualified according to JEDEC moisture sensitivity Level 2.
- > Compatible to both IR reflow soldering.
- > Environmental friendly; RoHS compliance.

Applications:

- > Automotive: interior applications, eg: switches, telematics, climate control system, dashboard, etc.
- > Backlighting: button, LCD display

Optical Characteristics at Tj=25^{0}C

Part Ordering Number	Color	Viewing Angle°	Luminous Intensity @ IF = 20mA IV (mcd) *Appx. 1.1*		
			Min.	Typ.	Max.
● DNW-PJG-V2W-1	White	120	900.0	1400.0	1800.0
● DNW-PJG-V2W-FKPL	White	120	900.0	1400.0	1800.0

● Not for new design

Electrical Characteristics at Tj=25^{0}C

Part Number	Vf @ If = 20 mA *Appx. 3.1*			Vr @ Ir = 10 µA
	Min. (V)	Typ. (V)	Max. (V)	Min. (V)
DNW-PJG	2.8	3.1	3.6	5.0

Absolute Maximum Ratings

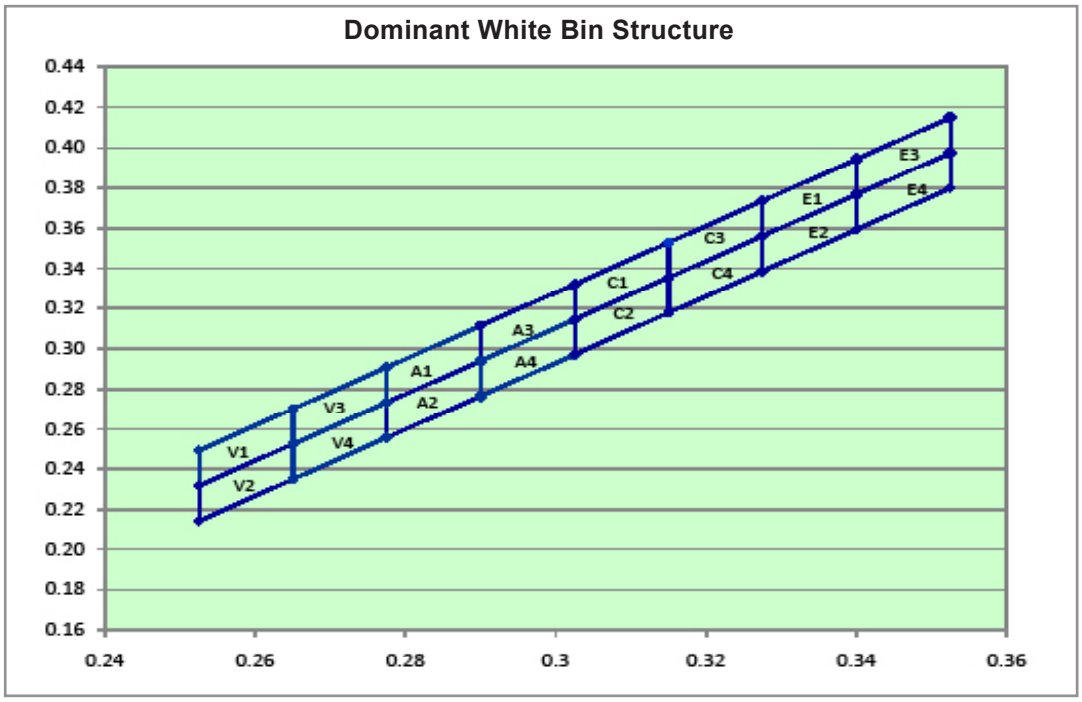
	Maximum Value	Unit
DC forward current	20	mA
Peak pulse current; (tp ≤ 10µs, Duty cycle = 0.005)	200	mA
Reverse voltage *Appx. 6.1*	5	V
ESD threshold (HBM)	2000	V
LED junction temperature	125	˚C
Operating temperature	-40 … +100	˚C
Storage temperature	-40 … +100	˚C
Power dissipation (at room temperature)	85	mW
Thermal resistance - Junction / ambient, $R_{th\ JA}$ - Junction / solder point, $R_{th\ JS}$ (Mounting on FR4 PCB, pad size >= 16 mm^2 per pad)	 480 230	 K/W K/W

Characteristics

	Symbol	Part Number	Value	Unit
Temperature coefficient of V_F (typ) I_F = 20mA; 0 ˚C <= T <= 100 ˚C	TC_V	DNW-PJG	-4.3	mV / K
Temperature coefficient of I_V (typ) I_F = 20mA; 0 ˚C <= T <= 100 ˚C	TC_{IV}	DNW-PJG	-0.2	% / K
Temperature coefficient of Cx (typ) I_F = 20mA; 0 ˚C <= T <= 100 ˚C	TC_{Cx}	DNW-PJG	-0.0001	Cx / K
Temperature coefficient of Cy (typ) I_F = 20mA; 0 ˚C <= T <= 100 ˚C	TC_{Cy}	DNW-PJG	-0.0001	Cy / K

DNW, White Color Grouping *Appx. 2.1*

For this color bin selection, part number will be DNW-PJG-xxxx-1



Chromaticity coordinate groups are measured with an accuracy of ± 0.01.

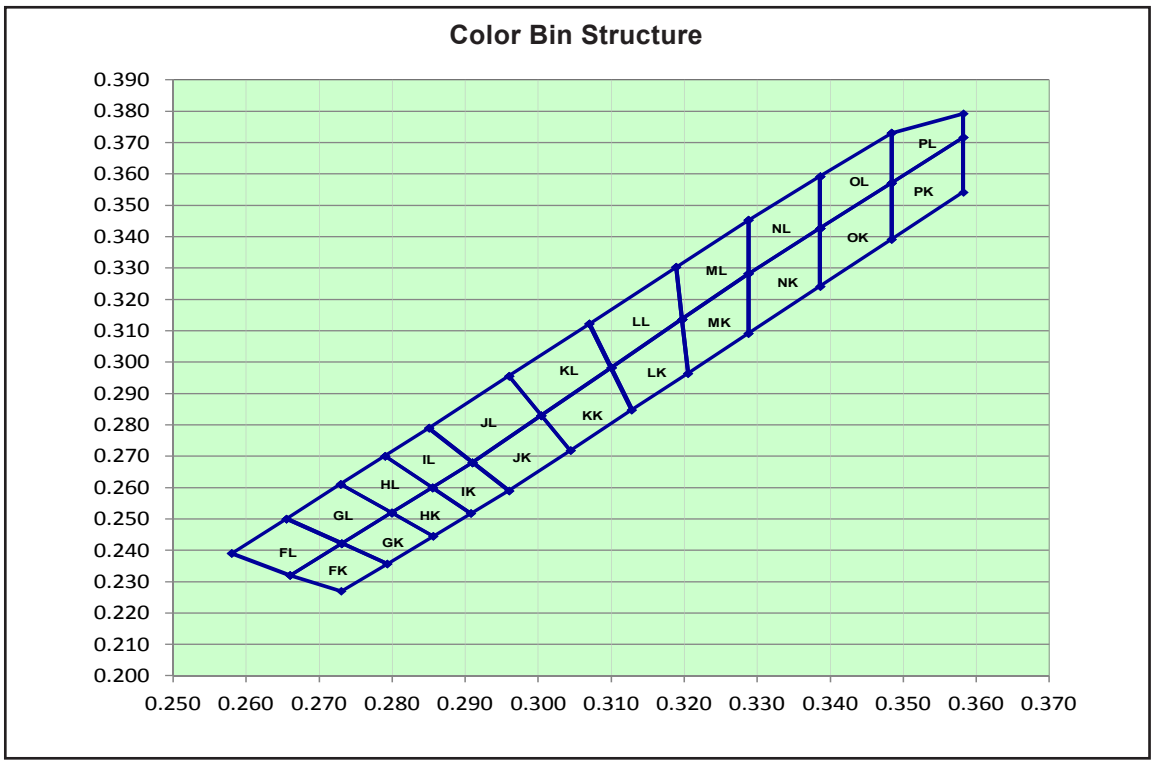
Bin		1	2	3	4
V1	Cx	0.2525	0.2650	0.2650	0.2525
	Cy	0.2318	0.2525	0.2700	0.2493
V2	Cx	0.2525	0.2650	0.2650	0.2525
	Cy	0.2143	0.2350	0.2525	0.2318
V3	Cx	0.2650	0.2775	0.2775	0.2650
	Cy	0.2525	0.2732	0.2907	0.2700
V4	Cx	0.2650	0.2775	0.2775	0.2650
	Cy	0.2350	0.2557	0.2732	0.2525
A1	Cx	0.2775	0.2900	0.2900	0.2775
	Cy	0.2732	0.2939	0.3114	0.2907
A2	Cx	0.2775	0.2900	0.2900	0.2775
	Cy	0.2557	0.2764	0.2939	0.2732
A3	Cx	0.2900	0.3025	0.3025	0.2900
	Cy	0.2939	0.3146	0.3321	0.3114
A4	Cx	0.2900	0.3025	0.3025	0.2900
	Cy	0.2764	0.2971	0.3146	0.2939
C1	Cx	0.3025	0.3150	0.3150	0.3025
	Cy	0.3146	0.3354	0.3529	0.3321
C2	Cx	0.3025	0.3150	0.3150	0.3025
	Cy	0.2971	0.3179	0.3354	0.3146
C3	Cx	0.3150	0.3275	0.3275	0.3150
	Cy	0.3354	0.3561	0.3736	0.3529
C4	Cx	0.3150	0.3275	0.3275	0.3150
	Cy	0.3179	0.3386	0.3561	0.3354

Bin		1	2	3	4
E1	Cx	0.3275	0.3400	0.3400	0.3275
	Cy	0.3561	0.3768	0.3943	0.3736
E2	Cx	0.3275	0.3400	0.3400	0.3275
	Cy	0.3386	0.3593	0.3768	0.3561
E3	Cx	0.3400	0.3525	0.3525	0.3400
	Cy	0.3768	0.3975	0.4150	0.3943
E4	Cx	0.3400	0.3525	0.3525	0.3400
	Cy	0.3593	0.3800	0.3975	0.3768

Dominant color coordinate is measured with an accuracy of ± 0.01.

DNW, White Color Grouping *Appx. 2.1*

For this color bin selection, part number will be DNW-PJG-xxxx-FKPL



Chromaticity coordinate groups are measured with an accuracy of ± 0.01.

Bin		1	2	3	4
FK	Cx	0.2660	0.2730	0.2793	0.2731
	Cy	0.2320	0.2270	0.2357	0.2422
FL	Cx	0.2580	0.2655	0.2731	0.2660
	Cy	0.2390	0.2500	0.2422	0.2320
GK	Cx	0.2731	0.2793	0.2856	0.2799
	Cy	0.2422	0.2357	0.2445	0.2520
GL	Cx	0.2655	0.2731	0.2799	0.2729
	Cy	0.2500	0.2422	0.2520	0.2611
HK	Cx	0.2799	0.2855	0.2908	0.2856
	Cy	0.2520	0.2600	0.2518	0.2445
HL	Cx	0.2729	0.2790	0.2855	0.2799
	Cy	0.2611	0.2701	0.2600	0.2520
IK	Cx	0.2855	0.2908	0.2960	0.2910
	Cy	0.2600	0.2518	0.2590	0.2680
IL	Cx	0.2790	0.2850	0.2910	0.2855
	Cy	0.2701	0.2790	0.2680	0.2600
JK	Cx	0.2910	0.2960	0.3044	0.3004
	Cy	0.2680	0.2590	0.2718	0.2830
JL	Cx	0.2850	0.2910	0.3004	0.2960
	Cy	0.2790	0.2680	0.2830	0.2956
KK	Cx	0.3004	0.3044	0.3128	0.3100
	Cy	0.2830	0.2718	0.2848	0.2982
KL	Cx	0.2960	0.3004	0.3100	0.3070
	Cy	0.2956	0.2830	0.2982	0.3122

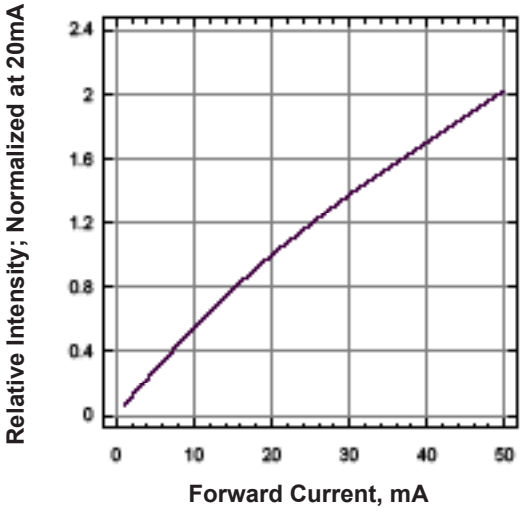
Bin		1	2	3	4
LK	Cx	0.3100	0.3128	0.3205	0.3197
	Cy	0.2982	0.2848	0.2964	0.3137
LL	Cx	0.3070	0.3100	0.3197	0.3189
	Cy	0.3122	0.2982	0.3137	0.3303
MK	Cx	0.3197	0.3205	0.3288	0.3288
	Cy	0.3137	0.2964	0.3092	0.3282
ML	Cx	0.3189	0.3197	0.3288	0.3288
	Cy	0.3303	0.3137	0.3282	0.3453
NK	Cx	0.3288	0.3288	0.3386	0.3386
	Cy	0.3282	0.3092	0.3242	0.3427
NL	Cx	0.3288	0.3288	0.3386	0.3386
	Cy	0.3453	0.3282	0.3427	0.3592
OK	Cx	0.3386	0.3386	0.3484	0.3484
	Cy	0.3427	0.3242	0.3392	0.3571
OL	Cx	0.3386	0.3386	0.3484	0.3484
	Cy	0.3592	0.3427	0.3571	0.3730
PK	Cx	0.3484	0.3484	0.3582	0.3582
	Cy	0.3571	0.3392	0.3542	0.3716
PL	Cx	0.3484	0.3484	0.3582	0.3582
	Cy	0.3730	0.3571	0.3716	0.3792

Dominant color coordinate is measured with an accuracy of ± 0.01.

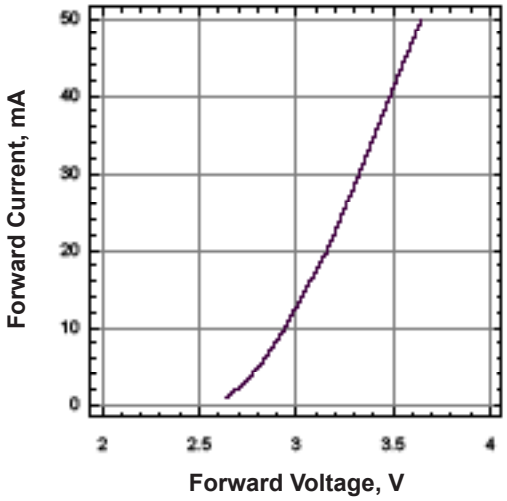
Luminous Intensity Group at Tj=25˚C

Brightness Group	Luminous Intensity *Appx. 1.1* IV (mcd)
V2	900.0 ... 1125.0
W1	1125.0 ... 1400.0
W2	1400.0 ... 1800.0

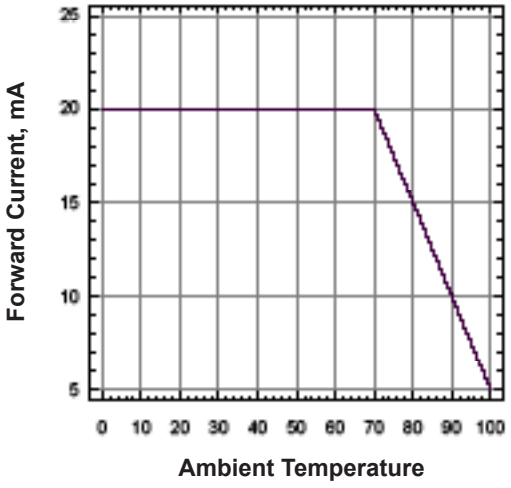
Relative Luminous Intensity Vs Forward Current



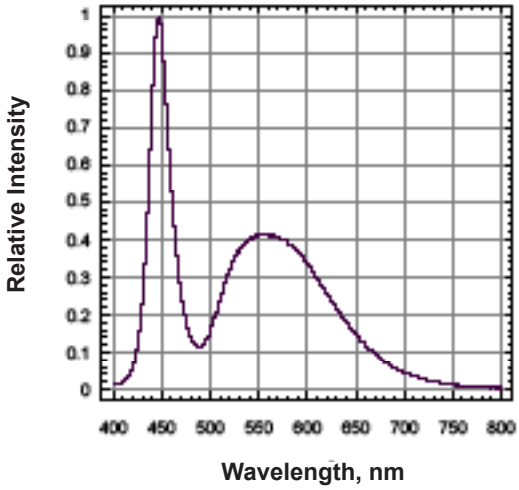
Forward Current Vs Forward Voltage



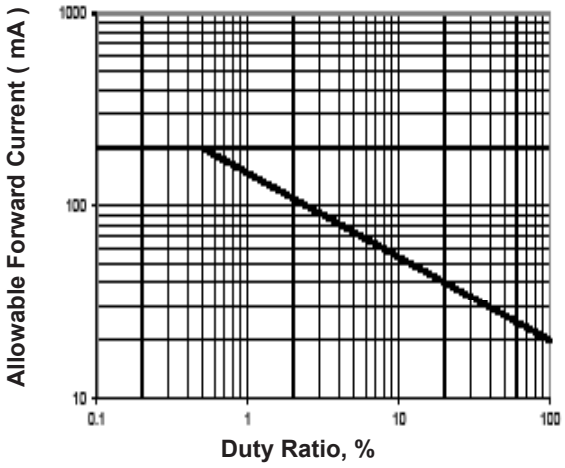
Maximum Current Vs Ambient Temperature



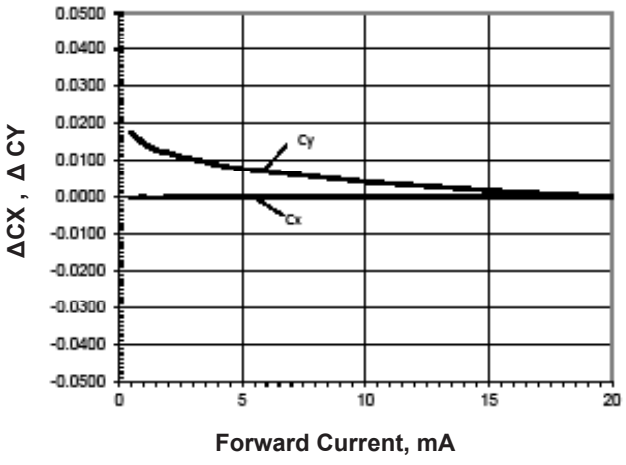
Relative Intensity Vs Wavelength



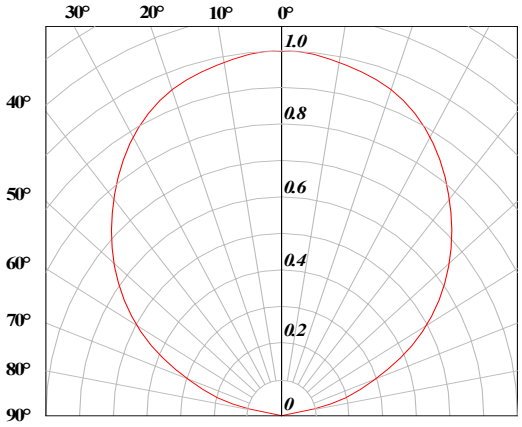
Allowable Forward Current Vs Duty Ratio
(Ta=25 Deg C, tp≤10uS)



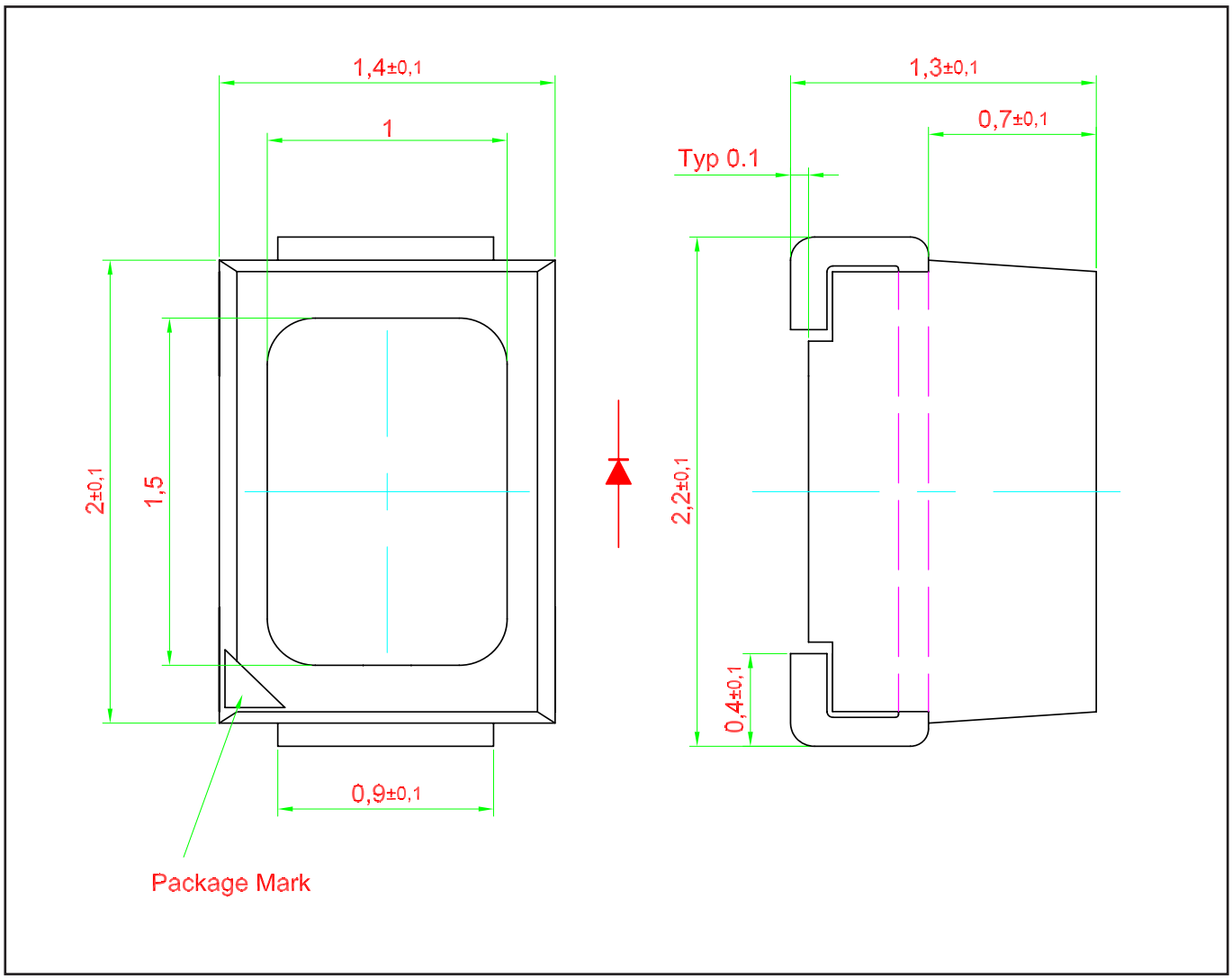
Chromaticity Coordinate Shift



Radiation Pattern



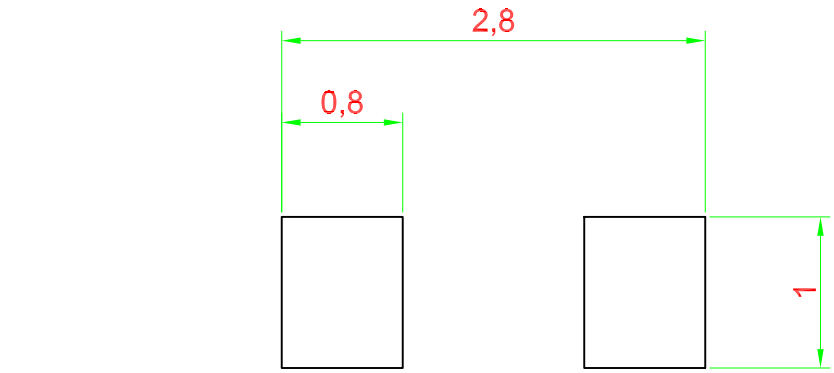
Mini DomiLED • InGaN White: DNW-PJG Package Outlines



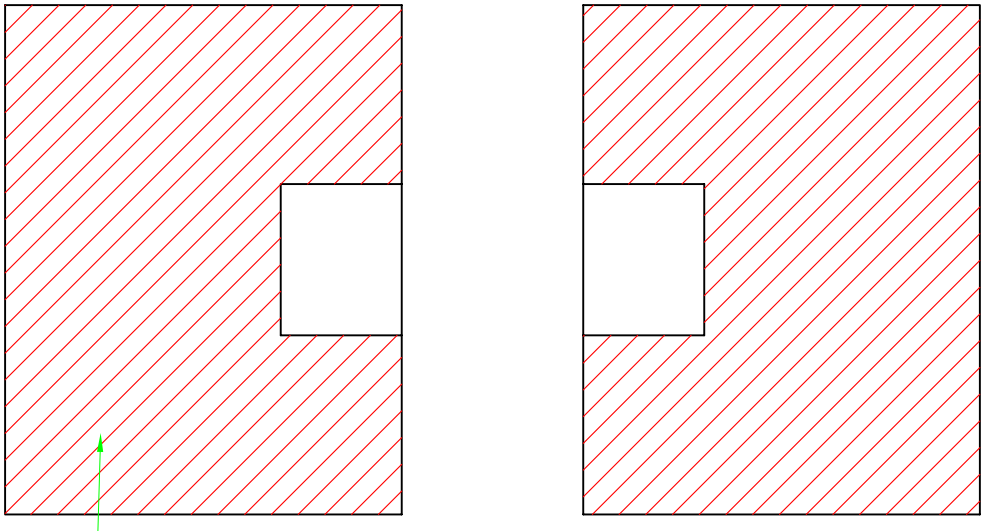
Material

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

Recommended Solder Pad



Improved Design For Better Heat Dissipation

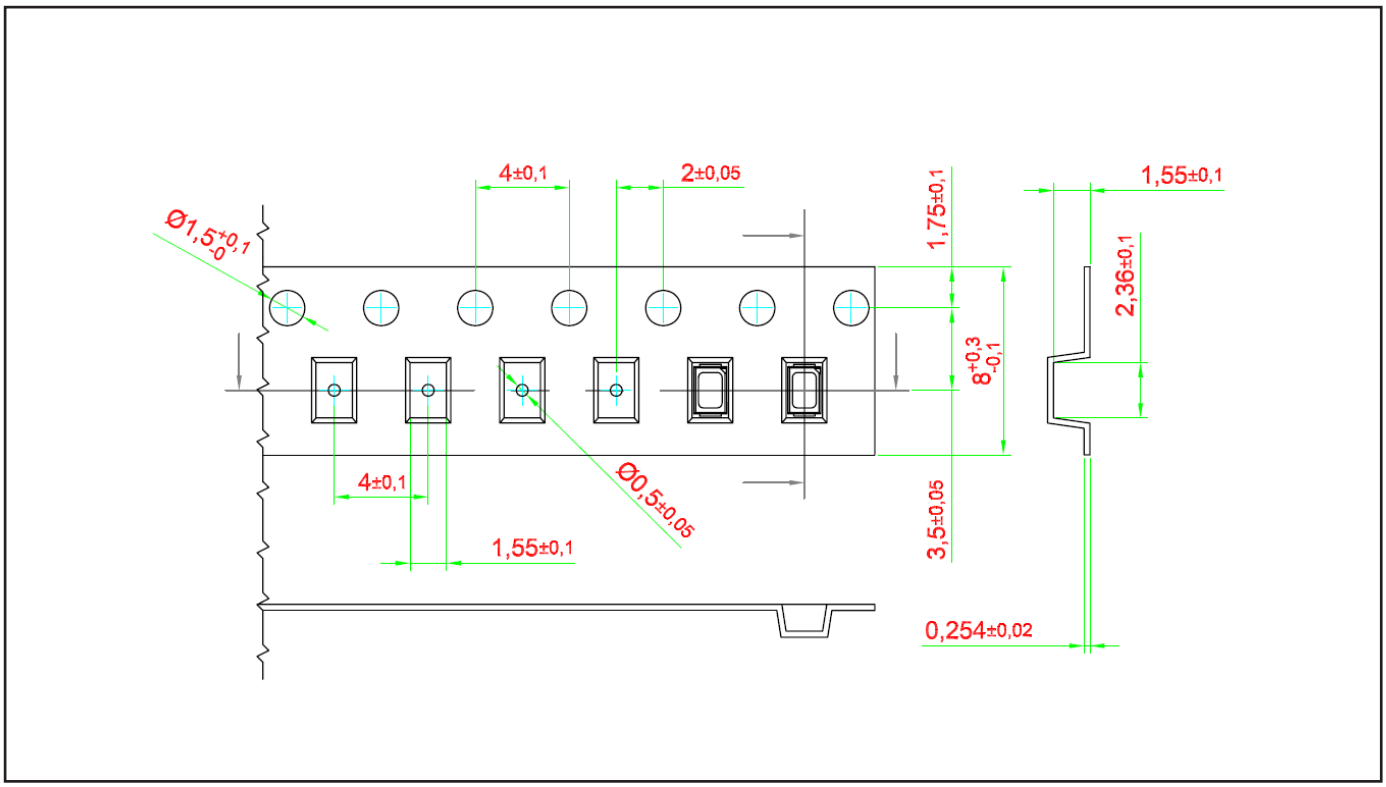


Additional Cu area for improved heat dissipation, > 16mm sq.

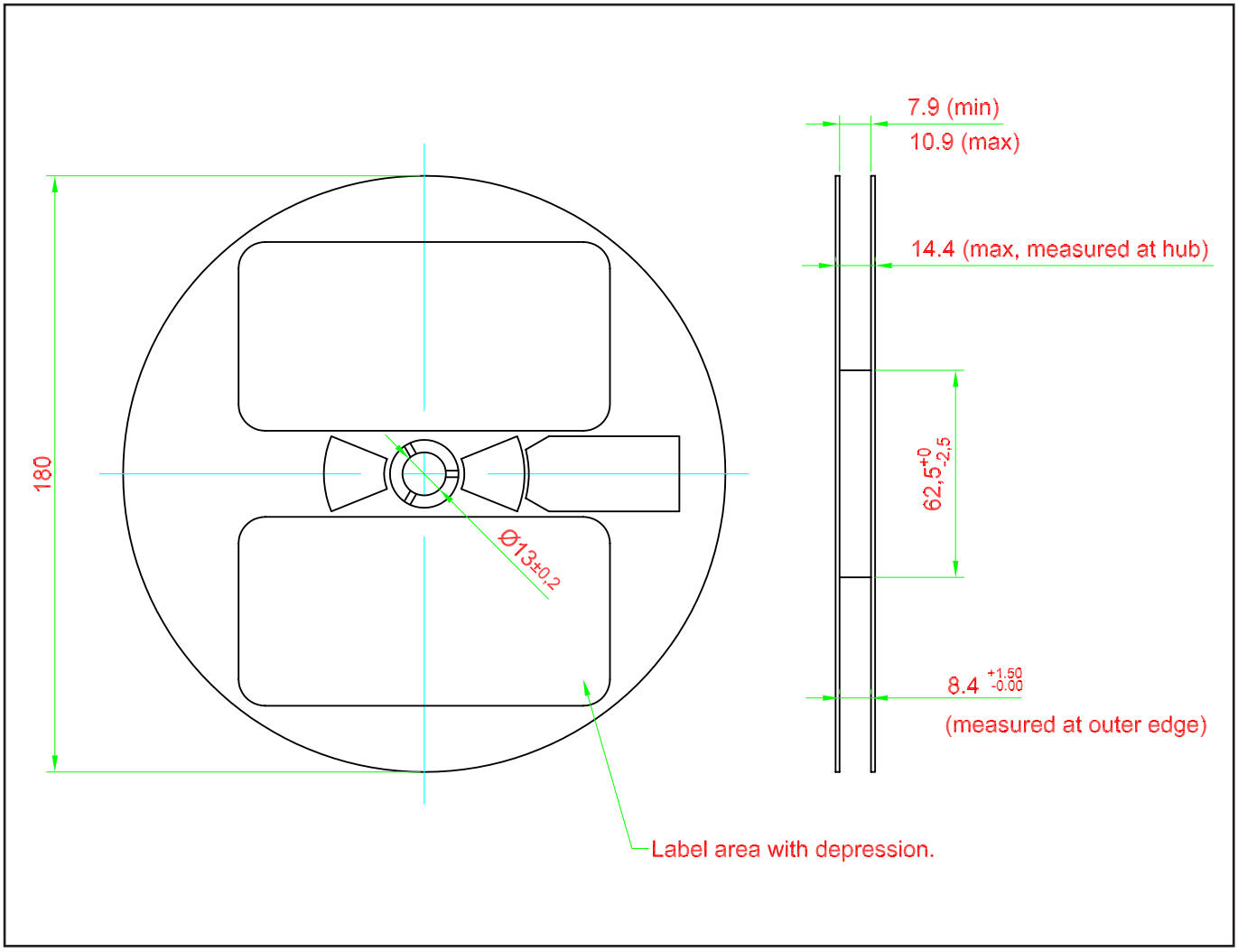
Solder resist.

Taping and orientation

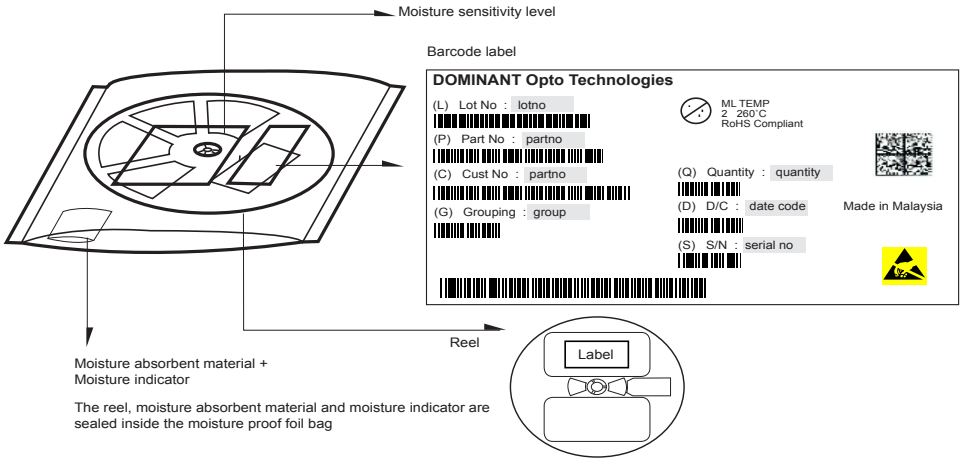
- Reels come in quantity of 3000 units.
- Reel diameter is 180 mm.



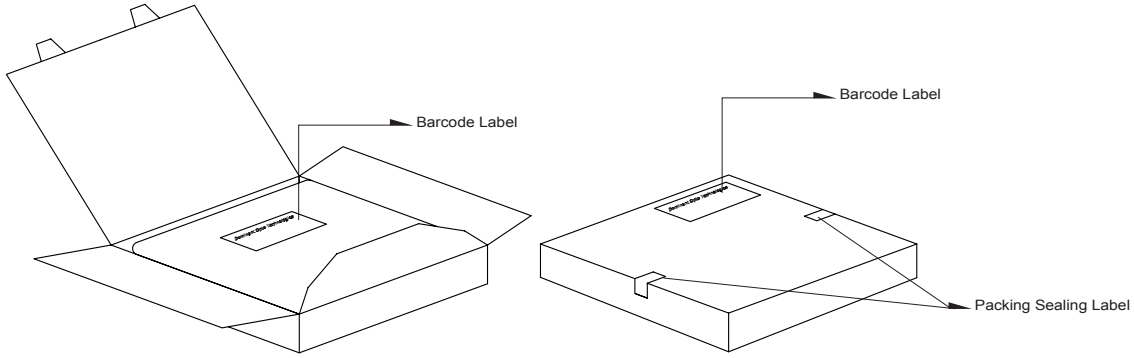
Packaging Specification



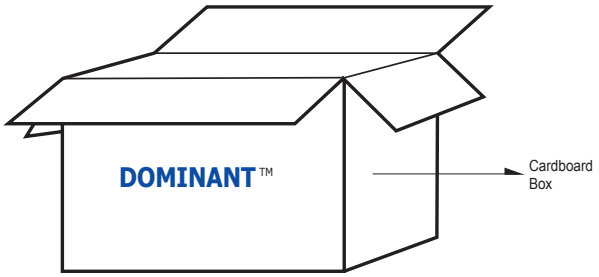
Packaging Specification



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



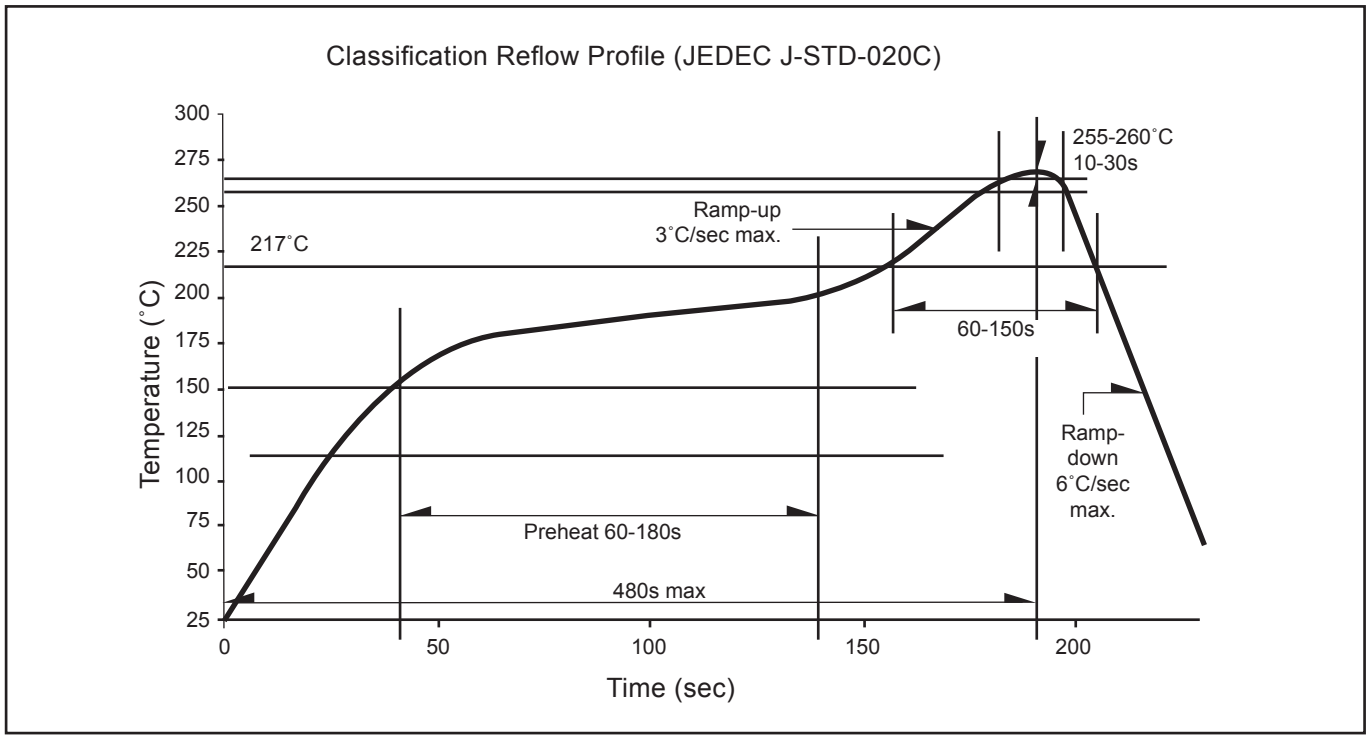
	Dimensions (mm)
Packing Box	**210 x 210 x 16**



For Mini DomiLED

Cardboard Box Size	Dimensions (mm)	Empty Box Weight (kg)	Reel / Box
Super Small	325 x 225 x 190	0.38	9 reels MAX
Small	325 x 225 x 280	0.54	15 reels MAX
Medium	570 x 440 x 230	1.46	60 reels MAX
Large	570 x 440 x 460	1.92	120 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 ± 8 % and an expanded uncertainty of ± 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 ± 8 % and an expanded uncertainty of ± 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 ± 8 % and an expanded uncertainty of ± 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 ± 8 % and an expanded uncertainty of ± 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 ± 0.5nm and an expanded uncertainty of ± 1nm (accordingly to GUM with a coverage factor of k=3).

3) Voltage:

3.1 Forward Voltage, Vf is measured when a current pulse of 8 ms(typ) with an internal reproducibility of ± 0.05V and an expanded uncertainty of ± 0.1V (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 specifiec 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	21 Dec 2012
4	Update Color Bin Structure	16 Aug 2013
3	Add Characteristic	05 Dec 2013
2, 4	Add New Partno: DNW-PJG-V2W-FKPL Add Color Bin Structure	02 Apr 2014
9	Add graph: Allowable Forward Current Vs Duty Ratio Add graph: Chromaticity Coordinate Shift	04 Jun 2014
2, 15, 17	Not for New Design: DNW-PJG-V2W-1, DNW-PJG-V2W-FKPL Update Packaging Specification Add Appendix	21 May 2018

NOTE

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