DOMINANT™
Opto Technologies
Innovating Illumination

DATA SHEET:

DomiLED

AlInGaP : DDx-xRS-I2

DomiLED

Synonymous with function and performance, the 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.
> 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 both IR reflow soldering.
> Environmental friendly; RoHS compliance.
> Compliance to AEC-Q101 Standard.

Applications:

> Automotive:

Interior applications, eg: switches, telematics, climate control system, dashboard, etc. Exterior applications, eg: signal lighting, Center High Mounted Stop Light (CHMSL)

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

> Communication: indicator and backlight in mobile phone, flash light.

> Industrial: white goods (eg: Oven, microwave, etc.), light bar, illuminated advertising.

Optical Characteristics at Tj=25˚C

Part Number	Color	Viewing Angle˚	Luminous Intensity @ 2mA; IV (mcd) Appx. 1.1		
			Min.	Typ.	Max.
● DDS-CRS-J2L1-1-I2	Super red, 632nm	120	5.6	9.0	14.0
● DDO-CRS-LM2-1-I2	Orange, 605nm	120	11.2	18.0	28.5
● DDY-CRS-KL2-1-I2	Yellow, 587nm	120	7.2	11.2	18.0
● DDY-CRS-LM2-1-I2	Yellow, 587nm	120	11.2	18.0	28.5

● Not for new design

Electrical Characteristics at Tj=25˚C

Part Number	Vf @ If = 2mA Appx. 3.1		V_r @ I_r = 10uA Appx. 6.1
	Typ. (V)	Max. (V)	Min. (V)
DDx-xRS	1.8	2.2	12

Absolute Maximum Ratings

	Maximum Value	Unit
DC forward current	20	mA
Peak pulse current; (tp ≤ 10µs, Duty cycle = 0.1)	100	mA
Reverse voltage Appx. 6.1	12	V
ESD threshold (HBM)	2	kV
LED junction temperature	125	˚C
Operating temperature	-40 … +100	˚C
Storage temperature	-40 … +100	˚C
Power dissipation (at room temperature)	45	mW

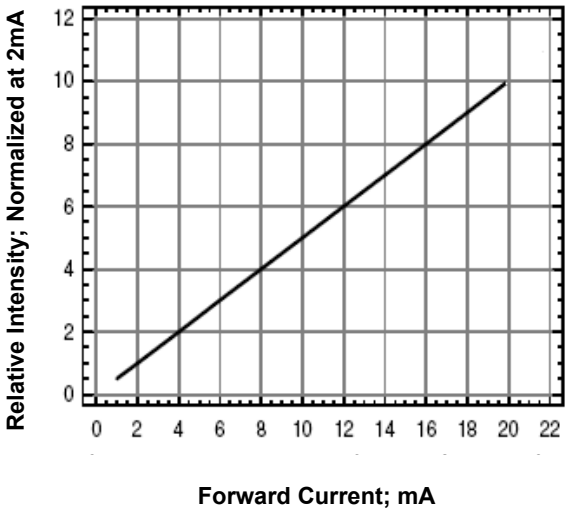
Wavelength Grouping at Tj=25˚C

Color	Group	Wavelength distribution (nm) *Appx. 2.2*
DDS; Super-red	Full	625 - 640
DDO; Orange	Full	600 - 612
	W	600 - 603
	X	603 - 606
	Y	606 - 609
	Z	609 - 612
DDY; Yellow	Full	582 - 594
	W	582 - 585
	X	585 - 588
	Y	588 - 591
	Z	591 - 594

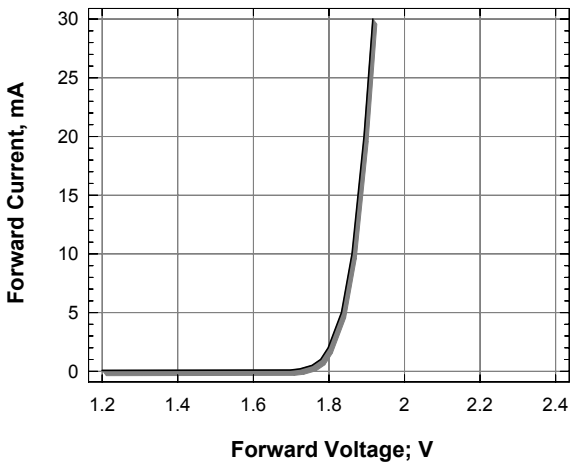
Luminous Intensity Group at Tj=25˚C

Brightness Group	Luminous Intensity *Appx. 1.1* IV (mcd)
J2	5.6...7.2
K1	7.2...9.0
K2	9.0...11.2
L1	11.2...14.0
L2	14.0...18.0
M1	18.0...22.4
M2	22.4...28.5

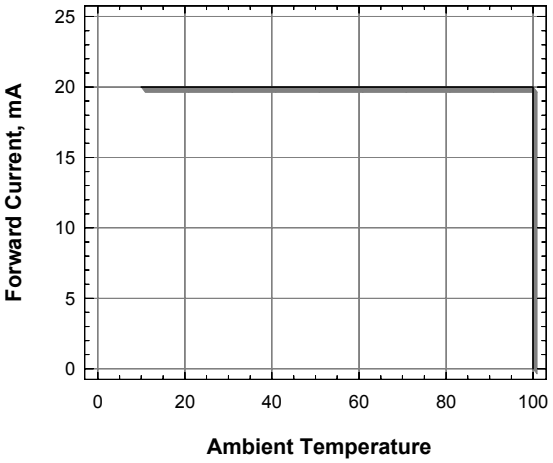
Relative Intensity Vs Forward Current



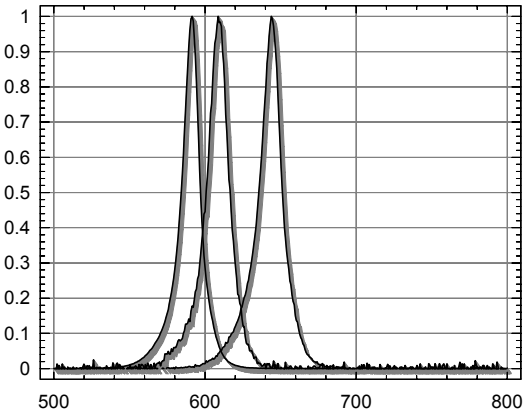
Forward Current Vs Forward Voltage



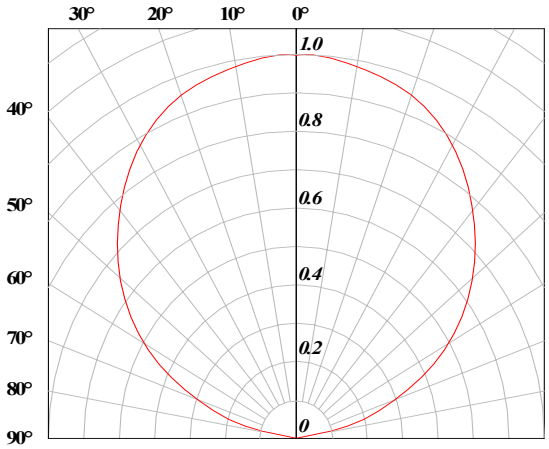
Forward Current Vs Ambient Temperature



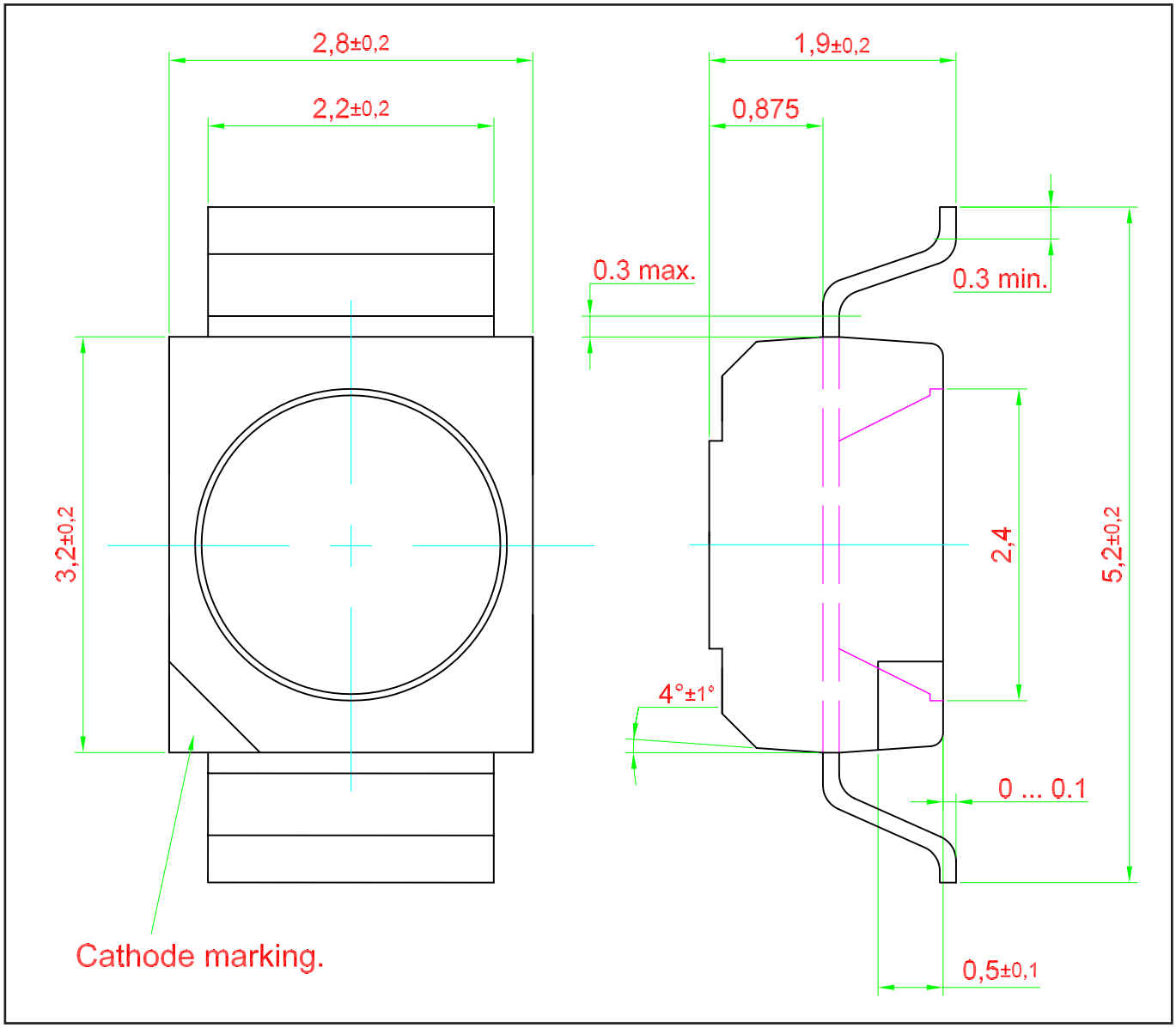
Relative Intensity Vs Wavelength



Radiation Pattern



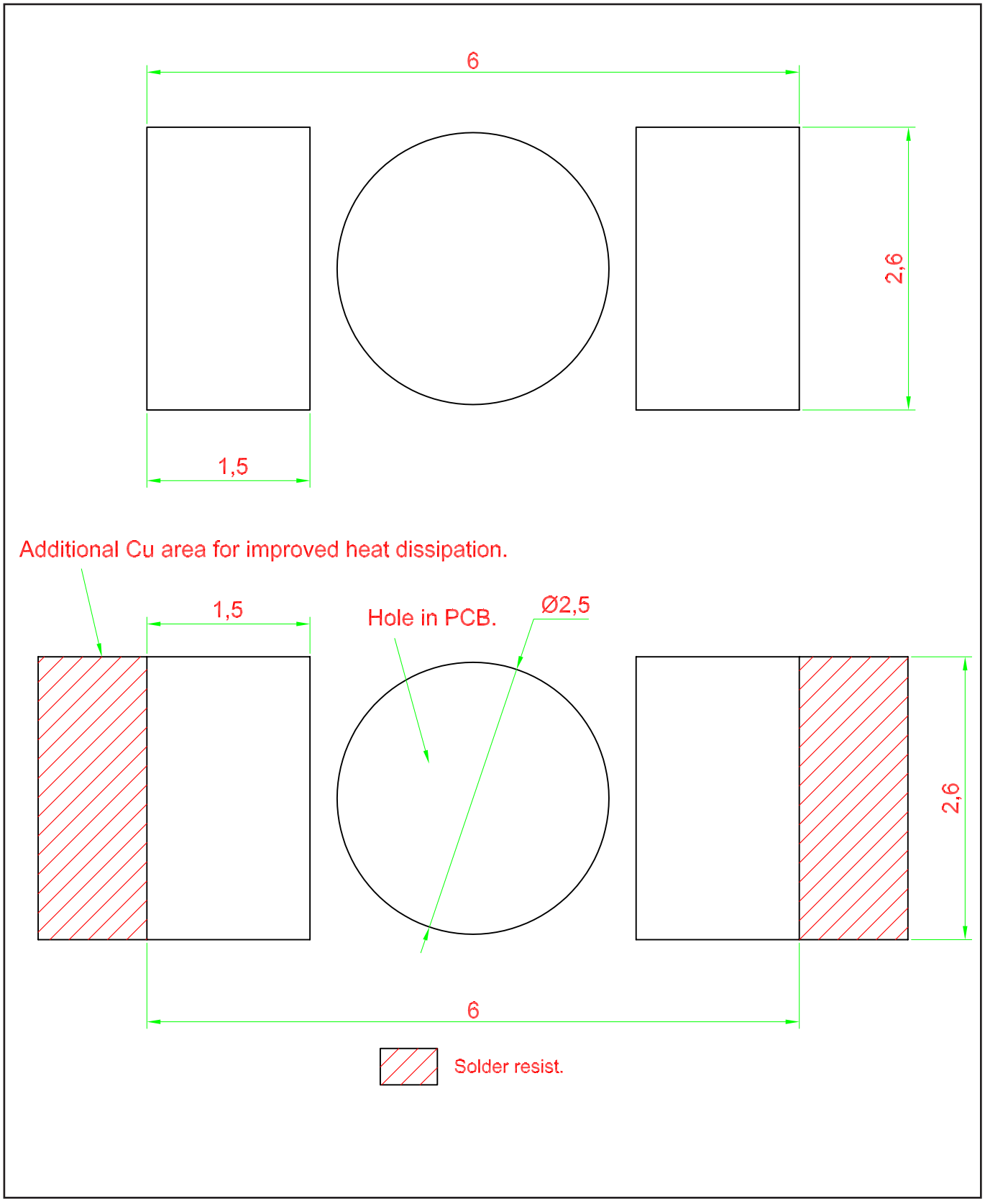
DomiLED • AlInGaP : DDx-xRS-I2 Package Outlines



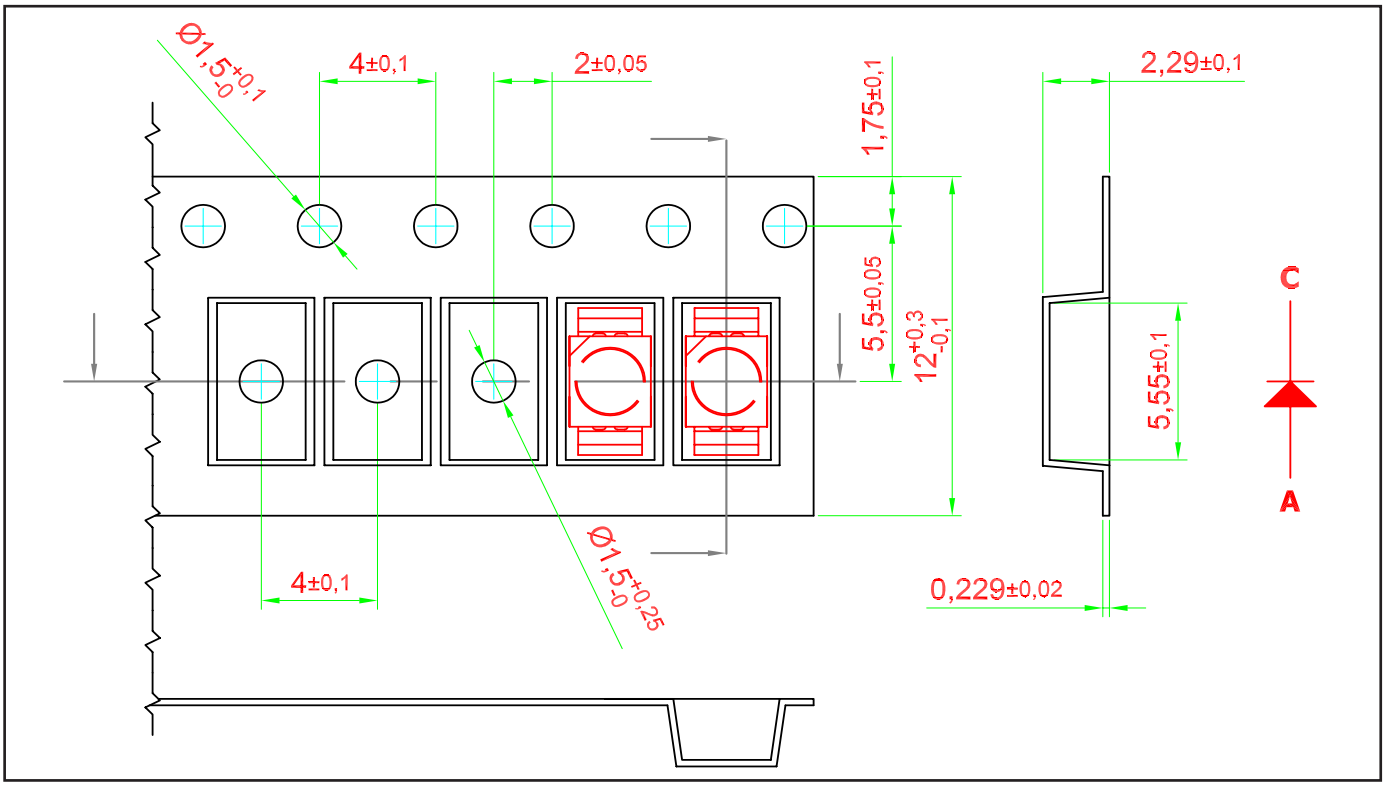
Material

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

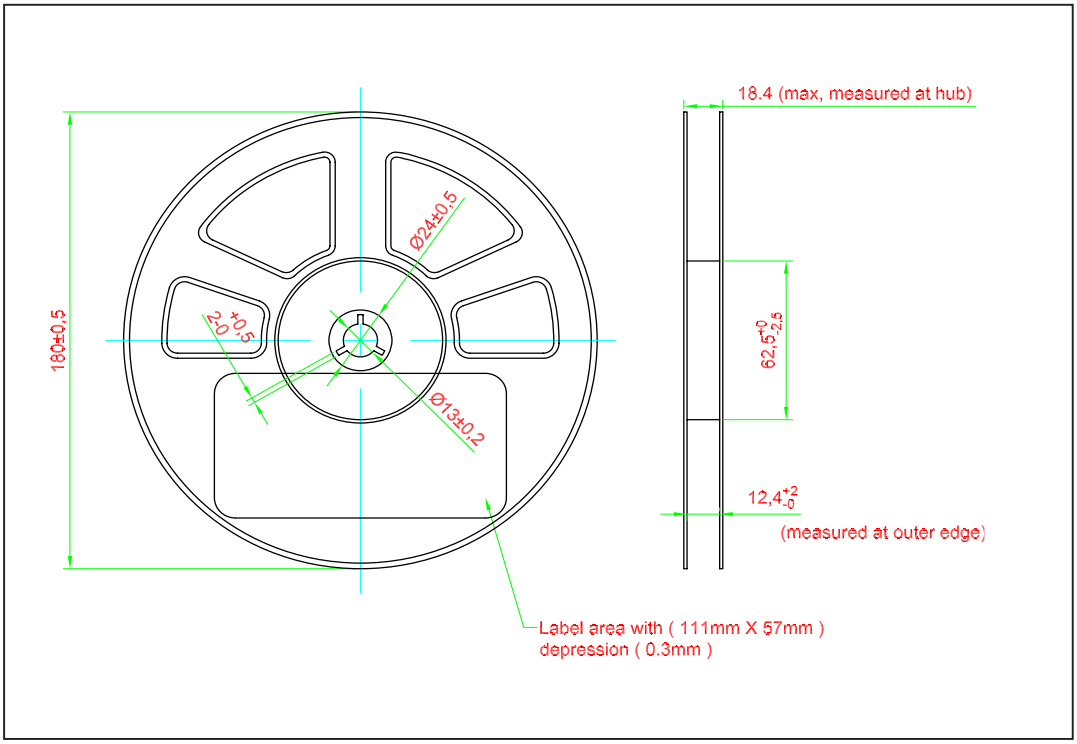
Recommended Solder Pad



Taping and orientation



Packaging Specification

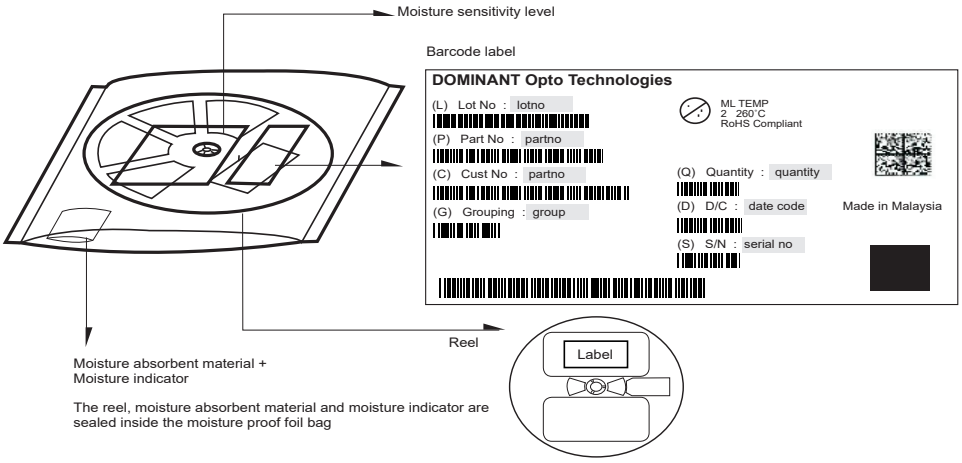


	Reel Diameter (mm)	Quantity (pcs)	*Ordering Number
Standard Packing	180	2000	DDx-xRS-xxx-x-I2

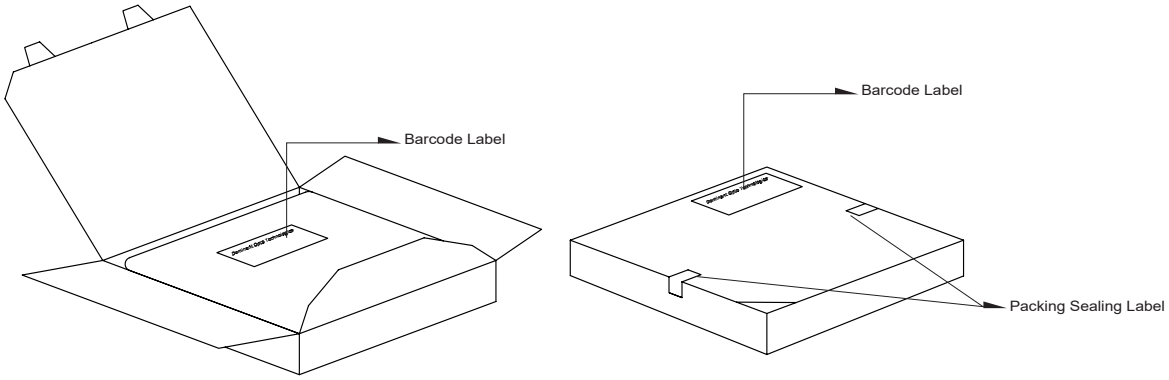
Notes:

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

Packaging Specification



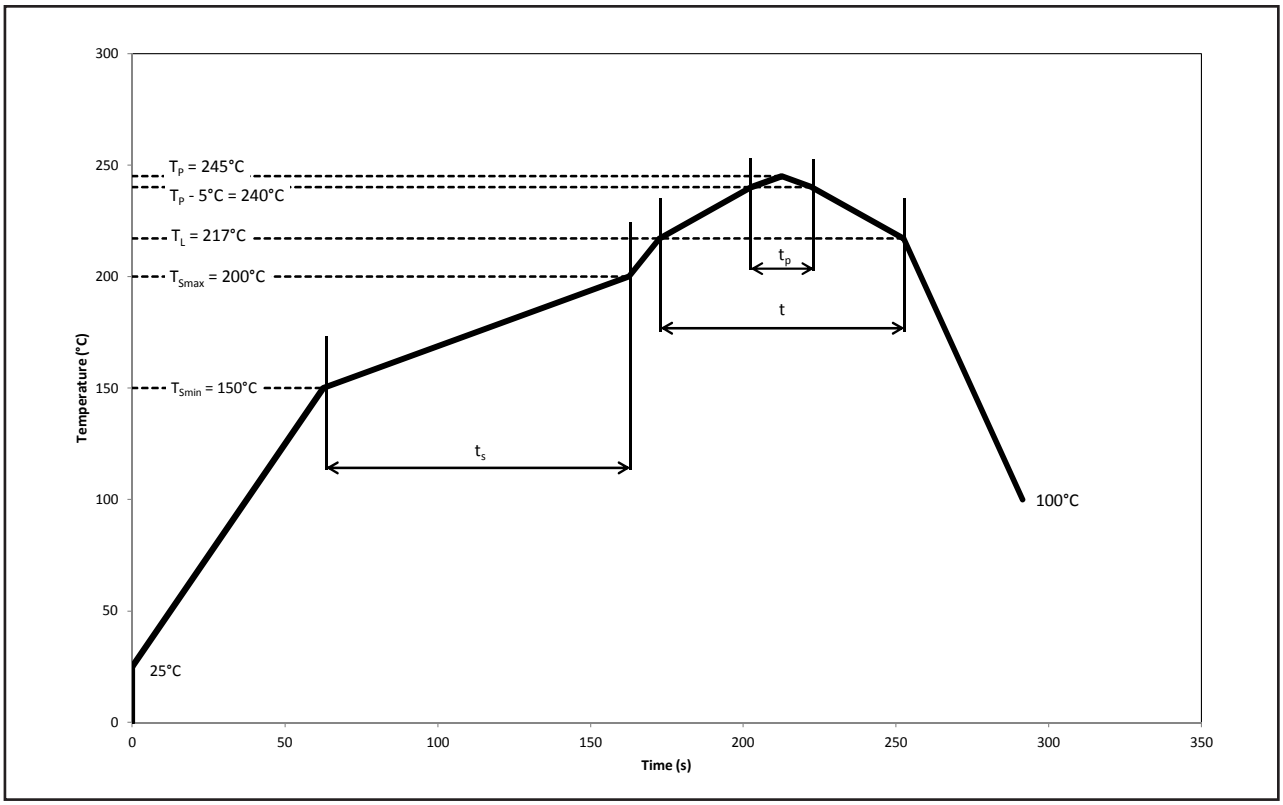
Quantity per bag (pcs)	Average 1pc DomiLED (gram)	1 completed bag (gram)
2000	0.034	240 ± 10



Reel Diameter (mm)	Packing Box Dimensions (mm)
180	210 x 210 x 20

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	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 ± 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	09 Sep 2008
2	Not for new design: DDY-CRS-KL2-1-I2 Add new partno: DDY-CRS-LM2-1-I2	27 Jul 2009
-	Update company name	31 May 2010
4	Add Graph: Relative Luminous Intensity Vs Forward Current	08 Mar 2012
8	Error in carrier tape	22 Jun 2012
1, 9	Add Features Update Packaging Specification	16 Oct 2015
1, 9, 11	Update Product Photo Error on Packaging Specification Add Appendix	03 Jul 2017
2, 8, 9, 10, 11	Not for New Design: DDS-CRS-J2L1-1-I2, DDO-CRS-LM2-1-I2, DDY-CRS-LM2-1-I2 Update Packaging Specification Update Recommended Pb-free Soldering Profile Update Appendix	18 May 2022

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.

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, 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