

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 IR reflow soldering.
- > Environmental friendly; RoHS compliance.
- > Compliance to AEC-Q102 Standard.
- > Passed corrosion test.



Applications:

- > Automotive: interior applications, eg: switches, telematics, climate control system, dashboard, etc.
- > Consumer appliances: LCD illumination as in PDAs, LCD TV.
- > Communication: indicator and backlight in mobilephone.
- > Display: full color display video notice board.
- > Industrial: white goods (eg: Oven, microwave, etc.).



Optical Characteristics at Tj=25°C

Part Ordering Number	Color	Viewing Angle°	Luminous Intensity @ 20mA		IV (mcd) ^{Appx. 1.1} Max.
			Min.	Typ.	
DDH-CJS-PQ2-1	Hyper-red, 640nm	120	45.00	71.50	112.50
DDS-CJS-PQ2-1	Super-red, 632nm	120	45.00	71.50	112.50
DDS-CJS-QR2-1	Super-red, 632nm	120	71.50	112.50	180.00
DDS-CJS-RS2-1	Super-red, 632nm	120	112.50	180.00	285.00
DDR-CJS-RS2-1	Red, 625nm	120	112.50	180.00	285.00
DDR-CJS-ST1-1	Red, 625nm	120	180.00	285.00	355.00
DDA-CJS-RS2-1	Amber, 615nm	120	112.50	180.00	285.00
DDA-CJS-ST2-1	Amber, 615nm	120	180.00	285.00	450.00
DDO-CJS-RS2-1	Orange, 605nm	120	112.50	180.00	285.00
DDO-CJS-ST2-1	Orange, 605nm	120	180.00	285.00	450.00
DDY-CJS-QR2-1	Yellow, 587nm	120	71.50	112.50	180.00
DDY-CJS-RS2-1	Yellow, 587nm	120	112.50	180.00	285.00
DDY-CJS-ST2-1	Yellow, 587nm	120	180.00	285.00	450.00
DDG-CJS-PQ2-1	Green, 572nm	120	45.00	71.50	112.50
DDG-CJS-QR2-1	Green, 572nm	120	71.50	112.50	180.00
DDP-CJS-LM2-1	Pure Green, 560nm	120	11.20	18.00	28.50

Optical Characteristics at Tj=25°C

Part Ordering Number	Color	Viewing Angle°	Luminous Intensity @ 20mA IV (mcd) <small>Appx. 1.1</small>		
			Min.	Typ.	Max.
● DDS-SJS-QR2-1	Super-red, 632nm	120	71.50	112.50	180.00
● DDR-SJS-RS2-1	Red, 625nm	120	112.50	180.00	285.00
● DDR-TJS-TU2-1	Red, 625nm	120	285.00	450.00	715.00
● DDA-SJS-ST2-1	Amber, 615nm	120	180.00	285.00	450.00
● DDO-SJS-ST2-1	Orange, 605nm	120	180.00	285.00	450.00
● DDY-SJS-ST2-1	Yellow, 587nm	120	180.00	285.00	450.00
● DDY-TJS-TU2-1	Yellow, 587nm	120	285.00	450.00	715.00
● DDG-SJS-QR2-1	Green, 572nm	120	71.50	112.50	180.00
● DDP-SJS-LM2-1	Pure Green, 560nm	120	11.20	18.00	28.50
● DDP-SJS-MN2-1	Pure Green, 560nm	120	18.00	28.50	45.00
● Not for new design					

Electrical Characteristics at T_j=25°C

Part Number	V _f @ I _f = 20mA <i>Appx. 3.1</i>			V _r @ I _r = 10uA <i>Appx. 6.1</i>
	Min. (V)	Typ. (V)	Max. (V)	Min. (V)
DDx-CJS	1.6	1.9	2.3	12
DDx-SJS	1.6	1.8	2.3	12
DDx-TJS	1.6	2.1	2.6	12

Absolute Maximum Ratings

	Maximum Value	Unit	
DC forward current	30	mA	
Peak pulse current; (t _p ≤ 10μs, Duty cycle = 0.005)	DDx-SJS/DDx-TJS : DDx-CJS :	1000 500	mA
Reverse voltage <i>Appx. 6.1</i>	12	V	
ESD threshold (HBM)	2	kV	
LED junction temperature	125	°C	
Operating temperature	-40 ... +110	°C	
Storage temperature	-40 ... +110	°C	
Power dissipation (at room temperature)	75	mW	
Thermal resistance (Rated current = 20mA, T _s = 25 °C)			
- Junction / ambient, R _{th JA}	500	K/W	
- Junction / solder point, R _{th JS}	250	K/W	
(Mounting on FR4 PCB, pad size ≥ 16 mm ² per pad)			

Wavelength Grouping at Tj=25°C

Color	Group	Wavelength distribution (nm) <i>Appx. 2.2</i>
DDH; Hyper-red	Full	636 - 646
DDS; Super-red	Full	625 - 640
DDR-CJ, -SJ; Red (AS)	Full	620 - 630
DDR-TJ; Red (TS)	Full	620 - 635
DDA; Amber	Full	610 - 621
	W	610 - 615
	X	615 - 621
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
DDG; Green	Full	564.5 - 576.5
	W	564.5 - 567.5
	X	567.5 - 570.5
	Y	570.5 - 573.5
	Z	573.5 - 576.5
DDP; Pure Green	Full	552.5 - 564.5
	W	552.5 - 555.5
	X	555.5 - 558.5
	Y	558.5 - 561.5
	Z	561.5 - 564.5

Luminous Intensity Group at Tj=25°C

Brightness Group	Luminous Intensity <i>Appx. 1.1</i> IV (mcd)
L1	11.2...14.0
L2	14.0...18.0
M1	18.0...22.4
M2	22.4...28.5
N1	28.5...35.5
N2	35.5...45.0
P1	45.0...56.0
P2	56.0...71.5
Q1	71.5...90.0
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

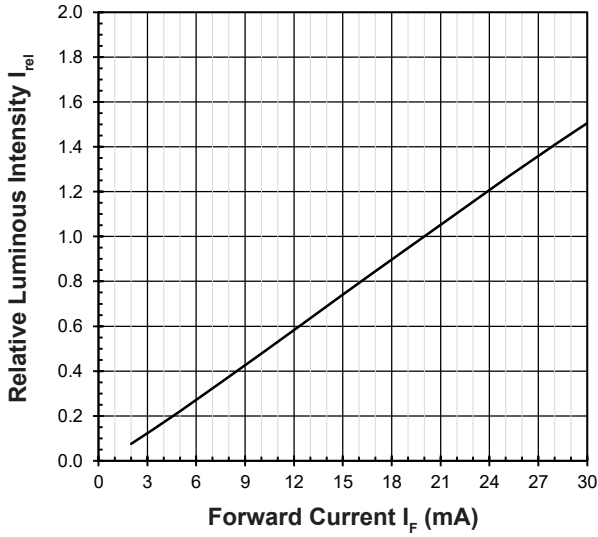
Vf Binning (Optional) at Tj= 25°C

Vf Bin @ 20mA	Forward Voltage (V) <i>Appx. 3.1</i>
01	1.55 ... 1.85
02	1.85 ... 2.15
03	2.15 ... 2.45
04	2.45 ... 2.75

Please consult sales & marketing for special part number to incorporate Vf binning.

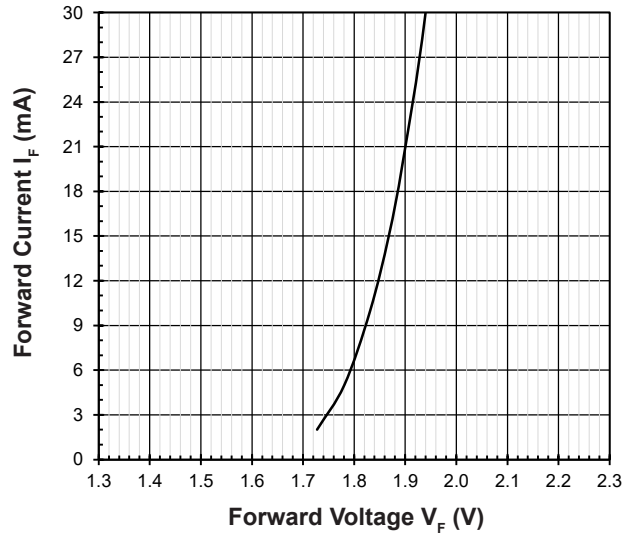
Relative Luminous Intensity Vs Forward Current

$I_v/I_v(20mA) = f(I_F); T_j = 25^\circ C$



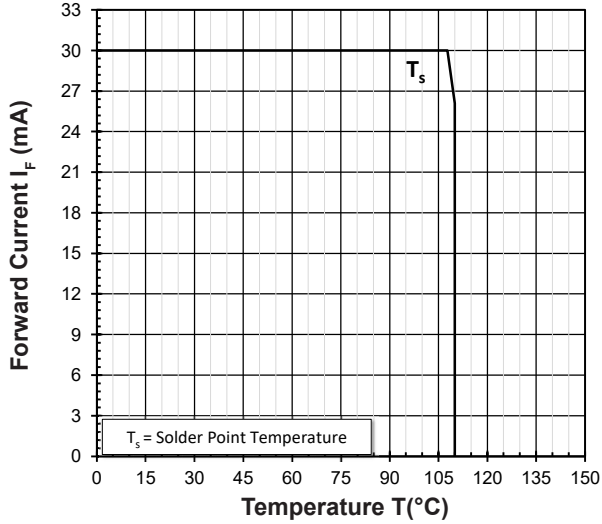
Forward Current Vs Forward Voltage

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



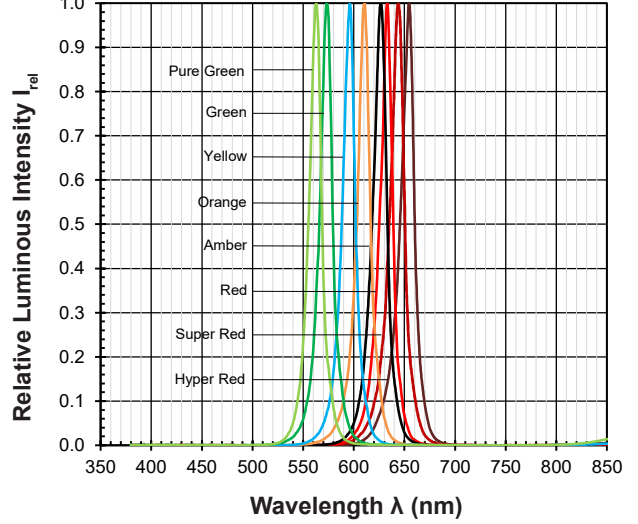
Maximum Current Vs Temperature

$I_F = f(T)$



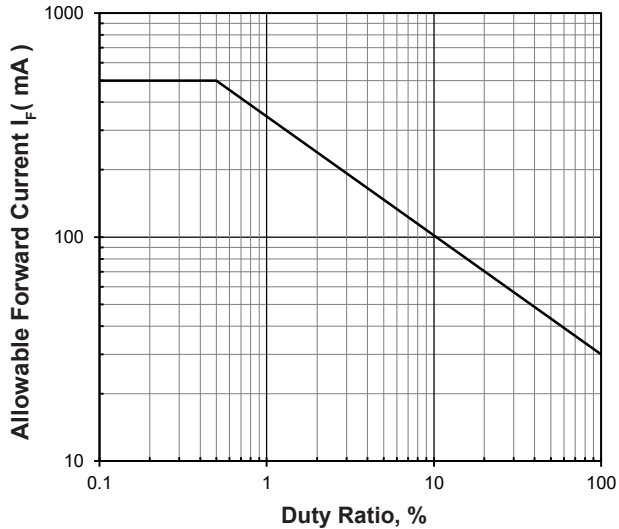
Relative Spectral Emission

$I_{rel} = f(\lambda); T_j = 25^\circ C; I_F = 20mA$

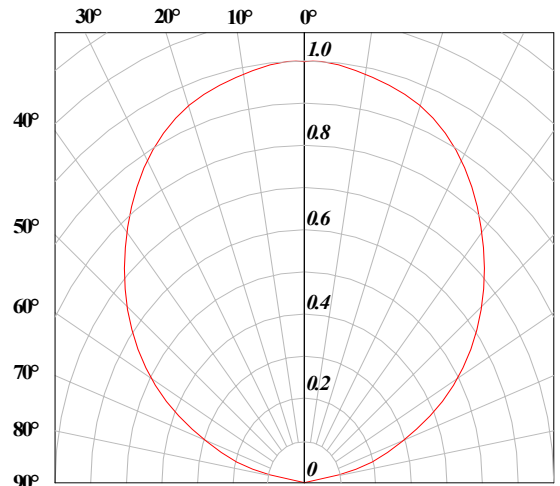


Allowable Forward Current Vs Duty Ratio

($T_s = 55^\circ C; t_p = 10\mu s$)

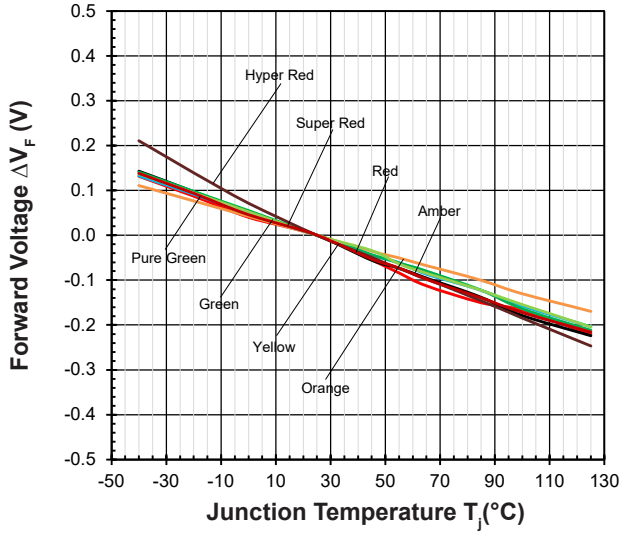


Radiation Pattern



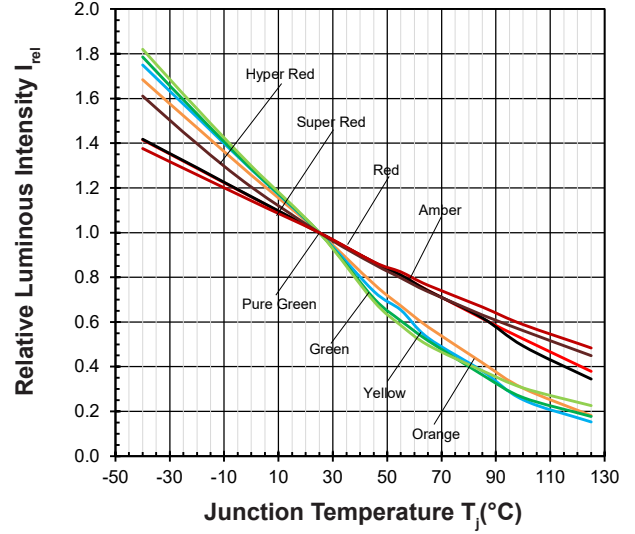
Forward Voltage Vs Junction Temperature

$$\Delta V_F = V_F - V_F(25^\circ\text{C}) = f(T_j); I_F = 20\text{mA}$$



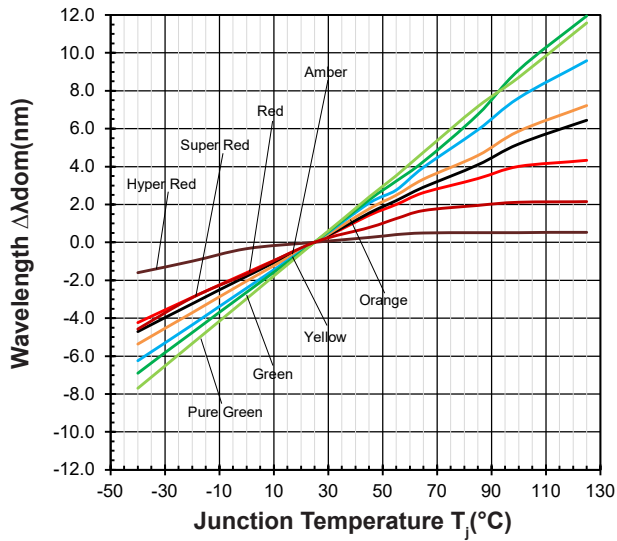
Relative Luminous Intensity Vs Junction Temperature

$$I_V/I_V(25^\circ\text{C}) = f(T_j); I_F = 20\text{mA}$$

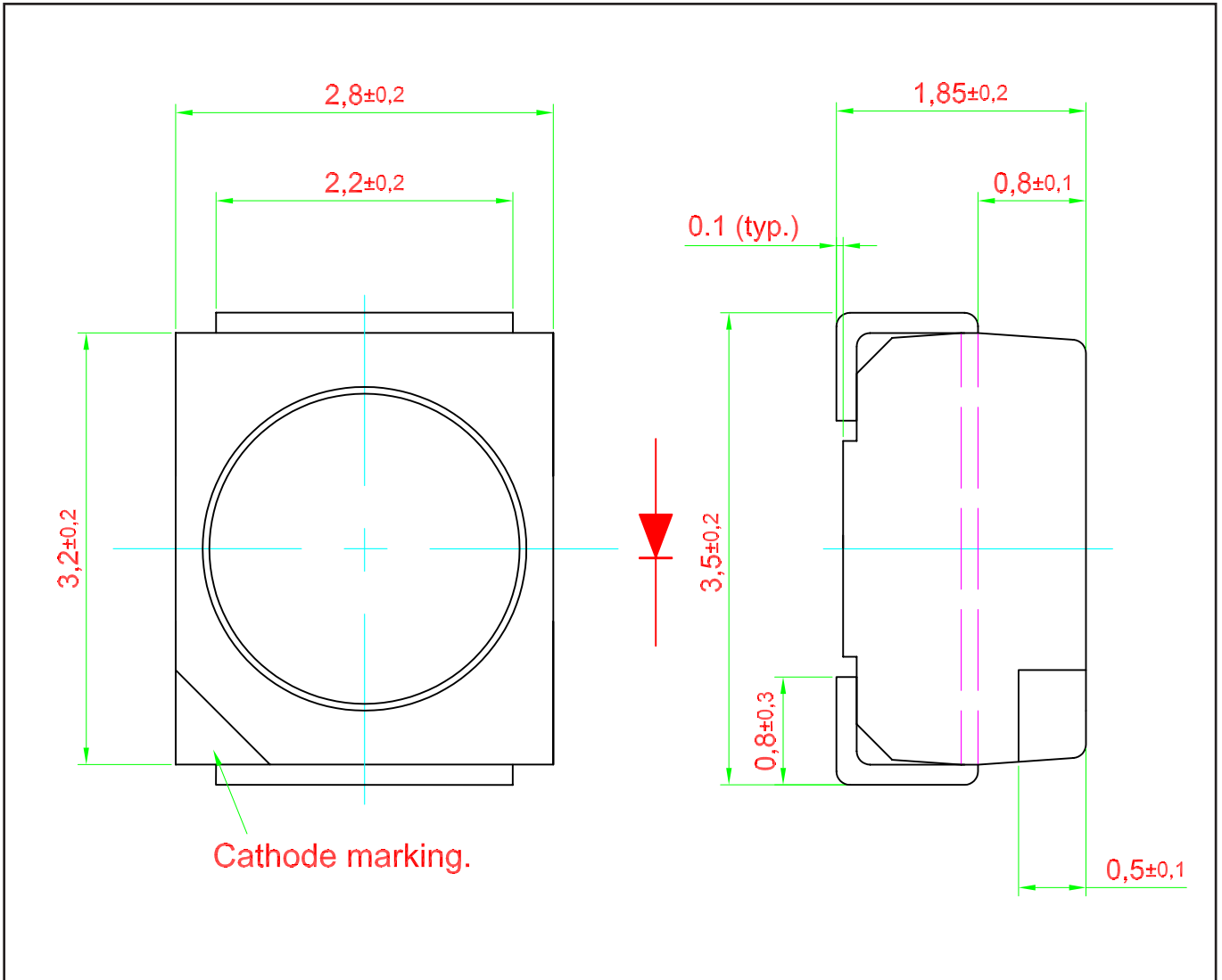


Wavelength Vs Junction Temperature

$$\Delta \lambda_{dom} = \lambda_{dom} - \lambda_{dom}(25^\circ\text{C}) = f(T_j); I_F = 20\text{mA}$$



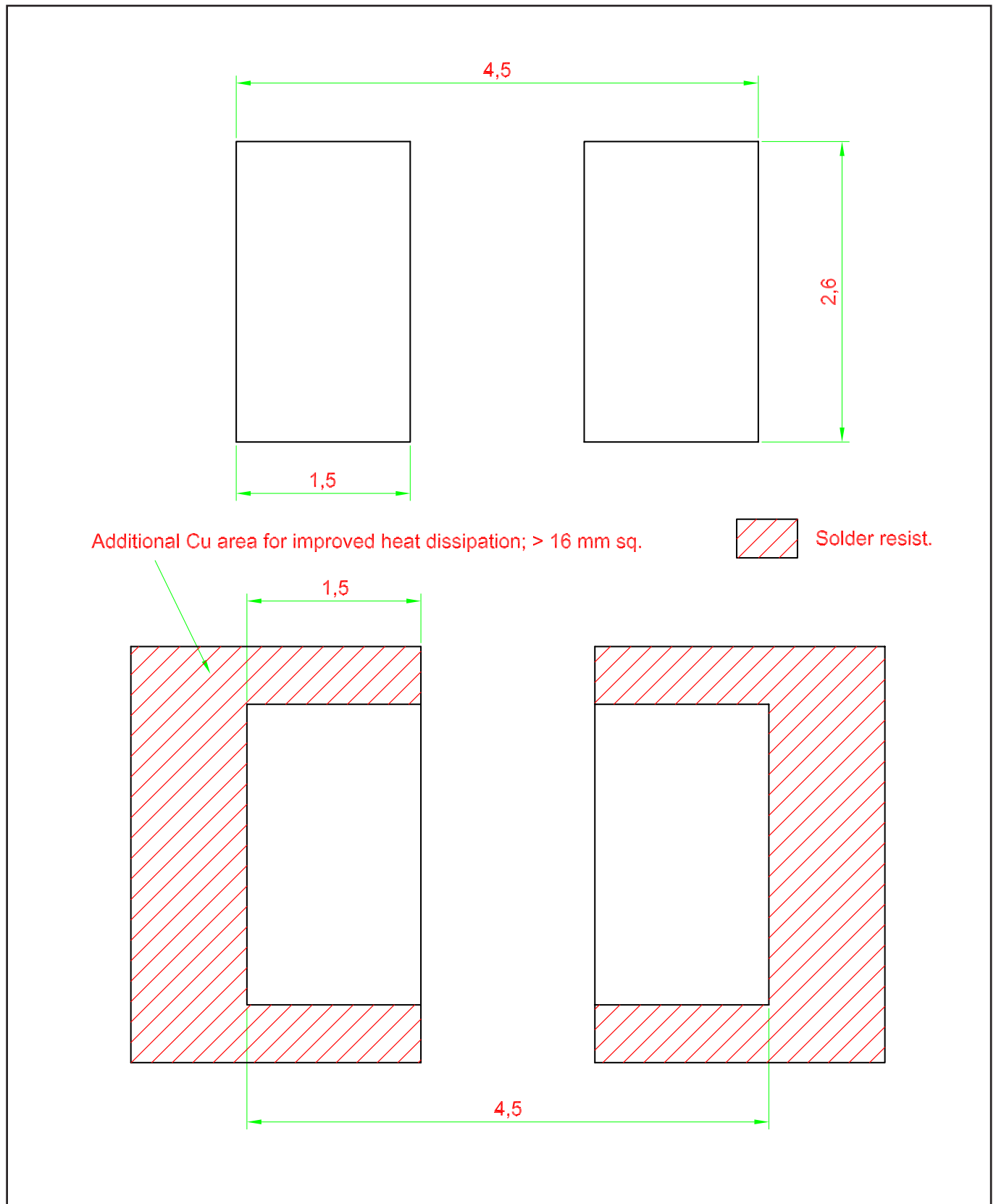
DomiLED • AllnGaP : DDx-xJS Package Outlines



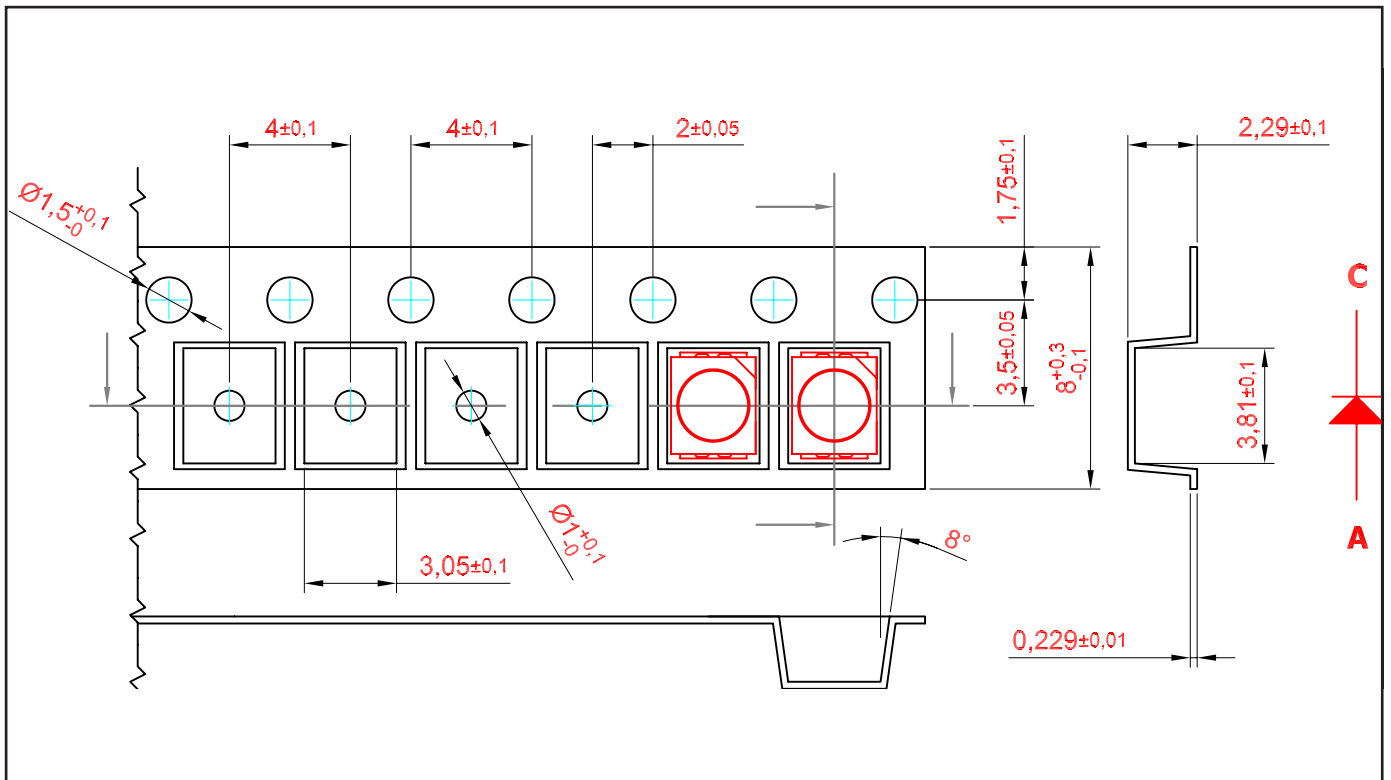
Material

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

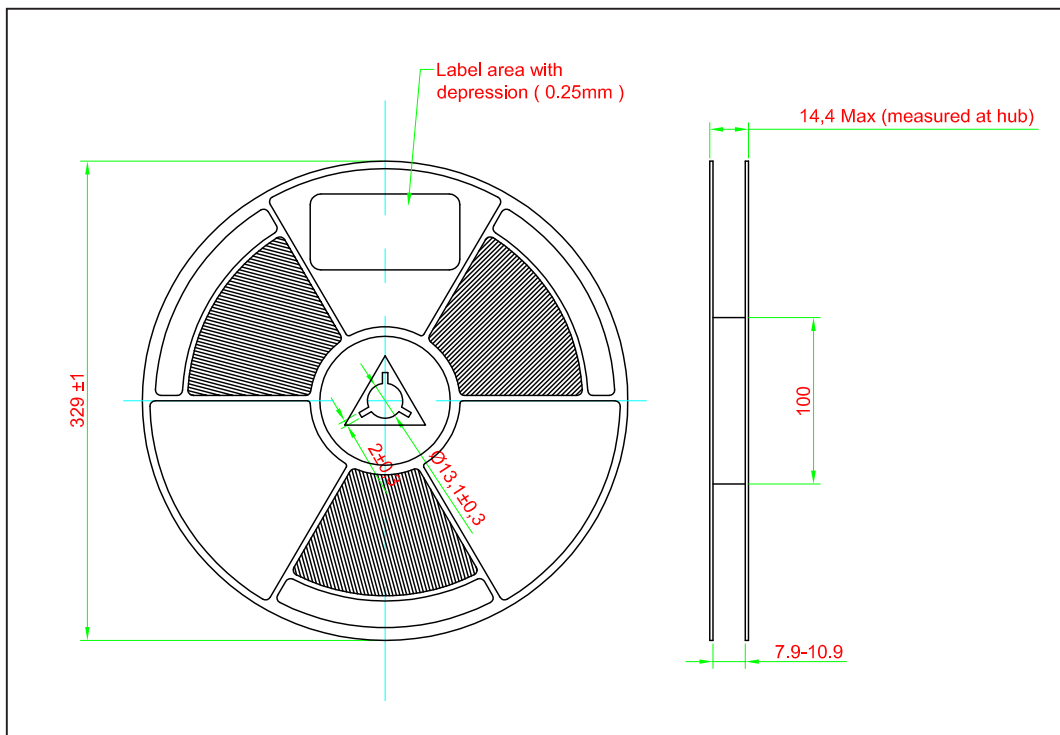
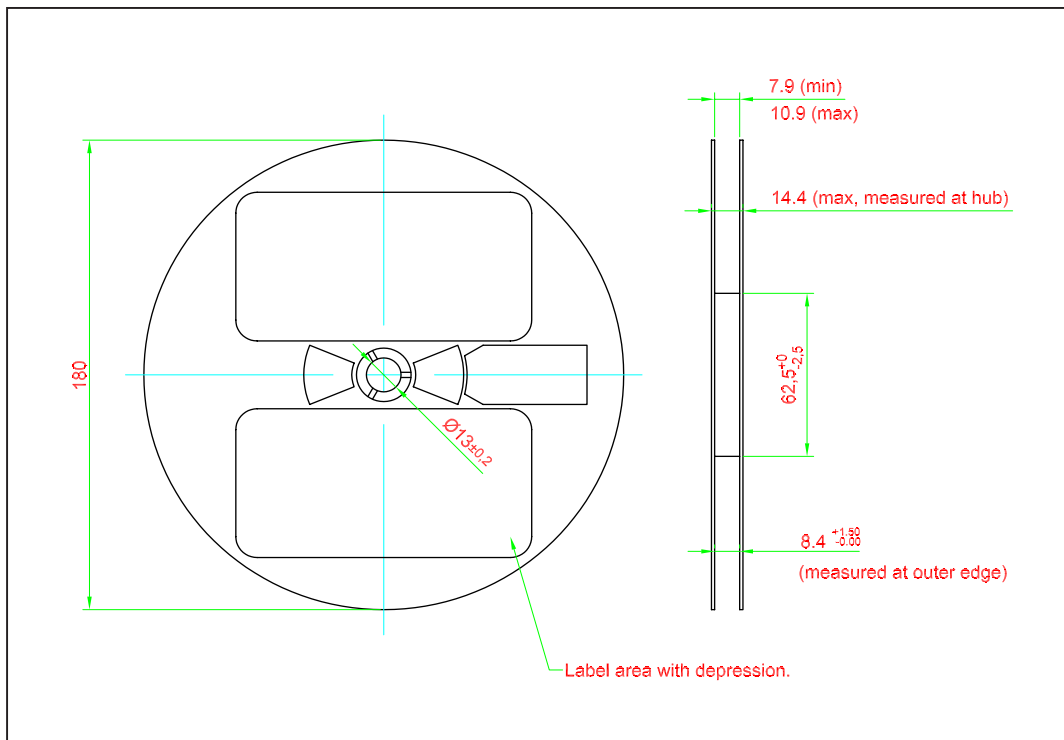
Recommended Solder Pad



Taping and orientation

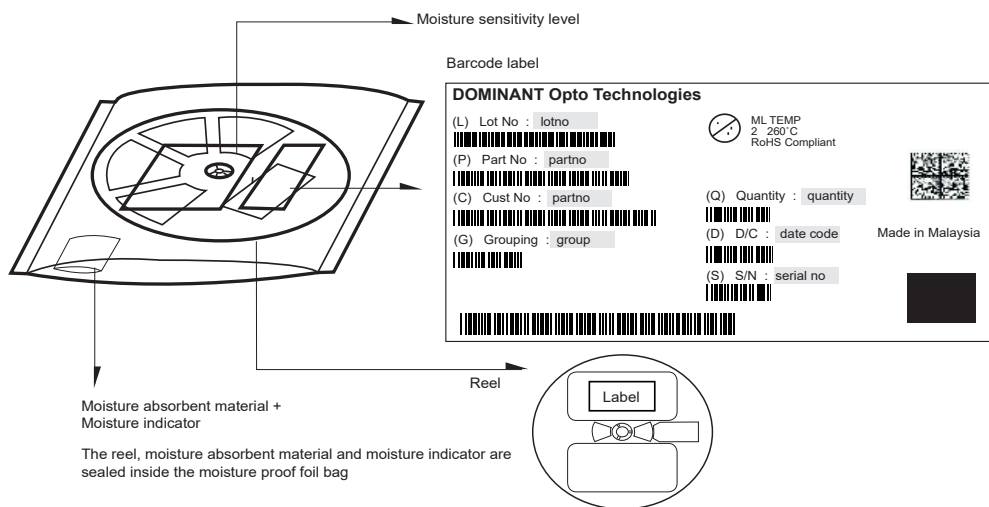


Packaging Specification

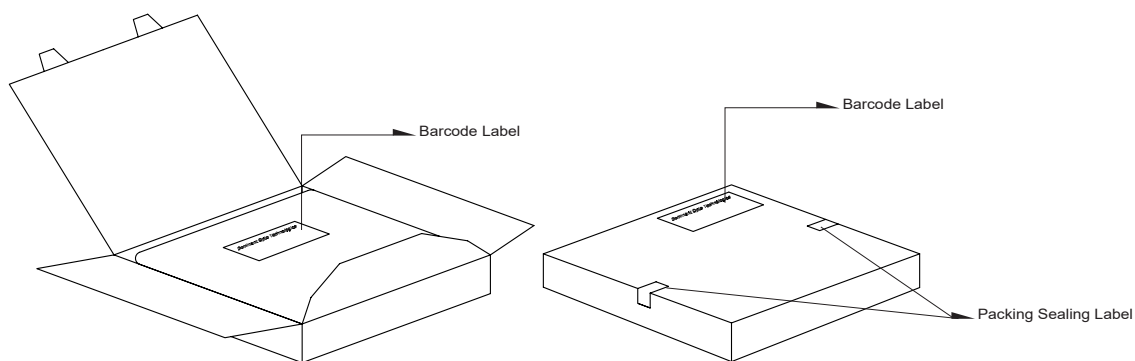


	Reel Diameter (mm)	Quantity (pcs)	Partno
Standard Packing	180	2000	DDx-xJS-xxx-x
Optional Packing	329	8000	DDx-xJS-xxx-x-8

Packaging Specification



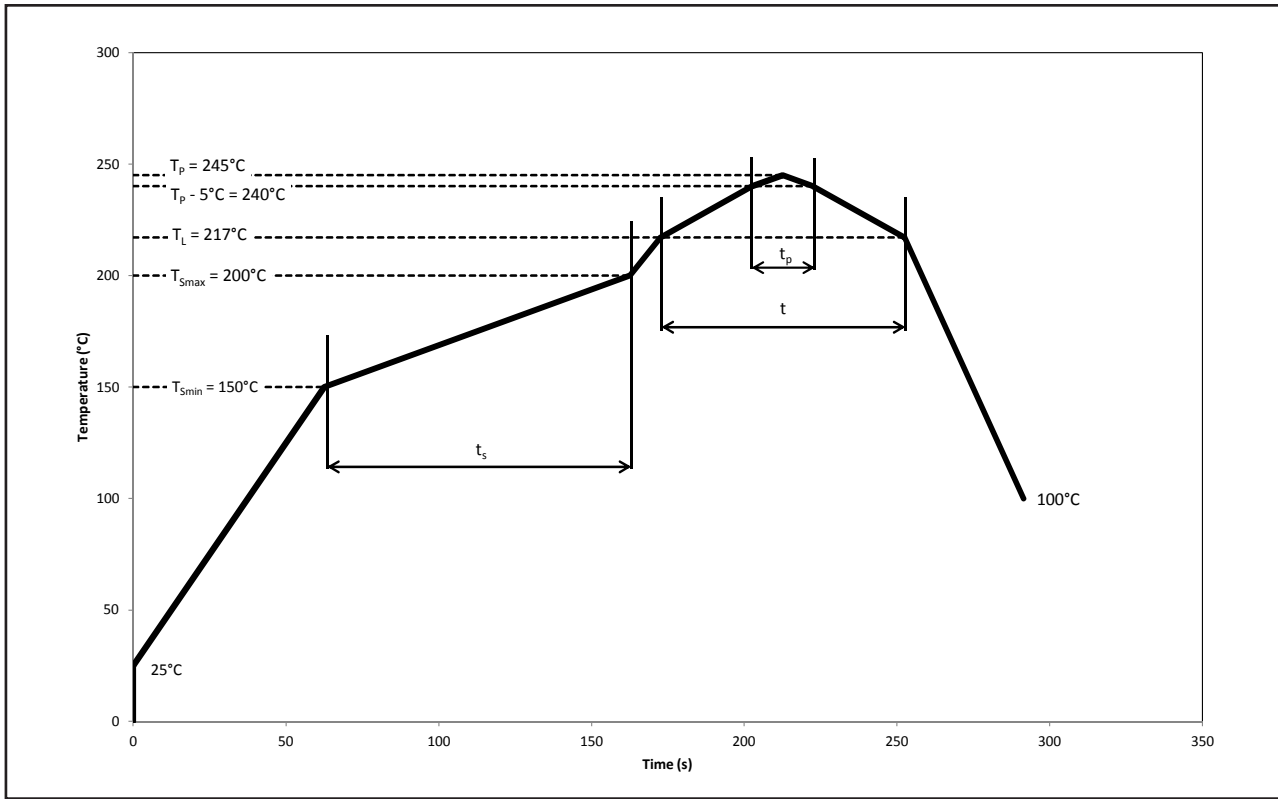
Quantity per bag (pcs)	Average 1pc DomiLED (gram)	1 completed bag (gram)
2000	0.034	240 ± 10
8000	0.034	750 ± 10



Reel Diameter (mm)	Packing Box Dimensions (mm)
180	210 x 210 x 16
329	345 x 345 x 16

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 $T_p - 5^\circ\text{C}$	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 $\pm 8\%$ and an expanded uncertainty of $\pm 11\%$ (according to GUM with a coverage factor of $k=3$).
- 1.2 Luminous flux is measured at current pulse 25 ms(typ) with an internal reproducibility of $\pm 8\%$ and an expanded uncertainty of $\pm 11\%$ (according to GUM with a coverage factor of $k=3$).
- 1.3 Radiant intensity is measured at current pulse 25 ms(typ) with an internal reproducibility of $\pm 8\%$ and an expanded uncertainty of $\pm 11\%$ (according to GUM with a coverage factor of $k=3$).
- 1.4 Radiant flux is measured at current pulse 25 ms(typ) 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 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 $\pm 0.5\text{nm}$ 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 when a current pulse of 8 ms(typ) 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) **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 specific 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
-	Update company name	31 May 2010
-	Add Vf min value	06 Aug 2010
2	Add new partno: DDP-CJS-LM2-1	30 Sep 2010
7	Update Relative Luminous Intensity Vs Forward Current	25 Nov 2011
4	Update Characteristics	18 Jun 2012
2	Add new partno: DDY-CJS-QR2-1 Not for new design: DDR-TJS-TU2-1, and DDY-TJS-TU2-1	10 Dec 2012
2	Add new partno: DDS-CJS-PQ2-1	03 Jan 2013
1, 3	Add Features Update packaging specification	16 Oct 2015
1	Update Product Photo	29 Apr 2016
12, 13, 14, 16	Update Packaging Specification Add Appendix	09 Apr 2019
1, 2, 4, 7, 8, 14	Update from AEC-Q101 to AEC-Q102 Add Features Not for New Design: DDP-SJS-LM2-1, DDP-SJS-MN2-1 Update Operating and Storage Temperature Add Thermal Resistance Update Graph Update Recommended Pb-free Soldering Profile	20 Apr 2022

NOTE

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DOMINANT Opto Technologies reserves the right to make changes to any products in order to improve reliability, function or design.

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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, an IATF 16949 and ISO 14001 certified company, can be found under <http://www.dominant-semi.com>.

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