DOMINANT™
Opto Technologies
Innovating Illumination

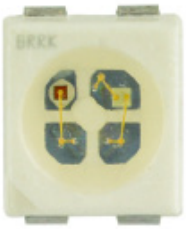
DATA SHEET

Multi DomiLED

Bi-Color : DKxx-MJS

Multi DomiLED

Synonymous with function and performance, the Multi 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 bi-color 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.
- > Compliance to automotive standard; AEC-Q101.

Applications:

- > Signage: full colour display video notice board, signage, special effect lighting.
- > Lighting: architecture lighting, general lighting, garden light, channel light.
- > Automotive: interior application, eg: switches, telematics, climate control system, dashboard, etc.

Optical Characteristics at Tj=25˚C

Part Ordering Number	Color, λ_{dom} (nm)		Viewing Angle˚	Luminous Intensity @ 20mA IV (mcd) Appx. 1.1					
	Chip #1	Chip #2		Chip #1			Chip #2		
				Min.	Typ.	Max.	Min.	Typ.	Max.
DKST-MJS-UV+WX-1	Super Red, 632nm	True Green, 525nm	120	450.0	715.0	1125.0	1125.0	1800.0	2850.0
DKST-MJS-UV+UV-1	Super Red, 632nm	True Green, 525nm	120	450.0	715.0	1125.0	450.0	715.0	1125.0

Electrical Characteristics at Tj=25˚C

	Vf @ If = 20mA Appx. 3.1			V_r @ I_r = 10uA Appx. 6.1
	Min. (V)	Typ. (V)	Max. (V)	Min. (V)
Super Red	1.80	2.10	2.60	12
True Green	2.80	3.10	3.30	5

Absolute Maximum Ratings

	Maximum Value	Unit
DC forward current	Super Red; AlInGaP=30; True Green; InGaN=20	mA
Peak pulse current; (tp ≤ 10µs, Duty cycle = 0.005)	Super Red ; AlInGaP=200; True Green; InGaN=200	mA
Reverse voltage Appx. 6.1	Super Red; AlInGaP=12; True Green; InGaN=5	V
ESD threshold (HBM)	2000	V
LED junction temperature	125	˚C
Operating temperature	-40 … +100	˚C
Storage temperature	-40 … +100	˚C
Thermal resistance - Junction / ambient, R_{thJA} (2 chips On) - Junction / solder point, R_{thJS} (2 chips On)	 575 380	 K/W K/W

Wavelength Grouping

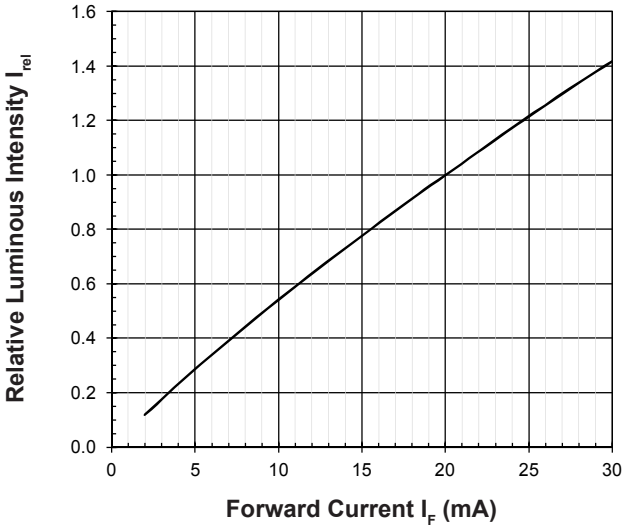
Color	Group	Wavelength distribution (nm) *Appx. 2.2*
Super Red	Full	625 - 640
True Green	Full	520 - 536
	W	520 - 524
	X	524 - 528
	Y	528 - 532
	Z	532 - 536

Luminous Intensity Group at Tj=25˚C

Brightness Group	Luminous Intensity @ IV (mcd) *Appx. 1.1* Chip #1	Chip #2
UW	450.0...715.0	1125.0...1800.0
UX	450.0...715.0	1800.0...2850.0
VW	715.0...1125.0	1125.0...1800.0
VX	715.0...1125.0	1800.0...2850.0
UU	450.0...715.0	450.0...715.0
UV	450.0...715.0	715.0...1125.0
VU	715.0...1125.0	450.0...715.0
VV	715.0...1125.0	715.0...1125.0

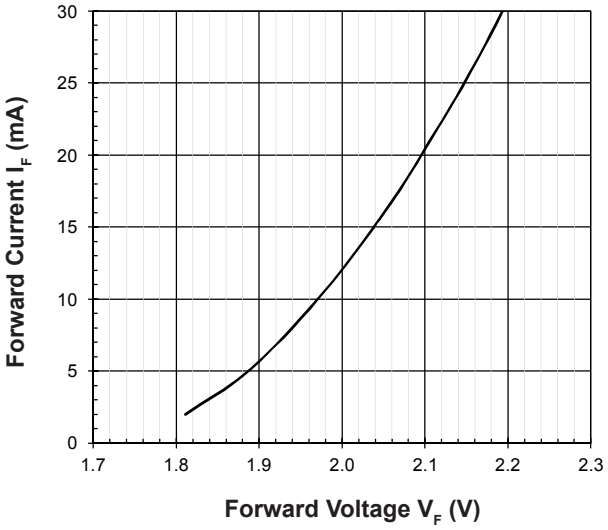
Relative Luminous Intensity Vs Forward Current

$I_V/I_V(20mA) = f(I_F)$; Tj = 25°C (AlInGaP)



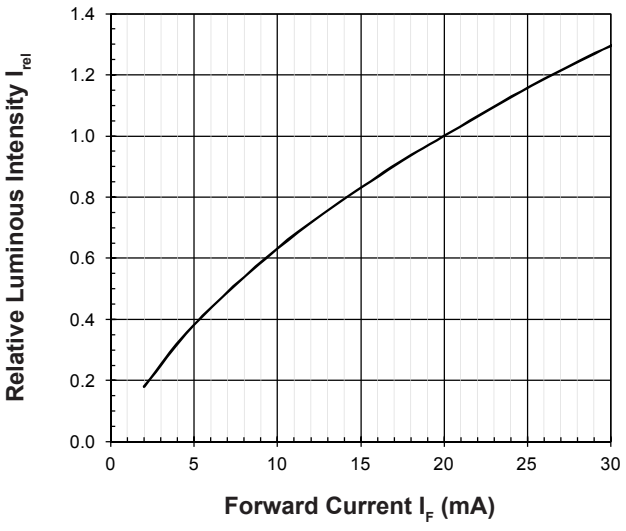
Forward Current Vs Forward Voltage

$I_F = f(V_F)$; T_j = 25°C (AlInGaP)



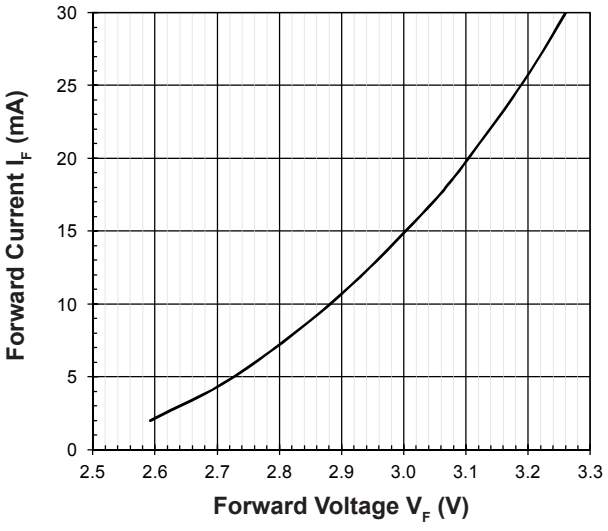
Relative Luminous Intensity Vs Forward Current

$I_V/I_V(20mA) = f(I_F)$; T_j = 25°C (InGaN)



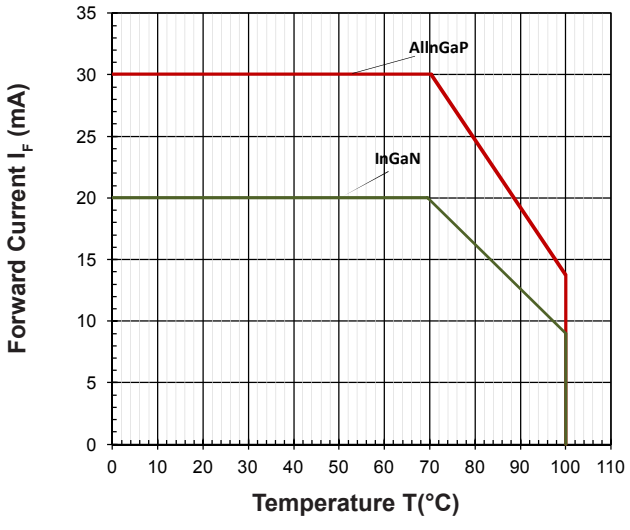
Forward Current Vs Forward Voltage

$I_F = f(V_F)$; T_j = 25°C (InGaN)



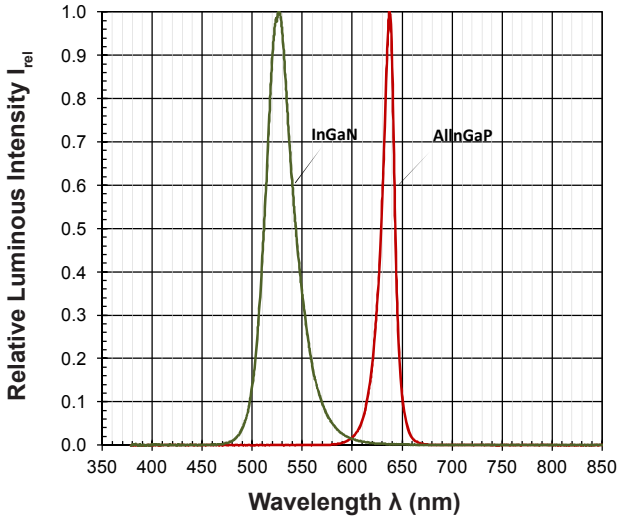
Maximum Current Vs Temperature

$I_F = f(T)$



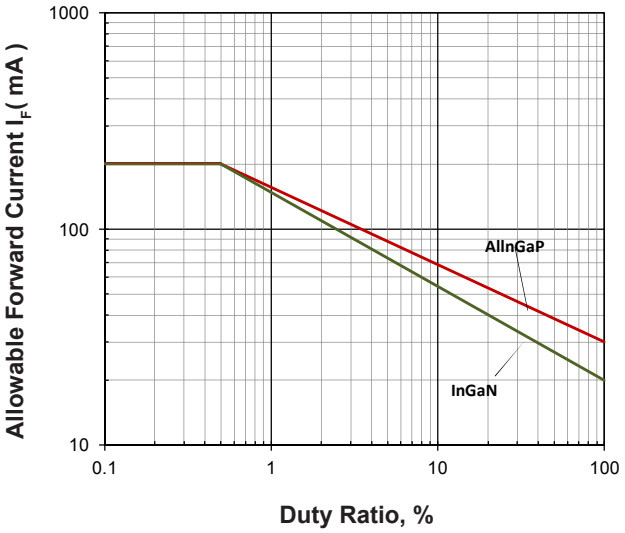
Relative Spectral Emission

$I_{rel} = f(\lambda)$; T_j = 25°C; I_F = AlInGaP 20mA; InGaN 20mA

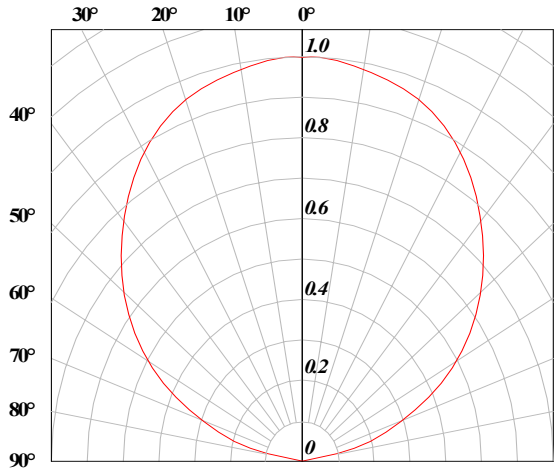


Allowable Forward Current Vs Duty Ratio

(T_j = 25°C; $t_p \leq 10\mu s$)

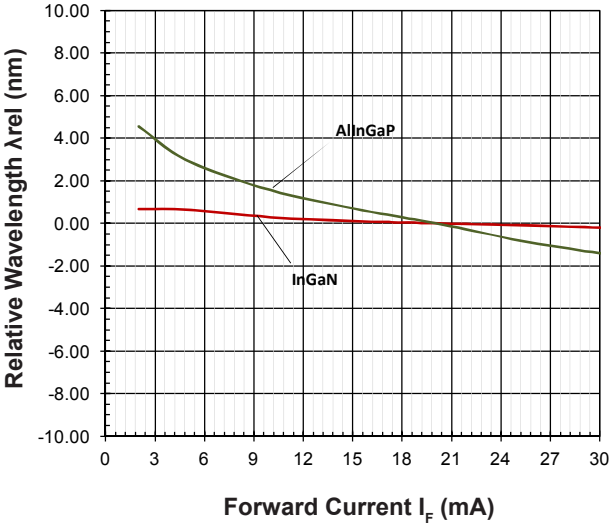


Radiation Pattern



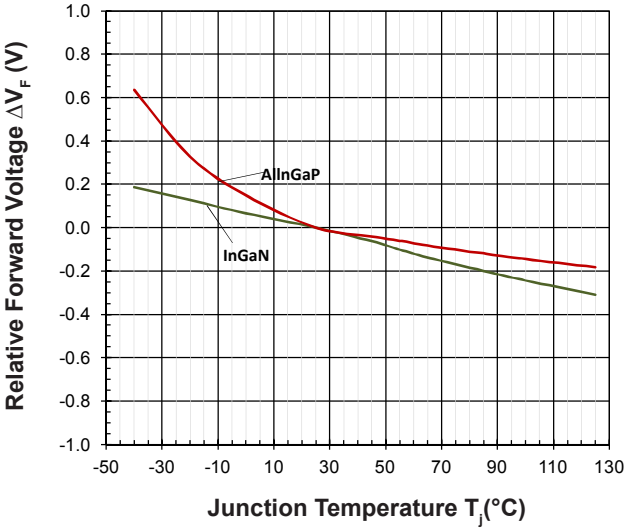
Relative Wavelength Shift Vs Forward Current

λdom = f(I_F); Tj = 25°C



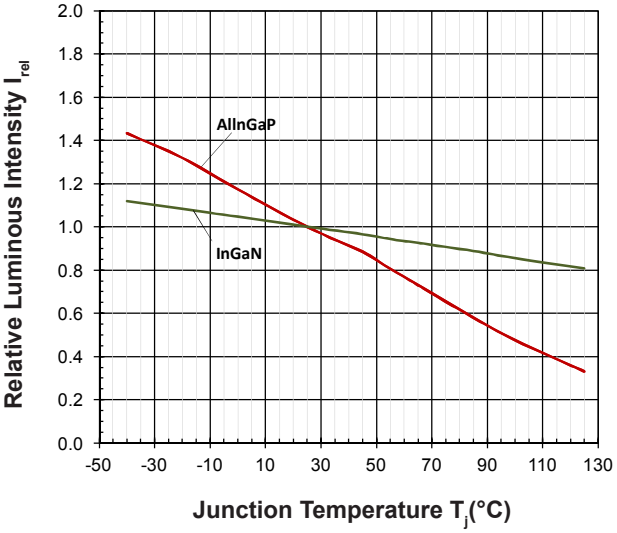
Relative Forward Voltage Vs Junction Temperature

$\Delta V_F = V_F - V_F(25°C) = f(T_j)$; I_F =20mA



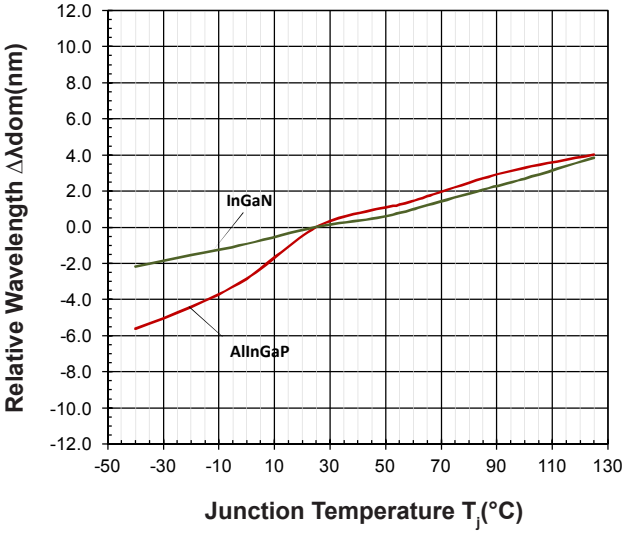
Relative Luminous Intensity Vs Junction Temperature

$I_V/I_V(25°C) = f(T_j)$; I_F = 20mA

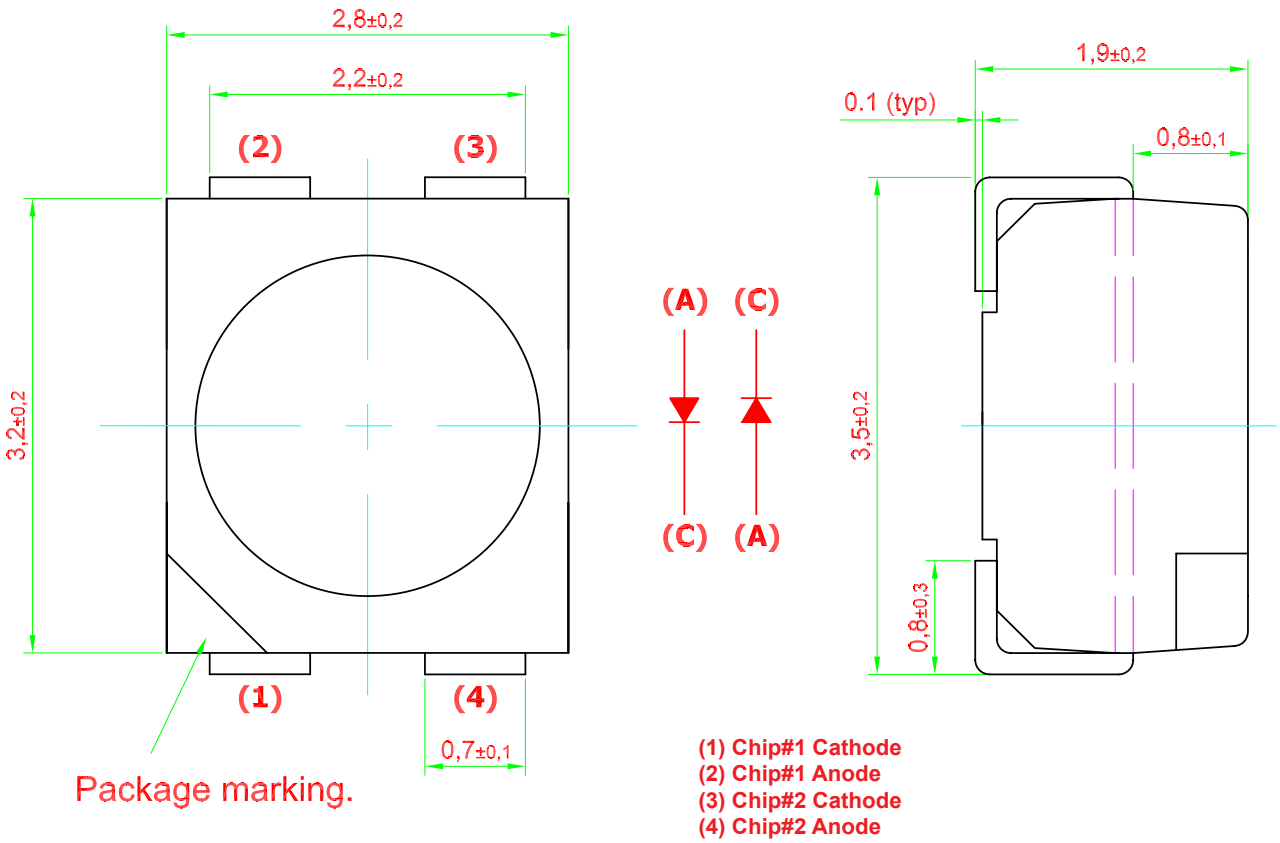


Relative Wavelength Vs Junction Temperature

$\Delta\lambda dom = \lambda dom - \lambda dom\ (25°C) = f(T_j)$; I_F =20mA



Multi DomiLED • Bi-Color : DKxx-MJS Package Outlines

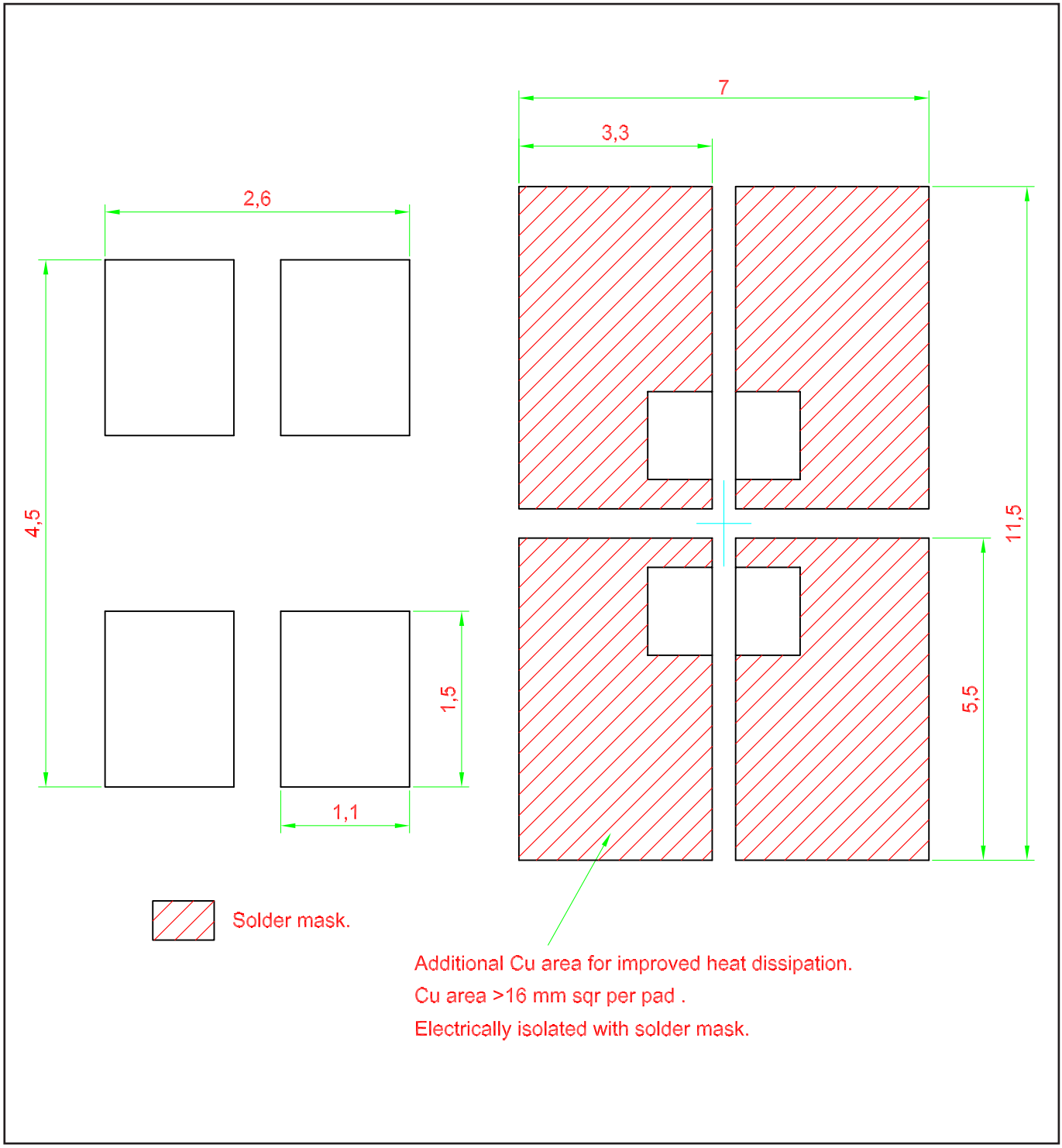


Note : Primary thermal path is through Cathode lead of LED package for 1st Chip, Anode lead for 2nd Chip.

Material

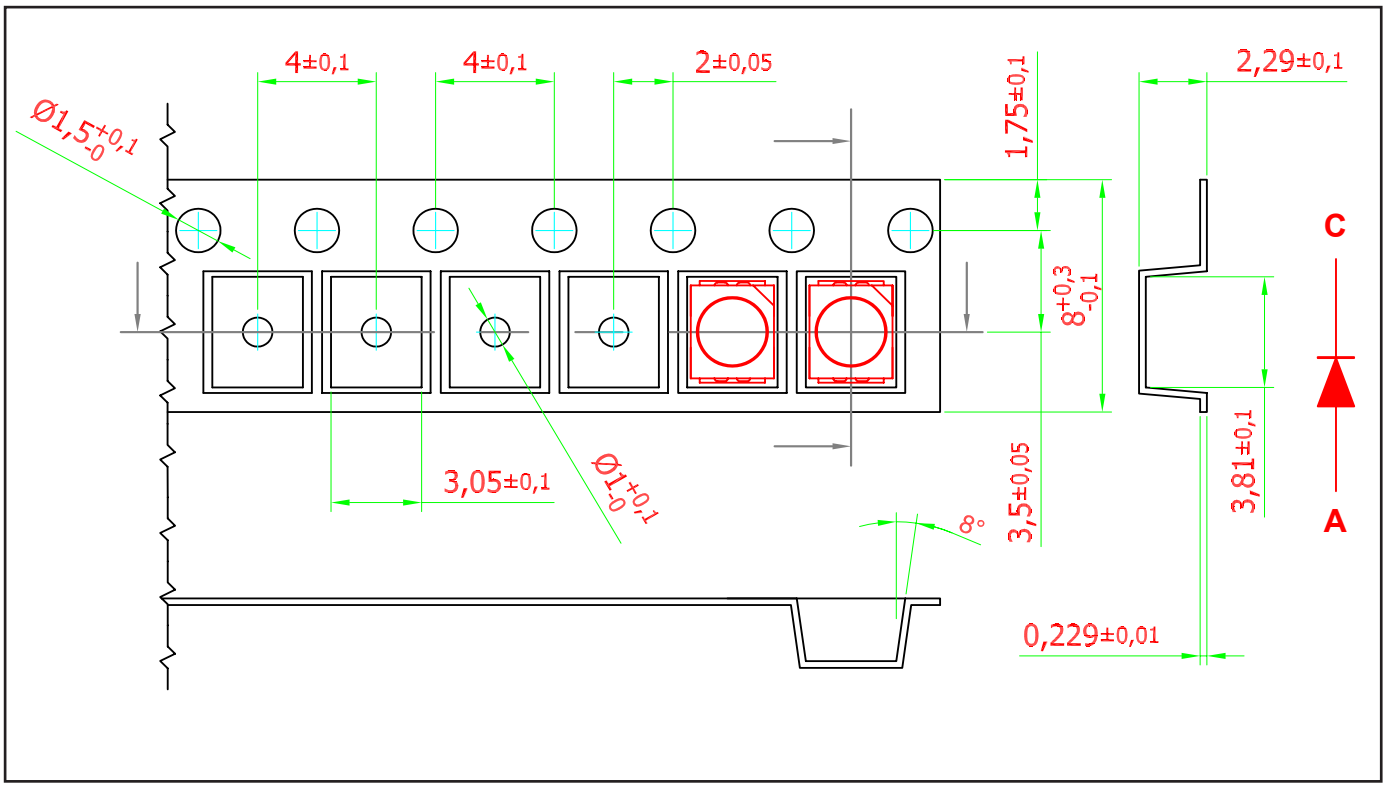
	Material
Lead-frame	Cu Alloy With Ag Plating
Package	High Temperature Resistant Plastic, PPA
Encapsulant	Epoxy
Soldering Leads	Sn Plating

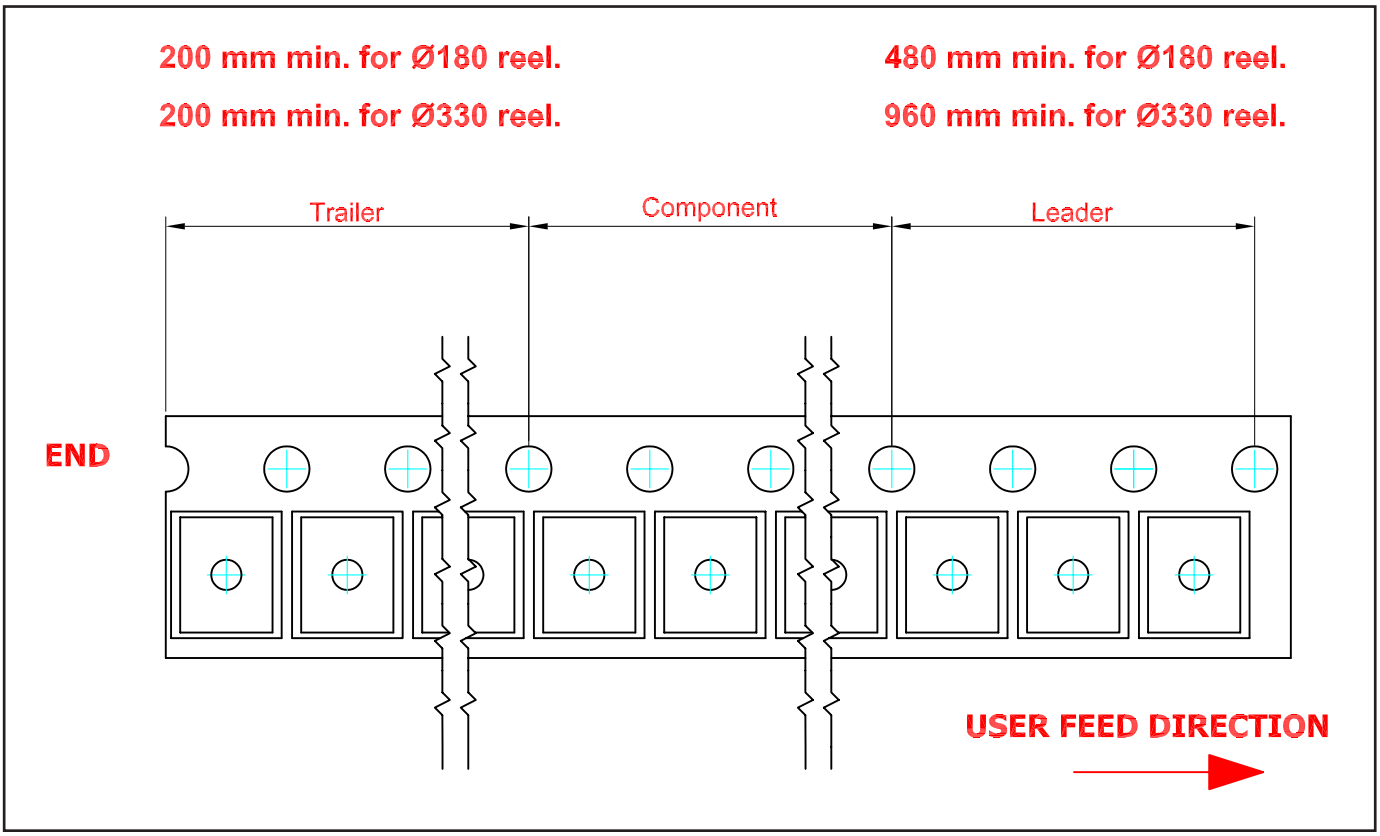
Recommended Solder Pad



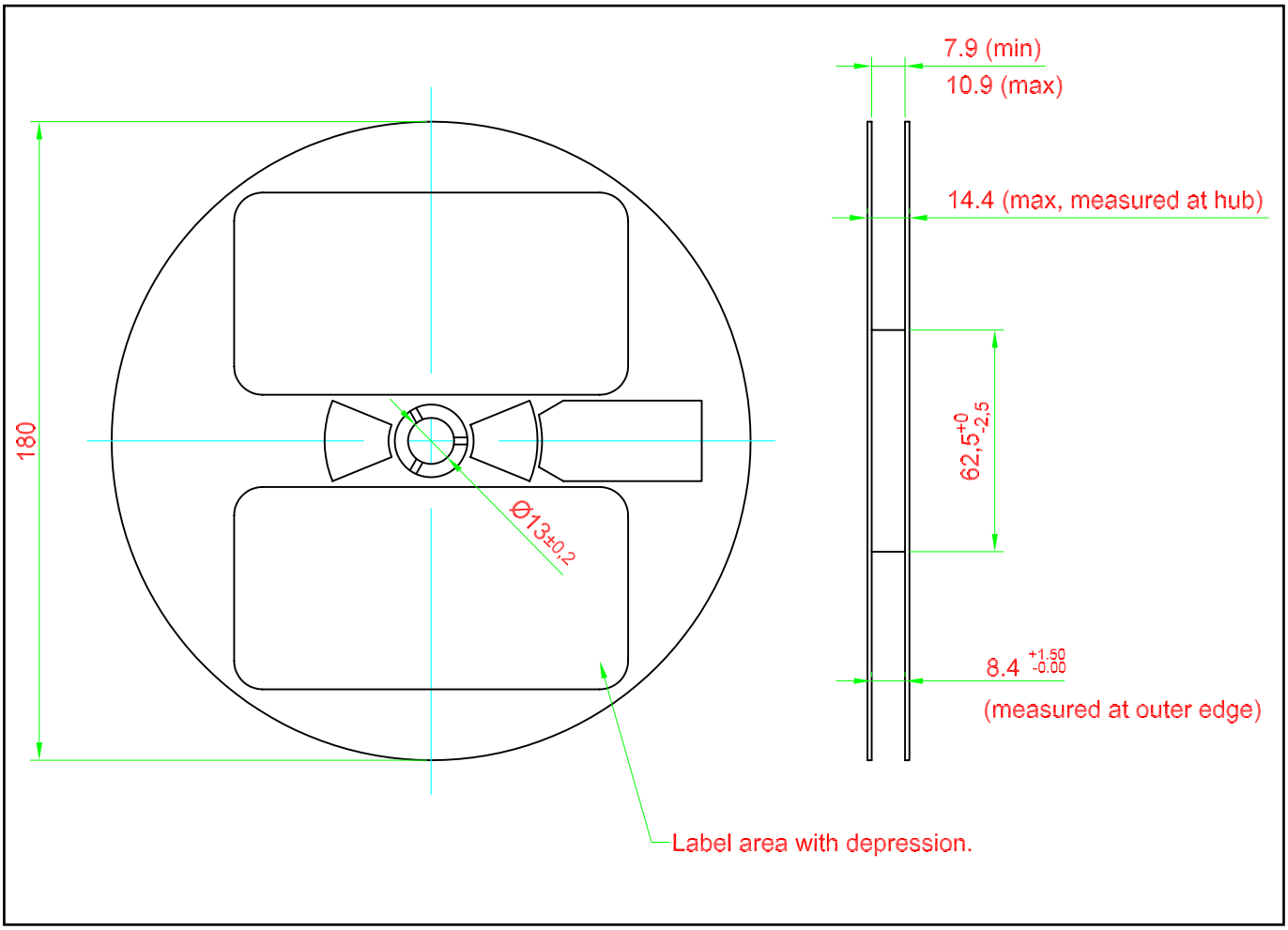
Taping and orientation

- Reels come in quantity of 2000 units.
- Reel diameter is 180 mm.

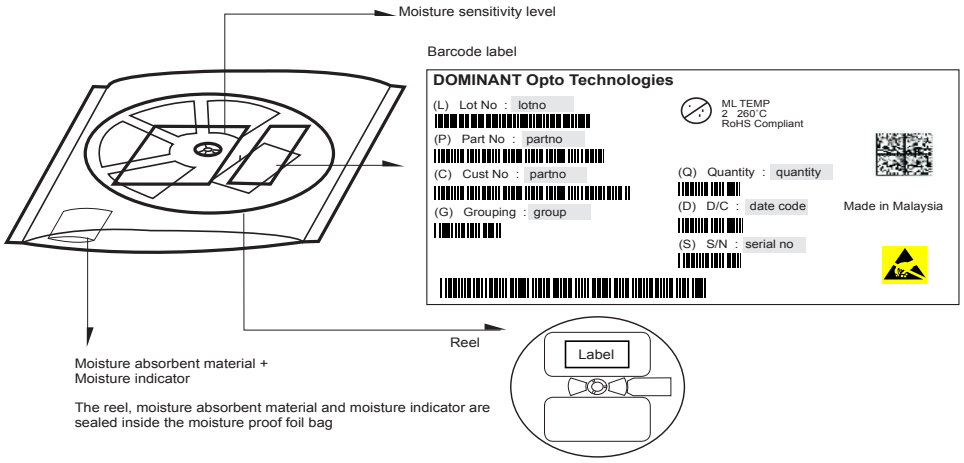




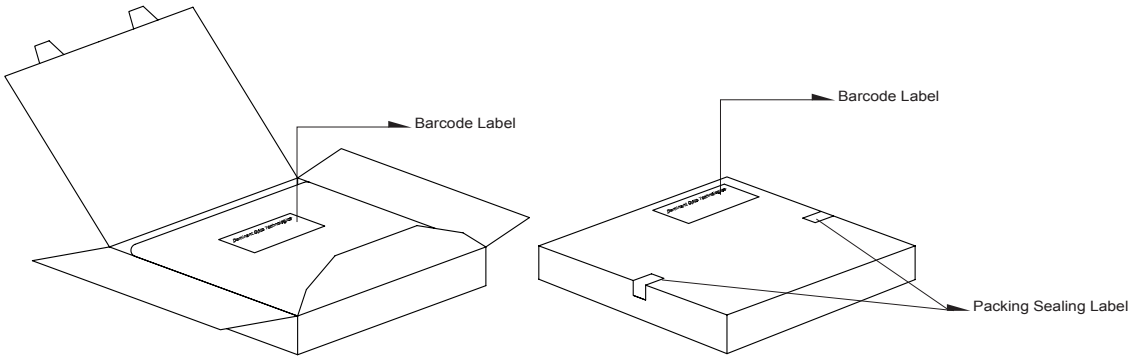
Packaging Specification



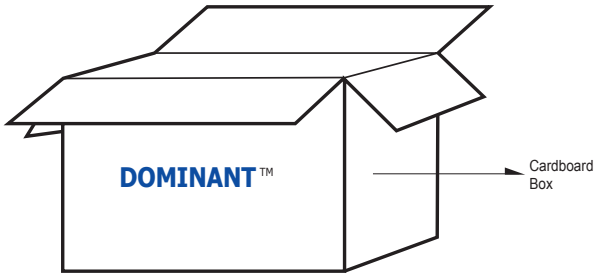
Packaging Specification



	Average 1pc DomiLED/Multi DomiLED	1 completed bag (2000pcs)
Weight (gram)	**0.034**	**240 ± 10**



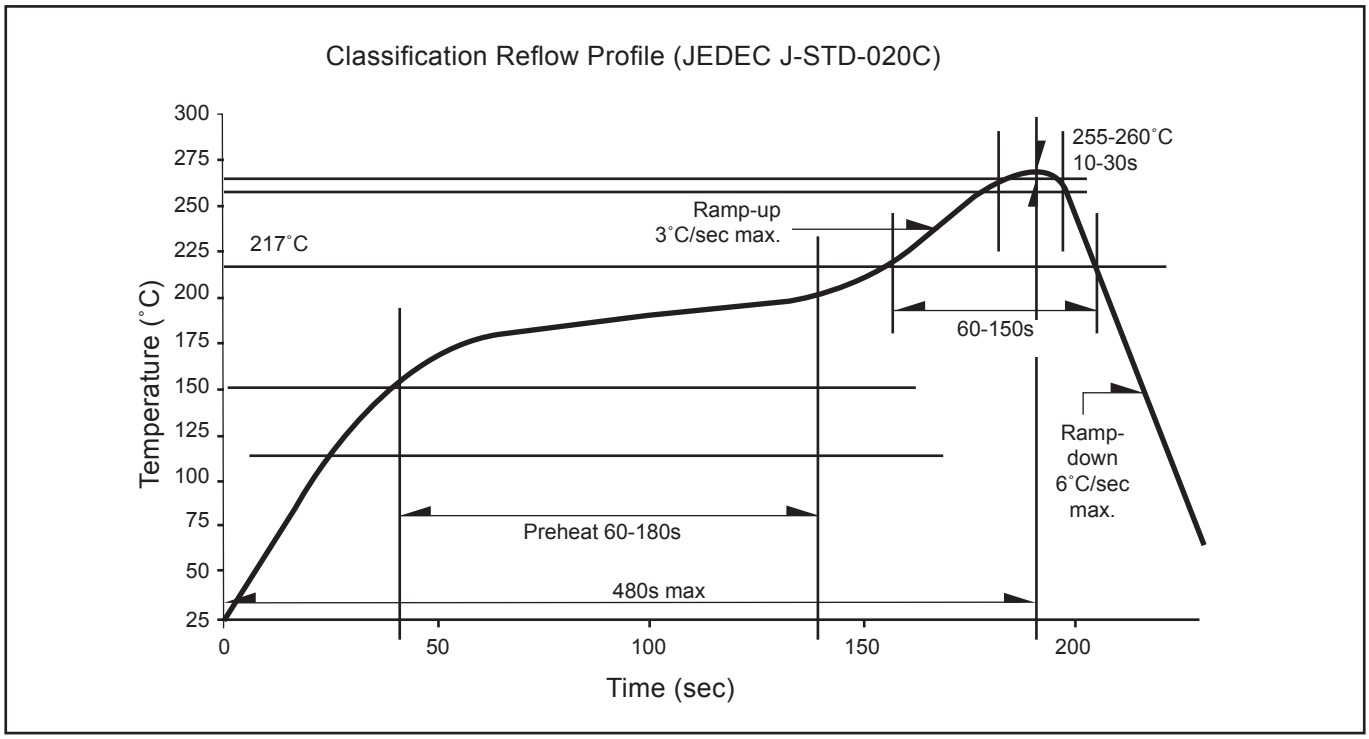
	Dimensions (mm)
Packing Box	**210 x 210 x 16**



For Multi 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
-	Initail Release	19 Apr 2017
2, 4	Update Vf for True Green Update Graph- Forward Current Vs Forward Voltage (InGaN) Update Appendix	25 Oct 2017
1, 12	Update Product Photo Update Appendix	05 Apr 2018
2, 10	Add new partno: DKST-MJS-UV+UV-1 Update Packaging Specification	13 Sep 2018

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