DOMINANT™
Opto Technologies
Innovating Illumination

DATA SHEET:

Mini DomiLED

InGaN : DNx-DJS-XXX-1-I1

Mini DomiLED

Synonymous with function and performance, the Mini DomiLED series is perfectly suited for a variety of cross-industrial applications due to its small package outline, durability and superior brightness.

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 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.
> Consumer Appliances: Backlighting illumination as in PDAs, LCD TV.

Optical characteristics at Tj=25^{0}C

Part Ordering Number	Color	Viewing Angle°	Luminous Intensity @ 10mA IV (mcd) *Appx. 1.1*		
			Min.	Typ.	Max.
DNT-DJS-VW2-1-I1	True Green, 525nm	120	715.0	1125.0	1800.0
● DNT-DJS-T2U-1-I1	True Green, 525nm	120	355.0	550.0	715.0
DNB-DJS-RS1-1-I1	Blue, 470nm	120	112.5	170.0	224.0
DNB-DJS-ST1-1-I1	Blue, 470nm	120	180.0	285.0	355.0
● DNB-DJS-Q2R-1-I1	Blue, 470nm	120	90.0	120.0	180.0

● Not for new design

Electrical Characteristics at Tj=25^{0}C

Part Number	Vf @ If = 10 mA *Appx. 3.1*			Vr @ Ir = 10 µA
	Min. (V)	Typ. (V)	Max. (V)	Min. (V)
DNx-DJS	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)	100	mA
Reverse Voltage	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)	80	mW
Thermal resistance		
- Junction / ambient, $R_{th\ JA}$	480	K/W
- Junction / solder point, $R_{th\ JS}$	230	K/W
(Mounting on FR4 PCB, pad size >= 16 mm^2 per pad)		

Wavelength Grouping at Tj=25^{0}C

Color	Group	Wavelength distribution (nm) *Appx. 2.2*
DNT; True Green	Full	520 - 535
	A	520 - 525
	B	525 - 530
	C	530 - 535
DNB; Blue	Full	465 - 475
	A	465 - 470
	B	470 - 475

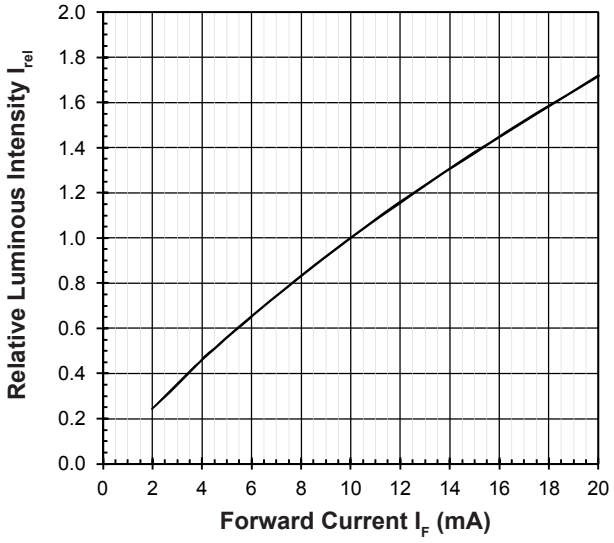
InGaN wavelength is very sensitive to drive current. Operating at lower current is not recommended and may yield unpredictable performance. Current pulsing should is used for dimming purposes.

Luminous Intensity Group at Tj=25˚C

Brightness Group	Luminous Intensity *Appx. 1.1* IV (mcd)
Q2	90.0 ... 112.5
R1	112.5 ... 140.0
R2	140.0 ... 180.0
S1	180.0 ... 224.0
S2	224.0 ... 285.0
T1	285.0 ... 355.0
T2	355.0 ... 450.0
U1	450.0 ... 560.0
U2	560.0 ... 715.0
V1	715 .0 ... 900.0
V2	900.0 ... 1125.0
W1	1125.0 ...1400.0
W2	1400.0 ... 1800.0

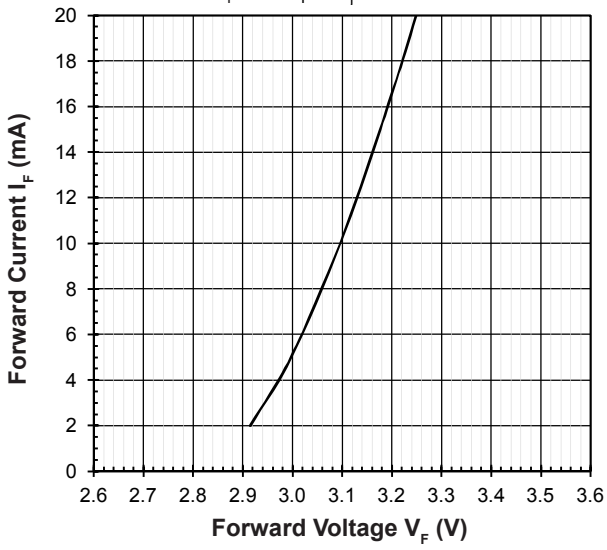
Relative Luminous Intensity Vs Forward Current

$I_V/I_V(10mA) = f(I_F)$; Tj = 25°C



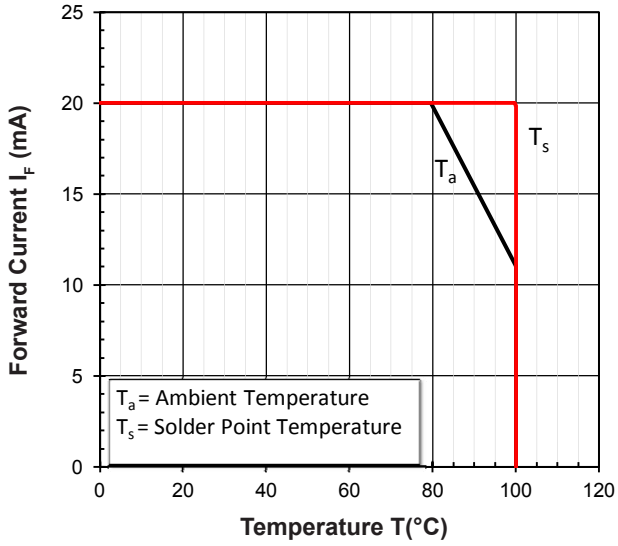
Forward Current Vs Forward Voltage

$I_F = f(V_F)$; T_i = 25°C



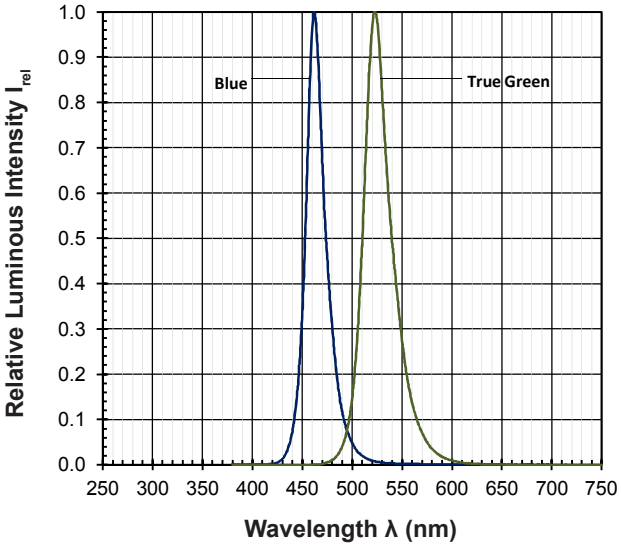
Maximum Current Vs Temperature

I_F=f(T)



Relative Spectral Emission

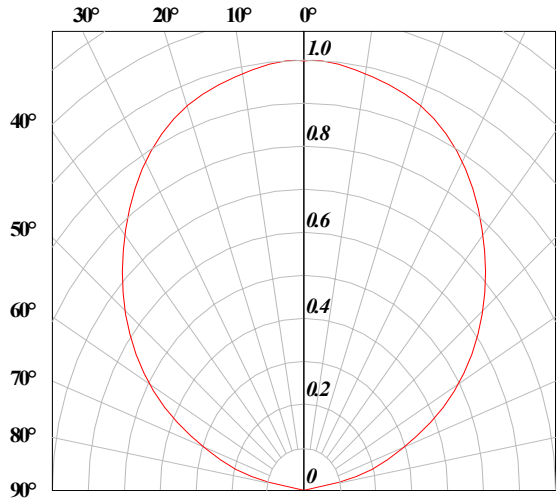
$I_{rel} = f(\lambda)$; T_j = 25°C; I_F = 10mA



Allowable Forward Current Vs Duty Ratio

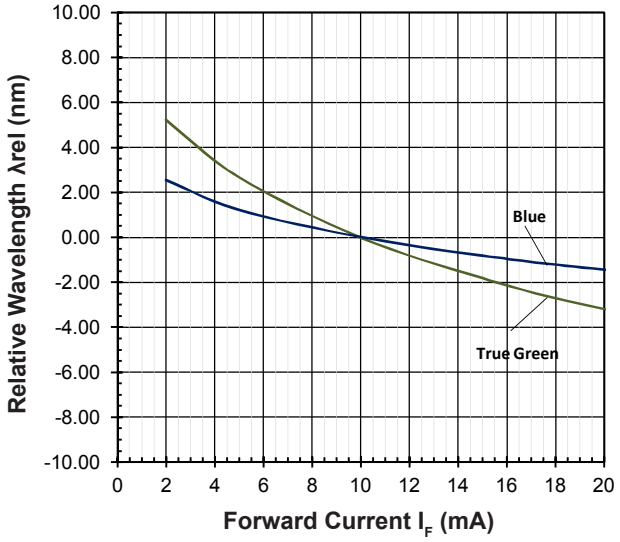
(T_j = 25°C; $t_p \leq 10\mu s$)

Radiation Pattern



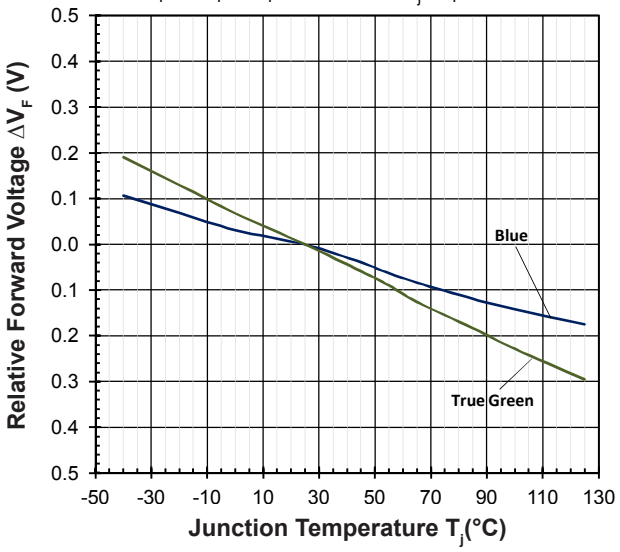
Relative Wavelength Shift Vs Forward Current

$\lambda dom = f(I_F)$; Tj = 25°C



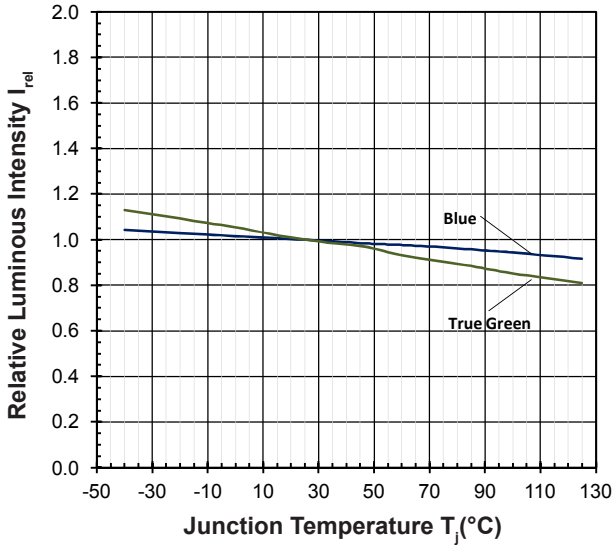
Relative Forward Voltage Vs Junction Temperature

$\Delta V_F = V_F - V_F(25°C) = f(T_j)$; I_F =10mA



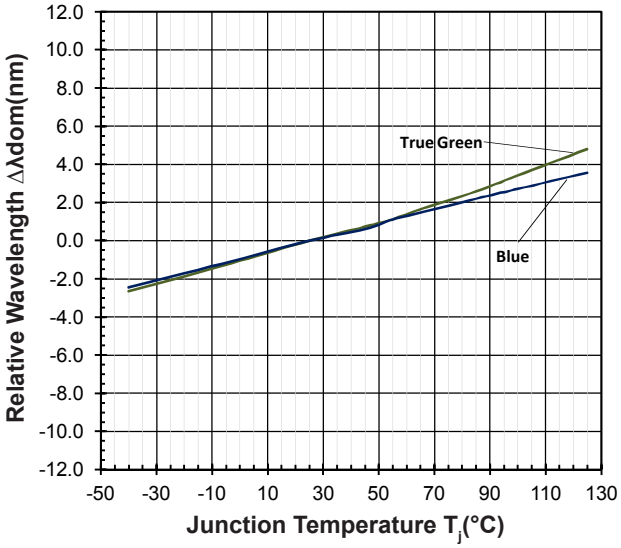
Relative Luminous Intensity Vs Junction Temperature

$I_V/I_V(25°C) = f(T_j)$; I_F = 10mA

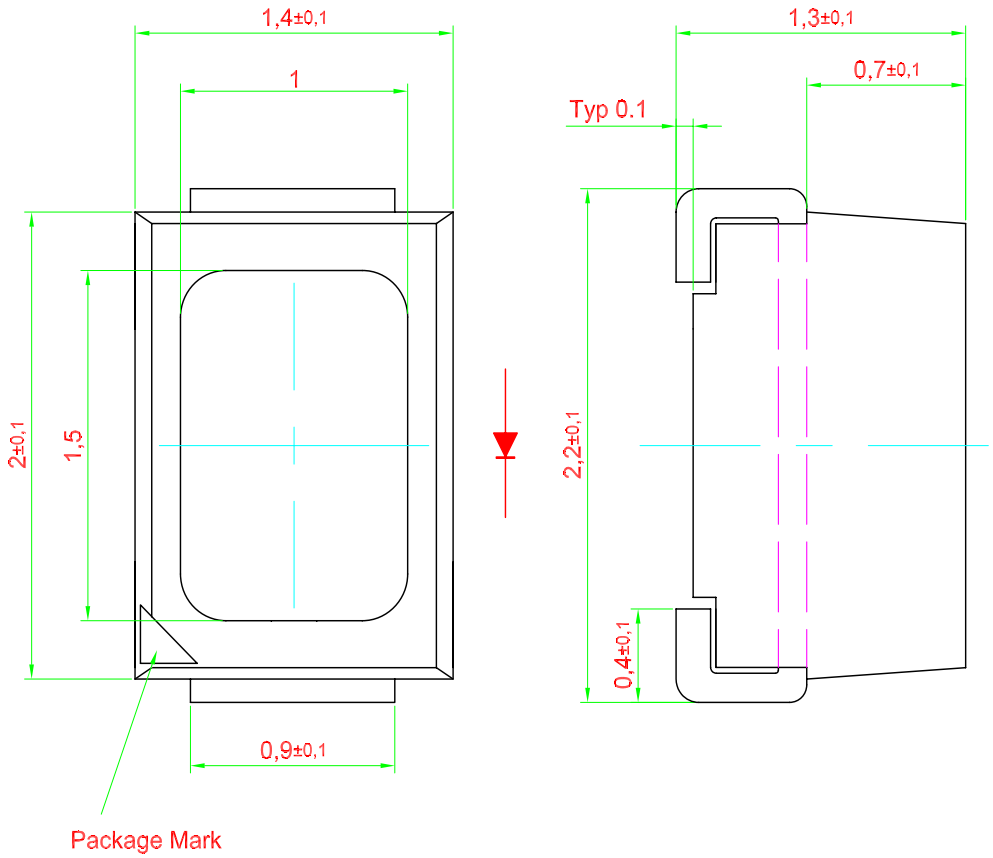


Relative Wavelength Vs Junction Temperature

$\Delta\lambda dom = \lambda dom - \lambda dom\ (25°C) = f(T_j)$; I_F =10mA



Mini DomiLED • InGaN : DNx-DJS-XXX-1-I1 Package Outlines

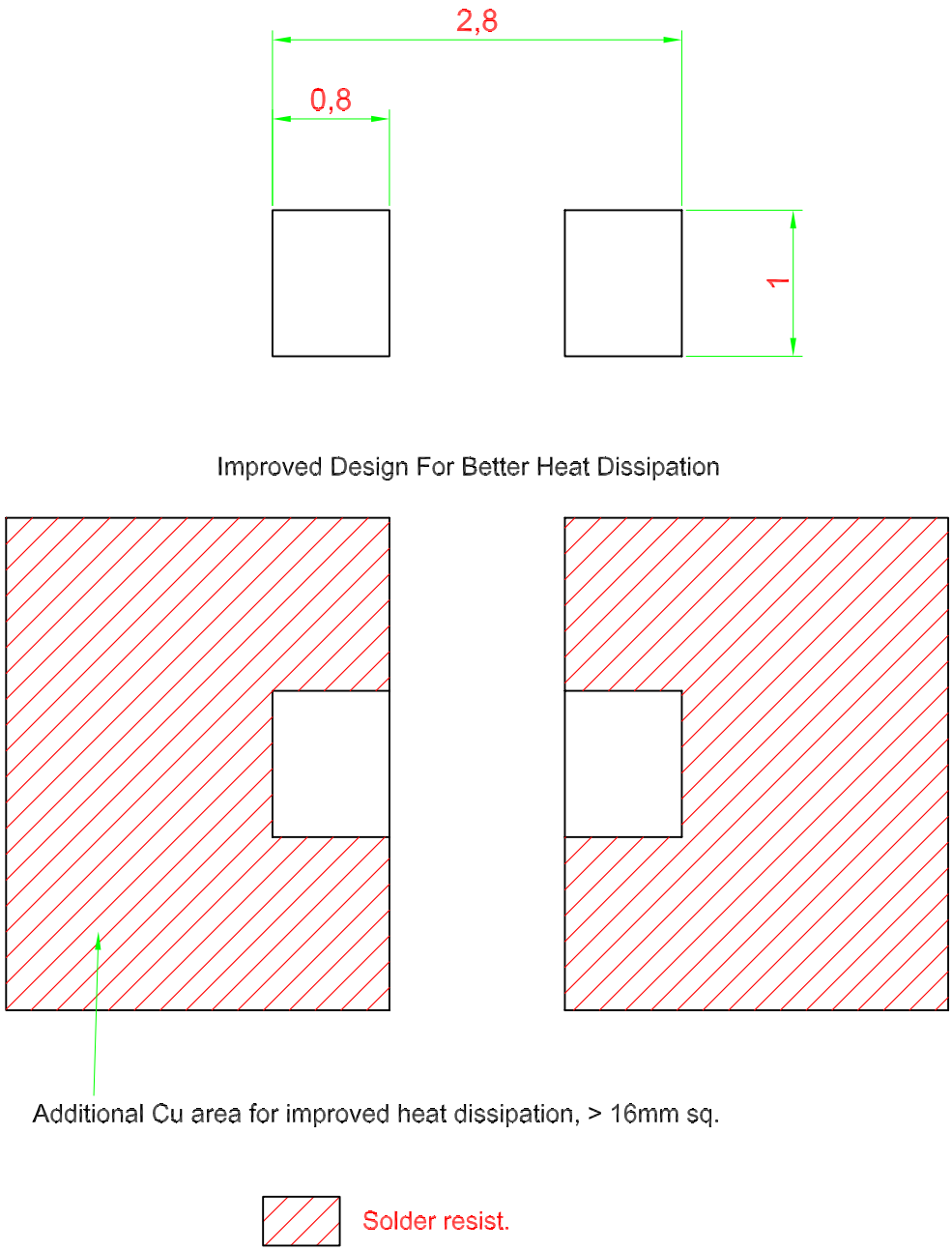


Note : Primary thermal path is through Cathode lead of LED package

Material

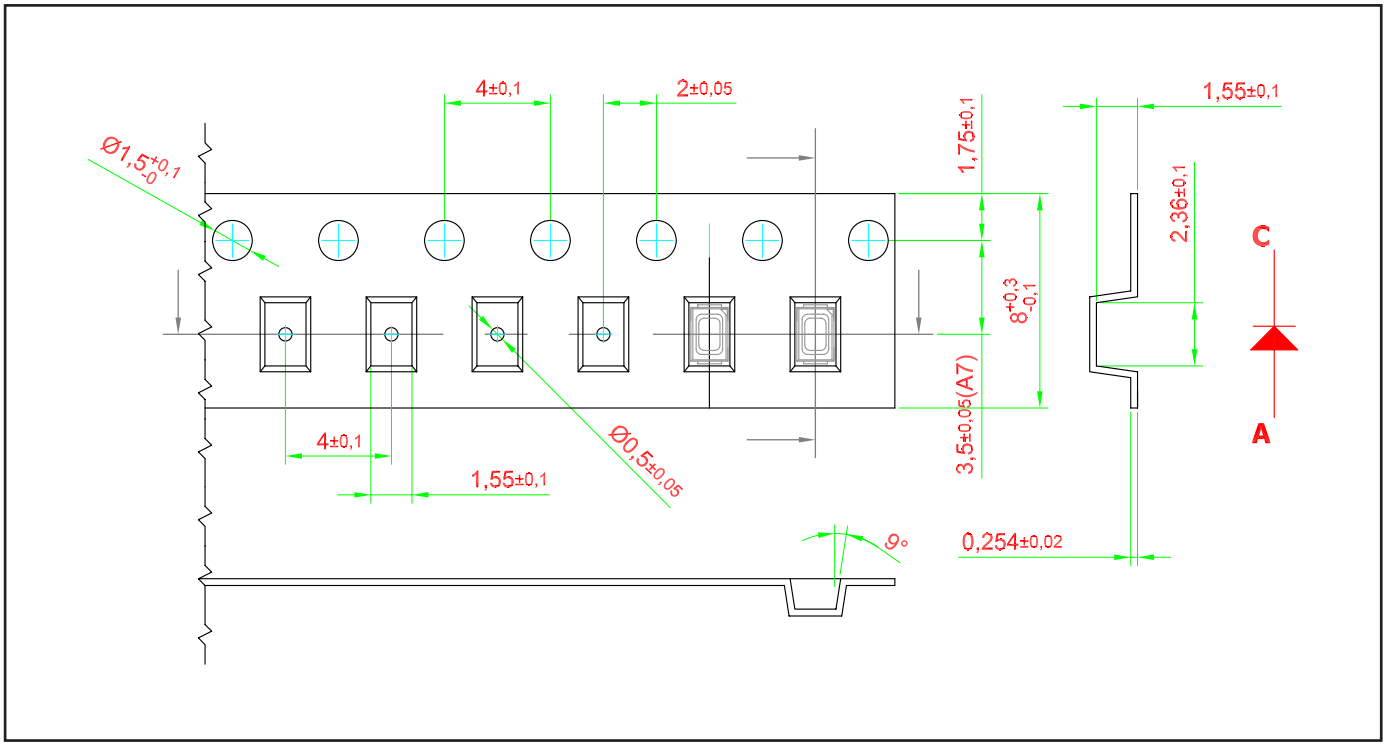
	Material
Lead-frame	Cu Alloy With Ag Plating
Package	High Temperature Resistant Plastic, PPA
Encapsulant	Silicone Resin
Soldering Leads	Sn-Sn Plating

Recommended Solder Pad

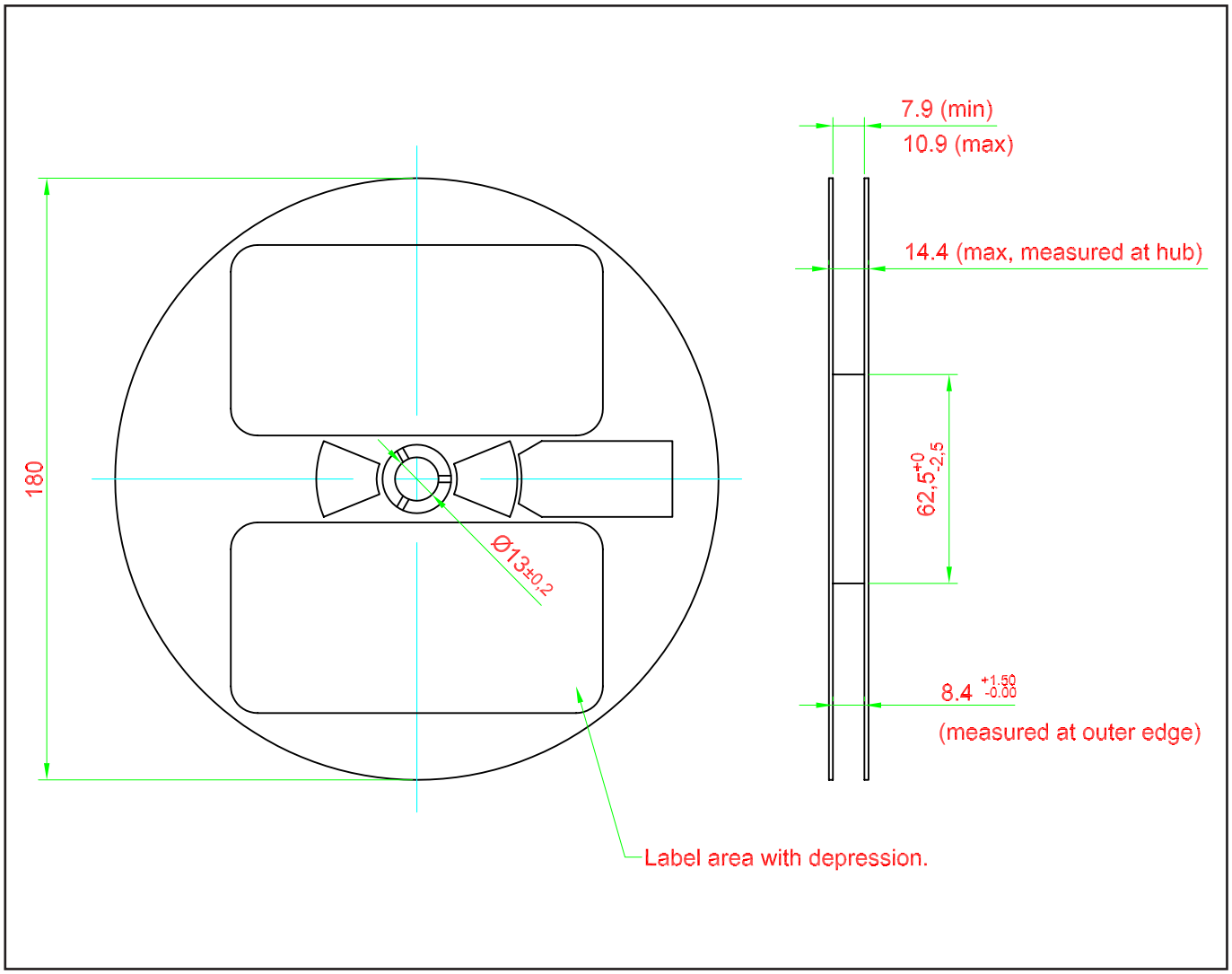


Taping and orientation

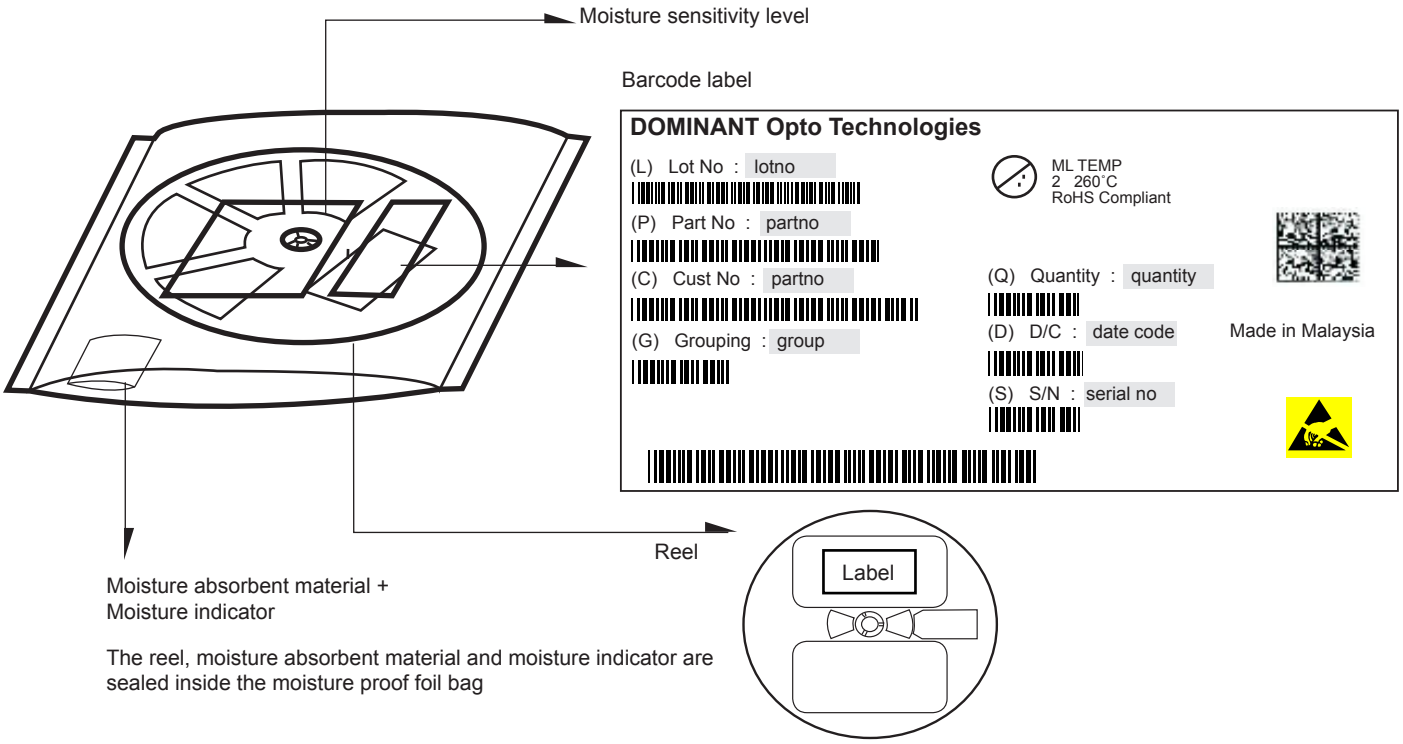
- Reels come in quantity of 3000 units.
- Reel diameter is 180 mm.



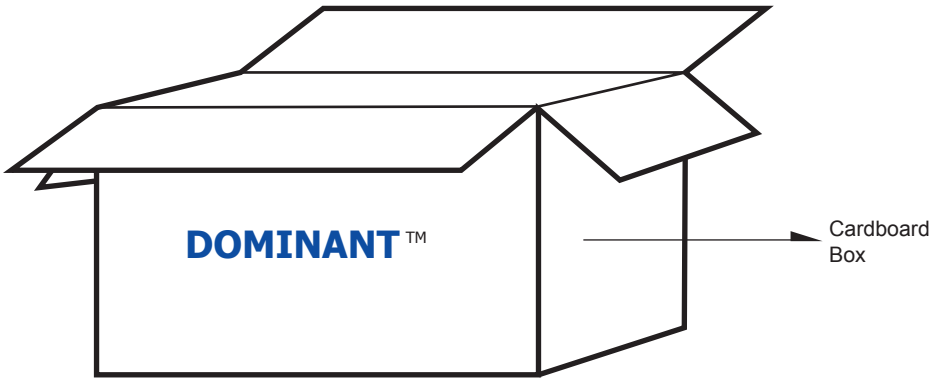
Packaging Specification



Packaging Specification



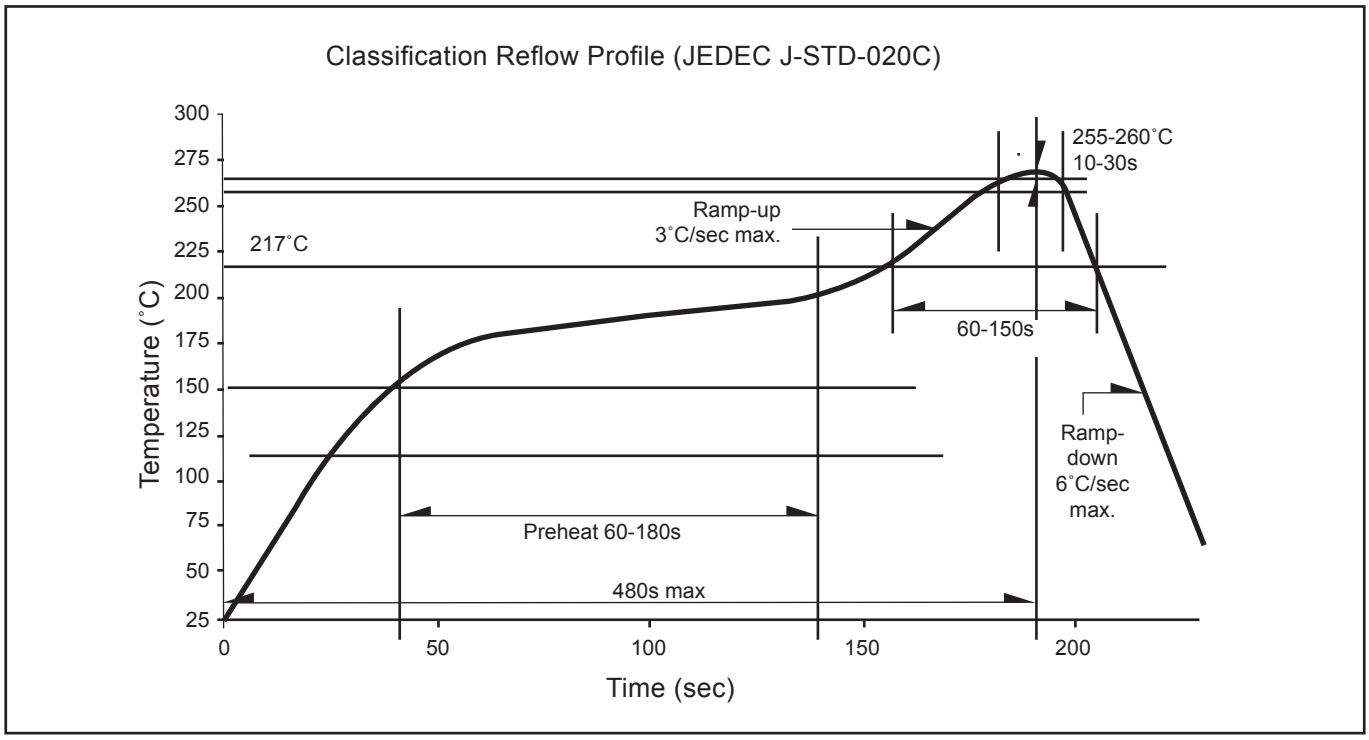
	Average 1pc Mini DomiLED	1 completed bag (3000pcs)
Weight (gram)	**0.007**	**200 ± 10**



For Mini DomiLED

Cardboard Box Size	Dimensions (mm)	Empty Box Weight (kg)	Reel / Box
Super Small	325 x 225 x 190	0.38	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 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 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 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 ± 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 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) Corrosion Robustness:

4.1 Test conditions: 40 °C / 90 % rh / 15 ppm H_2S / 336 h.
= Stricter than IEC 60068-2-43 (H_2S) [25 °C / 75% rh / 10 ppm H_2S / 21 days].

Revision History

Page	Subjects	Date of Modification
1, 2	Update product photo Not for new design: DNT-DJS-T2U-1-I1 Add new partno: DNT-DJS-VW2-1-I1	09 May 2013
2	Not for new design: DNB-DJS-Q2R-1-I1 Add new partno: DNB-DJS-RS1-1-I1	25 Oct 2013
2	Add Thermal Resistance	06 Mar 2014
1, 4, 9	Update Features Typo Error on Graph: Dominant Wavelength Shift Vs Forward Current Update Packaging Specification	15 Jun 2015
5	Typo Error on Material Add Notes in Packaging Outline	04 Aug 2015
2	Add new partno: DNB-DJS-ST1-1-I1	05 Oct 2015
1, 4, 5, 12	Add Features Update Graph Add Appendix	18 Jul 2017

NOTE

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